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KEY TO DATES AND PAGES

THE following table, giving a key to the dates of issue and the page numbers of the BRITISH MEDICAL JOURNAL and SUPPLEMENT in the second volume for 1934, may prove convenient to readers in search of a reference.

Serial No.	Date of Issue	Journal Pages	Supplement Pages
3835	July 7th	1 - 48	1 - 24
3836	" 14th	49 - 98	25 - 36
3837	" 21st	99 - 152	37 - 44
3838	" 28th	153 - 192	45 - 84
3839	Aug. 4th	193 - 240	85 - 112
3840	" 11th	241 - 290	113 - 124
3841	" 18th	291 - 338	125 - 148
3842	" 25th	339 - 380	149 - 156
3843	Sept. 1st	381 - 454	—
3844	" 8th	455 - 498	157 - 164
3845	" 15th	499 - 538	165 - 168
3846	" 22nd	539 - 578	169 - 172
3847	" 29th	579 - 618	173 - 180
3848	Oct. 6th	619 - 664	181 - 192
3849	" 13th	665 - 706	193 - 204
3850	" 20th	707 - 754	205 - 212
3851	" 27th	755 - 796	213 - 228
3852	Nov. 3rd	797 - 844	229 - 236
3853	" 10th	845 - 890	237 - 248
3854	" 17th	891 - 928	249 - 260
3855	" 24th	929 - 976	261 - 268
3856	Dec. 1st	977 - 1026	269 - 280
3857	" 8th	1027 - 1086	281 - 292
3858	" 15th	1087 - 1136	293 - 300
3859	" 22nd	1137 - 1186	301 - 304
3860	" 29th	1187 - 1228	305 - 308

INDEX TO VOLUME II FOR 1934

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Light, Roentgen, Radium, X Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia, and Vision; Pyelography and Urography; Lunacy and Mental Diseases; Sunlight and Ultra-violet; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Annotations," "Correspondence," "Leading Articles," "Reviews," etc. Original Articles are indicated by the letter (O). For Obituary Notices see under Names of Individuals.

A.

- ABDERHALDEN, Emil, elected a corresponding foreign member of the Vienna Academy of Sciences, 337
- Abdominal cyst. See Cyst
- Abdominal pregnancy. See Pregnancy
- ABERCROMBIE, R. H.: The swab in diphtheria diagnosis, 375
- Aberdeen. See Scotland
- ABERLE, S. B. D.: Vitamin A and nerve lesions, 1053
- Abortion, contagious, discussion on, 483
- Abortion, contagious, and undulant fever in Northumberland (A. L. Messer), 856 (O)
- ABRAHAM, Adolphe. Publicity, 699
- ABRAHAMSON, Leonard: Adhesions in artificial pneumothorax, 790
- ABRAHI, Professor: Rheumatoid arthritis, 127
- Abscess, brain, review of book on, 772
- Abscess, epidural spinal, case of (J. Mintzman), 593 (O)
- Abscess of frontal lobe, extradermal, Jacksonian attacks in connexion with (Douglas T. Richardson), 1101
- Abscess of liver, non-tropical solitary (A. H. Holmes), 991
- Abscess, peritonissilar, haemorrhage from, 284, 371, 491, 535, 612, 657
- ACADEMY, ROYAL, OF MEDICINE IN IRELAND
- Election of Fellows, 607
- Section of Medicine.—Adhesions in artificial pneumothorax, 790—Gee's disease, 918, 1026—A correction, 1026
- Section of Obstetrics and Gynaecology.—Some personal prejudices, 917—Operation masks, 1015—Cervical myoma, 1013
- Section of Pathology.—Growth of *B. coli* in water, 919
- Section of Surgery.—Acute cholecystitis, 879—The intratracheal method of anaesthesia, 1217
- Accidents, road, 96, 215, 887—Doctors summoned in, 96—Emergency treatment for, 215—Figures, 887—Leading article on, 215—Motor, in the United States, 753—Parliamentary notes on, 96, 887, 1084—Pedal cyclists and, 95—In mines
- 218, 665 (O)
- m. See Rheumatoid arthritis
- Effects (elstad), 104
- measuring the intensity and absorption of Roentgen rays (Dr. Thoreaus), 906
- ADAM, James: Asthma in children, 330—Alkali reserve in asthma, 531—Aetiology and treatment of asthma, 1070
- ADAMS, A. Wilfrid: Pelvic cellulitis of unknown origin, 17—Use of fascia lata sutures, 922
- ADAMS, E. W.: Recent Researches on the Nature and Therapy of Peritonitis Anemia, 796
- Adaptor, electrical mains, for diagnostic set, 1048
- Addendum, 152
- ADDISON, Rt. Hon. Christopher: Four and a Half Years: A Personal Diary from June, 1914, to January, 1919, rev., 209
- ADDISON, O. L., appointed consulting surgeon to the Ministry of Health, 1053
- (O)
- Addison's disease, treatment of (R. Benard and G. Thoyer), 637
- Additional Imports Duties Orders (parliamentary note), 925
- Adenoid and tonsil operations, results of (B. Elizabeth Nesbitt), 509 (O)
- Adenoid. See also Tonsil
- Adenomyoma of recto-vaginal septum (J. E. Stacey), 1122
- Adenotoma, La Force, modified, 119
- ADERS, George, obituary notice of, 855
- ADLER, Endomerial hyperplasia, 818
- ADLER, Alfred (and F. G. CROOK-HANK): Individual Psychology and Sexual Difficulties, rev., 724
- Adoption of Children (Workmen's Compensation) Act, 147

- Adrenaline, after-effects of continued doses of, 538
- Adrenaline, biological properties of (A. C. Marie), 910
- Adrenaline and cerebral haemorrhage, 578
- Adrenaline in haemophysis, intratracheal injections of, 1123
- ADRIAN, E. D.: Awarded a Royal Medal of the Royal Society, 911—Discoverer of cortical rhythm, 1129
- ANSON: The endocrine factor in essential hypertension, 261
- Advancement and tendon lengthening (W. B. Inglis Pollock), 269
- Aerophagy with meteorism, 843, 1136
- Africa, East: East African Medical Service, information concerning, 447
- Africa, South, Union of: Bantus, health of, recommendations of Departmental Committee, 128—Female nurse aids, 129—Medical aids, 128—Medical and nursing services in the native territories, 128, 612—Public health in, 479
- Africa, West: West African Medical Service, information concerning, 447
- Agranulocytic angina (A. Daly Briscoe), 61 (O), 185—Correspondence on, 139, 185
- Agranulocytic angina in a diphtheria carrier (A. Ford Tredre), 902
- Agranulocytosis (F. W. Madison and T. L. Squire), 29
- Agriculture, control of poisons in (parliamentary note), 887
- AINSWORTH, Norman J.: Residual infection of the jaws, 854
- AINSWORTH, Major-General R. B., appointed Officer of the Order of St. John of Jerusalem, 24
- AINSWORTH-DAVIS, J. C.: Chronic cervicitis, 935 (O)—Diathermy cutting current in cervicitis, 316, 935
- Air, compressed, rupture of the sigmoid from (H. J. Nightingale), 860
- Aircraft, control of infection by, in Sudan (parliamentary note), 1134
- Air Force, Royal, information concerning the medical branch of the, 441—Appointments, 453—Annual report on the health of for 1933, 1110—See also Supplement Index
- Air, transport of invalids by, 533
- Air warfare, disease carriers in (parliamentary note), 86
- AITKEN, Charles J. Hill: Labour and heart disease, 578—The G.P.'s nightmare, 756—Labelling patients, 1086
- AITKEN, McCrae: Pott's paraplegia, 1012
- AITKEN, Robert: Rodent ulcer in the young, 1044
- Alcoholic cirrhosis. See Cirrhosis
- ALEXANDER, Browning: Seaside resorts for respiratory disease, 31
- ALEXANDER, G. F.: Ocular Dioptrics and Lenses, rev., 258
- Alkali reserve in asthma, 531, 611, 836
- Alkaline treatment of coryza, 1222
- ALLEN, Bernard M.: Sir Robert Morant. A Great Public Servant, rev., 1102
- ALLEN, H. W.: Headache following lumbar puncture, 549 (O)
- Allergic factors in rhinorrhoea and nasal catarrh (Theodore Juss), 557 (O)
- Allergic state (O. C. W. Frausnitz), 960
- Allergy, metabolism, and the autonomic nervous system (C. Paget Lapage), 935 (O)—Correspondence on, 1035
- Allergy, review of books on, 812, 1047, 1104
- ALLISON, Andrew (and others): Election to General Medical Council, 83—Representation of Scotland, 820
- ALLISON, P. R.: After-treatment of empyema, 831
- ALLSOPP, C. B. (and F. TWYMAN): The Practice of Medicine, 11th Edition, 11th Hilger
- ALP
- the War: Experience of a Civilian in Uniform, rev., 356
- ALPS, English children in the, 493
- Ambulance services (parliamentary note), 96
- Ambulances for maternity work, 955
- AMBERGER, Dr., appointed to the chair of clinical medicine at Chicago, 575
- AMETILLE, La Granville froide, 815
- Amidol poisoning, 617
- Amnesia, chloroform-hyoscine, in labour (James Clark), 483 (O)—See also Anaesthesia, chloroform, and Labour
- Anaemia, aspects of (G. R. Minot), 1067
- Anaemia, cardiac hypertrophy in, 216

- Anaemia and non-specific colitis (D. C. Hare), 162 (O)
- Anaemia, nutritional, 122, 526
- Anaemia, pernicious (J. M. O'Donovan), 1071
- Anaemia, pernicious, blood films in, convenient method of examining (G. H. Booth), 17
- Anaemia, pernicious, nature and treatment of (leading article), 726
- Anaemia, splenic, pathological basis of (J. McMichael), 225
- Anaemia, yesterday and to-day (Francis J. O'Donnell), 815
- Anaemias of pregnancy (G. D. Kersley and D. A. Mitchell), 720 (O)
- Anaemias and their treatment (Leslie Wills), 830—Discussion, 830
- Anaesthesia, chloroform, in maternity cases, 1222
- Anaesthesia, chloroform-hyoscine, in labour (James Clark), 483 (O). See also Labour
- Anaesthesia, closed, with CO₂ absorption (W. B. Primrose), 223, 339 (O)—Discussion, 225—Leading article, 360—Correspondence on, 459
- Anaesthesia, cocaine, first operation under, commemoration of, 663
- Anaesthesia, cyclopropane (W. Stanley Sykes), 901 (O)
- Anaesthesia, deaths following (parliamentary note), 935
- Anaesthesia, evipan, 40, 141, 201, 224, 235, 312—(H. J. A. Simmons), 224—Discussion, 22—Correspondence on, 235, 322, 531, 656, 700, 706—On a full stomach, 656, 700. See also Sodium evipan
- Anaesthesia, evipan, in ophthalmic surgery (T. Keith Lyle and F. G. Fenton), 589 (O)
- Anaesthesia, intratracheal (R. W. Shaw), 1217
- Anaesthesia in maternity cases, 1015, 1123, 1222
- Anaesthesia, nitrous oxide and air, in the midwifery of general and hospital practice (John Elam), 1195 (O)
- Anaesthesia, personal factors influencing (H. P. Crampston), 877
- Anaesthesia, review of books on, 163, 553
- Anaesthesia, splicain (J. C. A. Norman), 271
- Anaesthetic explosions from static discharge, 666
- Anaesthetic, local, for nasal work, 380
- Anaesthetic shield for use in mastoid operations, 518
- Anaesthetic nasal drops, 1202
- Anatomy, review of books on, 18, 118, 861, 992
- ANDERSON, A. Greig: Organic and functional nervous disorders, 257
- ANDERSON, J. Barcroft: Prisms after circumcision, 1025
- ANDERSON, J. H.: Achlorhydria, 218
- ANDERSEN, A. T.: Bilateral rupture of the tendon of extensor pollicis longus, 515
- ANDREWS, C. H.: The mouse and influenza virus, 817
- ANDROSS, Mary (and Mary MacKIBBIN): Cheap Diets representing a Week's Meals, rev., 20
- Anerysion, subclavian (left) and cervical rib (T. G. Quinn and George Davison), 553 (O)
- "Angel of Death," 885
- ANGELUCCI, Arnaldo, death of, 335
- Angina, agranulocytic (A. Daly Briscoe), 61 (O), 185—Correspondence on, 139, 185
- Angina, agranulocytic, in a diphtheria carrier (H. Ford Tredre), 902
- Angina pectoris, total thyroidectomy in treatment of (O. Brenner, Hugh Donovan, and E. L. S. Murray), 924 (O)
- Angina, tobacco, 922
- Animal behaviour, study of, 523
- Animal Diseases Research Association: Report, 180
- Animal life, study of, 361, 523
- Animals, experiments on (parliamentary note), 183, 237
- Annotations:
- Adrenaline, biological properties of, 910
- Agranulocytosis, 29
- Air Force, Royal, health of, 1110
- Anaemia, nutritional, 122
- Animal behaviour, study of, 523
- Animal life, the study of, 361
- Annual Representative Meeting, 174
- Apothecaries' Hall, reception at, 1200
- Arterial hypertension, aetiology of, 127
- Auricular fibrillation and flutter of unknown aetiology, 950
- Australian Cancer Conference, 511
- Bacteriophage therapy, 1117
- Barbiturate poisoning in France, 763
- Becontree, problems of, 1207
- Bibliography, the A B C of, 621

Annotations (continued):

- Bilharzia disease in England, 729
 Biochemistry and nutrition, 125
 Biography in medical history, 477
 Blind, welfare of the, 517
 Blood count, normal, variations in the, 857
 Blood vessels, superficial ocular, function of the, 362
 Book of Bournemouth, 174
 Brackenbury, Sir Henry, 214
 British Journal of Tuberculosis, 177
 Budget, next year's, 1153
 Cancer, International Union for Combating, 1208
 Cancer, new diagnostic test for, 176
 Cancer research, a mare's nest in, 1156
 Carbon dioxide for the newborn, 728
 Cardiac hypertrophy in anaemia, 216
 Cerebral cortex and gastro-intestinal motility, 646
 Cheese-paring at Geneva, 602
 Chest injuries and pulmonary tuberculosis, 689
 Child guidance in London, 868
 Convulsions, infantile, 522
 Coronary arteries in rheumatic fever, 561
 Corpus luteum, formation of the, 1056

178

the, 563

Dental surgeon's place in a general hospital, 562

1, 175

476

Diphtheria immunization in Leningrad, 1003
 Diphtheria and scarlet fever, world prevalence of, 123

Dixon Memorial Lecture, 863

"Doctor from Padua," 909

Drug addiction, problems of, 690

Drugs, dangerous, traffic in in Egypt, 28—

Control of traffic in, 478

Drugs, new, for old, 646

Fee-splitting in Canada, 262

Fight against disease, 818

Five days week, 1109

Food poisoning by ducks' eggs, 1002

Fractures of the neck of the femur, 123

Fractures of the newborn, treatment of, 363

Gastric ulcer, treatment of, 1077

General elections, 1935—Elections, 817,

800, 1045

Guy's Hospital, clinical research at, 690

Haemostasis, subcutaneous, in operations, 648

Heredity and tuberculosis, 1055

Hospital advertising, 1207

Hospital developments, English, 479

Hunterian museum, 263

Icterus gravis neonatorum, 73

Indexes, half-yearly, 74, 125

Industrial health research, 647

Influenza, 1205

Jackson, Chevalier, and endoscopy, 522

Lenses, patented, 1158

Leptospirosis, recent work on, 727

Let there be light, 729

Lewisham Hospital, 729

London County Council and the sterilization report, 73

Louping-ill in man, 261

Lung, human, intrinsic nervous mechanism of the, 865

Malaria in Trinidad and Tobago, 477

Manchester Medical Society, centenary of, 72

Maternal mortality, 908

Medical care, organized, 214

Medical centenarians, two, 691

Medical charity, an example of, 74

Annotations (continued):

- Oculist and optician in Europe, 312
 Old, new
 Pictorial art and the medical profession, 262
 Post-Graduate Medical School, British, 777
 Quantalpiets, the, 362
 Rabies virus, separation of, from brain tissue, 124
 cancer: League of
 Radiologists and hospitals, 645
 Radium workers, protection of, 952
 Red Cross and St. John, 524
 Remedies, new and non-official, 217
 Representative body relaxes, 175
 Rheumatism and the "acid child," 602
 Royal Society awards, 911
 Scarlet fever, period of isolation in, 215
 Seeing and Human Welfare, 729
 Semon Lecture, 866

477

Stomach and blood formations, 1208

Strangeways Research Laboratory, 1002

Surgical scholarship, 779

Swimming baths, 313

Syphilis tests with scant supply of serum, 953

Terminology, medical, international and national, 523

Toe-nail, ingrowing, 262

Tonsils and the rheumatic child, 953

Tuberculous rheumatism, 1108

Undernourishment and unemployment, 561

Undulant fever in Austria, 217

Unemployed, needs of the, 311

United States, the depression and health in the, 313

Water pollution, 1205

Announcements of forthcoming events, etc., 47, 59, 150, 191, 239, 289, 336, 379, 496, 537, 576, 616, 662, 701, 752, 795, 842, 888, 927, 974, 1023, 1034, 1135, 1185, 1226

Anopheles maculipennis, subspecies of (*L. W. Hackett*), 134

Ante-natal care, of? (John S. F. 194 (O), 338—(E. Buchan) 1991(O), 358

Ante-natal care and the maternal death rate: Discussion at the Royal Society of Medicine, 1009—Correspondence on, 1176

Ante-natal care and obstetric diplomas (leading article), 643

Ante-natal clinics (parliamentary note), 1225

Ante-natal and post-natal care, team work in: 985

Ante-natal work and reduced maternal mortality. See Mortality factors in reduction of

Anthrax (Mario Mazzucchi), 481

Anthrax in a slaughtered cow, 530

Antimalaria campaign in Rhododaphnia (*G. Serdaris*), 714. See also Malaria

Anti-noise Committee (parliamentary note), 925. See also Noise

Anti-plague serum, researches on, 733

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

Antis: 985

ARMSTRONG, S. R.: Report on the Dufferin and Ava Hospital, Belfast, 607

ARMSTRONG, T. F.: Poor Law medical officers' Association, 1934, 1935

Newcastle-upon-Tyne School of Medicine, 1831-1934, 686, 817

Aron, A. A new diagnostic test for cancer, 176, 1156

Arquivos de Medicina Legal e Identificação, August issue devoted to proceedings of the Congress of Identification, 814—Contents of July issue, 1202

Arterial embolism. See Embolism

Arterial hypertension. See Hypertension

Arteries, coronary, occlusion of (R. T. Grant), 224—Discussion, 224

Arteries, coronary, in rheumatic fever (H. T. Karsner and F. Hayless), 561

Arteries, thyroid, ligation of in toxic goitre, 181. See also Goitre

Artery, external iliac, and vein, ligation of in a

International Congress for Study of Chronic Rheumatism, 126

Arthritis, rheumatoid. See also Rheumatoid

Asbestosis, deaths from (parliamentary note), 974

Ashchheim-Zondek reaction in genital tuberculosis (J. St. George Wilson), 962

Ascorbic acid. See Vitamin C

Asch, E. Baylis: Removal of tattoo marks, 497

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

Asch, Hugh T.: Pyloric stenosis, 37

ASSOCIATION, BRITISH MEDICAL: SECTIONS:
Anaesthetics.—Summary of proceedings, 223.Dermatology.—Summary of proceedings, 321.
—Report of proceedings, 291, 541.

Medical Sociology.—Summary of proceedings, 323.—Report of proceedings, 350.

Medicine.—Summary of proceedings, 218, 264, 314.—Report of proceedings, 456, 665, 929.

Medicine, and
Public Health.—Summary of proceedings, 499, 619, 891, 1067.

Obstetrics and Gynaecology.—Summary of proceedings, 220, 266, 316.—Report of proceedings, 193, 380, 621, 760, 899, 935.—A correction, 380.

Ophthalmology.—Summary of proceedings, 227, 269.—Report of proceedings, 295, 809.

Orthopaedics.—Summary of proceedings, 270.
Report of proceedings, 669, 800, 983.

Oto-rhino-laryngology.—Summary of proceedings, 226, 271.—Report of proceedings, 158, 503, 544, 587.

Paediatrics.—Summary of proceedings, 221, 272.—Report of proceedings, 241, 539.

Pathology, Bacteriology, and Biochemistry.—Summary of proceedings, 224, 263, 318.—Report of proceedings, 579, 1187.

Public Health (including Tuberculosis).—Summary of proceedings, 220, 273.—Report of proceedings, 712, 1143.

Radiology and Electrotherapeutics.—Summary of proceedings, 225, 275, 319.—Report of proceedings, 160, 343, 460, 584, 1032.

Surgery.—Summary of proceedings, 219, 265, 315.—Report of proceedings, 755, 896, 1090, 1189, 1197.

Tropical Diseases.—Summary of proceedings, 320.—Report of proceedings, 244, 1192.

Association, British Orthopaedic: Annual meeting, 1011.—Pott's paraplegia, 1011.—Transport of cases with back injuries, 1012.—Congenital club-foot, 1012.—Fractures of the neck of the femur and intra-articular arthrodesis of the hip, 1012.—Movement of the lumbar spine and pregnancy, 1012.—Adolescent coxa vara, 1013.

Association, British Paediatric, Windermere (1934), 97.

Association, Canadian Medical: Health Insurance in Canada, 775.

Association of Certifying Factory Surgeons: Annual dinner, 1065.

Association of Clinical Pathologists: Dinner, 81.

Hôpitaux de Paris: Course in cardiology, 325.

Association, Dutch Urological: Thrombosis of the penis and urethral haemorrhage, 249.

Association, Edinburgh Women Citizens: Mental hospitals and institutions, 876.—Hospital services for Scotland, 917.

Association, Far Eastern, of Tropical Medicine: Nanking (1934), 83.

Association, Grenfell, of Great Britain and Ireland: Change of address, 48.

Association, Irish Medical: Annual meeting, 80.

Association, Irish Medical Schools' and Graduates': Annual dinner, 1066.

Association of (Special) Libraries and Information Bureaux: Conference, Oxford (1934), 191.—The general meeting of the London and Home Counties Branch, 1153.

Association, London, of the Medical Women's Federation: Sterilization of the unit, 135. See also Medical Women's Federation.

Association, Medical Officers of Schools: Acute streptococcal throat infections, 566.

Association, Medical Women's International: quinquennial congress, 568. See also Congress Association, Mental After Care: Appeal for funds, 1165.

Association, National Veterinary Medical: Annual congress, 328.—Eradication of bovine tuberculosis, 328.

Association of Preventive Paediatrics International, Lyons (1934), 370.

Association Professionnelle des Médecins: Oculist and optician in Europe, 312.

Association, Royal Sanitary of Scotland: Congress, 565. See also Congress Associations, Sick Berth Staff, Central Council of, formed, 19.

Association, South African Medical: Annual congress, Pretoria (1934), 913.

Association of Surgeons of Great Britain and Ireland: Intertec applications for a surgical scholarship, 57, 773.

Association, Surgical Instrument Manufacturers': Annual dinner, 825.

Association, Welsh National Memorial: Annual report, 824.

Asthma, aetiology and treatment of (Sir Humphry Rolleston), 1051.—Discussion, 1063.

Asthma, alkali reserve in, 531, 611, 836.

Asthma and bronchitis (chronic), 139, 231.

Asthma, cases of pulmonary tuberculosis in (Ernest M. Fenwick), 513 (O).

Asthma in childhood, 48, 192, 231, 350, 577.

Asthma, reflex, its pathology and treatment (H. H. Moll), 239 (O).

Asthma Research Council: Annual report, 1005.

Asthma, septum excision in, 1017.

Asthma, due to toxæmia, radiological study of (A. C. Jordan), 1115.

ATLEY-WESTON, B. A.: Motor backache and neuralgia, 834.

Asylum, Edinburgh Royal Blind: Annual meeting, 34.

Asylum, James Murray's Royal, Perth: Annual report, 279.

ATKIN, J. A., estate and bequests of, 1024.

ATKINS, Gerald B., estate and bequests of, 337.

ATKINSON, Donald T.: *External Diseases of the Eye*, rev., 355.ATKINSON, E. Miles: *Abscess of the Brain: Its Pathology, Diagnosis, and Treatment*, rev., 772.

Atlas, dislocation, inflammatory, of the (Duncan C. L. Fitzwilliams), 107 (O)—Correspondence on, 232.

Atmospheric pollution, conference on, 1052.

Atophan (parliamentary note), 887.

Atophan administration followed by subacute yellow atrophy of liver (Thomas N. Fraser), 1195 (O). See also Liver.

ATTLEE, W.: Acute streptococcal throat infections, 568.

AULAGNIER, R. (and M. PÉRU): *L'Eczéma du Nourrisson*, rev., 680.

Aural. See Ear.

Aural vertigo. See Vertigo.

Auricular fibrillation and flutter of unknown aetiology, 950.

AUSTEN, Major: Subspecies of *Anopheles maculipennis*, 134.

AUSTIN, Sir Herbert: Gift to the Birmingham General Hospital, 705.

Australia, cancer conference in, 911.

Austria, undulant fever in, 217.

Author's and Writer's Who's Who in 1934, rev., 553.

Autoclaving of gum-elastic catheters, 493.

Autotransfusion in grave emergency (M. W. Renton), 470. See also Blood transfusion.

B.

BABONNEX L. (and P. NORÉCOURT editors): *Traité de Médecine des Enfants*, Tomes IV and V, rev., 209.Baby Week Council, National.—Issues more pamphlets on diet: *The Diet of the Expectant Mother and Thoughts on Food and Feeding*, 131.

BACH, Francis: Rheumatoid arthritis, 127.

Bacillus Calmette Guérin vaccine, review of book on, 773.—Correspondence on, 791, 834, 885.

Bacillus coli, growth of in water (J. W. Bigger), 919.

Bacillus coli infection: aetiology and treatment (D. M. Lyon), 264, 456 (O)—Discussion, 264—

redispersing (Cuthbert).

BACILLUS, 456 (O).

Bacillus of tubercle, point of entry of, 137.

Back injuries, transport of cases of (T. P. McMurray), 1012.—Correspondence on, 1124.

Backache, motor, and neuralgia, 791, 834, 928, 1026.

Backache. See also Pain in back.

BACNESTER: Influenza, 1205.

Bacon, Roger, and thirteenth century medicine, 40.

Bacterial infections, antiseptics in control of (C. H. Brown), 318, 579 (O)—Discussion, 318.

Bacteriological warfare, 705.

Bacteriology, review of books on, 168, 355, 634, 1103.

Bacteriophage therapy, 1110.

Bad Homburg, new university institute for balneology and dietetics founded at, 1035.

Bad Nauheim post-graduate courses at, 95.

BADCOCK, J. H.: Residual infection of the jaws, 834.

BADGER, G. F.: Isolation period in scarlet fever, 215.

Bag, drainage, for permanent cystostomy, 945.

BAILEY, Hamilton: Treatment of ruptured spleen, 1051.

BAILEY, Malcolm: Autoclaving of gum-elastic catheters, 493.

BAIRD, Major-General George, obituary notice of, 146.

BAIRD, Dugald: Diathermy cutting current in cervicitis, 316.—Pylitis of pregnancy, 316.

BAKER, Lieut.-Col. George Henry, obituary notice of, 335.

BAKER, H. Searle: The cancer problem, 43.

BAKER, S. L.: Cholesterol and disease, 793.

BALFOUR, Margaret I.: Obstetrics in India, 1125.

BALLANTYNE, A. J.: Headaches, 223.

Balanological institute founded at Bad Homburg, 1035.

BAIRD, C. B.: Therapeutic malaria, with special reference to case of haemoglobinuria, 764 (O).

BANG, Professor: Contagious abortion, 433.

BANKOFF, G.: Preliminary lecture in toxicology, 656.

BANKS, A. G.: Treatment of arterial embolism, 219.

BANKS, H. S.—Isolation period in scarlet fever, 215.—Puerperal sepsis—serum treatment, 1121.

BANTING, Sir Frederick: The early story of insulin, 735.

Bantus, health needs of, and help for, 122.

Bar, calls to the, 975.

BARBER, Geoffrey: Triplets without tears, 152.

BARCROFT, Joseph: *Features in the Architecture of Physiological Function*, rev., 850.

BARFF, G. P.: Calcium lactate as a muscle tonic, 976.

BARGER, George, awarded the Hanbury gold medal of the Pharmaceutical Society, 705.

Barley water, lemon, 1048.

BARLING, Seymour: Pyloric stenosis, 136.

BARLOW, Sir Thomas—Royal Medical Benevolent Fund: Christmas gifts, 655, 1183.

BARNARD, E., appointed director of food investigation in the Cambridge Research Department, 150.

BARNETT, Burgess: Snake venom for haemophilia, 867.—Treatment of epilepsy by snake venom, 1073.

BARNITT, H. Norman: Appreciation of Charles Heath, 235.

BARNLEY, A.: Sodium evipan anaesthesia, 323.

BARRETT, Lady: Ante-natal care and maternal mortality, 1011.

BARRY, D. T.: Barbiturate poisoning, 140.

Bassini's operation, review of book on, 555.

Basutoland, medical work in, 572.

Bathing pools and deafness (A. Tumarkin), 357.

Bathing pools and diptheria (parliamentary note), 233.

Baths, chlorinating outfit for (chlorotex outfit), 1048.

Baths, mud, at Southend-on-Sea, 695.

Baths, pithead, in Fife, 485.

Baths, swimming, 313.

BATTEN, Dr.: Treatment of genito-urinary diseases, 226.

BATTEN, G. B.: Radiology and the general practitioner, 275.—Radiology of the stomach and duodenum, 319.

BATTEN, Lindsey W.: The general practitioner, the schoolmaster, and the specialist, 233.

Battersea factory's fumes (parliamentary note), 1225.

Battersea power station (parliamentary note), 1225.

BAUER, J.: The first parathyroidectomy, 216.

BAUER, J.: Radiology and the general practitioner, 275.

BAUER, Andrew, obituary notice of, 1162.

BAYLESS, F.: The coronary arteries in rheumatic fever, 561.

BAYNE-JONES, Stanhope (and Hans ZINSSER): *A Textbook of Bacteriology. With a Section Pathogenic Protozoa*, seventh edition, rev., 1103.

BAYNES, H. G.: Science and religion, 1185.

BEATTIE, John: Report on the Hunterian Museum, 263.

BEATTIE, J. M., title of Emeritus Professor of bacteriology conferred on, 924.

BEATTY, J.: Treatment of lupus vulgaris, 322.

BEAUMONT, Mr.: Atmospheric pollution, 1052.

BECKERT, J.: Sodium evipan, 221.

Beckers, problems of, 1267.

Bed for postural drainage of lungs, 254.

Bed-bug. See Bug.

BEDFORD, Evan: Prognosis in coronary occlusion, 223.—The thyrotoxic heart, 1172.

BEDRINE: Thoracic cancer, 1052.

DEEPHAM, Henry William, obituary notice of, 659.

Beef production in the United Kingdom (parliamentary note), 159.

BEER, W. A.: Separation of rabies virus from brain tissue, 124.

BEECHES, Henry, Mary Kingsley medal presented to, 216.

BEER, S. T.: A nutritional investigation of school children, 733.

Behaviour, animal, study of, 523.

Belgium, 471.

Belgium, 471.

Belgium, 471.

Belgium, 471.

Belgium, 471.

Belgium, 471.

Belgium, 471.

Belgium, 471.

- BENGEY, David H.: Benpey's Manual of Deter-
- B
- B
- BERNARD, Léon (and Roger EVEN): Thérapeutique Hydrique Climatologique de la Tuberculose.
- BEST, Benjamin : Circumcision clip, 1104
BEST, W. H.: Encephalitis, 222
BERT, W. R.: Young's rule, 152
Betting and Lotteries Bill, 48-95, 183, 886, 925, 973
973—No lotteries for British hospitals, 45—No Christmas draws for hospitals, 925—Royal Assent to, 973
BEVAN-BROWN, Frederic Vivian, obituary notice of, 748
BEVERIDGE, C. E. G., receives permission to wear the insignia of the Order of the Nile, 889
BEZANCON, Fernand, nominated general secretary of the International Union Against Tuberculosis, 975
BEZANCON, Professor: Rheumatoid arthritis, 126
BIASIS: Treatment of haemoptysis, 364
Bibliography, the A B C of, 69
BLACKERTON, Reginald E.: New cases of war blindness due to mustard gas, 769 (O)
BLACKFELL, Franklin: Addison's disease due to malignant involvement of the solar plexus, 206 (O)
BIGGER, J. W.: Growth of Bacoli in water, 919
BILE salts for empyema, 85
Billbarzia disease in England (J. B. Christopherson and R. Ogier Ward), 729
Bilharzia disease, review of book on, 1103
BINET, Léon (and G. H. ROGER): Traité de Physiologie normale et pathologique. Tome VII. Sang et Lymphes Réactions d'Immunité, second edition, rev. 681
Biochemistry and nutrition, 125
Biochemistry, review of books on, 722, 1047
Biography in medical history, 477
Biology in education, the place of (E. A. E. Crew), 828
Biology, human, applied (leading article), 1054—Correspondence on, 1173
Biology, review of book on, 905
Biology of social life (fading article), 816
Biology, teaching of, 361
BREKETT, H. S.: Focal infection as a problem for the laryngologist, 227—Allergic factors in rhinorrhoea, 271—Tonsillectomy in children, 272
Brightnam: Child welfare in, 607—Hospitals centred inaugurated by the Prince of Wales, 822—Medicine in ion, 78—Mental disease research in, 327—Tuberculosis in, 916
British Association (of Physicians) (note), 926
Broadening, 142, 192—A correction, 192
Birth of second twin, delayed, See Twin
BISHOP, Alice, death of after "cancer cure," 704
BISOPEP, P. M. F.: Oestrus-producing hormones, 269
"—Bismotab," booklet on, 844
Bituminous salts, solution of in oil, 1186
BLACHER, C. K.: Sterilization of the unfit, 135—"The Chances of Morbid Inheritance," 864—Voluntary sterilization, 995
BLACKLEE, H. F.: Results of operations for elephantiasis, 48
BLACKMORE, Major H. Stuart (and Major-General ... against ... note), 724
Blindness, human, applied (leading article), 1054—Correspondence on, 1173
Blood count, normal, variations in, 867
Blood films in pernicious anaemia, convenient method of staining (G. F. S.), 17
Blood pressure, control of (J. H. Burn), 740
Blood pressure, high, is it a risk? 370, 486, 532, 664, 693
Blood transfusion, review of book on, 722
Blood vessels, ocular, superficial, function of the, 362
Bloomsbury, William (and Alexander A. Maximow): A Textbook of Histology, second edition, rev., 724
BLOOMFIELD, A.: Retroversion of the uterus, 316
Board, Central Midwives, for England and Wales: Report of meetings, 16, 129, 738, 955
Board, Central Midwives, for Scotland: Report of meeting, 279, 917
Board of Control: Annual report for 1933, 640, 1042
Board of Control institutions, medical inspection in (parliamentary note), 238
Board of Control for Scotland: Annual report, 954
Bolton, J. S., Honorary D.Sc. Leeds conferred on, 28
BOLOS, P. R., appointed Officer of the Order of St John of Jerusalem, 24
Bombay, plague epidemics in, 529—Small-pox epidemic in, 1215
Bonacina, L. C. W.: Climatic factors and disease, 32
Bone, "marble," familial (J. Duncan White), 1115
Bossinus, chronic, 617, 753
BORDEAU, A. M. Valerie: Earwig in ear, 618—A disclaimer, 664
BOSNIOR: Phenilectomy, 999
Book wanted (*Dispensing made Easy*), 192, 240—And found, 240
Booth, G. H. H.: Convenient method of examining blood films in pernicious anaemia, 17
BORDER, Henri, awarded the Gold Cross of the American Congress of Physiotherapy, 889
Bose Research Institute. See Research
BOTHAM, R. H.: Treatment of Ménière's disease, 889
BOTTOMLEY, F. C.: Oedema, its causation and treatment, 315
Bottomley, case of; recovery (W. Gifford Nash), 1119
BOUCUT, L.: Cardiac hypertrophy in anaemia, 216
BOURKE, F. S.: Cervical myoma, 1013
BOURNIE, Aleck: Results of ante-natal care, 220, 1011—Ovarian causes of pelvic pain, 267—Diagnosis, 267
Bowen, resignation of as v.—the training of the (O)—election to the
BRADFIELD, Colonel E. W. C., mentioned in dispatches, 89
BRADLEY, W. H.: Acute streptococcal throat infections, 568
BRAHM, Noel: Psychological effect of hysterectomy, 1104
BRADFORD, J. F.: Radiology and the general practitioner, 275
BRAIN, W. Russell: The medical and mental history of Dr Samuel Johnson, 480
Brain abscess. See Abscess
Brain tissue, separation of rabies virus from, 12
BRAND, Alexander Theodore, obituary notice of, 93
Braves in
from the
urg, 1166
BRAY, G.: Allergic factors in rhinorrhoea, 272—Biology and treatment of asthma, 1069
BRAY, G. W.: Recent Advances in Allergy, second edition, rev., 1047
BRAZER, M. A. B., awarded the Van Meter prize for an essay on goldre, 21
Breath, offensive, 1227
BRENNER, V. B.: Poliomyelitis, 863
BREINER, W. von: Cancer a bacterial disease, 497, 520
BRINKMAN, Dr.: Sodium evipan, 224
BRENNER:
TAGH;
patients with congestive heart failure and angina pectoris, 624 (O)
BRIDE, J. W.: Adenocarcinoma of corpus uteri, 962
BRIDGES, Dr.: Mental states associated with epilepsy, 1108
BRIDGES, M. A.: Dietetics for the Clinician, rev., 307
Briggs, Professor, memorial to, 965
Bright's disease (leading article), 600
BRINCORN, J. A. H.: Acute streptococcal throat infections, 567
BRINDEN, Dr.: elected a member of the Académie de Médecine, 337
BRINDLE, W. S.: Use of fascia lata sutures, 810
BRIQUET, Raul: Obstetrica Operatoria, rev., 67
BRISCOE, A. Daly: Case of agranulocytic anaemia, 61 (O), 185
BRISCOE, J. F.: Trichophyton infection, 843
BRISTOW, W. Rowley: Acute and chronic sprains, 320, 669 (O)
British Journal of Tuberculosis, now editor of, 177
British Legion: British Serbian Units Branch, annual dinner, 623
British Orthopaedic Association. See Association
British Society Guild: Lectures, 937
British Social Hygiene Council. See Hygiene
British spas. See Spas
BROADBENT, Walter: Myriodema, 679
BROCK, Arthur J.: Occupational therapy, 231, 375—Psychology and religion, 1136
Brook, L. G.: Work of the Mental After-care Association, 996
BROOKBANK, E. M.: Manchester Medical Society centenary, 683
BROCKLEHURST, R. J.: Cranial poisoning: Raspulin's death, 184
BROCKMAN, E. P.: Congenital club-foot, 1012
BROOD, ROUSSEAU, Denis (and Gaston ROSSEL): Le Serum Normal. Recette et Caractères Physiques, rev., 308
Efficiency Decoration conferred on, 972
obituary notice
of, 972
BROMFIELD, R. J.: Blackwater fever, 1154
Bronchitis, acute, treatment of (R. A. Young), 1111
ate
sti-
Brown: The endocrine factor in essential hypertension, 261
Brown, Eleanor Gertrude: Milton's Blindness, 813
Brown, J. Percival: The swab in diptheria diagnosis, 612—Prevention of "steaming" glass, 1026
Brown, R. Christie: A chloroform inhaler, 316—Retrospection of the uterus, 316
Brown, R. Cunningham: Use of narcotics, 222
Brown, Thomas Alexander, obituary notice of,
Brown, William: Psychology and psychotherapy,
B
816
Brown, W. Paterson: Spermatorrhoea when bathing, 293
Brown, W. W. King: Traffic control by light signals, 141
BROWNE, Denis: Haemorrhage from peritonillar abscess, 533, 657—X-ray examination of empyma cavities, 807 (O)
BROWNE, F. J.: Are we satisfied with the results of ante-natal care? 194 (O), 338, 1010—A collection, 338—Ovarian causes of pelvic pain, 266, 380—correction, 380—Team work in ante-natal and post-natal care, 996—London University and its medical schools, 1122

- BROWNE, Leonard F.: The endocrines in sex constitution, 83
- B- control of Benjamin.
- B- Benjamin.
- BRUCE, Hon. Herbert A., appointed Knight of Grace of the Order of St. John of Jerusalem, 24
- Brucella abortus* fever (S. Harvey), 470
- BRUNWILL, Alan Deed, obituary notice of, 94
- BRYANT, Arthur: *The England of Charles II.*, rev., 994
- BUCHAN, George F.: Are we satisfied with the results of ante-natal care? 199 (O)
- BUCHANAN, A. G.: Nail-biting, 337
- BUCHANAN, Sir George Seaton appointed Master of the Society of Apothecaries of London, 479—May Kingsley medal presented to, 916—International action to control the spread of infectious diseases, 977 (O)—*Mitrocyte Lectures on International Co-operation in Public Health. Its Achievements and Prospects*, 998
- BUCK, Robert W.: *The Essentials of Physical Diagnosis*, rev., 661
- BUCKERIDGE, Surgeon Rear Admiral Guy L., appointed Deputy Director-General of the Medical Department of the Navy, 289, 379
- BUCKLEY, C. W.: Diseases and injuries of the lower limb, 64—Problems of sciatica, 789
- BUDB, Lieut.-Col. C. H., Efficiency Decoration of the Territorial Army conferred on, 492
- Budget, next year's, 1158
- BURRO, S.: Malaria prophylaxis in Cuba, 541
- Bug, bed, as a housing problem (A. W. McKeenry Hughes), 842, 955
- Bulgaria: Typhus fever in, 97
- BULLOCK, William: Appreciation of Hubert Edward Powell, 1131
- BULMER, Ernest: Agranulocytic angina, 139—Mortality from haematemesis in peptic ulcer, 920
- BUNTING, G. L.: Tuberculin, 85
- BURCH: Endometrial hyperplasia, 818
- BURGESS, John A.: Blindness after N.A.B., 882
- BURGESS, Norman: Treatment of lupus vulgaris, 322
- BURGESS, W. L.: Hospital problems in Dundee, 608
- Burials, earth, and disease, 497
- BURKE, Edmund: Evipan anaesthesia, 285
- BURKE, Lieut.-Col. G. T. (and S. P. Gupta): Dry pleurisy with high eosinophil leucocytosis, 16
- BURN, J. H.: Control of the blood pressure, 740
- Burns, tanna-flavine for, 68
- BURKELL, L. S. T.: Seaside resorts for respiratory disease, 31—Appointed editor of the *British Journal of Tuberculosis*, 177—Stanley Melville memorial, 569
- BURKOVICH, A. E.: Dental problems of medical interest, 832
- Burroughs, W. Wells and Co.: Change of telephone number, 98
- BURT, J. Barnes: Problems of sciatica, 788
- BURTON-FANNING, F. W.: Seaside resorts for respiratory disease, 31—Climatic factors and disease, 32
- BURT, F. W.: Diabetic gangrene in a young woman, 811
- Business relations between doctors. See Doctors
- BUSTO, T. (and M. MARQUEZ): *Le Biastigmatisme dans la Pratique. Tables pour la* *astigmatismes*, 1011, 1080—
- BUTTERWORTH, Major Samuel, obituary notice of, 289
- BUXTON, Basil: Tuberculosis, 482
- BUXTON, Edward, obituary notice of, 496
- BUXTON, P. A.: Subspecies of *Anopheles maculipennis*, 134
- BUZZARD, Sir E. Farquhar: Functional diseases of the eye, 132—Unemployment assistance: determination of needs, 235

C.

- CANON, Richard O.: *Physical Diagnosis*, eleventh edition, rev., 1048
- Caesarean section: delivery of 254-day extra-uterine foetus (Archer Hosking), 111 (O)
- Caesarean section: film demonstration of (W. S. Richardson), 267
- Caesarean section, lower segment (Harvey Evers), 36
- CAIRNEY, Maud C.: European children in the tropics, 1185
- CAIRNS, Hugh: Diagnosis of intracranial tumours, 1070
- Calcium aspartate in treatment of chorea (N. Mitchell), 245 (O)
- Calcium lactate as a muscle tonic, 976
- Calcium, urinary, and the parathyroid, 1157
- Calculus, renal, bilateral (D. F. Hegarty), 1071
- CALANDER, C. Latimer: *Surgical Anatomy*, rev., 661

- CALLCUTT, J. Shirley: Intracranial injury in the newborn, 39—Maternal mortality, 1127
- CALMETTE, Surgeon-General Inspector, death of, 616
- CALVÉ, Jacques: Adolescent and senile kyphosis, 270, 933 (O)
- CAMPBELL, Archibald, obituary notice of, 1223
- Cambridge, changes at (leading article), 26
- Cambridge University. See University
- CAMERON, A. J. D.: Alkali reserve in asthma, 611
- CAMERON, Isabella: Ante-natal care and the maternal death rate, 1009
- CAMERON, John: *The Skeleton of British Neolithic Man*, rev., 118
- CAMERON, Samuel James, appointed to the chair of midwifery at Glasgow University, 179
- CAMERON, T. W. M.: Immunity to parasites, 482
- CAMPBELL, Arthur: Anaesthesia in maternity cases, 1015
- CAMPBELL, D.: Oestrus-producing hormones, 269
- CAMPBELL, Harry: Increased mortality from diabetes, 230
- CAMPBELL, H. J.: Puerperal morbidity and mortality, 964
- CAMPBELL, Dame Janet: Successor to (parliamentary note), 150—Invited to visit Canada, 662
- CAMPBELL, Maurice: Transport of invalids by railway, 493
- CAMPBELL, Robert B., retirement of, 1007
- CAMPBELL, R. M. (L. S. P. Davidson, H. J. Rae, and J. Smith): Veil's disease, 1137 (O)
- CAMPBELL, Thompson, obituary notice of, 659

CANADA:

- Fee-splitting in, 262
- Health insurance in (leading article), 775
- Cancer a bacterial disease (W. von Brehmer), 497, 520
- Cancer of the bladder, radium in (A. J. Durden Smith), 584 (O)
- Cancer of breast, control of x-ray treatment in serum tests in, 534, 610. See also Cancer treated by serum tests
- Cancer Campaign, British Empire: Annual meeting, 76—Annual meeting of New Zealand branch, 784—Co-ordination of research, 76—Garton prize, 76—Quarterly meeting of Grand Council, 948—Result of appeal, 150
- Cancer campaign in Italy: prizes offered for reports of curable cases, 97
- Cancer of cervix after artificial menopause by radium, 38
- Cancer, chorionic (Rufus C. Thomas), 590 (O)
- Cancer claims (leading article), 520
- Cancer conference, Australian, 911
- "Cancer cure," death after—Alice Bishop 704
- Cancer, diagnostic test for, a new, by the urine (Aron), 176—(Roussy, Oberling, and Guérin), 1156
- Cancer, International Union for Combating: Delegates to represent Great Britain elected, 1208
- Cancer library, 1223
- Cancer, radiological treatment of: League of Nations conference, 217
- Cancer, spontaneous: (O. T. Spackman), 115
- Cancer Research Fund, Imperial: Annual meeting, 1006—Scientific report, 1052
- Cancer research a mare's nest in, 1156
- Cancer Research Workers' Conference, 1058
- Cancer, review of book on, 1016
- Cancer of stomach in a woman of 80 (Henry J. Knight), 469
- Cancer, spontaneous regression of, 966, 1016, 1077
- Cancer and tarring of roads (parliamentary note), 148, 190
- Cancer of thorax (A. Patoir, Warembourg, and Bédrine), 1052
- Cancer treated by serum tests, control of, 584, 610. See also Cancer of breast
- Cancer: L'Union Internationale contre le Cancer, 742
- CANDLER, A. L.: Non-malignant stricture of hepatic ducture, 1173
- CANNERY, J. R. Campbell: Spontaneous rupture of the uterus at the twenty-fourth week of pregnancy, 83
- CANNON, D. J.: Rectal prolapse complicated by proctitis, 488, 538—Cervical myeloma, 1013
- CANTY, G. (and P. PAUL): *Les Phlegmons de la Loge Amygdalienne*, rev., 992
- CAPEYER, N.: Movement of the lumbar spine and pregnancy, 1012
- Carbohydrate diets. See Diets
- Carbohydrate metabolism, the spleen and, 477
- Carbon dioxide absorption and closed anaesthesia. See Anaesthesia
- Carbon dioxide for the newborn, 725
- Carcinoma. See Cancer
- Carcinoma ventriculi. See Cancer of stomach
- CARDENAL, Leon, nominated Rector of Madrid University, 975
- Cardiac hypertrophy in anaemia, 216
- Cardiac murmurs, pre-natal, 791
- Cardiac oedema, salyrgan in, 1058
- Cardiac. See also Heart
- Cardiology, course in, in Paris, 325
- Cardiology, Dutch Association for, foundation of, 975

- Cardiology, recent advances in (Crichton Bramwell), 741
- Cardiology, review of books on, 117
- Cardroom workers and the Workmen's Compensation Act (parliamentary note), 887
- CAROWELL, Mary G.: Non-specific colitis, 235
- CARINGTON, W. Whately: Sleep and hypnosis, 557
- CARLING, Rock: Treatment of arteriole embolism, 219
- CARLTON, Hope: The thyrotoxic heart, 1172
- CARSWATH, T.: Immunization at the specific fevers, 274
- CARRERE, G. (Claude HUNIER and P. WILLOQUEZ): *Le Barbiturisme Aigu et les Antidotes* *Général* (Strychnine, Cocaine, Alcohol), rev., 18
- CARR-WHITE, Major-General Percy, obituary notice of, 661
- CARSWELL, Robert: Treatment of lupus vulgaris, 490
- CASSIDY, Sir Maurice: Prognosis in coronary occlusion, 829
- CASSIE, Ethel: Are we satisfied with results of ante-natal care? 197 (O)—Factors in the reduction of maternal mortality, 948
- CASSON, Elizabeth: Occupational therapy for mental and nervous cases, 133
- CASTIGLIONI, Arturo: "A doctor from Padua," 909
- CASTLEDEN, L. Ivan M.: Female "bleeder," 744
- Castor oil vapour as a purgative (G. Graham Macphree), 1045—Correspondence on, 1223
- Cataract, cures closed (parliamentary note), 1093
- Cataract extraction, irrigating retractor for, 682
- Catarth, nasal, allergic factors in (Theodore Just), 587 (O)
- Catarth. See also Coryza
- Catgut tube cracker, 597
- Catheters, glass, dangers of, 1174
- Catheters, gum-elastic, autoclaving of, 493
- CATTELL, D. B.: Vitamin C, 558
- CATTERINA, Attilio: *L'Opération de Bassini pour la Guérison Radicale de la Hernie Inguinale*, rev., 555
- Cattle diseases, research in (parliamentary note), 95
- Cattle Industry (Emergency Provisions) Resolution and Bill, 147, 188
- CAUSSON, J. (and M. LECRET): *Les Réactions du Tissu Pulmonaire dans la Tuberculose*, rev., 355
- Cantry and light apparatus in the operating theatre, 556
- CECIL, Russell L. (editor): *A Text-Book of Medicine*, by American authors, third edition, rev., 20
- "Ce-all" (anti-steam), 976
- Cellulitis, pelvic, of unknown origin (A. Wilfred Adams), 17
- Census of England and Wales, 1931: *Occupation Tables*, 162
- Census, the next (parliamentary note), 1093
- Central Criminal Court. See Criminal
- Cerebral cortex. See Cortex
- Cerebral haemorrhage. See Haemorrhage
- Cerebro-spinal fever in England and Wales, 824
- Cervical erosion and discharge, 1077, 1178
- Cervical rib. See Rib
- Cervicitis, diathermy cutting current in (J. C. Ainsworth-Davis), 316, 935 (O)—Discussion, 316—Correspondence on, 1076, 1125
- Cervix, dilating the in placenta praevia, 884, 920, 965, 1016
- Ceylon, malaria epidemic in, 1188
- CHADWICK, Mary: Mental hygiene in childhood, 1171
- CHALK, M.: Syphilis and "cure," 230
- CHALMERS, A. K.: The undesirable tenant, 653
- CHALMERS, R.: Pellagra in England, 235—Infantile pellagra, 644
- CHAMBERS, W. D.: Report on James Murray's Royal Asylum, Perth, 273
- CHANCE, A.: Intratracheal anaesthesia, 1215
- CHANDLER, Dr.: Modern sanatorium treatment, 275
- CHANDLER, F. G. (N. S. FINZI and James MAXWELL): Irradiation treatment of malignant intrathoracic tumours, 714 (O)—Treatment of pleurisy, 1209
- CHAPMAN, P. F.: Ingrowing toe-nail, 1073, 1125
- Charity, medical, an example of, 74
- CHARLES, Ebid: *The Twilight of Parenthood, a Biological Study of the Decline of Population Growth*, 310
- CHARLES, J. A.: Nutritional anaemia, 122—Nutritional problems of in North Country children, 1065
- CHARLES, Major-General Sir Richard Henry Havelock, obituary notice of, 833
- CHARLSON, Conal: Calculus forcers, 774
- CHAVASSE, Bernard: Thermoplasty of the extraocular muscles, 133
- CHEATLE, Sir George Lenthal, appointed a Chevalier of the Legion of Honour, 1227
- Cheese-paring at Geneva. See League of Nations
- Chemical research and industry (J. T. Dunn), 129
- Chemistry in Commerce, rev., 822
- Chemistry, review of books on, 367, 473, 953, 1048, 1150
- Chebire, conference on health education and propaganda, 229
- CHESKY, Victor E. (and Arthur E. HERTZEL): *Surgery of a General Practice*, rev., 633
- CHESSEB, Elizabeth Sloan: Injection treatment of complete rectal prolapse, 331—Cervical erosion and discharge, 1173

- Club-foot, congenital (Miss Forrester-Brown), 1012
CLIFFORD, E. H.: Public Health in South Africa, 479
CO₂: See Carbon dioxide
COATES, Dr.: Modern sanatorium treatment, 275
COATES, Vincent: British and foreign health resorts, 228
COATES, Vincent M., death of, 911—Obituary notice of, 970

among sewer workers, 98
COLMAN, Henry: Dental problems of medical students, 677

of of

erum
treatment, 1120
COLEMAN, J. Stanley: Dilating the cervix in placenta praevia, 965
Colitis, non-specific, in relation to deficiency disorders and anaemia (D. C. Hare), 162 (O)—Correspondence on, 231, 285

patients
formation
awarded,
eting and
formation con-
423
formation con-
423
formation con-
423
cerning the study of medicine, 423
College, University, London: Awards, 142—Information concerning the study of medicine, 418
College, West London Post-Graduate, information concerning 430
COLLIER, Howard
COLLIN, James:
and functional
Oration: Inven-
neurology, 707 (O)
Colliery roads, stone dust on (parliamentary note), 1184
COLLINGWOOD, Bertram James, obituary notice of, 377
COLLINS, Barry Keyte Tenison, obituary notice of, 659
COLLINS, Major General D. J. (and Major H. Stuart Blackmore): First Aid in Defence against Chemical Warfare, second edition, rev., 724
COLLINS, Major-General D. T., appointed a deputy-lieutenant for the County of London, 336
COLLINS, Sir Godfrey: A health exhortation, 691
COLLINS, Octavius Augustus Glasier, obituary notice of, 91
COLLINS, S. D.: Influenza in the United States, 997
COLLINS, William Edward, obituary notice of, 334
COLLIP: Inhibitory hormones, 687
COLLIS, W. R. F.: Intermittent neonatorum, 790
tern-

Colour-blindness, tests for, 1020
Colour vision (H. P. Road), 526. See also Vision
COLT, G. H.: Following lead-in, 967—Gas gangrene restricted to the subcutaneous tissues, 1078
COLWELL, H. A., awarded the Garton prize of the British Empire Cancer Campaign, 76
(G. Roche Lynch),

national, London
(1933), 191
Congress of the American College of Surgeons, Boston (1934), 927—Honorary Fellowships conferred, 927
Congress, American, of Physiotherapy, awards His Gold Cross, 899
Congress of Anatomy, Italian, Rome (1934), 379
Congress of the Anti Noise League, Oxford (1934), 636—Noise and health, 636
Congress of the Association of Photographic mentation in
special libraries
ord (1934), 191
Châtel Guyon
(1934), 150
Congress of the British Institute of Radiology, (1934), 457
s (1934), 150
international,

Congress of the Far Eastern Association of Tropical Medicine, Nanking (1934), 85 879
Congress of the French Association of Urology, Paris (1934), 537
Congress of the French Societies of Oto-neuro-ophthalmology, postponement of, 336

Congress of Gastro-enterology, International, Brussels (1934), 191
 Congress, German, of Children's Diseases, Brunswick (1934), 191
 Congress, German, of Natural Scientists and Doctors, Hanover, (1934), 191
 Congress of the German Ophthalmological Society, Heidelberg (1934), 191
 Congress of the German Society for Industrial Diseases and Accidents, Würzburg (1934), 191
 Congress of the German Society of Neurologists, Munich (1934), 191
 Congress of the History of Medicine, International, Madrid (1935), 1185
 Congress of the History of Science, Madrid (1934), 617
 Congress of Hygiene, Italian, Bari (1934), 239
 Congress of Identification, Rio de Janeiro (1934): Proceedings, 814
 Congress of Industrial Medicine, Italian, Turin (1934), 705, 753
 Congress of Internal Medicine, Italian, Rome (1934), 653
 Congress of the Italian Paediatric Society, Sienna (1934), 497
 Congress of the Italian Society for Oto-rhino-laryngology, Padua (1934), 336
 Congress of the Latin Medical Press, Paris (1934), 653
 Congress of the Latin Oto-rhino-laryngological Society, Brussels (1934), 336, 497
 Congress on Life Assurance Medicine, London (1935), 786
 Congress of Medical Radiology and Electrolgy, Rumanian, Bucarest (1934), 843
 Congress of the Medical Women's International Association, Stockholm (1934), 563—Note on, 563
 Congress, National Veterinary Medical, Edinburgh (1934), 328—Eradication of bovine tuberculosis, 328
 Congress of Oto-neuro-ophthalmology, French Societies of, postponement of, 336
 Congress of Oto-rhino-laryngology, Italian Society for, Pa'ua (1934), 336
 Congress of Oto-rhino-laryngology, Latin Society for, Brussels (1934), 336, 497
 Congress of Oto-rhino-laryngology, Rumanian, Bucarest (1934), 495
 performed on both eyes successfully, 132—
 Annual dinner, 132—Constitutional factor in myopia, 132—The pre-mycotic state, 132—
 Doyne Memorial Lecture, "Tuberculosis and its relation to spontaneous post-traumatic and sympathetic ophthalmia, 132—Influence of diet in ophthalmic practice, 132—Thirno-plasty of the extraocular muscles, 135—Aetiology and treatment of congestive glaucoma, 133—
 Clinical significance, 133—Cases of, 133—Production of rosette retina, 133—Executive appointments, 289
 Congress of Paediatricians of the World, Lyons (1934), 495
 Congress, Pan-American Sanitary, Buenos Aires (1934), 881
 Congress of Physiology, International, Moscow (1935), 1226
 Congress of Preventive Paediatrics, Inter-C.
 Congress of the British Institute of Radiology, London (1934), 575, 1113—Physicist and radiologist, 1113—Artificially induced radioactivity, 1113—Constitutional effects of x rays, 1113—Silvanus Thompson Memorial Lecture, 1114—The digestive system, 1114—Cine-radiography, 1114—Therapy generator operating six x-ray tubes in parallel, 1114—Dosage in radiation therapy, 1114—Radiological study of asthma due to toxæmia, 1115—Osteomalacia and foetal rickets, 1115—"Familial marble bone," 1115
 Congress of Radiology, Zurich (1934), 217, 239—
 Proceedings published in the *Deutsche medizinische Wochenschrift* for July 20th, 23—Recent work in radiology (leading article), 903
 Congress, Red Cross, International, Tokyo: Humanization of war, 1122
 Congress of (Chronic) Rheumatism, International, Aix-les-Bains (1934), 125—General survey of rheumatoid arthritis, 125—Clinical and pathological aspects, 127—Discussion on treatment, 127
 Congress of the Royal Sanitary Association of Scotland, Stirling (1934), 565—Health and housing, 565
 Congress of the Royal Sanitary Institute, Bristol (1934), 1157—Nutrition and health, 1157
 Congress of the Scottish Association of Insurance Committees, Stranraer (1934), 576
 Congress of Social Hygiene Imperial, London (1935), 1225
 Congress, South African Medical, Pretoria (1934), 913—National health insurance scheme, 913—Presidential address, 913—Lenary session, 914—The Sections, 914—Scientific and Trade Exhibition, 914—Entertainments, 914
 Congress of Surgery, French (1934), 874

Congress of Surgery, Rumanian, Bucarest (1934), 753
 Congress of Surgery, Russian, Leningrad (1934), 95
 Congress for Therapeutical Paedagogy, Munich (1934), 150
 Congress of Tuberculosis, Pan-American, Montevideo (1934), 1084
 Congress of Urology, French Association of, Paris (1934), 537
 Congress, Veterinary, International, New York (1934), 481—Anthrax, 481—Infectious mastitis, 481—Veterinary sanitation, 481—Psittacosis and Weil's disease, 482—Tuberculosis, 482—Immunity to parasites, 482—Milk marketing, 482—Vir
 Animal
 Conjoint
 Conjoint Board in Ireland: Information concerning the study of medicine, 407
 Conjoint Board in Scotland: Degrees and pass lists, 237, 838—Information concerning the study of medicine, 404
 Consumption, *See* Tuberculosis
 CONTE, E. K.: *Elementary Précis of the Care of the Sick, Wounded, and of Infants*, rev., 862
 Contraception and infertility (leading article), 310
 Contraception, inquiry into, 1026
 Contraceptive advice at clinics (parliamentary note), 46
 Contraceptive methods, demonstrations on, 704, 842
 Contraceptive, *See also* Birth control
 Convulsions, ether, 610, 743, 732, 834
 Convulsions, infantile (P. Hartenberg), 522—(M. Peterman), 522
 COXWELL, H. EARLE and JOHN ALBERT KEYL: *The Management of Fractures, Dislocations, and Sprains*, rev., 116
 COOK, B. E.: Ether convulsions 743
 COOK, JAMES: Puerperal morbidity and mortality, 863—Obstetric methods at St. Mary Abbots, 1221
 COOK, L. C.: Unsettled problems of neurosyphilis, 788
 COOK, W. E.: Traumatic rupture of lungs without signs of trauma in the chest wall, 629
 (O)—Trauma and pulmonary disease, 791—Modern views on silicosis, 878
 COOKSON, HAROLD: Operation for toxic goitre, 84
 COOPER, ROBERT: Antiserum-coated serum for "rheumatic" affections, 1217
 COOPER, T. V.: Bile salts for empyema, 85
 COPE, V. ZACHARY: Antiseptics in control of bacterial infections, 313—Anaemias and their treatment, 830
 COPEMAN, W. S. C.: Seaside resorts for respiratory disease, 32—Diagnosis of endocrine dysfunction, 664—Differential diagnosis of chronic rheumatic disease, 921
 CORBET, R. M.: Maternity cases 918
 CORDINER, G. R. MATHER: Radiology of the stomach and duodenum, 319
 Cork City, diphtheria in 1168
 CORMACK, JAMES GRIEVE, obituary notice of, 1689
 Corneal graft performed on both eyes successfully (Tudor Thomas), 132
 Coronary arteries, *See* Arteries
 Coronary occlusion, pathology of (R. T. Grant), 224—Discussion, 224
 Coronary occlusion, prognosis in (John Hay), 828—Discussion, 829
 Coroners' requests, *See* Inquests
 Corporal punishment, *See* Punishment
 Corpus luteum extract and uterine contractions, 1174
 Corpus luteum, formation of the, 1056
 Corrections 152, 152, 333, 350, 618, 664, 844, 890, 576, 1026, 1116, 1182, 1185
 Correspondence (continued):
 Agranulocytic angina, 139, 185
 Anaesthesia, "closed," 469
 Anaesthesia, evipan, 41, 141, 255, 329, 431
 Anaesthesia in maternity cases, 1015, 1123, 1222
 Anaesthetic explosions from static discharge, 956
 "Angel of Death," 885
 Ante-natal care and maternal mortality, 1176
 Ante-natal work, criticism of, 140
 Autotransfusion in ruptured ectopic gestation, 1125
 Bacillus Calmette Guérin vaccine, 791, 855
 Bacillus in infections, 570, 611
 Back injuries, transport of cases with 1124
 Backache, motor, and neuralgia, 791, 831, 928
 Bacon, Roger, and thirteenth century medicine, 40
 Barbiturate poisoning, 143
 Bile salts for empyema, 85
 Biology, "applied human," 1179
 "Bleeders," female, 700, 744, 821, 1016
 Blindness after neovascularization (N. A. B.) 852
 Blood pressure, high—is it a risk? 370, 480, 532, 699
 Blood pressure, is the taking of a risk? 512

Breach of professional confidence, 375
 Briggs, Professor, 925
 British Health Resorts Association, 85
 Cancer of cervix after artificial menopause by radium, 38
 Cancer: L'Union Internationale contre le Cancer, 742
 Cancer problem, 85
 Cancer, spontaneous regression of, 956, 1016, 1077
 Cancer treatment by serum tests, control of, 610
 Cardiac murmurs, pre-natal, 791
 Catheter, glass, dangers of, 1174
 Cervical erosion and discharge, 1077, 1175
 Cervicitis treated by diathermy curette, 1076, 1125
 Cervix, dilating the in placenta praevia, 881, 920, 965, 1016
 Chloroform analgesia in maternity cases, 1222.
See also Anaesthesia
 Clinical science, *See* Science
 "Closed" anaesthesia, *See* Anaesthesia
 Colitis, non-specific, 231, 255
 Colour blindness, tests for, 1020
 Corporal punishment, 1178
 Corpus luteum extract and uterine contraction, 1174
 Cortical rhythm, discoverer of, 1129
 Corza, alkaline treatment of, 1222
 Corza, local treatment of, 835, 852, 920, 965, 1017, 1222
 Curarine in tetanus, 1173
 Cyanide poisoning: Rasputin's death, 184, 234.
See also Rasputin
 Death and the survival of rights of action, 658, 732
 Dermatitis, occupational, 87
 Diabetes, increased mortality from, 230, 330, 570, 603
 Diathermy, short-wave, *See* Short wave
 Diphtheria diagnosis, the swab in, 230, 266, 332, 371, 487, 535, 571, 612, 657, 746
 Duodenum and the Kirby grip, 955, 1077, 1179
 Eichholz clinic, 655
 Empyema, after-treatment of, 881
 Epilepsy and nasal sinusitis, 1219
 Epilepsy treated by snake venom, 1073
 Ether convulsions 610, 743, 792, 834
 Evipan anaesthesia, 40, 141, 255, 329, 431. *See also* Anaesthesia
 Evipan on a full stomach, 655, 760
 Fascia lata suture, use of, 922
 Fractures of the neck of the femur, 1072, 1220
 Fractures in the newborn, treatment of, 571
 Gas gangrene restricted to subcutaneous tissues, 1078
 "German measles," a plea, 835, 965
 General Medical Council. Election to, 850, 962, 1015—Representation of England, 850—Representation of Scotland, 850
 General practice, whether? 472, 737, 836, 893, 968, 1019
 General practitioner, the schoolmaster, and the specialist, 283, 375
 Glass catheter, *See* Catheter
 Goitre, toxic, operation for, 84
 Goitre, toxic, preliminary ligature in, 84, 135, 181, 569, 609, 655, 699
 Graves' disease, *See* Goitre
 Gynaecology, principles of, 162
 Haematemesis in peptic ulcer, mortality from, 920, 1176
 Haemoptysis, treatment of, 833, 851, 1123—
 Endotracheal injections of adrenaline, 1122
 Haemorrhage from peritonsillar abscess, 231, 371, 491, 533, 612, 657
 Hand, septic, treated by infra-red rays, 375
 Harvey Memorial Tower, 1080
 Heart, congenital, pre-natal diagnosis of, 743
 Hernia operations, physical efficiency after, 1174
 Hernia, radical cure of, 286
 Herpes zoster and varicella, concurrent, 826, 834
 Holmes, Sherlock, origins of, 374
 Hyperpiesia, 39
 Hysterectomy psychological effect of, 85
 Infantile paralysis, *See* Poliomyelitis
 Influenza and the war, 1169
 Intracranial injury in the newborn, 39
 Java, residual infection of the, 745, 792, 834, 867, 1079
 Knee-joint, injuries of the, 40, 572, 657
 League of Nations and peace, 701
 London University and its medical schools, 552, 1016, 1072, 1122, 1175, 1218
 Lungs, traumatic rupture of, 107
 Lupus vulgaris, treatment of, 375, 450
 Malaria, therapeutic, and haemoglobinuria, 831
 Maoris, maternal mortality in, 733
 Maternal mortality, *See* Mortality
 Measles complicated by peripheral neuritis, 232
 Medical benevolence, 7-5, 836, 850, 855, 1125, 1129
 Medical Directory, 85
 Medical education, 455, 570—Responsibility, clinical experience, 455—Training for the specialist, 570
 Medical problems, minor, 701
 Medical profession in Hungary, 655
 Medical reporter, correction of, 733
 Medical school for women, proposed, 1, 374
 Medical training for natives in South Africa, 612
 Melville, Stanley, Memorial, 569

CURIE-JOLIOT, M. and Mme: Artificial radio-activity, 688
CURRIE, H. F., elected mayor of Wokingham, 975
CURRIE, Lieut.-Col. Duncan Edward, obituary notice of, 379
CURRIE, David W.: Maternal mortality, 1127

¹²²²
Coryza. See also Catarrh

CURIE, Marie Sklodowska, death of, 47—Ob
uary notice of, 72—Memorial to, 297—Square
Paris named after, 843

Deafness and bathing pools (A. 1114118/55).

- Deafness after opotherapy, 151
 DEAK, F.: Malaria in delta of the Danube, 693
 DEAN, Frank (and C. H. SPENCE): *Hospital Accounting and Secretarial Practice*, rev., 258
 DEARDEN, Harold:—Death under the Microscope: *Some Cases of Sir Bernard Spilsbury and Others*, rev., 945
 DEARNLEY, Gertrude: Ovarian causes of pelvic pain, 266
 Death after "cancer cure"—Alice Bishop, 704
 Death and the survival of rights of action (leading article), 600—Correspondence on, 658, 792. *See also* Rights of action
 Deaths following anaesthesia. *See* Anaesthesia
 DE BEER, G. R. (and Julian S. HUXLEY): *The Elements of Experimental Embryology*, rev., 18
 DEBRÉ: Cystic disease of the lung, 778—La granule froide, 815
 DE CHAISEMARTIN: Evils of a sedentary life, 1089
 DE CHAZAL, E. L. (and F. A. ROUGET): *Guide Pratique d'Hygiène Infantile*, rev., 256
 DE COURCY: The endocrine factor—essential hypertension, 260
 Decubitus, influence of on vertex presentation, 1224. *See also* Labour
 DEE, J. P.: Thrombosis of the internal saphenous vein, 331
 DEERING, Warwick: Appreciation of Andrew Baxter, 1182
 Deficiency disorders, relation of non-specific colitis to (D. G. Hill), 162 (O)
 DE FERNAS, Q. R.: Sprue, 320
 DE GROSZ, Emile: Trachoma, 277
 D'HERELLE, F.: Institute of
 DELEVINGNE, memorial lecture: Some international aspects of the problem of drug addiction, 690
 DELPERAT, C. C., death of, 495
 Dengue fever, mutual protection against (parliamentary note), 1033
 Denmark, epidemic of acute poliomyelitis in, 497, 617, 863
 Dental benefit. *See* Insurance
 Dental conference in Dundee, 368
 Dental problems of medical interest (Robert Kenyon), 832
 Dental service, school, in New Zealand, 784
 Dental surgeon's place in a general hospital (Harold Round), 562
 Dental surgery, information concerning the study of, 450
 DE PABLO, Vincente: *Medicación local pulmonar por vía intratraqueal*, rev., 170
 Depressed Areas (Development and Improvement) Bill, 1022, 1083, 1134, 1224
 Depressed areas, money for (parliamentary note), 1083
 Depression, the, and health in the United States, 515
 Dermatitis, occupational, 87
 Dermatology, review of book on, 722. *See also* Skin
 DIGNOT, Maurice: *Le Traitement de l'Asthme Bronchique*, rev., 68
 Desitin ointment, 635
 DE VERTEUIL, E.: Malaria in Trinidad and Tobago, 477
 DEVOTO, Luigi, elected a member of the Italian Senate, 289
 DHARMATIR, N. R.: *Public Health in India*, 1215
 Diabetes, burning sensation in, 577
 Diabetes, mortality from increased, 175, 230, 330, 679, 699
 Diabetes, special clinics for (L. Wislicki), 717 (O)
 Diabetic gangrene. *See* Gangrene
 Diagnosis and physical signs, drilling in (leading article), 999
 Diagnosis, review of books on, 851, 1048
 Diagnostic set electrical mains adaptor for, 1048
 Diaries and calendars, 1156, 1223
 Diathermy cutting current in cervicitis (J. C. Ainsworth-Davis), 316, 935 (O)—Discussion, 316
 Diathermy, short-wave, 1015, 1072, 1124. *See also* Short-wave
 DITLE, J. Henry: Modern views on silicosis, 873
 DICK, J. Staveley: The swab in diphtheria diagnosis, 487
 Dick test, age for, 795
 DICKIN, E. P., appointed Serving Brother of the Order of St. John of Jerusalem, 24
 DICKINSON, Robert Latou: *Human Sex Anatomy*, rev., 210
 DICKSON, Robert Harper, obituary notice of, 971
 Dictionary, Gould's Pocket Pronouncing Medical, 9th edition, rev., 508
 Dictionary, Oxford French, *The Concise*, rev., 945
 DIERL, Karl: *Zwillingstüberkuloze (Zwillingsschwund und erbliche Tuberkulosedisposition)*, 1055
 Diet cards at Harrogate, 618
 Diet in ophthalmic practice, influence of (olive Pratt), 132
 Diet during pregnancy and lactation (leading article), 1005
 Diet, review of book on, 307
 Dietaries (official) of resident officers in London County Council hospitals and institutions, 239
 DITZEN, Hans: *Die Lungentüberkuloze*, rev., 354
 Diets, carbohydrate [high] and insulin efficiency (H. P. Himsworth), 57 (O), 338—A correction, 338
 Diets, model, for school children (parliamentary note), 1184
 Digestive mucosa (H. H. Berg), 1114
 DIGGLE, F. Holt: Mucopurulent tubo-tymppanic infections, 655—An unusual laryngeal foreign body, 771—Meningitis of otitic origin, 1120
 DILLON, Frederick: Raspunji's death, 83—Practical note on suicide, 1038 (O)
 Dioptries, review of book on, 258
 Diphtheria, antitoxin and the Schick test (R. B. Mayfield), 938 (O)
 Diphtheria, aural, 1185
 Diphtheria and bathing pools (parliamentary note), 233
 Diphtheria, case mortality of, 603
 Diphtheria in Cork City, 1163
 Diphtheria diagnosis, the swab in, 230, 286, 332, 371, 487, 535, 572, 612, 657, 706, 746—Annotation on, 746
 Diphtheria immunization in Duisburg-Hamborn (M. Gundel and F. Müller-Voigt), 1147
 Diphtheria immunization in Edinburgh, 1007
 Diphtheria immunization in Leningrad, 1003
 Diphtheria immunization in a school (William G. Patterson), 855 (O)
 Diphtheria mortality (Irish Free State), 997
 Diphtheria, world prevalence of, 125
 Diploma in Public Health, lectures and demonstrations for, 537
 Diplomas, special, information concerning, 443
 Disaffection Bill. *See* Incitement to Disaffection
 Disclaimers, 93, 152, 290, 380, 664
 Disease carriers in air warfare (parliamentary note), 96
 Disease carriers, detection of (parliamentary note), 1083
 Disease, study of as an intellectual stimulus (William Allen Pusey), 34
 Disinfectant mistakes for shark oil (parliamentary note), 1184
 Disputches, names mentioned in, 69
 District medical officers, salaries of, 485
 District nursing. *See* Nursing
 DIXMAN, Frederick, obituary notice of, 235
 Diuresis in a case of pituitary tumour, 705
 DYER, Ebenezer William, obituary notice of, 287
 Diverticulitis with unusual complications (Humphrey Foxell), 938 (O)
 DYNE, John: Occupational dermatitis, 87—Appreciation of David Roger Moir, 839
 DIXON, G. B.: Report on tuberculosis in Birmingham, 916
 DOBBYNS, Michael H.: Maternal morbidity and the G.P., 1086
 DOBSON, G. M. B.: Atmospheric pollution, 1052
 DONOH, J. O.:—*Ronald Ross: Dragon Slayer. A Short Account of a Great Discovery and of the Man who made it*, rev., 1104
 DOCKAN, A. W.: Asthma in childhood, 192—The pre-asthmatic phase, 923
 DOCKERAT, G. C.: Growth of *B. coli* in water, 919
 "Doctor from Padua" (Arturo Castiglioni), 909
 Doctors, business relations between, 42, 141, 574, 660, 750, 841, 1081—The law of partnership, 42—Dissolution of partnership, 141, 574—Variation of the partnership agreement, 660—Relations of partners to outside persons, 660—Goodwill agreements to refrain from practising, 750—Assistants and locumtenents, 841—Transfer of practices, 1081
 Doctors' cars, thefts from (parliamentary note), 1184
 Doctors and investments (New Zealand), 784
 Doctors, praise and dispraise of, 493
 Doctors and road accidents. *See* Accidents
 DODD, Harold: Ruptured spleen after trifling mishaps, 1031 (O)
 DODDS, E. C.: Oestrus-producing hormones, 263, 1187 (O)
 DOLMAN, C. E.:—Streptococcal infections: specific treatment, 950
 Domiciliary Nursing Services Bill. *See* Nursing
 DONALDSON, Malcolm: Cancer of the cervix after artificial menopause by radium, 35
 DONELLAN, J. O. C.: Treatment of the mentally defective child, 785
 DONOVAN, Hugh (O. BRENNER and H. L. S. MURTAGH): Total thyroidectomy in treatment of patients with congestive heart failure and angina pectoris, 621 (O)
 DONOVAN, Major-General William, obituary notice of, 335
 DOOLIN, W.: Intratracheal anaesthesia, 1218
 DONCEY, Roy M. (and G. Wilson SHAP-ER): *Textbook of Abnormal Psychology*, rev., 254
 DORE, S. Ernest (and John L. FRANKLIN): *Diseases of the Skin: A Handbook of Dermatology for Practitioners and Students*, rev., 722
 DORGAL, Daniel: Ovarian causes of pelvic pain, 256, 621 (O)
 DOUGLAS, Major A.: Eradication of bovine tuberculosis, 335
 DOUSSAIN, Dr (and Dr. RAFFIN): *Considérations sur l'Étiologie des Maladies Infectieuses*, rev., 528
 DOWNER, R. L. E., appointed Officer of the Order of St. John of Jerusalem, 24
 DOWNS, Colonel Rupert Major, appointed Director-General of Medical Services of the Australian Military Forces, 526
 DOTLE, Conan, Bell, and Laycock, 453
 DOYLE, F.: Maternity cases, 918
 Doyle Memorial Lecture. *See* Lecture
 Drainage bag for permanent cystostomy, 945
 DREBUS-SÉE, G.: Excretion by the milk, 124
 DRENNAN, A. Murray: Pathology in Scottish Mental Hospitals, 180
 Dressings, surgical, heat-sterilized, 473
 DREW, J. Graham: Well's disease in Queensland, 1152 (O)
 DRYDEN, Georges: Obituary notice of, 378—His scientific work at Oxford (E. W. Ainsley Walker), 946
 DROOP, Reginald, a member of the crew of the *Endeavour*, 191
 DROTER, P. L.: Hyperkitaerism and Graves' disease, 361
 Drought, the, 46, 281, 651—Water storage against (parliamentary note), 46—Meeting at Ministry of Health, 281
 Drought. *See also* Water
 Drowning, infanticide by, test for live birth in cases of, 142
 DRUCKERY, H.: Cancer claims, 520
 Drug addiction, problem of (Sir Malcolm Delevingne), 690
 Drug addiction treatment (G. Laughton Scott), 1149
 Drug rash, 97
 Drugs, barbiturate, poisoning by in France, 263
 Drugs, barbiturate, poisoning by, review of book on, 19—Correspondence on, 140
 Drugs, dangerous, traffic in, 45, 478—In Egypt, 28, 45—Home Office statement to League of Nations, 473—Parliamentary notes on, 45
 Drugs, narcotic, in treatment of nervous and mental patients (Lord Horder), 222, 619 (O)—Discussion, 222. *See also* Narcotics
 Drugs, new for old, 646
 Drugs, vegetable, of India, review of book on, 1134
 DRUMMOND, J. C.: *Lane Medical Lectures: Biochemical Studies of Nutritional Problems*, 776
 Drunkenness from methylated spirits (parliamentary note), 1083
 Dublin. *See* Ireland
 Dublin County, health of, 877
 Ducks' eggs. *See* Eggs
 DEBLIN, Dr.: Infant mortality and expectation of life in New Zealand, 784
 DUDLEY, Surgeon-Captain S. F.: Immunization in the specific fevers, 273
 DUEL, Arthur Baldwin: Operative treatment of facial palsy, 1027 (O)
 DUFF, A.: X-ray examination of empyema cavities, 921
 Dufferin (Countess of) Fund, work of, 914
 DUFFOUR, J.: Carbon dioxide for the newborn, 728
 DUGDALE, J. N.: "Praise and dispraise of doctors," 493
 DUNN, J. B.: Pathology of coronary occlusion, 1021
 DUGUID, Major John Hay, obituary notice of, 336
 DUBARRIC DE LA RIVIERE, R.: *L'Immunité par Mécanisme Physico Chimique*, rev., 118
 DEKE-ELDER, Sir Stewart: *Recent Advances in* . . .
 D comes.
 D pre-
 disposing to *B. coli* infection after post-operative retention, 453 (O)
 DUNDAS-GRANT, Sir James: Mucopurulent tubo-tymppanic infection, 225—Asthma in children, 231—Appreciation of Robert Alexander Gibbons, 493—Aetiology and treatment of asthma, 1069
 Dundee. *See* Scotland
 DENHILL, T. P.: Preliminary ligature for toxic goitre, 84
 DENHILL, Sir Thomas: The thyrotoxic heart, 1172
 DENLEVY, A. J.: Adrenaline and cerebral haemorrhage, 578
 DENLOP, B.: "Applied human biology," 1173
 DENN, J. P.: Campaign against tuberculosis, 665
 DENN, J. T.: Chemical research and industry, 223
 DENN, Naughton: Congenital club-foot, 1012—Fracture of neck of femur and intra-articular arthrodesis of hip, 1012
 DENN, Shaw: Bright's disease, 601
 Duodenal ulcer. *See* Ulcer
 Duodenal ulceration and cholecystectomy. *See* Cholecystectomy
 Duodenum and the Kirby grip, 955, 1077, 1173
 Duodenum, radiology of (C. Cochran-Slanke), 319, 1032 (O)—Discussion, 319
 Dupuytren's contraction (parliamentary note), 624
 DURAND, Paul: The James Mackenzie of France, 874
 DURANT, Senator Francesco, death of, 631
 Dust, review of book on, 812
 DURANT: The guttural, 524
 DWELINKA, rural, reconditioning of (parliamentary note), 1225
 DUFFALL, Prentiss, obituary notice of, 144
 DYER, S. C.: Clinical pathology of coma, 21—Duchenne's, 254
 Dysmenorrhoea in virgins, treatment of, 578
 Dystrophic and degenerations of muscle (Arnold Scrobby), 777

GALLARDO, Angel, death of, 572.
GALLEY, A. H. and Gerald SLOTT: Pharmacology and Therapeutics of sodium evipan, 201 (O).
Galway county, health of, report, 539.
Gangrene, diabetic, in a young woman (F. W. Bury), 811.
Gangrene of finger caused by insect bite, 240.
Gangrene, gas, restricted to the subcutaneous tissues (Margaret Moore White), 937 (O)—Correspondence on, 1073.
GARDEN, A. S.: Results of ante-natal care, 221.
GARDINER-HILL, H.: Intersexuality in man, 82—Oestros-producing hormones, 268.
GARDNER, James: European children in the Tropics, 1025.
GARLAND, Hugh G.: Diagnosis of intracranial tumour, 346 (O)—Female "bleeders," 774—Unsettled problems of neurosyphilis, 733—Uveo-parietal tubercles, 1123, 1220.
GARROD, Lawrence P. and Geoffrey HANFIELD: Recent advances in Pathology, Second edition, rev., 19—Antiseptics in control of bacterial infections, 318—Staphylococcal infections, 319.
GARVE, Colonel John, obituary notice of, 336.
Gas detectors in mines, automatic, (parliamentary note), 149, 1022.
Gas gangrene. *See* Gangrene.
Gas in Housing and Slum Clearance, 531.
Gas, mustard, new cases of war blindness due to (Reginald E. Bickerton), 763 (O).
GASCARD, Dr., death of, 465.
GASTINEL, P. (and R. PULVENIS): *La Syphilis Experimentelle. Etude Critique et Nouvelles Recherches*, rev., 471.
Gastric dilatation, acute, with perforation, after hysterectomy (J. Roussel), 1071.
Gastric neoplasm: gastrectomy (A. B. Davies), 116.
Gastro-intestinal motility and cerebral cortex, 646.
Gastric ulcer. *See* Ulcer.
Gastro-intestinal conditions, radiological diagnosis of (S. R. Kirklin), 957.
GAUTIER-BUTH, C. E.: Results of ante-natal care, 220.
GAUTAIN, Sir Henry: Occupational therapy, 133, 283—Report on the Lord Mayor Treloar Cripples' Hospital, Alton, 733.
GAYLOR, J. B.: Intrinsic nervous mechanism of the human lung, 885.
GEBBIE, Nicholas: Report on the nutrition of school children in Hull, 656.
GEBHARDT, K.: "....."
GEBHARDT, L.
Gee's disease, and others, 918—A correction, 1026.
"Gelaphane," a substitute for oiled silk, 664.
General Medical Council. *See* Council.
General medical service. *See* Medical.
General practice, opportunities of (W. H. F. Oxley), 820.
General practice, treatment in. *See* Treatment.
General practice, whither? 742, 793, 836, 883, 928, 1019, 1079.
General practitioner, articles for the, 1058.
General practitioner, laboratory equipment for. *See* Laboratory.
General practitioner and maternal mortality, 1088.
General practitioner and radiology (J. H. Douglas Webster), 275—Discussion, 275—Demonstration, 276.
General practitioner, radiology as an aid to the. *See* Radiology.
General practitioner, the schoolmaster, and the specialist, 283, 373.
General practitioner's nightmare, 751, 752.
Generalizations, fallacious (leading article), 475.
Genito-urinary system, electrotherapy in treatment of (W. J. Turrell), 160 (O), 225—Discussion, 225.
Genito-urinary system, x-ray treatment of disease of (G. Harri-on-Orton), 343 (O).
GERAGHTY, J. A.: Gee's disease, 918.
GERLACH, Dr.: Filterable viruses, 483.
"German measles" : a plea, 383, 566. *See also* Measles.
Germany: Food poisoning by ducks' eggs, 1002—Suicides in 1922: numbers, 934.
GERVAIS, Albert: *A Surgeon's China*, rev., 605.
Gestation, extrauterine, Cullen's sign in (Frank Stabler), 255.
Gestation, ectopic, ruptured, autotrans-fusion in, 1126.
Gestation, extrauterine and intrauterine concurrent (H. Grey Nassichli), 227.
Gestation. *See also* Pregnancy.
GHOSH, R. (and D. Samal): *Vegetable Drugs of India*, second edition, rev., 1104.
GIBBERD, G. F.: Is the maternal death rate really high? 1002.
GIBBONS, Robert Alexander, obituary notice of, 453, 552.
GIBBS, H. E., appointed Officer of the Order of St. John of Jerusalem, 24.
Gibraltar, health of: Annual report, 243.
GIBSON, C. R. Pellmar, 121.
GIBSON, Frederick Goulburn, obituary notice of, 1223.
GIBSON, George: Voluntary sterilization, 603.
GILBERT: Cystic disease of the lung, 773.
GILFORD, Sidney, elected chairman of the Reading Insurance Committee, 927.
GILES, J. L.: Nutritional anaemia, 112—Typhus fever, the Tyrore, 220.
GILL, Cary, W. C.: Aetiology and treatment of asthma, 1003.

- GILLESPIE, John R.: Tuberculin, 39—Achlorhydria, 218.
- GILLESPIE, R. D.: Organic and functional nervous disorders, 268.
- GILLIES, Sir Harold: A disclaimer, 380—Honorary Fellowship of the American College of Surgeons conferred on, 927.
- GIMLETTE, John Desmond, obituary notice of, 378.
- GRIBBLESTONE, G. R.: Acute and chronic sprain, 321—Pott's paraplegia, 1012.
- GRIGGS, Ramesses: Schistosomiasis (*Bilharzia*), rev., 1103.
- GRIFFIN, Robert John, obituary notice of, 747.
- GRIFFING, Harold: Case history in ophthalmology, 1001.
- Glanders, diagnosis of, 618. *See also* Epitome, paragraph 95.
- Glands, parathyroid, growth-retarding function of (T. Lloyd Hughes), 1121.
- Glasgow. *See* Scotland.
- Glass catheters. *See* Catheters.
- Glass identified by ultra-violet rays, 976.
- Glass safety, in motor vehicles (parliamentary note), 96.
- Glass, "steaming" prevention of, 976, 1026.
- Glaucoma, congestive, aetiology and treatment of (J. Jameson Evans and Philip Jameson Evans), 133.
- GLOVER, J. Allison: Acute streptococcal throat infections, 566.
- GLOVER, Lewis G.: Medical benevolence, 836 attacks
- GODLEE, Philip, presents a silver dagger to Lister House, Manchester University, 1180.
- Gogarburn Certified Institution, Edinburgh: dispensaries in the Punjab, 528.
- GOLDBEIN, P. Lionel: Treatment of chronic nasal discharge, 89.
- Goitre, exophthalmic. *See also* Graves's disease.
- Goitre, toxic (James M. Graham and H. L. Wallace), 845 (O).
- Goitre, toxic, operation for, 84.
- Goitre, toxic, preliminary ligature in, 81, 136, 181, 569, 609, 656, 699.
- Gold therapy in pulmonary tuberculosis, 727. *See also* Sanoerysin.
- GOLDBENGER, Pellagra, 121.
- GOLDBER, Ismay (and Hugh QUICKER): *Housing and Slum Clearance in London*, rev., 257.
- GOLDSCHMIDT-FÜNSTNER, Paul: Head and foot presentation, 577.
- GOLDSMITH, Margaret:—*Mesmer: the History of an Idea*, rev., 20.
- GOLDSTEIN, Hyman I.: Female "bleeders," 1016.
- Golf, medical: Scottish Medical Golfing Society's inaugural meeting, 229—Sussex Medical and Dental Golfing Society's autumn meeting, 754.
- Gonococcal infection, review of book on, 593—Correspondence on the review, 706.
- Gonorrhoea, review of book on, 772.
- GOODALL, Joseph Strickland, obituary notice of, 1020, 1130.
- GOODHART, G. W.: Achlorhydria, 218—Anaemia and their treatment, 830.
- Goodwin, G. P.: Cutaneous manifestation of vitamin A deficiency, 113 (O).
- GORDON, J. E.: Isolation period in scarlet fever, 215.
- GORDON, R. G.: *The Neurotic and His Friends*, rev., 1046.
- GORDON, W. S.: Louping-ill in man, 261.
- GORDON-TAYLOR, G.: Bad surgical risks, 265, 755 (O).
- GOSSE, A. Hope (and G. S. ERWIN): Pulmonary tuberculosis after sunbaths, 15 (O).
- GOSPIR, William H.: Case of angular pregnancy, 184.
- GOSCH, Dr.: The septic hand, 220.
- GOULD, Eric Pearce: London University and its medical schools, 1018.
- GOULD, G. M.: *Gould's Pocket Pronouncing Medical Dictionary*, tenth edition, rev., 308.
- GOULD, R. Blair: A disclaimer, 152.
- GOVER, M.: Influence in the United States, 997.
- GRAHAM, J. D. P.: High therapeutics, 240.
- GRAHAM, James M. (and H. L. WALLACE): Toxic goitre, 845 (O).
- GRAHAM-LEITCH, Sir Ernest: London University and its medical schools, 962.
- GRANGER, E. Douglas: Organic and functional nervous disorders, 268.
- GRANT, Gordon Allison, elected to a Beit Memorial Fellowship, 128.
- GRANT, R. T.: Pathology of coronary occlusion, 221.
- Grannie froide (leading article), 815—A correction, 830.
- GRAY, A. M. H.: Treatment of lupus vulgaris, 322—Furuncle infections of the feet, 322, 541 (O)—London University and its medical schools, 1175.
- GRAY, D. Macleod: The swab in diphtheria diagnosis, 372—Elected dean of the Medical Faculty of the University of London, 924.
- GRAY, E. E. D.: London University and its medical schools, 1018.
- GRAY, F.: *Whither general practice?* 793.
- GRAY, Janet, M.C.: The swab in diphtheria diagnosis, 706.
- GREEN, David Ezra, elected to a Beit Memorial Fellowship, 128.
- GREEN, H. H.: Nutrition and disease, 527.
- GREEN-AMMATT, V. B.: Ovarian causes of pelvic pain, 266—Anaemia and their treatment, 830.
- GREENHORN: Influence of heat and light on nasal mucosa, 951.
- GREENFIELD, C. R. M. (and J. Pickford MARSDEN): Inherited small-pox, 777.
- GREENFIELD, J. G.: Clinical pathology of coma, 81—Diagnosis of intracranial tumours, 1070.
- Green's *Manual of Pathology*, fifteenth edition, rev., 516.
- GREENWOOD, J. M.: Salyrgan in cardiac oedema, 1086—Puerperal sepsis: serum treatment, 1120.
- GREENWOOD, Major: London University and its medical schools, 1072.
- GRIGNON, H. Chodak: Encephalitis, 222.
- GRIGG, A. W.: Historical sketch of the city of Melbourne, 79.
- GRIGG, J. Russell: Report of the Animal Diseases Research Association, 180.
- Grenada, health conditions in (parliamentary note), 1133.
- GRIVER, W. P.: Results of ante-natal care, 221.
- GRIFFITH, A. D.: The eyes as a cause of headaches, 227, 295 (O)—Blindness following N.A.B., 263—Local ultra-violet therapy in eye disease, 270.
- GRIFFITH, Fred: Acute streptococcal throat infections, 565.
- GRIFFITH, Walter, S. A.: Plea for abolition of the pelvimeter, 1075.
- GRIFFITHS, Gilbert Henderson, obituary notice of, 236.
- GRIFFITHS, Ivor, appointed a Streatfeild scholar, 41.
- GRIGAUT, A.: Evils of a sedentary life, 1089.
- GRIGNON: The spleen and carbohydrate metabolism, 477.
- GRIGNON: Position of
- GRIGNON: Therapeutic.
- GRUNERT, Karl: *Die Dehnung des Auges (Myopie) und ihre Behandlung*, rev., 1151.
- GRUNIN: Diagnostic test for cancer, 1156.
- GRUNIN, Dr.: Tuberculosis, 482.
- GRUNOT, D., one hundred and second birthday of, 1085.
- GRUBERT: *The guttadiaphot*, 524.
- Guillotine, tonsil, 1152.
- GUYRAL, M. L.: *Injection Treatment in General Practice*, rev., 1048.
- Gumma of the brain, with a report of a case treated surgically (J. E. PATERSON and
- GUNAWARDENE, H. O.: Prognosis in hypertension, 578—Is high blood pressure a risk? 639—Traumatic rupture of the heart without external injuries, 942.
- GUNN, J. A.: *An Introduction to Pharmacology and Therapeutics*, fourth edition, rev., 682.
- GUNTHER, R. T.: *Oxford and the History of Science*, 911.
- GUTZBERG, Professor: Rheumatoid arthritis, 127.
- GUTTA, S. P. (and Lieut.-Col. G. T. BURKEL): Dry pleurisy with high eosinophil leucocytosis, 15.
- GUSTENSON, F. R.: Modified ether inhaler, 473.
- Guttadiaphot, the, 524.
- GUY, John: Report on the health of Edinburgh, 79.
- Gynaestics, review of book on, 905.
- Gynaecology, pipe cleaners in, 618.
- Gynaecology, principles of, 182.
- Gynaecology, review of books on, 62, 257.
- Gynaecology. *See also* Obstetrics.
- GRÖNY, T. von, awarded the Karl Sudhoff medal, 889.
- HABERLING, W.: *German Medicine*, rev., 596.
- HACKETT, L. W.: Subspecies of *Anopheles maculipennis*, 134.
- HADDOW, Major A. C.: Efficiency Decoration of the Territorial Army conferred on, 972.
- HADFIELD, O. F.: Closed anaesthesia with CO₂ absorption, 224—Use of sodium evipan in midwifery.
- HADFIELD, Geoffrey (and Lawrence P. GARROD): *Recent Advances in Pathology*, second edition, rev., 19.
- Haematemesis in peptic ulcer, mortality from, 920, 1176.
- Haematemesis, prognosis of (T. A. Lloyd Davies and H. W. Nevins), 858 (O).
- Haemoptysis, endotracheal injections of adrenalin in, 1123.
- Haemoptysis, treatment of, 364, 881.
- Haemoptysis: Pathology and treatment (H. V. Morlock and A. J. Scott Pinchin), 762 (O)—Correspondence on, 833, 1123.
- Haemorrhage, cerebral, and adrenalin, 578.
- Haemorrhage from peritonsillar abscess, 284, 371, 491, 533, 612, 657.
- Haemorrhage in prostatectomy, control of, 700, 744.
- Haemorrhage, urethral, and thrombosis of the penis (Clifford Morson), 249 (O). *See also* Penis and Thrombosis.
- Haemostasis, subcutaneous, in operations (J. Riese), 648.
- HAIR, Norman, a disclaimer *re* *An Encyclopedia of Sexual Knowledge*, 152.
- HAIRMAN, Josef, Honorary Fellowship of the American College of Surgeons conferred on, 927.
- HALDANE, J. B. S.:—Unemployment assistance: determination of needs, 235—Awarded the Copley medal of the Royal Society, 911—Norman Lockyer Lecture on human biology and politics, 1054.
- HALL, J. A. Moore: Case of erythroderma, 706.
- HALL, Surgeon Vice-Admiral R. W. B., appointed Honorary Physician to the King, 89.
- HALL, Walter and Eliza Institute of Research, Melbourne: Report, 819. *See also* Research.
- HALLAM, Rupert: Treatment of lupus vulgaris, 322.
- HALLLOWES, Collis: British and foreign health resorts, 228.
- HAMILTON, J. A.: Traumatic rupture of the heart without external injuries, 1101.
- HAMILTON, W.: Scottish health services, 181.
- HANFSTUNGE, C. H.: Compilation of pharmacopoeias, 173.
- Hampshire boundary in the vicinity of Bourne-mouth, 564.
- Hand, the septic (R. Kennon), 220, 1189 (O)—Discussion, 220—Correspondence on, 375.
- Hand, the septic, infra-red rays in treatment of, 375.
- HANF, L. M.: Cause of monogonism, 1265.
- HANNAN, John H.: Tobacco angora, 922—Spontaneous regression of cancer, 1077.
- HANNESON, Gudmundur, awarded the gold medal of honour by the University of Hamburg, 889.
- HARRISON, J.: Report on the health of county Dublin, 877.
- HARRISON, Juliette: Frequency of alcoholic cirrhosis, 629.
- HARPCASTLE, D. H.: A psychotherapeutic follow up, 1156.
- Chemistry and Physiology, 361.
- HARMAN, John, awarded the E. G. Fearnside scholarship, 236.
- HARMAN, N., Bishop: Election to General Medical Council, 880—Representation of England, 880.
- HARMON, P. H.: Polymyositis, 853.
- HARPER, W. G.: Medical benevolence, 837.
- HARPER, Philip: Radical cure of hernia, 266.
- HARRIES, E. H. R.: Immunization in the specific fevers, 274—Acute streptococcal throat infections, 568.
- HARRIS, D. T.: *Experimental Physiology for Medical Students*, second edition, rev., 913—*Practical Histology for Medical Students*, third edition, rev., 1048.
- HARRIS, H. A.: Adolescent and senile kyphosis, 271.
- HARRIS, Leslie:—Unemployment assistance: determination of needs, 235.
- HARRIS, T. A. B.: Closed anaesthesia with CO₂ absorption, 223, 489.
- HARRIS, Wilfred: Headaches in relation to similar conditions, 227, 298 (O).
- HARRISON, diast cards at, 618.
- HARROW, Benjamin (and Carl F. SHERWIN): *The Chemistry of the Hormones*, rev., 773—A correction, 844.
- HART, Ernest: 1836-1898, 795.
- HART, Philip D'Arcy, awarded a Dorothy Temple Cross Research Fellowship in tuberculosis, 76.
- HARTENBERG, P.: Infantile convulsions, 522.

- HARTFALL, Stanley J. (and Carlton Oldfield): Severe menorrhagia due to chronic thrombocytopenic purpura, cured by splenectomy, 8 (O).—(And Leslie N. Pyrah): Mediastinal and apical emphysema, 1039 (O).
- HARTMAN, Carl G. (and William L. Straus): *Hallucinations et Délire*, rev. 635
- Harvelan Festival, 778
- Harvelan Oration: Inventions and the outlook in neurology (James Collier), 707
- HARVEY: Variations in the normal blood count, 867
- HARVEY, Major General D.: Typhus fever in the Tropics, 320
- HARVEY, E.: Gee's disease, 919—A correction, 1026
- HARVEY, S.: Case of *Br. abortus* fever, 470
- Harvey, William, and literature, 124—Memorial H. d *Operative Orthopédie*, rev., 1201
- HASSON, James: Treatment of trichophyton infection, 928
- HASTINGS, Violet E.: Maternal mortality in Maoris, 235
- HAUDUROTH, Paul: *Les Ultravirus Pathogènes et Sanophytes*, rev., 554
- HAUTANT, A.: Treatment of Ménière's disease, 825
- HAVE, Philip: Swallowing of open safety-pins, 1017
- HAWES, A. J.: Medical benevolence, 745—The death of Maurice's sister, 732, 844—A correction, 844
- HAWESLEY, J. C.: Icterus gravis neonatorum, 73
- HAWORTH, W. N.: awarded the Davy medal of the Royal Society, 911
- HAY, James R. W.: Dosage of vitamin D, 967
- HAY, John: Prognosis in coronary occlusion, 825—Title of Emeritus Professor conferred on, 924
- HAYDEN, J. Murray: Gee's disease, 918
- HAYWARD, W. D.: Chloroform analgesia in maternity cases, 1222
- Head and foot presentation, 380, 577 (Griffith, Harris).
- Headache following lumbar puncture (H. W. Allen), 349 (O)
- Headlamp, an improved, 1202
- HEALD, C. B.: Short wave diathermy, 1013
- Healing of a wound (leading article), 71. See also Wound
- Health and the architect, 1058
- Health and Cleanliness Council issues a revised edition of its pamphlet, 249—Issues a new poster, "Health Insurance," 655—Annual luncheon, 1008
- Health Department of Scotland: Annual report, 32
- Health education, conference on, 875
- Health and housing, 565
- Health education and propaganda (in Cheshire), 239
- Health exhortation from Scotland, 691
- Health and human progress (René Sand), 732
- Health, Industrial, Research Board, report, 647
- Health, international (leading article), 593
- HEALING MINISTRY:
- Anemia, pernicious, nature and treatment of, Report, 726
- Annual report (1933-4), 358, 589, 638
- Blind, welfare of, advisory committee re-appointed, 29
- Blind, welfare of in Wales and Monmouthshire, 1227
- Blindness, conflicting decisions in, 576
- Estimates, 41
- Hospital equipment, standardization of, 228
- Houses of the working classes, 211
- Housing policy, 655
- ...ses of, 78
- ... reports of,
- News, accidents in: Report 367
- Town and country planning, advisory committee appointed, 191
- Water resources, deputation to the Minister re, 179
- Water supplies and the drought, 250
- Health Notes for Young Men Overseas, rev., 692
- Health questions, international co-operation on (Office International d'Hygiène Publique in Paris), 39—Port sanitation, 39—Recent work on yellow fever, 39—Cholera prophylaxis, 39—Small-pox and vaccination, 39—Typhus fever, etc., 39
- Health Research Board, Industrial, report, 647
- Health Resorts Association, British. See Association
- Health resorts, British and foreign (E. P. Pontillon), 228, 1037 (O)—Discussion, 223
- Health services of Bournemouth, 251
- Health services of the nation. See Health Ministry, general report
- Health services, Scottish (leading article), 25—Correspondence on, 151
- Health services in India since 1921 reforms (parliamentary note), 1153
- Health visiting in America, a national survey, 229
- Health work, international, 642
- HEALY, T. M.: Some personal prejudices, 917
- Hearing, defective, as a national problem (G. P. Crowden), 323, 350 (O)—Discussion, 323
- HEARN, Reginald, appointed assistant deputy coroner for Central London, 97—Appreciation of Sir James Kingston Fowler, 115
- Heart, congenital, pre-natal diagnosis of, 743—See also Cardiac murmurs
- Heart disease and labour, 578
- Heart failure, congestive, total thyroidectomy in treatment of (O. Brenner, Hugh Donovan, and B. L. S. Martag), 624 (O)
- Heart, malformation of, uncommon (Harold E. Harding), 306
- Heart, review of book on, 1201
- Heart, rupture of, traumatic, without external injuries (H. O. Gunewardene), 942—(J. A. Hamilton), 1101
- Heart, thyrotoxic (B. T. Parsons-Smith), 1171—Discussion, 1172
- Heart. See also Cardiac
- Heart-block, congenital (Joseph Lewis), 1095 (O)
- Heat and light, influence of on nasal mucosa, 551, 1014
- HEATH, Charles Joseph, obituary notice of, 186, 735
- Heating, review of book on, 516
- HEBDLOM, Carl Arthur, death of, 1021
- HEGARTY, D. F.: Bilateral renal calculus, 1071
- HEGLER, A.: Influenza, 1205
- HELLGREN, L.: *La granulie froide*, 815
- HENCH, Tuberculous rheumatism, 1108
- HENDERSON, D. K.: Mental health services, 365—Report of the Royal Edinburgh Hospital, Morningside, 736
- HENDERSON, Major-General P. H.: Defective hearing as a national problem, 324
- HENDERSON, Thomson: Constitutional factor in myopia, 132
- HENDERSON, W. Savile: The general practitioner, the schoolmaster, and the specialist, 373—Whether general practice? 742
- HENDRICK, Ives: *Facts and Theories of Psychodiagnostics*, rev., 120
- HENDRY, E. B. (and Sydney Smith): Arsenic in its relation to the keratin tissues, 675 (O)
- HENRY, J. N.: Poliomyelitis, 863
- HENNESSY, R. S. F.: Typhus fever in Uganda, 14
- HENRIJEAN, F.: *Le Dualisme de la Contraction Cardiaque*, rev., 210
- BERRY VIII, picture of in the Royal College of Surgeons (C. J. S. Thompson), 651
- Hepatic flexure, non malignant stricture of (A. L. Candler), 1173
- HEPPER, Lieut.-Col. Evelyn Charles, obituary notice of, 662
- Herbalist at home, 630
- Heredity and mental deficiency, 33
- Heredity: Morbidity in a family tree (Walter P. Ken -ed), 630 (O). See also Morbidity
- Heredity and tuberculosis (Karl Diehl and Omayr V. Verschuer), 1055
- HERNIMAN-JOHNSON, F.: Control of prophylactic x-ray treatment in breast cancer by serum tests, 534—Spontaneous regression of cancer, 1078—Constitutional effects of x rays, 1115
- Hernia operations, physical efficiency after (C. Max Page), 315, 895 (O), 1174—Discussion, 315—Correspondence on, 1174
- Hernia, radical cure of, 256
- Hernias, umbilical, in children, preservation of the umbilicus in the radical cure of (R. Wood Power), 353
- Herpes: Post-herpetic pain, 1185
- Herpes zoster and varicella (Douglas Robertson), 721
- Herpes zoster and varicella, 1025
- Herpes zoster and varicella, concurrent, 836, 834
- HERRINGTON: Influence of heat and light on nasal mucosa, 551
- HENTZLER, Arthur P. (and Victor E. Chesky): *Surgery of a General Practice*, rev., 633
- HESELTINE, Michael: Correction of the Medical Register, 733
- HICBURN, Professor, elected an honorary member of the British Pharmacological Society, 71
- HICBURN, W.: Cancer claims, 520
- HEWER, C. Langton: Evipan on a full stomach, 666
- Hexyl-resorcin during lactation, 975
- HEYN, C. Gordon, appointed to the chair of clinical surgery at Columbia University, New York, 576
- HEYS, Arthur, appointed officer of the Order of St. John of Jerusalem, 24
- HEYWOOD, George Alexander Frederick, obituary notice of, 733
- HIGH, Eustace, 210
- HILL, A. Bradford: Inheritance of resistance to bacterial infection in animal species, report, 643
- HILL, Archibald Vivian, honorary D.Sc. Oxford conferred on, 41
- HILL, Falkner: Sodium evipan, 224
- HILL, Sir Leonard: Economical design of the melted paraffin wax bath, 171—Action of ultra-short waves on tumours, 570—Influence of heat and light on nasal mucosa, 551, 1014
- HILL, Robert, elected to a Beit Memorial Fellowship, 127
- HILL, T. R.: Encephalitis, 222
- HIMMELSTADT, H. P.: High carbohydrate diets: an insulin efficiency, 57 (O), 332—A correction, 338
- HINDMAN, Mr.: Hernia operations, 315
- Hindu-Aryan medicine, ancient (E. W. Lewis), 872
- HINTON, C. L.: *Summary of Food Laws and Regulations*, rev., 170
- HINZKE, K.: *Geographie und Geschichte der Ernährung*, rev., 119
- HIPPLEY, P. L.: Congenital pyloric stenosis, 833
- HIRSCHMANN: Endometrial hyperplasia, 818
- Histology, review of books on, 596, 721, 1045
- HOBHOUSE, Neill: Encephalitis, 222
- Hodgkin's disease with erythema nodosum (C. J. Fuller), 1172
- HOELSCHER, H.: Prophylaxis of whooping-cough, 1109
- HOFFMAN, Frederick L.: his cancer library, 1223
- HOGAN, P.: Plea for abolition of the pelvimeter, 1075
- HOMMANN, Georg: *Fuss und Bein. Ihre Erkrankungen und deren Behandlung*, second edition, rev., 772
- Holburn, health of, report, 825
- Holidays for factory girls, 350
- HOLLAND, Eardley: Anemias and their treatment, 830—Ante-natal care and maternal mortality, 1010
- HOLLINGWORTH, John, obituary notice of, 615
- HOLLINS, T. J.: Ante-natal care and maternal mortality, 1010
- HOLMES, A. H.: Non-tropical solitary abscess of liver, 921
- HOLMES, F. B. G.: appointed Officer of the Order of St. John of Jerusalem, 24
- HOLMES, Geoffrey: British and foreign health resorts, 223
- Holmes, Mr., and Dr. Watson, 273. See also Society, Sherlock Holmes
- Holmes, Sherlock, origins of, 574
- Home for child with eczema, 97
- Home Office: Control of traffic in narcotic drugs, 478
- HOPKIN, Marion O. (and H. Fischer): *The Lymphatic Glands. Their Theory and Practice*, rev., 472
- HOPEWELL-ASH, E.: A disclaimer, 290
- Hopfields, improved conditions in (parliamentary note), 1184
- HOPKINS, Sir Frederick Gowland, awarded the Albert Medal of the Royal Society of Arts, 125—Unemployment assistance; determination of needs, 235—Endowment of clinical science, 1166
- HOPKINS, Robert S.: His family record of hospital service, 333
- HOPWOOD, F. L.: Artificially induced radioactivity, 1115
- HORDER, Lord, appointed Commander of the Order of St. John of Jerusalem, 24—Libel on, an action settled, 44—The use of narcotics in treatment of nervous and mental patients, 222, 619 (O)—"Medicine and Morals," 677—Treatment of influenza, 1059—The thyrotoxic heart, 1172
- Hormone of the suprarenal cortex, 353. See also Cortin, crystalline
- Hormones, inhibitory (leading article), 627
- Hormones, oestrus-producing (E. C. Dodds), 253, 1187 (O)—Discussion, 253. See also Oestrus
- Hormones, review of book on, 773
- HORTON, Thomas, obituary notice of, 735
- HOSKING, Archer: Caesarean section: delivery of a 254-day extrauterine foetus, 111 (O)
- Hospital advertising, 1257
- Hospital, Anglo-Yugoslav Children's at Larnaca, 576
- Hospital, Arusha Mental: Report, 63—Salary of resident medical superintendent, 250
- Hospital, Bampton Mental: Extension, 1167
- Hospital, Bletchley Royal, information concerning, 435
- Hospital, Birmingham General: Gift of x-ray apparatus for treatment of cancer from Sir Herbert Austin, 735. See also Hospitals, Birmingham Centre
- Hospital, Cancer (Free), Fulham Road: Lectures on cancer, 842
- Hospital, Cardiff Mental: Annual Report, 655
- Hospital, Charing Cross: Information concerning the study of medicine, 409—Opening of winter session, 650—Inauguration of the centenary appeal of the medical school, 871
- Hospital, Christchurch, New Zealand: Review of the work of the radium and deep therapy departments, 679
- Hospital, City of London, for Diseases of the Heart and Lungs: Report for 1933 of the pathological laboratories, 253
- Hospital, City of London Maternity: Annual report, 222
- Hospital, Clapham Maternity, ante-natal clinic at, 725
- Hospital, Crumwell, operation of, 1022
- Hospital, Curie (Marie), support of, 11.5—Prime Minister's tribute to, 1125
- Hospital developments, English, 479
- Hospital, Dublin National Maternity: Annual meeting, 723
- Hospital, Dufferin and Ava, Belfast: Report 577
- Hospital, Edinburgh City: Treatment of infectious diseases, 1264
- Hospital, Edinburgh Dental, and School: Price distribution, 31
- Hospital, Edinburgh Royal, for Sick Children: Annual meeting, 723
- Hospital, Edinburgh: standardization of, 228
- Hospital, Exeter (Crumwell Hospital), 1022
- Hospital, Farnborough Institution (British Military), 1022

INCOME TAX (continued):

- Payment of annuity, 843—Under agreement, 98
 Payment for guaranteeing a loan, 1085, 1227
 Payment for introduction of a partner, 48
 Payment of subscriptions, 577
 Proportion of household and car expenses, 290
 Proportion of residential expenses, 1227
 Purchase of additional practice, 653
 Purchase of practice, 844, 1025—Basis of accounts, 1025
 Rent allowance, 192
 Resident patient: expenses, 1025
 Retirement from foreign practice, 705
 Schedule A assessment, 151
 ...
 ...

Indexes, half-yearly, 74, 125

INDIA:

- Armies in, health of, 130
 Assam Branch: Annual meeting, 784
 Bombay, plague epidemics in, 529
 Calcutta School of Tropical Medicine, 765
 Government of India Bill, 1224
 Health services in since 1921 reforms, 1183
 Madras General Hospital, extension of, 130
 Medical aid by women for Indian women, 914
 Medical qualifications, British, in, 1001
 Medical services in Mysore, 915
 Obstetrics in (Rufus C. Thomas), 1067—Correspondence on, 1125
 Parliamentary notes on, 46, 1183, 1184, 1224
 Pasture Institutes, 528
 Public health problems of (Lieut.-Col. A. J. H. Russell), 947
 Public Health in India, 1215
 Punjab, urban sanitation in the, 1215
 Quinine stocks of the Government, 46
 Small-pox epidemic in Bombay, 1215
 Small-pox isolation in, 1184
 ...

- Indian Medical Service, information concerning, 442
 Industrial diseases, medical education in (parliamentary note), 238
 Industrial diseases, review of book on, 595
 Industrial Health Research Board. See Health and Research
 Infant feeding, review of books on, 256
 Infant mortality. See Mortality
 Infanticide by drowning, test for live birth in cases of, 142
 Infantile paralysis. See Paralysis
 Infection of aircraft in Sudan, control of (parliamentary note), 1134
 Infectious diseases, international action to control the spread of (Sir George S. Buchanan), 977 (O)
 Infectious diseases: Provision for cases of, 73—Ministry of Health circular re, 48
 Infectious diseases, review of books on, 591, 595
 Infectious diseases, treatment of (W. T. Benson), 1064
 Infective disease, resistance to (leading article), 613
 Infertility and contraception (leading article), 510
 Infirmary, Edinburgh Royal: Annual meeting of the League of subscribers, 1063
 Infirmary, Hull Royal, annotation on, 485
 Infirmary, Leicester, report: Progress of extension works, 282
 Influenza (Gundel), 1205
 Influenza in Great Britain and New Zealand, 784
 Influenza, review of book on, 633
 ...

- Infra-red rays in treatment of the septic hand, 375
 Inghis, David Wood, obituary notice of, 925, 975, 1062—A correction, 975, 1025
 Inghis, J. T. Fungus infections of the feet, 322
 Inhaler, chloroform (R. Christie Brown), 315
 Inhaler, ether, modified, 473
 Inheritance, morbid, chances of (leading article), 864
 Isaacs, Philip: Oil and Wine rev., 935
 Innominate artery. See Artery
 Inoculation for elementary school children (parliamentary note), 45. See also School
 Insects, common, in London, 454
 Insect bite causing gangrene of finger, 243
 Insect bites and stings, 230, 337
 Institution, Liverpool Medical: Dental problems of medical interest, 832—Manganese poisoning, 833—Silicosis, 878—Coccygeal sinus, 953—Spinal tumours, 951—Growth-retarding function of parathyroids, 1121—Antistreptococcal serum for "rheumatic" adeno as 127—Sterility with ovarian dysfunction, 1217
 Instrument makers at dinner, 825
 Instruments, medical, surgical dental, veterinary, dissecting, etc., additional import duties on, 481
 Insulin, action of (leading article), 519
 Insulin (see also), Wellcome, 814

- Insulin efficiency and high carbohydrate diets (H. P. Himsforth), 57 (O), 338—A correction, 338
 Insurance, Health, in Canada (leading article), 775

Insurance, National Health:

- Approved Societies' surplus funds, 149
 Arrears, extension of period of grace for redemption of, 973, 1224
 Dental benefit, 925
 Extension of in Scotland, 1007
 Leaving school (for children), 1084
 Manual labour contractors, position of, 1022
 Medical benefit, numbers ceasing to be entitled to, 1022
 Medical benefit under the Unemployment Act, 1132
 Members of approved societies: Numbers, 973
 Numbers insured under the Act, 973
 Numbers insured for health and pensions purposes, 928
 Parliamentary notes, 45, 149, 925, 973, 1022, 1084, 1132, 1224
 Schedule to the National Formulary, revised edition, 578
 Scottish Association of Insurance Committees' conference, 653
 Sickness benefit, 1225
 Telephone facilities in rural areas, 1022
 Unemployed, needs of. See Unemployment
 Unemployment Act and medical benefit, 1132
 Unemployment Assistance Board, 45, 1203, 1224
 Unemployment assistance: determination of needs, 235, 311, 1224
 Unemployment. See also Unemployment

- Insurance and public health (leading article), 559
 Intellectual stimulus, study of disease as. See Disease
 International Clinics, vol. i, forty-fourth series, 1934, rev., 682—Vol. ii, forty-fourth series, rev., 96
 Intersexuality in man (H. Gardiner-Hill), 82
 Intestinal obstruction, case of (Arthur H. Richardson), 553
 Intestinal obstruction, review of book on, 904
 Intracranial injury in the newborn, 39—Prevention (Roland H. Natrass), 766 (O)
 Intracranial tumours. See Tumours
 Invalids, transport of by air, 538
 Invalids, transport of by railway, 498, 535 (James)

Ireland:

- Anaemia: yesterday and to-day, 915
 Anthrax in a slaughtered cow, 530
 Armagh Mental Hospital, Report, 80—Salary of resident medical superintendent, 283
 Belfast: Health progress in, 369—Tuberculosis in, 280—Dufferin and Ava Hospital, 607
 County Medical Officers of Health, appointment of: Leitrim, 369, 1168—Lonsford, 1168
 Diphtheria in Cork city, 1168
 Diphtheria mortality, 987
 DUBLIN:
 County Dublin, health of, 877
 King's Professorship of Medicine, T. C. D., 83
 Mercer's Hospital, bicentenary of, 1167
 National Maternity Hospital, 739
 Rotunda Hospital, 189
 Gateway county, health of, 530
 Home Hygiene, 783
 Hospital, public, action against (Kildare), 955
 Irish Medical Association, 80
 Irish Medical Schools' and Graduates' Association, 1066
 Kilkenny, county M.O. H. for, 531
 Local Government and health legislation, 606
 Medical inspection of school children (County Armagh), 739
 Medical treatment of school children (Clogher), 915
 Mental hospitals in the Free State, 373
 Mentally defective child, treatment of, 755
 Midwifery nurses and general training, 710
 Milk Bill (Free State), 473, 693, 1066—Criticisms of, 606
 Milk regulations in Northern Ireland, 739
 Poor Law medical officers, 232—Salaries of, 1167
 Royal Academy of Medicine in Ireland, 607
 Royal College of Physicians, 735
 Ulster Medical Society, opening of session, 954
 Vital statistics: Free State, 141—Northern Ireland, 377

- Irish Medical Association. See Association
 Irish Medical MS., 844
 Irish Medical Schools' and Graduates' Association. See Association
 Irish Texts, Fasc. v, rev., 555
 Irradiation treatment of intrathoracic tumours. See Tumours
 Irvine, K. Neville: The B.C.G. Vaccine, rev., 773, 853
 Irwin, C. Gordon: Acute anileptonic spasm, 321
 Irwin, Henry F. G.: Retroperitoneal sarcomas, 1144
 Irwin, Rachel: Post anaesthetic coma, 914
 Isaac, Captain R. J., appointed a Commander of the Order of St. John of Jerusalem, 51

- ISAACS, Susan: Mental hygiene: preventive measures in childhood, 1169
 Italy: Italian Central Council of the Campaign against Cancer offers prizes for reports of cases in the curable stage, 57—Italian Red Cross offers prize for monograph on malaria, 191
 ITENGAR, Major K. R. K.: Separation of rabies virus from brain tissue, 124

J.

- JACKSON, Chevalier, and endoscopy, 522—(And Chevalier L. Jackson):—Bronchoscopy, Esophagoscopy, and Gastroscopy. A Manual of Peroral Endoscopy and Laryngeal Surgery, third edition, rev., 1150
 JACKSON, I. A., called to the bar, 575
 Jacksonian attacks in connexion with extradural abscess of the frontal lobe (Douglas Y. Richardson), 1101
 JACOBY, D., appointed to the chair of dermatology at Boston, 567
 JACOBS, P., appointed a Streetfield scholar, 41
 JACOMB-HOOD, Charles John, obituary notice of, 1030
 JAMES, E.: The swab in diphtheria diagnosis, 230, 372
 JAMES, Colonel S. P.: Subspecies of *Anopheles maculipennis*, 134
 JAMES, T. G. Illyd (and Norman M. Matthews): Metastatic cerebral tumour with perforation of an acute gastric ulcer, 902
 JAMESON, Major G. D.: Health of Gibraltar, 243
 JAMESON, W. W.: Medical services at home and abroad, 631—Appointed a member of the Industrial Health Research Board, 688—Bacteriological examination of milk, 952
 Japan: Antityphoid inoculation in (M. Tsurumi), 955
 JARMAN, Ronald: Sodium evipan, 224
 Jaundice, catarrhal, following T.A.B. inoculation, 665
 Jaundice, leptospiral, in England (leading article), 27
 Jaundice with pruritus, 48, 338
 Jaundice, spirochaetal haemorrhagic (Well's disease) (W. G. Willoughby and A. G. Shera), 14 (O)
 Jaundice. See also Leptospirosis, Tetanus and Well's disease
 Jaws, residual infection of the (R. S. Taylor), 552 (O), 732—Correspondence on, 745, 752, 834, 957, 1079
 JEANS, Sir James: Address as president of the British Association, 525
 JEANSELM, Ed.: *La Lépre*, rev., 354
 JEFFCOATE, T. N. A.: Sterility with ovarian dysfunction, 1217
 JEFFERSON, Geoffrey: Surgical treatment of embolism of the peripheral arteries, 212, 1070 (O)
 JEFFERIES, Lilius: Acute streptococcal throat infections, 567
 JEMMA, Rocca: Supplement to the June issue of *La Pelitria* dedicated to, 57
 JENNINGS, John Frederick: Obituary notice of 146—Estate and bequests of, 519
 JENSEN, Carl Olaf: Death of, 473—Obituary notice of, 535
 JENTZER: Evipan anaesthesia, 312
 JERN: Bacteriophage therapy, 1110
 JOHNSON, T. B.: Mucopurulent otitis tympanica infection, 227
 JOHANSSON, Sven: *The Operative Treatment of Columnar Fractures*, rev., 723
 JOHN, Henry, J.: *Dialectic Manual for Patients*, rev., 832
 JOHNS, A. Morris: Advertisement of sex literature, 85
 JOHNS, A. W.: Prenatal diagnosis of congenital heart, 743
 JOHNSON, G. E.: Poliomyelitis, 873
 Johnson, Dr. Samuel: The medical and mental history of (W. Russell H. Ann), 493
 JOHNSON, W. H.: Death of, 972
 JOHNSTON, D. J. Gair: Point of entry of the tubercle bacillus, 157
 JOHNSON, Surgeon Commander Stewart Russell, obituary notice of, 1163
 JOHNSON, T. B.: *A Synopsis of Regional Anesthesia*, third edition, rev., 512
 JOHNSTONE, R. W.: Pleurotomy: abolition of the pleurotomy, 1214—A Textbook of *Ministry of Studies and Practitioners* seventh edition, rev., 1151
 JOHNSTONE, T.: Conan Doyle, Bell, and Lippincott, 475
 Joint manipulation as applied to the spine (J. B. Menholl), 1215
 JOLE, Cecil A.: Dissection of thyroid arteries in toxic goitre, 151—Symptoms and signs of cancer, 1215
 JOLY, P. C. FLANNERY and J. P. WATTS: *Life Treatment of the Tuberculous*, 912
 JONES, Dr. John: Obituary notice of, 912
 JONES, E. W.: Cerebral Voluntary Stereotaxia, 935
 JONES, George, obituary notice of, 1163
 JONES, Sir Robert: Mental and Physical Medicine, 1163
 JONES, R. Watson: Transport of cases with back injuries, 1212—Fractures of the neck of the femur and intra-articular arthroplasty of hip, 1012, 1220

LEAGUE OF NATIONS (continued):

Health work of, 72, 642
Hospital developments in England, 479
Morphine, a new source of, 604
Narcotic drugs, control of traffic in, 478
Official and unofficial co-operative action, conference on, 74
Opium and, report of Advisory Committee, 604, 686
Peace and, 701
Radiological treatment of cancer, 217

LEAK, W. N.: Pathology of coronary occlusion, 225—Bad surgical risks, 266—Oedema, its causation and treatment, 315—Female "bleeders," 709, 921

LEAKE, Colonel Josias William, obituary notice of, 146

LEAKE, L. S. B.: *Adam's Ancestors: An Up-to-date Outline of What is Known about the Origin of Man*, rev., 355

LECLAINCHE, Professor: Veterinary sanitation, 481

Lecture, Dixon Memorial, 868, 1161—Pharmacology and nerve endings (Sir Henry Dale), 1161

Lecture, Doxey Memorial: Tuberculosis and its relation to spontaneous post-traumatic and sympathetic ophthalmia (Joseph Meller), 132

Lecture, Finlayson Memorial: History of the prevention of malaria (Sir Malcolm Watson), 1007

Lecture, Harben: Diagnosis of small-pox and the investigation of vaccinia by laboratory methods (W. J. Tulloch), 711

Lecture, Hardy Memorial (Sir Frank Smith), 525

Lecture, Kerr [Norman] Memorial: Some international aspects of the problem of drug addiction (Sir Malcolm Delevingne), 690

Lecture, Lockyer [Norman]: Human biology and politics (J. B. S. Haldane), 1054

Lecture, Semon: Chronic pyogenic inflammation of maxillary antrum and the accessory sinuses (Herbert Tilley), 866, 869

Lecture, Thompson [Silvanus] Memorial: The digestive mucosa (H. H. Berg), 1114

Lectures, Fleischer [Abraham]: To Remind: a biological essay (Sir William Bate Hardy), 1104

Lectures, Lane Medical: Biochemical studies of nutritional problems (J. C. Drummond), 776

Lectures, Milroy: International co-operation in public health. Its achievement and prospects (Sir George S. Buchanan), 998

LEDINGHAM, J. C. G.:—Unemployment assistance: determination of needs, 235—Appointed a member of the Medical Research Council, 648

LEE, Maurice: Rupture of extensor pollicis tendon, 611

LE FLEMING, E. Kaye: Appointed chairman of Council, 214—Radiology and the general practitioner, 275, 462(O)—Acute streptococcal throat infections, 567—Overcrowding in schools, 1204

LEGGE, Sir Thomas: *Industrial Maladies*, rev., 595

LEIGH, Annie T., obituary notice of, 495

LEIPER, D. Paterson: Quinidine, 1025

LEISHMAN, John: Economic aspects of suicide, 1222

Leishmaniasis, mechanical transmission of (J. Jordan Thomson and W. A. Lamborn), 506(O)

Leishmaniasis in Santiago del Estero, forms of (J. J. Canal Feijoo), 514

LITCH, F.: Nutritional anaemia, 122

Le trim County Council and its medical officers of health, 369

LELONG: La granule froide, 815

Lemon barley water, 1048

LEMPIRE, L. R.: Acute streptococcal throat infections, 563

LENNHAN, Major Thomas Joseph, obituary notice of, 1084

Leulograd, diphtheria immunization in, 1003

Leuces, patented (Alfred Cowan), 1153

Lepers in Norway: Numbers, 1024

Leprosy Relief Association, British Empire: Change of address, 487

Leprosy relief and cure in British Guiana, 633

Leprosy, review of books on, 166, 354

Leptospirosis in Queensland (J. Graham [Drew]), 1142(O)

Leptospirosis, recent work on, 727—Report of a series of cases occurring chiefly among fish workers (L. S. P. David, R. M. Campbell, H. J. Rae, and J. Smith), 1137(O)—Leading article on, 1155. See also Well's disease and Jaundice

LEITCH, Professor: Rheumatoid arthritis, 127

LEITCH, S. J. J.: Undulant fever in Paris, 522

LESLIE, Margaret (and J. E. PATTERSON): *Gumma of the brain*, 103(O)

Le Sud Médical et Chirurgical for June devoted to surgery of childhood and orthopaedics, 191

Let there be light, 729

LEWIS, W. A.: Eradication of bovine tuberculosis, 538

LEWIS, E. (and J. CARSTENSON): *Les Réactions du Tissue Pulmonaire dans la Tuberculose*, rev., 355

LEVINE, N. A.: Auricular fibrillation and flutter of unknown aetiology, 560

LEWIS: Causation of skeletal muscle pain, 563

LEWIS, Aubrey J.: Organic and functional nervous disorders, 284

LEWIS, E. W.: Ancient Hindu-Aryan medicine, 872

LEWIS, Joseph: Congenital heart-block, 1095(O)

LEWIS, Sir Thomas: *Clinical Science. Illustrated by Personal Experiences*, rev., 504

LEWIS-PHILIPS, H.: Post-herpetic pain, 1185

Libel on a doctor (Garth ApThomas), punishment for, 1223

Libel on Lord Horder: an action settled, 44

LIBMAN, Julius: Treatment of haemoptysis, 832

Libraries [Special]: Association of, and Information Bureau: Annual conference, Oxford (1934), 191

Licensing and teaching, medical, in the provinces (J. A. Nixon), 559

LIDDIARD, Mabel: *The Mothercraft Manual, or The Expectant and Nursing Mother and Baby's First Two Years*, rev., 774

LIEGE, R.: *Transfusion du Sang et Immuno-Transfusion en Pratique Médicale. Indications, Résultats, Accidents*, rev., 722

LIEH-TEH, Wu (J. W. H. CHUN, R. POLLITZER, and C. Y. WU): *Cholera: A Manual for the Medical Profession in China*, rev., 307

Life, expectation of in New Zealand, 734

Life, sedentary, evils of (G. Laroche, de Chaise-martin, and A. Grigant), 1089

Life statistics in Scotland, 827. See also Vital

LIGHT, Amos E.: Graham Lusk, 664

Light and heat, influence of on nasal mucosa, 551, 1014

Lightning burns. See Burns

Lights, signal. See Signal

LIGHTWOOD, R.: Icterus gravis neonatorum, 73

LILLY, Eli: The work of the Lilly Laboratories, 795

LILLY, J. K.: Research in manufacturing pharmacy, 795

Lilly Research Laboratories. See Research

Limbs, normal, clinical features of (Basil Graves), 362

Lincolnshire, food poisoning in (parliamentary note), 239

LINDBERG: Hyperpituitarism and Graves's disease, 361

LINDHARD, J.: *The Theory of Gymnastics*, rev., 935

LINLITHGOW, Marquess of, appointed chairman of the Medical Research Council, 604

Lip, chronic enlargement of, 1024, 1035

Lipiodol bronchography followed by acute iodism (J. G. Scadding), 1147(O)

Lipiodol and x-rays in pelvic trouble (Farquhar Murray), 36

LISTER, Lieut.-Col. A. E. J.: Appreciation of Arthur Bernard Cridland, 92

LITTLE, Dr.: Infective mastitis, 481

Liver, yellow atrophy (subacute) of, after cinchophen (Thomas N. Fraser), 1155(O)

Liverpool, maternal mortality in (parliamentary note), 887—Port sanitation in, 129—Psychiatric clinic, work of, 327

Liverpool Medical-Chirurgical Journal, vol. xlii, Part I, rev., 475

Liverpool: Medical Institution. See Institution

LIVINGSTONE, J.: Aetiology and treatment of asthma, 1069

LIANAS, J. Cardus: Carbon dioxide for the newborn, 723

LLOYD, David Charles, obituary notice of, 145

LLOYD, Eric I.: Late tendon suture, 165(O)

LLOYD, John Trywern, sentence on, 239

Local Government Amendment Bill (Irish Free State), text of, 606

Local authorities and maternal mortality (parliamentary note), 887

Local government hospital services, information concerning, 433

LOEBEL, Josef: *Whither Medicine?* 645

LOEFFLER, Maurice: *Thérapeutique Médicale: Vol. vii, Favaux et Reins*, rev., 635

LOEWENTHAL, Max: *Life and Soul: Outline of a Future Theoretical Physiology and of a Critical Philosophy*, rev., 257

LOGAN, J. S.: Results of ante-natal care, 221

LOKHOLT, Svend: Treatment of lupus vulgaris, 291(O), 321

LONDON:

Child guidance in, 658

Children of, health of, 365

City of, report on, 673

Coroners' inquests in, 484

County Council. See Council

Health of: Annual report, 635

Intercollegiate Scholarships Board awards, 41, 333

Medical exhibition, 739

Medical schools and London County Council hospitals: Co-operation in teaching, 211

Medical schools and London University. See University

Port of London, Report for 1933, 450

Refuge. See Refuge

Routes out of, 923

School children, nutrition clinics for, 1183

School of Tropical Medicine. See Hygiene and Tropical Medicine

University of. See University

Water supply of in a dry year (leading article), 259

LONG, S. H.: Climatic factors and disease, in

LOTTA: Infant mortality and expectation of life, 784

LOTTERIES: See Betting and Lotteries Bill

LONGHANE, F. McG.: Control of haemorrhage in prostatesctomy, 700

LOURDES: this man, 281

LOUNN, Emanuel: Manx, elected to a Fellowship, 127

LOVSTED, Dr., death of, 455

LOW, G. Carmichael (and N. HAMILTON FAIRLEY): Fatal perforation of calcium in a case of strychnine, 678(O)

LOWE, G. Cronin: Control of treatment in cancer by serum tests, 610

LOWE, Walter George, obituary notice of, 833

LOWENFELD, Margaret: Endocrines and sex constitution, 83—Mental hygiene in childhood, 117

LOXLEY, Councillor: Voluntary sterilization, 995

LYBET, J. V. H.: A campaign against rats, 333

LYCKES, Matthew: *Seeing and Hearing Without*, 729

LYER, S. Gordon: Results of ante-natal care, 221—Diathermy cutting current in cervicitis, 315—Pyelitis of pregnancy, 316—Retroversion of the uterus, 316, 780(O)

Lumbago, exercises for, 48, 151

Lumbar puncture followed by headache (H. W. Allen), 349(O)

Lung, cystic disease of the (Debré and Gilbric), 773

Lung, human, intrinsic nervous mechanism of (J. B. Gaylor), 625

Lung infiltration treated by artificial pneumothorax (G. Faldella), 593

Lungs, postural drainage of the (H. P. Nelson), 251(O)

Lungs, traumatic rupture of, without signs of trauma in the chest walls (W. E. Cockle), 629

(O)—Correspondence on, 700

Lungs, effects of x-rays on (Rolf Bull Enckelstad), 364

Lupus vulgaris, treatment of (Svend Lomholt), 291(O), 321—Discussion, 321—Correspondence on, 375, 490

LUSK, Graham, 664

LYLE, T. Keith (and F. G. FENTON): Advantages of intravenous (eviran) anaesthesia in ophthalmic surgery, 533(O)—Eviran on a full stomach, 700

Lymphadenosis, subleukaemic, in a child (G. Stewart Smith), 1037(O)

LYNCH, G. Roche: Clinical pathology of coma, 11

LYNN-THOMAS, Sir John: *Key of all Wales*, rev., 682

LYON, D. M.: B. coli infections, aetiology and treatment, 261, 456(O)

LYON, Surgeon Commander Reginald, obituary notice of, 147

LYTTON, Mrs.: Production of rosettes in the mammalian retina, 133

M.

MACALISTER, Sir Donald, estate of, 47

MACALISTER, W.: Mental health services, 566

MACALEY, Charles: Ligation of the innominate artery, 138—Haemorrhage from peritonsillar abscess, 371

MACBETH, Alison N.: Achlorhydria, 219

MCALL, A.: Mucopurulent sub-typhoid infection, 227

MCARRISON, Sir Robert: Separation of rabies virus from brain tissue, 124

MACCARTHY, T.: Diuresis in a case of pituitary tumour, 735

MCARTNEY, J. E. (and T. J. MACRIP): *An Introduction to Practical Bacteriology. A Guide to Bacteriological Laboratory Work*, fourth edition, rev., 634

MCCLARY, G. F.: Factors in the reduction of maternal mortality, 643

MCLENDON, J. F.: *A Manual of Biochemistry*, rev., 1150

MCCLINTY, A. J.: Pineapple juice in oedema, 572

MACOMBER, D.: Diet during pregnancy and lactation, 125

MACCORMACK, Henry: Syphilis in practice, 95(O)

MACCORMACK, Dr.: County medical officers of health in Leitrim and Londonderry, 1168

MCCLARY, A. L. (and S. E. TAYLOR): Urea-parotid tuberculosis, 104(O), 122

MCCLINTON, E. N.: Torsion of hydatid of Morax's simulioides, acute pyelitis, 679

MCCLINTON, J. E. B.: *The Nature of Burns*, Journal, rev., 511—Unsettled problems of neurophysiology, 717

MCCLINTON, A. D.: Urea-parotid tuberculosis, 1125

MCDOVALD, Flora L.: Increase in mortality from diabetes, 330

MCDOVALD, William: obituary notice of, 111

MCDOUGALL, J. D.: Occupational therapy, 111

MCFAULAND, R. L.: Congenital club-foot, 1012

MCFAULAND, N. M.: Medical work in Palestine, 453

MACFARLANE, R. G.: Snake venom for leprosy, 111

MACFARLANE, J. D.: Tuberculosis, 111

MCGRATH, John: Fife for the abolition of the punishment, 120

MCGRATH, G. C. M.: Unemployment assistance: determination of needs, 235

MCGRATH, J.: Growth of P. coli in water, 519

MCGRATH, Mair: Problems of social, 75

MACGREGOR, A. S. M.: Report on the health of Glasgow, 694

- M**ACGRUGER, Major J. G.: Campaign against tuberculosis, 565
MACLEOD, Dame Louise, appointed assistant director and lecturer to the Clapham Maternity Hospital, 795—Ante-natal care and maternal mortality, 1011
McIVER, Monroe, A.: *Acute Intestinal Obstruction*, rev., 904
... .. Orthopaedic treatment of ...
MACKEITH, Alexander Arthur, obituary notice of, 1130
MACKEITH, M. H., retires from office of dean at the British Post Graduate Medical School, 777
MCKENZIE, B. F.: Crystalline cortin, 363
... .. Notes and health, 636
... .. See Research
... .. 557
... .. Tendencies in
the Development of General Hospitals in England, now published in pamphlet form, 289—Annotation on, 479
MACKENZIE, Murdo: Organic and functional
... .. —
... .. —
... .. 332
MACLEAN, Sir Ewen: Ovarian causes of pelvic pain, 257
MACLEOD: Action of insulin, 519
... .. —
... .. 327
... .. President
... .. —
... .. tubercu-
losis, 565
MCMICHAEL, J.: Pathological basis of splenic anaemia, 225
MACMILLAN OF ADERFELDY, Lord, appointed a
... ..
—Transport of cases with back injuries, 1012
MCNALLY, A. S.: Modern sanatorium treatment, 274, 1143 (O)
MACNAMARA, Eric Danvers, obituary notice of, 424
MCNEIL, Charles:—Unemployment assistance: determination of needs, 235
MACPHAIL, Sir Andrew: The healing of a wound, 71
MACPHEIL, J. M.: Chemistry of Fehling's reaction, 1135
MCPHEDRAN, H.: Pathology of coronary occlusion, Canada, 252
M oil problems of
... .. oil vapour as a
purgative, 1045
MACRAE, G. M. L.: Summerhayes: "German measles": a plea, 835
McKENNEY, Major George R.: Treatment of bacterial food poisoning, 304(O)—Typhus fevers in the Tropics, 320—Sprue, 320
Macula, degenerations of, and dystrophies (Arnold Forsby), 270
MADISON, F. W.: Aggranulocytosis, 29
MAEGRAITH, Brian Gilmore: Elected to the Staines Medical Fellowship of Exeter College.
... .. —
... .. thorax, 790
Magic pastille, 290
MAGUIRE, Cyril Charles William, obituary notice of, 615
MAHER, Chauncey C.: *Electrocardiography*, rev., 1047
MAIN, David Duncan, obituary notice of, 495
MAITLAND, T. Gwynne: Mechanism of pain, 317
Malaria: Antimalarial campaign in Rhodesia, 714
Malaria in Cuba, prophylaxis of (S. Bruno), 541
Malaria in the delta of the Danube, 698
Malaria in Ceylon, epidemic of, 1158
Malaria morbidity and mortality, prize offered for monograph on, 191
Malaria prevention, history of (Sir Malcolm Watson), 1007
Malaria, rice beds and the spread of (L. Klein), 583
Malaria, therapeutic, with special reference to a case of haemoglobinuria (C. B. Bamford), 764 (O)—Correspondence on, 884
Malaya, medical services in, information concerning, 447
MALIN, G. P.: Eradication of bovine tuberculosis, 328
MAKHOTNA, Major: Urban sanitation in the Punjab, 1215
... .. of a Mind
... .. 1025
MALPAS, D. D.: Treatment of genito-urinary diseases, 225
MALPAS, P.: Hypersexuality associated with cystic ovaries, 962
Manchester: Annual report of medical officer of health, 1213—Food inspection at the Port of, 1213—Post-graduate courses in, 537, 705, 795
manganese poisoning (Donald Owen), 833
Manipulative surgery, review of book on, 169, 308
MANNINGER, Dr.: Filterable viruses, 483
MANSON, J. S.: Appreciation of C. W. Hunt, 573—Hereditary syndactylism and polydactylism descriptive of recent additions to pedigree, 1014
MANSON, Sir Patrick, memorial to, 33
MANSON-SAUNDERS, P. H.: Anaemias and their treatment, 830
MARION, maternal mortality in, 233
MAPOTHER, Edward: Use of narcotics, 223—disorders, 267
... .. White), 1115
... .. (and D. C. egnancy, 115
... .. 74
MAGRATH-MÖLLER, S. F.: Circumcision, 1227
MAHIE, A. C.: Biological properties of adrenaline, 910
MARIE, Julien: *La Chrysothérapie de la Tuberculose Pulmonaire*, rev., 354
MARION, Dr., elected member of the Académie de Médecine, 975
MARPLE, P.: Causation of skeletal muscle pain, 516
MARLIN, T.: *Manipulative Treatment for the Medical Practitioner*, rev., 308
Marmitte booklet, 890
MARQUEZ, M. (and T. BURTO): *Le Biastigmatisme dans la Pratique, Tables pour la Transformation des Verres Bicilindriques d'Axes Obliques en Verres Sphéro-cylindriques*, second edition, rev., 518
Marquis, F. J., appointed a member of the Industrial Health Research Board, 868
MARR, Hamilton: Mental hospitals and institutions, 876
MARRACK, J. R. (and P. N. PANTON): *Clinical*
... .. —
... .. —
... .. praevia, 561
... .. (E):
... .. nal
MARTIN C. J.: Snake venom for haemophilia, 857
MARTIN, Edgar: Use of narcotics, 223
MARTIN, Frank W.: Test for live birth in cases Identification
... .. pain, 317
... .. medical pro-
ducts, 48
Masks, operation (R. E. Tottenham), 1013
Masochism, medico-legal implications of (Sir Bernard Spilsbury), 83
MASON, G. A.: Post operative management of
... .. —
... .. —
MASSARI, Alfred A.: Fractured spine caused by strain, 976
MASSEY, Thomas Hunter, obituary notice of, 378
MASTIAT, H. Gray: Concurrent extrauterine and intrauterine gestation, 207
MASTERMAN, Mr.: Bad surgical risks, 265
Mastitis infective, discussion on, 481
Mastoid operations, anaesthetic, shield for use in, 518
Mastoid retractor, 597
MATAGA, Viktor, death of, 1021
... .. —
... .. 1151
Maternity and child welfare, medical officer for (parliamentary policy), 926
Maternity and child welfare medical officers,
... .. n Monmouthshire
... .. services (parlia-
mentary policy), 926
MATHERS, Norman M. (and T. G. HILDY JAMES):
Cytostatic cerebral tumour with perforation
of an acute gastric ulcer, 902
MATTHESON, J. G.: Food standards, 997
MATHIEW, Paul: Rheumatoid arthritis, 127
Matrimonial Causes Amended Procedure Bill,
1132
Matrimonial Causes (Procedure in Suits for Nullity) Bill, 1132
MATTHEWS Bryan H. C.: Discoverer of cortical rhythm, 1129
MAURER, Gustav: Adhesions in artificial pneumothorax, 790
Maurelcau's sister, the death of (A. J. Hawes), 782—A correction, 844
Maxillary sinus infections (I. B. Thorburn), 272—Discussion, 272
Maxillary sinuitis, iodine vapour in, 906
MAXIMOW, Alexander A. (and William Bloort):
Textbook of Histology, second edition, rev., 724
MAXWELL, J.: Oedema—its causation and treatment, 314
MAXWELL, James (F. G. CHANDLER, and N. S. FINZI): Irradiation treatment of malignant intrathoracic tumours, 714 (O)
MAXWELL, J. Preston: Osteomalacia and foetal rickets, 1115
M Robert Alex-
may, Otto: Is high blood pressure a risk? 532
MATTFIELD, R. H.: Interference in the Schick test by diphtheria antitoxin injection in the human subject, 938 (O)
MAYNE, W. A.: Aural diptheria, 1185
Mayot, Marmaduke Stephen, obituary notice of, 585
MAYRS, E. B. C.: Appreciation of J. A. Milroy, 1159
MAZZUCCHI, Mario: Anthrax, 481
MEADE, H.: Acute cholecystitis, 879
MICADEN, Lieut.-Col. Albert Anderson, obituary notice of, 613
Measles complicated by multiple peripheral neuritis (D. A. Urquhart), 115—Correspondence on, 232
Meletem "German": a plea, 834, 966. See also German
Meat inspection, review of books on, 472, 943
Medical aid by women for Indian women, 914
Medical benevolence, 745, 836, 880, 968, 1080, 1129
... .. —
... .. 74
Medical curriculum to-day, 391
Medical Defence Union: Annual meeting, 783
... .. few of, 1152
... .. Responsible clinical
for the specialties,
570
... .. ancis
May,
1934, rev., 169—Vol. vi, No. 4, July, 1934, rev., 477
—Vol. vi, No. 5, September, 1934, rev., 814
Medical Insurance Agency, 177
Medical jurisprudence. See also Forensic medicine, and Toxicology
Medical licensing. See Licensing
Medical man's libel action settled (Nabarro v. Virtue and Co.), 970
Medical mayors, 975
Medical MS., Irish, 814
Medical missionaries, information concerning, 450
... .. 485
... .. reports of,
Medical officers of health, county, appointment of (Leitrim), 369, 1168—(Longford), 1168
Medical officers of health, information concerning, 436
Medical Officers of Schools Association. See Association
Medical plays, 29
Medical practice in British Dominions and foreign countries, information concerning, 445
Medical practice and the law (Waitaki Hospital Board, New Zealand), 1214
Medical practitioner, training of the (Sir Henry Brackenbury), 381 (O)
Medical problems, minor, 701
Medical Products of Precision, 928
Medical profession in Hungary, 658
Medical profession, number of, 389, 664—A correction, 664
Medical qualifications, British, in India, 1001
Medical Register: Correction of, 793—Office edition, 1026—Untraceable practitioners, 604
Medical Research Council. See Research
Medical salaries. See Salaries
Medical salon, Paris (1935), 1185
Medical school, choice of a, 390
Medical school for women, proposed, 374
MEDICAL SCHOOLS AND COLLEGES:
... .. 441
... .. 445
Clinical teaching in Dublin, 423
Colonial Medical Service, 446
Correction, 664
Curriculum to-day, 391
Dental surgery, 450
Diplomas, special, 448
General Medical Council, 391
Indian Medical Service, 442
Information concerning the study of medicine, 381 et seq
Laryngology and otology, diploma for, 449
Local Government (Hospital) Medical Services, 443
Medical appointments in the Colonies and Mandated Territories, 446
Medical missionaries, 450
Medical profession, numbers, 385, 664—A correction, 664
Medical radiology and electricity, 448
Medical registration in the Irish Free State, 406

MEDICAL SCHOOLS AND COLLEGES (continued):
 Medical school, choosing a, 390
 Medical students, numbers, 386
 Naval Medical Service, Royal, 439
 Obstetrics, diploma for, 449
 Opening of the winter session, 649
 Ophthalmic medicine, diploma for, 449
 Post-graduate study, 428
 Prison Medical Service, 445
 Profession of medicine, 385
 Psychological medicine, 433
 Public Health Medical Services, 436
 Radiotherapy, 448
 Scholarships, 143, 394 *et seq*
 Special diplomas, 448
 Tropical medicine, 432
 Women medical students, numbers, 426
 Women in medicine, 421, 426
 Women's Medical Service of India, 428

Medical schools, London, and London County Council hospitals, co-operation in teaching, 211
 Medical schools of London University. *See* University
 Medical service, public, Edinburgh, 653, 1166
 Medical service, general: Parliamentary note on, 95
 Medical services of the central authority, information concerning, 436
 Medical services at home and abroad (W. W. Jameson) 831. Discussion, 832
 Medical services of the local authorities, information concerning, 436
 Medical spirits. *See* Spirits
 Medical students, restricted entry of (New Zealand), 1214
 Medical and surgical preparations and appliances. *See* Preparations
 Medical terminology. *See* Terminology
 Medical training for natives in South Africa, 128, 612
 Medical training of women in the Punjab, 528
 Medicine, frustration of (V. H. Mottram), 475
 Medicine, Hindu-Aryan, ancient (E. V. Lewis), 872
 Medicine and morals (Lord Horder), 697
 Medicine and morals—*Results of*, rev., 554

on, 20, 66, 67, 170, 517,

554, 594, 633, 774, 992
 Medicine: Whither Medicine? (leading article), 615
 Medicines, patent, 822—Statement by the Royal College of Surgeons, 822

MEDICO-LEGAL:

Business relations between doctors, 42, 141, 574, 660, 750, 1081
 Death after "cancer cure"—Alice Bishop, 704
Encyclopedia of Sexual Knowledge: Summary by Director of Public Prosecutions, 91
 Hospital exonerated (Crumpsall Hospital), 1082
 Infanticide by drowning, test for live birth in cases of, 142
 Libel on a doctor (Garth Ap'Thomas), punishment for, 1223
 Libel on Lord Horder—an action settled, 44
 Medical man's libel action settled (Nabarro v. Virtue and Co.), 970

"Medisun" lamp, ultra-violet ray generator, booklet on, 644

MEDLEY, Sir John: Typhus fevers in the Tropics, 244 (O), 329—Medical services at home and abroad, 832

MERTA, D. H.: appointed Associate Officer of the Order of St. John of Jerusalem 24
 MERTA, Lieut.-Colonel Nasalal Maganlal, obituary notice of, 613

MEILLER: The endocrine factor in essential hypertension, 260

MEIN, W. Arch: O-ostomyelitis 273

MERSEN, Valdemar, death of, 616

Melbourne, Annual Meeting of the British Medical Association at (1935), 730. History of the medical school, 1030. *See also* Association

MELNYS: Bacteriophage therapy, 1110

MELNYS, Edward: *Nutrition and Disease. The Interaction of Clinical and Experimental Work*, 776—Vitamin A and nerve lesions, 1053

MELNYS, May: Nutrition and disease, 526

MELLEN, Joseph: Dooyne Memorial Lecture on

M

Part II, rev., 337

MELVILLE, Stanley, memorial to, 569

Men in White, 29

Ménière's disease, treatment of (Walter I. Dandy), 773—Correspondence on, 843, 883, 928

Meningitis of otitic origin (T. B. Layton), 1115

Meningitis, tuberculous, with recovery (Constance L. Parry), 859

MENNEL, J. B.: *Physical Treatment by Movement, Manipulation, and Massage*, third edition, 169—Joint manipulation as applied to the spine, 1216

Menorrhagia, severe, due to chronic thrombocytopenic purpura, cured by splenectomy (Stanley J. Hartfall and Carlton Oldfield), 810

—Correspondence on, 284, 488

Mental deficiency, environment as a cause of, 279

Mental deficiency and heredity, 33

Mental deficiency in Scotland, increase of (parliamentary note), 187

Mental disease research in Birmingham, 327
 Mental disease, treatment of (Hamilton Marr), 876

Mental disorder in Scotland, 954

Mental disorders in 1933, report, 640

Mental Health Services (Scotland), discussion, 665

Mental hospital clinic (Herts County), 952—Correspondence on, 1073, 1177

Mental hospital or hospitals. *See* Hospital or Hospitals

Mental Hygiene, National Council for: Conference on occupational therapy, 133—Occupational therapy for mental and nervous cases, 133

Mental hygiene: preventive measures in childhood (Susan Isaacs), 1169—Discussion on, 1170

Mental patients, boarding-out of: Discussion at the Public Health Congress, 996—Parliamentary note on, 1184

Mental states associated with epilepsy (Dr. Bridge), 1108

Mental welfare, conference on, 825

Mentally defective child, treatment of (Irish Free State), 786

MENZIES, Sir Frederick, appointed Knight of Grace of the Order of St. John of Jerusalem, 24—Annual report on the health of London, 695

Mercurochrome injections followed by paralysis, (William More), 1045

Mesenteric thrombosis. *See* Thrombosis

Mesmer, review of book on, 20

MESSE, A. I.: Undulant fever and contagious abortion in Northumberland, 856 (O)

Metabolism, allergy, and the autonomic nervous system (C. Paset Lapage), 985 (O)

Metabolism, carbohydrate, the spleen and, 477

Metal taps. *See* Taps

Meteorism and aerophagy, 843, 1136

Methylated spirit drinking in Scotland, 1184

Methylated spirit, drunkenness from (parliamentary note), 1083, 1184

Metropolitan Police (Borrowing Powers) Bill, 1132. *See also* Police

Metropolitan Police College. *See* College

Metropolitan Water Board: Annual report, 259

Mexborough, Yorks, medical services at (parliamentary note), 1135

MEYER, Max awarded the Guyot Prize, 379

MEYER, Professor: Psittacosis, 482

MEYERSTEIN, Edward William, makes a further gift to Middlesex Hospital, 47

MICHELMOORE, R. G.: Hodgkin's disease with erythema nodosum, 1172

Microbiology, review of book on, 66

Microscopes, exhibition of, 1025, 1186

Midwifery, meddlesome (Sir William Smyly), 917

Midwifery nurses. *See* Nurses

Midwifery, practice of, 1221

Midwifery, review of book on, 1151

Midwifery. *See also* Obstetrics

Midwives Board. *See* Board

MILBURN, G. L., appointed an official member of the Executive Council of Saint Christopher and Nevis, 1034

MILES, Ernest: Bad surgical risks, 265

Milk Bill, 44, 147, 190, 237—Debate in the House of Lords, 147—Veterinary officers under, 190—Royal assent to, 237

Milk Bill (Irish Free State), 273, 606, 1056—Criticism of, 606

Milk, cows' (J. F. Tocher), 553—Discussion, 553

Milk during pregnancy and lactation (parliamentary note), 857

Milk, excretion by, the 124

Milk, free, and medical inspection (parliamentary note), 974

Milk, imported (parliamentary note), 887

Milk marketing (Dr. von Ostertag), 482

Milk reconstituted and sophisticated (leading article), 519

Milk regulations in Northern Ireland, 719

Milk, safe, campaign for, 1212

Milk in schools, scheme (parliamentary note), 1034—In Scotland (parliamentary note), 974

Milk supplied to school children in Somerset not limited to pasteurized or tuberculin-tested (parliamentary note), 1226

Milk supply in schools at reduced rates (parliamentary note), 238, 926, 974

MILLER: La granulie froide, 815

MILLER, Arthur: Modified La Force adenotome, 119—*Modern Advances in Diseases of the Throat*, rev., 555—Knife for sublingual resection of septum, 72—Tonsil sublingual, 1152

MILMAN, Emmanuel: Mental hygiene in childhood, 1171

MILLIN, Terence: A new drainage bag for permanent cystostomy, 545

MILNE, N. C. P.: Myxoidema, 726

MILNE, William Morrison, obituary notice of, 1081

MILROY, John A., obituary notice of, 614, 659

Milton's blindness, review of book on, 513

Mines, gas detectors, automatic, in (parliamentary note), 137, 1222

MITCHELL, Douglas A.: Ante-natal use of quinine, 88—(And G. D. KERSLEY): Anaemias of pregnancy, 720 (O)

MITCHELL, G. W.: Stanley Melville memorial 569

MITCHELL, Joseph Stanley, elected to a Beit Memorial Fellowship, 127

MITCHNER, Philip H.: The septic hand, 220—Hernia operations, 315—(And W. H. C. ROMANUS): *The Science and Practice of Surgery*, Vol. I, *General Surgery*, vol. II, *Regional Surgery*, fifth edition, rev., 1230

MITTERMAIER, Richard: *Die Krankheiten Nasennebenhöhlen und des Ohres im Röntgenbild*, rev., 19

MOHLER, Dr.: Veterinary sanitation, 482

MOIR, D. F. G., awarded the Theodore Williams scholarship in pathology, 83

MOIR, David Roger, obituary notice of, 833

MOLL, H. H.: Reflex asthma: its pathology and treatment, 299 (O)

MOLLAN, Major F. R. H., mentioned in dispatches, 89

Mongolism cause of (A. J. Rosanoff and L. M. Haady), 1265

Monmouthshire: Maternity and child welfare in (parliamentary note), 936

MONSARRAT, K. W.:—Medical education: responsible clinical experience, 456

MOODIE, William, appointed medical consultant at Court Grange, Abbotkerswell, 975—Mental hygiene in childhood, 1170

MOOR, William Hewson, obituary notice of, 923

MOORE, A. C.: Radiology of the stomach and duodenum 319

MOORE, Henry: Gee's disease, 918

MOORE, J. E.: *The Modern Treatment of Syphilis*, rev., 228

MOORE, Thomas: A second attack of acute poliomyelitis, 165 (O)

MOORE, W. A.: Gee's disease, 919

MOORHEAD, George A., obituary notice of, 376

MOORHEAD, T. Gillman: Thyroid addiction, 84

MOORHEAD, Robert Fletcher, obituary notice of, 1130, 1182—A correction, 1182

Morbidity in a family tree (Walter P. Kennedy), 633 (O). *See also* Heredity

MORE, William: Paralysis following mercurochrome injections, 1045

MORF, GÉOFFREY: Tonsillectomy with local anaesthesia, 990 (O)

MORGAN, Branford: Septicaemia following tonsillectomy, 1145 (O)

MORGAN, Colonel Claude Kyd, obituary notice of, 573

MORGAN, David Naunton, obituary notice of, 257

MORGAN, M. T.: Cerebro-spinal fever in England and Wales, 823

MORIARTY, M.: Gee's disease, 918

MORISON, Duncan M.: Review of bladder-neck obstructions, with special reference to trans-urethral prostatic resection, 53 (O)

MORLAND, A. J.: Seaside resorts for respiratory disease, 31

MORLEY, Arthur S.: Injection treatment of complete rectal prolapse, 204 (O)

MORLEY, R. H., obituary notice of, 972

MORLOCK, H. V. (and A. J. Scott PINCHIN): Haemophysis: pathology and treatment, 712 (O)

Morphine, a new source of, 604

MORRISON, G. H.: Evipan paralysis, 1025

MORSON, Clifford: *Urinary Infections*, rev., 202—Thrombosis of the penis and urethral haemorrhage, 249 (O), 371

Mortality, causes of (New Zealand), 1214

Mortality, infantile, 1032—New Zealand, 714

Mortality, maternal (J. M. Munro Kerr), 1166

Mortality, maternal (parliamentary note), 926, 1022

Mortality, maternal, correspondence on, 1125

Mortality, maternal, and ante-natal care: Discussion at the Royal Society of Medicine, 1009—Correspondence on, 1176

Mortality, maternal, deputations to Minister of Health, 1164

Mortality, maternal, factors in the reduction of: the general practice

Mortality, maternal, investigations (parliamentary note), 1083

Mortality, maternal, in Liverpool (parliamentary note), 857

Mortality, maternal, local authorities and (parliamentary note), 857

Mortality, maternal, in Maori, 233

Mortality, maternal: meeting in London, 99, 1025

Mortality, maternal, Ministry of Health Circular on, 77

Mortality, maternal, prophylaxis, 1005

Mortality, postnatal, 924, 1074. *See also* Postnatal

MORSE, A. L.: *Practical Drugs and their Uses*, rev., 832

Moss, E. Lawton: Obstetric methods at St. Mary Abbots, 924

Not removal of after childbirth (parliamentary note), 1184

Modern, University of Illinois, *Children, the Law of England and Wales Relating to*, 129

Motor accidents. *See* Accidents

Motor backache. *See* Backache

Motor car exhaust, noise from (parliamentary note), 120

Motor car: How to Drive a Car, the story, edition, rev., 22

NOBINE, Alonzo M.: Residual infection of the
 nose, 745, 967
Noise: Anti-noise Committee (parliamentary
 note), 925
Noise (J. B. Priestley and G. L. Stampal, 485
Noise and health (Dan McKenzie), 635—Corre-
 spondence on, 754
**Noise from motor-car exhausts (parliamentary
 note),** 190
Noise, lethal, 754
Norman, L. T. O.: The thyrotoxic heart, 1172
Norman, J. C. A.: Sodium evipan, 221—Spino-
 calin as an anaesthetic, 271
**Northumberland, undulant fever and con-
 tagious abortion in (A. I. Messer),** 856 (O)
Norway, lepers in: Numbers, 1024—Sterilization
 laws passed, 1185
Nose. See also Ear and Throat
Nosokomelon, the official organ of the Inter-
 national Hospital Association, 672
Notes, Letters, Answers, etc.:
 Addendum, 152
 Adrenaline, after-effects of continued doses
 of, 538, 618
 Adrenaline and cerebral haemorrhage, 578
 Aerophagy with meteorism, 843, 1136
 Allergy, 1085
 Amidol poisoning, 67
 Anaesthetic, local, for nasal work, 350
 Anglo-American Continental Medical Society,
 152
 Bismuth salts solution in oil, 1185
 Bleeders, female, 1228
 Breath, offensive, 1227
 Burials, earth, and disease, 497
 Calcium lactate as a muscle tonic, 976
 Cancer library, 1228
 Cancer problem, 48
 Cancer research: a suggestion, 1086
 Castor oil vapour as a purgative, 1228
 Catheters, gum elastic, autoclaving of, 498
 Cholecystectomy and recurrent duodenal
 ulceration, 538
 "Cholesterol Food" booklet, 1185
 Diaries and calendars, 1136, 1228
 Dick test, use for, 795
 Dysmenorrhoea in virgins, treatment of, 578
 Earth burial. See Burial
 Golfing Society's inaugural meeting, 290—Sussex
 Society's Autumn meeting, 754
 Gonococcal infection, 706
 Grenfell calendar, 890
 Hart, Ernest, 1836-1898, 796
 Head and foot presentation, 380, 577
 Herbalist at home, 890
 Herpes and varicella, 1026
 Hexyl-resorcin during lactation, 975
 High carbohydrate diets and insulin efficiency:
 A correction, 338
 Hypertension, prognosis in, 578
 Hypochondriasis, 38
 Income tax, 48, 57, 151, 192, 240, 290, 338, 498,
 577, 618, 663, 705, 754, 796, 843, 885, 928, 975, 1025-
 1085, 1136, 1227. For details, see General
 Index

Notes, Letters, Answers, etc. (continued)

- Irish medical M.B., 444
Jaundice, catarrhal, following T.A.B. infection, 663
Knight, John, Sergeant Surgeon, 577
Labelling patients, 1086
Laboratory equipment for the general practitioner, 337
Labour and heart disease, 578
Lip, chronic enlargement of, 1024, 1035
Lumbago, exercises for, 48, 151
Dusk, Graham, 664
Magic pastille, 290
Marmite booklet, 890
Maternal morbidity and the general practitioner, 1086
Maternal morbidity: prophylaxis, 1025
Medical golf. See Golf
Medical Products and Precision, 928
Medical Register, office edition, 1025
Medical work in Basutoland, 578
Ménière's disease, treatment of, 843, 889, 928
Microscope in modern life, 1186
Microscopes, exhibition of, 1025, 1186
Milk, boiled, 290
Motor backache and neuralgia, 1025
Motoring and the expectant mother, 890
Myoedema, 796
Nail biting, 240, 290, 337, 538, 663
Nail tissue, regeneration of, 337
Nasal discharge, chronic, treatment of, 795, 889
National Formulary, a schedule to the, 578
Noises, lethal, 754
Novocain and cocaine, 380
Oiled silk, substitute for, 664
Orthopaedic treatment of infantile paralysis, 618
Ozaena, treatment of, 890
Pain, post-herpetic, 1185
Pipe cleaners in gynaecology, 618, 664
Playfair's probe as pipe cleaner, 664
Praise and dispraise of doctors, 493
Presentation, vertex, influence of decubitus on, 1228
Priapism after circumcision, 975, 1025, 1035
1228
Queen Alexandra Sanatorium Fund, 1086
Quinoidine, 1025
Rats, campaign against, 338
Raynaud's disease, treatment of, 151
Rectal prolapse complicated by proctitis, 538
Revue de Rhumatisme, 338
Routes out of London, 928
Salyrgan in cardiac oedema, 1085
Schick test, age for, 795
Science and religion, 1186
Sclerosis, disseminated, treatment of, 663
Short-wave therapy, 618
Smith's (Eustace) sign, 844
Smoking, excessive, remedy wanted for, 240, 337, 497
Special plate: correction, 1136
Spermatorrhoea when bathing, 192, 250, 337
Spine, fracture of, caused by strain, 976
Sugar, white and brown, 928, 1185
Surgery, unqualified, 1228
Surgical fitness at the annual meeting, 498
Taps, metal elder, and lead poisoning, 976
Tattoo marks, removal of, 380, 497
Tendons, extensor, spontaneous rupture of, 380
Tennis elbow, 192, 289
Thrush and pyloric stenosis, 795
Toe-nail, ingrowing, 1186
Trichophyton infection, treatment of, 754, 795, 843, 859, 928
Triplets without tears, 152
Twin, second, delayed birth of, 1035
Ultra-violet lamp ray generator, 844
Urine stains on clothing, removal of, 330
Vertex presentation. See Presentation
Vitamin D concentrate, 618
Warnings, 192
Weight, excessive, in childhood, 240
Well's disease among sewer workers, 93
Young's rule, 152
NOVA ET VETERA:
Ancient Hindu-Aryan medicine (E. W. Lewis), 872
Death of Marican's sister (A. J. Hawes), 782
—A correction, 844
Execution of children (L. A. Parry), 823
Hamphshire boundary in the vicinity of Bournemouth, 564
Johnson, Dr. Samuel, medical and mental history of, 483
Picture of Henry VIII presenting the Act of Union to the Barbers and Surgeons in the possession of the Royal College of Surgeons (C. J. S. Thompson), 651
NOTARSENOL. See Novarsenobillon
Novarsenobillon administration followed by blindness (F. A. Juler), 239, 829 (O)—Correspondence on, 852
Novocain and cocaine, 240
NONAN, Major William, appointed Officer of the Order of St. John of Jerusalem, 24
Nurses, day, vaccination and admission to (parliamentary note), 238
Nursery schools, plea for more (parliamentary note), 150. See also Schools
Nurses, midwifery, and general nursing (Ireland), 750
Nurses, training of in Scotland: Inquiry committee, 45 131—Parliamentary note on, 45
Nursing District, Queen's Institute of: Statistical report, 529—Scottish Branch: Maternal mortality, 1166
Nursing, public health, in America: a national survey, 229
Nursing, review of books on, 513, 862
Nursing Services Bill, Domiciliary, 95, 183
Nursing services, district (parliamentary note), 95
Nutrition (parliamentary note), 1133. See also Food and Health
Nutrition and biochemistry, 125
Nutrition clinics for London school children, 1158
Nutrition and Disease (Edward Mellanby), 776
Nutrition and disease (L. S. P. Davidson), 526—Discussion, 526
Nutrition and health (H. E. Magee), 1157
Nutritional anaemia. See Anaemia
Nutritional problems in North Country children, 1055
Nystagmus, compensation in cases of (parliamentary note), 46
NYULASY, Frank, obituary notice of, 377
O.
OAKLEY, C. A.: Vocational guidance, 558
O'BEIRNE, R.: Report on health of County Galway, 530
OEBLING, Diagnostic test for cancer, 1155
O'BRIEN, R. A.: Immunization in the specific fevers, 273, 712 (O)—Puerperal sepsis, serum treatment, 1120
Obstetric diplomas and ante-natal care (leading article), 643
Obstetric methods at St. Mary Abbots Hospital, Kensington (G. W. Thornhold), 850 (O)—Correspondence on, 964, 1074, 1221
Obstetrics, diplomas in, information concerning, 449
Obstetrics and Gynaecology, rev., 517
Obstetrics in India (Rufus C. Thomas), 1060—Correspondence on, 1125
Obstetrics. See also Gynaecology and Midwifery
Obstruction, intestinal, case of (Arthur H. Richardson), 553
Obstruction, intestinal, review of book on, 504
O'CALLAGHAN, W. P.: Growth of *B. coli* in water, 919
Occipito-posterior presentation, unreduced, with short cord (F. P. N. Parsons), 516. See also Labour
Occupational dermatitis. See Dermatitis
Occupational therapy (Sir Henry Gauvain), 133—Discussion, 133—Correspondence on, 231, 283, 333, 375, 486
O'CONNOR, Edwin Fitzgerald, obituary notice of, 1131
Oculist and optician in Europe, 312
Optum, Doris: Use of narcotics, 223
O'DONNELL, Francis J.: Anaemia: yesterday and to-day, 915
O'DONOVAN, J. M.: Pernicious anaemia, 1071
O'DONOVAN, W. J.: Treatment of lupus vulgaris, 321
Odonatology, fathers of, 1000
O'DOWD, Dr.: Sodium evipan, 224
Oedema—the causation and treatment (T. Izod Bennett), 314, 829 (O)—Discussion, 314
Oedema, cardiac, salyrgan in, 1085
Oedema, pineapple juice in, 492, 572
Oestrus-producing hormones (F. C. Dodds), 255, 1187 (O)—Discussion, 253. See also Hormones
O'FARRELL, T. T.: Growth of *B. coli* in water, 919
O'FARRELL, W. R.: Gee's disease, 915—Growth of *B. coli* in water, 919
Official and unofficial co-operative action, conference on, 74. See also League of Nations
O'FLANNAN, Daniel John Francis, obituary notice of, 236
OGLIVIE, D. C. (and N. J. Linnington MARGESON): Case of abdominal pregnancy, 115
Oil, castor, vapour of as a purgative (G. Graham Macpherson), 1045—Correspondence on, 1223
Oil, shark, disinfectant mistaken for (parliamentary note), 1184
"Oil" vaccine in rheumatism, 233, 374
Oil silk, substitute for (telephone), 664
O'KEEFE, S. J. and J. G. (wart editors): Irish Texts, rev., 553
O'KELLY, Major Robert, obituary notice of, 356
O'KELLY, W. D.: Growth of *B. coli* in water, 919
OKKELS, Hypernitritism and Graves's disease, 361
Old Bailey. See Criminal Court, Central
OLDFIELD, Carlton and Stanley J. HARTFALL: Severe menorrhagia due to chronic thrombotic endometritis, cured by hysterectomy, 8 O'FLANNAN, J. H. Cerebral signs, 950
OLIPHANT, E. H. Lawrence, obituary notice of, 42
OLIVER, James, Chemically bleached hair, 1065
OLIVER, The endocrine factor in essential hypertension, 520
OLDENICK, Dr.: Diagnosis of intrathoracic tumours, 1071

O.

- OLTRAMARE: Evipan anaesthesia, 312
O'MALLEY, Major D. V., mentioned in dispatches, 89
O'MALLEY, John F.: Treatment of coryza, 1017
O'MEARA:—Streptococcal infections: specific treatment, 930
O'NEILL, Lieutenant J., mentioned in dispatches, 89
Operating theatres. See Theatres
Operation masks. See Masks
Operations, haemostasis, subcutaneous in (J. Riess), 618
Ophthalmia, post-traumatic and sympathetic, tuberculosis in relation to (Joseph Meller), 132
Ophthalmic medicine, diploma in, information concerning, 449
Ophthalmic practice, influence of diet in (Olive Pratt), 152
Ophthalmic surgery, evipan anaesthesia in. See Anaesthesia
Ophthalmology, case history in (Harald Gjessing), 1001
Ophthalmology and physics (F. Ridley), 270
Ophthalmology. See also Eye
Opium and the League of Nations, 686—A new source of morphine, 604
Ophthalmology followed by deafness, 151
Optician and oculist in Europe, 312
Onn, J. B.: Nutritional anaemia, 122—Unemployment assistance: determination of needs, 235—Nutrition and disease, 526
Orthopaedic Association, British. See Association
Orthopaedic surgery, review of book on, 772. See also Surgery
Orthoptic treatment: its scope and limitations (M. A. Fuchs), 273
ORTON, C. Harrison: X-ray treatment of the genito-urinary system, 225, 343 (O)
OSBORNE, W. H.: History of the Melbourne Medical School, 1050
O'SHAUGHNESSY, L.: Treatment of arterial embolism, 219
Ostelin liquid, 618. See also Vitamin D
Osteomalacia and foetal rickets (S. Preston Maxwell), 1115
Osteomalacia and osteodystrophia fibrosa, 1024
Osteomyelitis, acute (John Fraser), 272, 539 (O)—Discussion, 272
Osteopaths Bill, 1132, 1163, 1182, 1224—Text of Lord Mynihan's speech, 1163
OSTERAG, Dr. von: Milk marketing, 482
OSTERAG, Robert V.: Text-Book of Meat Inspection (late Mynihan and Post-Mortem), including the Veterinary Control of Meat and Meat Products, rev., 543
Ovarian causes of pelvic pain (Daniel Donagall), 255, 621 (O)—Discussion, 256—A correction, 350—(A. H. Davidson), 623 (O)
Ovarian dysfunction and sterility (T. N. A. Joffe), 1217
Overcrowding Bill, 113
OVERHOLSEN, W., appointed to the chair of psychiatry at Boston, 576
OWEN, Arthur Deaker, obituary notice of, 256
OWEN, Donald: Manganese poisoning, 833
OWEN, K. A.: Galactose tolerance test, 1057
Oxford and the history of science, 911
OXYR, W. H. F.: Relaps of ante-natal care, 220, 1010—*B. coli* infection, 254—Opportunities of general practice, 820
Oxygen tent, demonstration of (E. P. Peniston), 255
Ozaena, treatment of, 890

P.

- PACKARD, Francis R. (editor)—Annals of Medical History. New series, vol. vi, No. 3, May, 1934, rev., 163—Vol. vi, No. 4, July, 1934, rev., 477—Vol. vi, No. 5, September, 1934
PADDLE, K.: Unsettled problems of reno-epithelitis, 753
Paediatrics, review of books on, 273, 1200
Paediatrics. See also Children's diseases
PAGE, C. Max: Hernia operations, physical efficiency after, 315, 695 (O), 1174
PAGE, W.: La kramble froide, 215
Pain in back, rhythmic exercises for (T. Stacey Wilson), 1215
Pain in childbirth. See also Backache
Pain, mechanism of (Daniel Waterson), 317, 1237 (O)—Discussion, 317—(Macdonald Critchley), 511 (O)
Pain, pelvic, ovarian causes of (Daniel Donagall), 255, 621 (O)—Discussion, 256—A correction, 350—(A. H. Davidson), 623 (O)
Pain, post-herpetic, 1185
Pain, skeletal muscle, causation of (A. Fiedler, P. Markle, and L. N. Katz), 523
PAIN, C. Ernest: Fifty Years on the Testes, rev., 258
Palestine, restriction on of immigrant doctors to (parliamentary note), 45—Labour restriction on (parliamentary note), 1034
PALMER, A. C.: The prodrome syndrome: its treatment by vaginal hysterectomy, with contribution of the pelvic diaphragm, 117, 829 (O)
PALMER, Robert: What General Practice—Daily facial, creative treatment of (Arthur Batten Deakin), 1070

Parliament, Medical Notes in (contd.).
Milk supplied to school children in Somerset
not limited to pasteurized or tuberculin-
tested milk, 1225
Milk supply for schools at reduced rates, 289,
926
Mines, safety in, 1183
Motor car exhausts, noise from, 190
Motor vehicles, safety class in, 95
Noise: Anti-Noise Committee, 925
Noise from motor car exhausts, 190
Nursery schools. *See* Schools
Nurses, training of in Scotland: inquiry com-
mittee, 45
188
46
46
sent to,
973
Poor Law relief, numbers in receipt of
(England and Wales), 838
Poor Law (Scotland) Bill, 148, 190—Royal
Assent to, 237
Poor relief in Scotland: numbers in receipt of,
840
Prince of Wales's Hospital (Plymouth) Act,
147
Public health in Sunderland and Seaham,
1184
Punishment, corporal, 1184
46
of Ad-
Debate in the House of Lords, 149—Fees to
hospitals for road casualties, 191—Noise
from motor-car exhausts, 190—Report stage
passed, 45
Supreme Court of Judicature (Amendment)
Bill, 1132, 1224
Surgical appliances, increased importation
of, 191
Tuberculosis treatment and the London
County Council, 238
Unemployment Act, 45. *See also* Insurance
Unemployment Assistance Board, 45
Unemployment Assistance (Determination of
Need and Assessment of Needs) Regulations,
1224
Vaccination and admission to day nurseries,
238
Vaccination, compulsory, compensation for,
974
Vaccination, conscientious objections to, 1135
Vaccination, prosecutions for offences against
the Acts: numbers, 1022
Vivisection, 1224
Water storage against drought, 46
Water supplies: present position, 837
Water supplies, rural, 239, 926
hospitals
hospital
of Chil-
dren) Act, 147
Workmen's Compensation and cardroom
workers, 837
Workmen's compensation cases, hospital
treatment in, 1134
Wycombe and District Joint Hospital District
Bill, 44
Parliamentary session, 1933-4 (leading article),
949
PARODI, F.: *La Mécanique Pulmonaire*, rev.,
119

- [illegible]

PREPARATIONS AND APPLIANCES (continued):

- Daltose, 1202
Deaf, device for the, 119
Deslin ointment, 635
Diagnostic sets, electrical mains adaptor for, 1048
Dressings, surgical, heat-sterilized, 473
Euphon tablets contain vitamins A and D, 945
"Ferrodic" iron granules (Allenburys), 814
Forceps, calculus, 723
Forceps, cervical biopsy punch, 119
Grape juice (Key brand), 1152
Headlamp, an improved, 1202
Inhaler, ether, modified, 473
Insulin (cryst), Wellcome, 814
Iodine vapour in maxillary sinusitis, 906
Knife for submucous resection of septum, 724
Lemon barley water, 1048
Nasal drops (anagintine), 1202
Paraffin, melted wax bath, economical designs of, 171
Prostigmim, 210
Refractometer, pocket, 814
Retractor for external frontal sinus and ethmoidal operations, 473
Retractor, mastoid, 597
Rheumatoid arthritis, appliance for, 1202
Rhinitol, 814
Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

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Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Soap for surgeons' hands, 1048

Public Health, International: Official summary of the October session of the Office International d'Hygiène Publique, 1211—Quarantine procedure, 1211—Miscellaneous communications, 1211

Public health medical services, information concerning, 456, 457

Public health problems of India (Lieut.-Col. A. J. H. Russell), 947

Public Health Service of the United States: Annual report, 313

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

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Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Public health, state of the: Report, 598, 638.

See also Health Ministry

Radiology, medical diplomas in, information concerning, 448

Radiology, recent work in (leading article), 903

Radiology, review of books on, 19

Radiology of the stomach and duodenum (C. Cochrane Shanks), 319, 1032 (O)—Discussion, 319

Radiotherapy, post-graduate courses in, 430

Radium in carcinoma of the bladder (A. J. Durden Smith), 584 (O)

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- RICHARDS, Walter F., a member of the crew of the *Endavour*, 191
- RICHMOND, Arthur H.: Case of intestinal obstruction, 553
- RICHMOND, Air Commodore A. V. J.: Defective housing as a national problem, 324
- RICHMOND, Douglas V.: Jacksonian attacks in connection with extradural abscess of the frontal lobe, 1101
- RICHMOND, W. S.: Ovarian causes of pelvic pain, 257—Film demonstration of Caesarean section, 257
- RICHMOND, Major A. E.: mentioned in dispatches, 89
- RIDDELL, Lord: Death of, 1033—Obituary notice of, 1123
- RIDDELL, L. A.: Ether convulsions, 834
- RIDDOCK, George: Organic and functional nervous disorders, 267, 493 (O)
- RINGLEY, Frederick: Clinical significance of the composition of tears, 133—Physics and ophthalmology, 273
- RIVER, C. A.: Scrofula: Focal infection as a problem for the laryngologist, 227
- RIVER, J.: Subcutaneous haemostasis in operations, 618
- Riforma Medica* for October 6th devoted to proceedings of recent Italian congresses, 1055
- Rights of action and death (leading article), 600—Correspondence on, 658, 732. *See also* Death
- RINGEL, Tom: death of, 616
- RITCHIE, A. W.: Health and housing, 565
- RIVER TAME, pollution of (parliamentary note), 826
- RIVERA: Louping-ill in man, 251
- RIVETT, L. C.: Results of ante-natal care, 221, 1911—Oestrus producing hormones, 257—Physiology of pregnancy, 316—Chloroform inhaler, 316
- Road accidents. *See* Accidents
- Road safety and the "silent zone" (parliamentary note), 855
- Road Traffic Bill, 45, 95, 147, 149, 150, 191, 213, 237—Report stage, 45—Debate in the House of Lords, 143—Noise from motor-car exhausts, 193—Fees to hospitals for road casualties, 191—Emergency treatment for road accidents, 213—Leading article, 213
- Roads: *Arrangements*. *See* Tar
- ROAF, H. E.: Colour vision, 525
- ROBE, W. A.: Holstein's disease with erythema nodosum, 1172
- ROBE-SURIN, Alceste: Hamish Tearloch, awarded a Dardis. *Trumpet*: Cross Research Fellowship in tuberculosis, 76
- ROBERT, E. Hesketh: Criticism of ante-natal work, 149
- ROBERTSON, D.: Nutrition and disease, 727
- ROBERTSON, Douglas: Varicella and herpes zoster, 721
- ROBERTSON, R. K.: Localized flushing, 795
- ROBERTSON, Thomas: Is high blood pressure a risk, 485
- ROBINSON, Surgeon Lieutenant (D) John Wade, obituary notice of, 165
- ROBINSON, Henry: Prenatal cardiac murmurs, 731
- ROBSON, J. M.: Oestrus-producing hormones, 239—Recent advances in sex and reproductive physiology, rev., 680
- ROCH, Maurice: *Les Traitements de l'Hypertension Artérielle*, rev., 170
- ROCHE, Hilary: Treatment of haemoptysis, 832
- ROCKWELL, Marion Balfour Marshall, obituary notice of, 616
- Rodent ulcer in the young (Robert Aitken), 1044. *See also* Ulcer
- ROGER, A.: Vocational guidance, 558
- ROGERS, T. Ritchie: Mucopurulent tuberculous infections, 225, 544 (O)—Tonsillotomy in children, 272
- ROENTGEN rays, ionization method of measuring (Dr. Thomsen), 905
- ROFFO, Professor, awarded the Red Cross medal of the first class by Germany, 379
- ROGER, G. H. (and Léon BINET): *Traité de Physiologie, normale et pathologique. Tome VII. Sang et Lymphes Reactions d'Immunité*, rev., 111
- ... isation in of Joseph
- ROGERS, Sir Leonard: Reviews Jeannel's book on leprosy, 354—Medical services at home and abroad, 832
- ROLLSTON, Christopher: Earth burials and disease, 497
- ROLLSTON, Sir Humphry D.: Unemployment assistance: determination of needs, 235—Stanley Melville Memorial, 569—Aetiology and treatment of asthma, 1069—Physicist and radiologist, 111
- ROMANIS, W. H. C. (and Philip H. MITCHELL): *The Science and Practice of Surgery. Vol. I. General Surgery. Vol. II. Regional Surgery*, fifth edition, rev., 1200
- Rome, Institute of Public Health founded in, 337
- RONALD, J.: Myoidema, 796
- ROOPE, Basil: Bad surgical risks, 266
- ROSENROFF, A. J.: Cause of mongolism, 1206
- ROSENBLUTH, M. D., appointed to the chair of clinical medicine at Columbia University, New York, 576
- ROSS, David, obituary notice of, 93
- ROSS, J. Cosbie: Dental problems of medical interest, 832
- ROSS, James, obituary notice of, 287
- ROSS, Sir Ronald: Memorial to, 33—And the Panama Canal, 1020—Review of book on, 1104
- ROTH, Paul Bernard: Transport of cases with back injuries, 1124
- ROTHSCHILD: Causation of skeletal muscle pain, 563
- ROBERT, F. A. (and E. L. de CHAZAL): *Guide Pratique d'Hygiène Infantile*, rev., 256
- ROSEN, Harold: The dental surgeon's place in a general hospital, 562
- ROXBELL, C. F., appointed a member of the department committee on the cost of hospitals and other public buildings, 191
- ROUSSEAU, Gaston (and Denis Broco-ROUSSEAU): *Le Sérum Normal. Réculte et Caractères Physiques*, rev., 308
- ROUSSEAU, J.: Acute gastric dilatation and perforation after hysterecomy, 1071
- ROUSSEY: Diagnostic test of cancer, 1155
- Routes out of London, 928
- ROVENOR, Colonel G. F.: Local anaesthetic for nasal work, 380
- ROWEN, Leo A.: Stanley Melville Memorial, 563—Radiography and pelvimetry, 1175
- ROWNTREE, Cecil: L'Union Internationale contre le Cancer, 742
- ROWNTREE, A. C.: *Common Skin Diseases*, second edition, rev., 258
- Royal Faculty of Physicians and Surgeons of Glasgow: Information concerning the study of medicine, 405—Annual meeting, 925—Election of officers, 925—Fellows admitted, 1132
- Royal Institute of British Architects: International exhibition, 1053
- Royal Institute of Public Health: Harben Lecture, 711—Investigation of small-pox and vaccinia by laboratory methods, 711
- Royal Institution, changes in subscriptions for lectures at, 819
- Royal Sanitary Institute: The bed-bug as a housing problem, 935—Nutrition and health, 1157
- Rumania, typhus fever in, 97—Malaria in the Delta of the Danube, 693
- Rural dwellings. *See* Dwellings
- ROSS, Sidney: Stanley Melville Memorial, 569
- ROSS, V.: Undulant fever in Austria, 217
- ROUSSEAU, Lieut. Col. A. J. H.: Report on public health problems of India, 947
- ROUSSEAU, L. S.: *The Behaviour of Animals: an Introduction to its Study*, 352—The study of animal behaviour, 523
- ROUSSEAU, H. S.: Asthma and chronic bronchitis, 231—Allergy, 1086
- ROUSSEAU, J.: Bad surgical risks, 265
- ROUSSEAU, Pasha T. N.: Report on dangerous drug traffic in Egypt, 28
- ROUSSEAU, W. Kerr: Short-wave therapy, 956, 1072
- ROUSSEAU, Lord: Stanley Melville Memorial, 569
- ROUSSEAU, Robert: Ligation of external iliac artery and vein in a man aged 67, 553
- ROUSSEAU, W. J.: Hereditary scoliosis, 87
- RYAN, J. Chas.: Ronald Ross and the Panama Canal, 1020
- RYENOR, B. W.: Irrigating repositor for cataract extraction, 682
- RYLE, J. A.: *B. coli* infection, 254
- RYME, G. A.: Marriage among lepers, 169
- SANTIAGO del Estero, forms of leishmaniasis in (E. J. Canal Felipo), 514
- SANTAL, D. (and R. GHOSE): *Vegetable Drugs of India*, second edition, rev., 1104
- Saphenous vein. *See* Vein
- SARCOMATOSIS, retroperitoneal (Henry F. G. Irving), 1149
- SARGENT, R. M.: Spontaneous recovery in superior mesenteric thrombosis, 64
- SASLOW: Variations in the normal blood count, 867
- SAUNDERS, Dr.: Diphtheria in Cork City, 1168
- SAUNDERS, Frederick Anastasius, obituary notice of, 748
- SAUNDERS, J. C.: The Clean Milk Bill (Irish Free State), 606—Diphtheria mortality (Irish Free State), 937
- SAVAGE, W. G.: Food standards, 936
- SAVILLE, Agnes: Use of narcotics, 223—Treatment of genito-urinary diseases, 225—Cervical erosion and discharge, 1077
- SAYIN, Mr.: Case of uveoparotid fever, 133
- SAYE, Louis: *Pneumonie Intrapleurale*, rev., 354—*Cristoterapia de la Tuberculosis*, 727—La
- Scarlet fever. *See* Fever
- SCHIFFER, G. (and E. PHILIPP): *Metastasen und Rezidive im Knochen*, rev., 906
- Schick test, *see* for 795
- Schick test and diphtheria antitoxin (R. B. Mayfield), 938 (O)
- SCHIFFER-Weithemer: Hyperpituitarism and Graves's disease, 361
- SCHILLING, V.: Cancer claims, 521
- SCHLESINGER, B. E.: Encephalitis, 222
- SCHLESINGER, Hermann, death of, 495
- SCHLOSSBERGER, Hans (and Viktor FISCHL): *Handbuch der Chemotherapie*, rev., 556
- Scholarship. *See also* Medical school
- Scholarships examination, combined, 143
- Scholarships, preparatory school, for sons of medical men, 871
- Scholarships, Streetfield, 41
- School child, health of the: Annual report of the chief medical officer of the Board of Education, 1107, 1115
- School children, diets (model) for (parliamentary note), 1184
- School children, elementary, inoculation for (parliamentary note), 45
- School children in Hall, nutrition of, report, 696
- School children, London, nutrition clinics for, 1163
- School children, medical inspection of (County Antrim), 739
- School children, medical inspection of and free milk (parliamentary note), 974
- School children, medical treatment of (Clogher), 915
- School children, nutritional investigation of (S. T. Beggs), 733
- School dental service in New Zealand, 784
- School medical officers, information concerning, 437
- School medical officers, reports of (parliamentary note), 150
- Schools, nursery, and cheap milk (parliamentary note), 1226
- Schools, nursery, plea for more (parliamentary note), 150
- Schools, overcrowding in (leading article), 1204
- SCHOTTLELLER, H., elected president of the German Society of Internal Medicine, 289
- SCHÜLLER, A. (and H. URBAN): *Craniocerebrale Schenita für die Röntgenographische Lokalisation*, rev., 724
- SCHUFFNER, W.: Leptospirosis, 727
- SCHUTTERMAN, Carl Erich: *Die Lungentzündung, Immunität, Allergie und Infektionskrankheiten*, Band IV, Heft 1-3, rev., 20
- SCHWENKER: Louping-ill in man, 261
- SCHWENKER: Variations in the normal blood count, 867
- Sciatica, problems of (J. Barnes Bart), 763—Discussion, 789
- Science, clinical, endowment of (leading article), 1105—Correspondence on, 1218
- Science and religion, 1186. *See also* Religion
- Sclerosis, disseminated, treatment of, 663
- Scoliosis, hereditary, 87
- Scotland: Aberdeen—Annual report of medical officers of health, 1215—Public health in: Report, 358—Royal Infirmary, extensions, 445—Undulant fever, investigations in, 1215
- Animal Diseases Research Association, 180
- Bangour hospital extension, 1167
- Biology in education, 825
- Blind, welfare of: Advisory Committee, 1167
- Dundee, dental conference in, 358—Hospital problems in, 608
- Edinburgh: Chair of clinical medicine, 1166
- Crippled children, hospital for, 79
- Dental school, 34
- Diphtheria immunization, 1067
- Graduation ceremony, 179
- Health of: Report, 73
- Honorary degrees, 34

Scotland (continued):

EDINBURGH (continued):
Housing in, 554
Princess Margaret Rose Hospital for

694
Royal (Dick) Veterinary College, 73, 328
Royal Edinburgh Hospital for Sick
Children, 79
Royal Infirmary, 1063
University. *See* University
Educational Endowments (Scotland) Bill,
1022, 1183

Environment as a cause of mental deficiency,
279
Fife, pithead baths in, 485
Finlayson Memorial Lecture, 1007
GLASGOW:

Chair of midwifery, 179
Health of, 691
Housing and health exhibition, 694
Mental hospital extension, 828
Post graduate courses, 737
Royal Mental Hospital: Report, 131
Royal Samaritan Hospital, 608
University. *See* University
Gogarburn Institution for mental defect, 131
Health, Department of: Annual report, 32
Health and housing, 565
Health of, 1054
Health services (leading article), 25—Corre-
spondence on, 181
Hospital problems in, 608
Hospital services for Scotland, 917
Hospitals, new, 485
Housing, acceleration of (parliamentary note),
150

Housing amenity in, 485
Housing Bill, a new, 46
Housing and slum clearance in (parliamentary
note), 189

Infectious diseases, treatment of, 1054
Insurance, National Health, conference, 653
Insurance, National Health, extension of, 1007
Life statistics in, 827
Maternal mortality, 1166

Maternity benefit and poor relief in (parlia-
mentary note), 96

Mental deficiency, increase of (parliamentary
note), 189

Mental disease, treatment of, 876
Mental disorder in, report by Board of Con-
trol, 954

Mental disorder, problems of, 131
Mental health services, 565

Mental hospitals, Scottish, pathology in, 180
Methylated spirit drinking in (parliamentary
note), 1184

Metropolitan Police College, appointment to,
1008

Milk-in-schools scheme (parliamentary note),
1008

Nurses, training of, 45, 131—Inquiry com-
mittee, 131—Parliamentary note on, 45

Physical training in Scottish schools (parlia-
mentary note), 46

Poor Law (Scotland) Bill, 148, 193—Royal
Assent to, 237

Poor relief in, numbers in receipt of (parlia-
mentary note), 840

Royal Edinburgh Hospital, Morningside, 735
Royal (Dick) Veterinary College, 79

St. Andrews: Honorary degrees, 34
Tuberculosis campaign, 565

SCOTT, Ernest, death of, 496
SCOTT, G. Brebner: Cholecystectomy and recur-
rent duodenal ulceration, 538

SCOTT, G. Laughton: Drug addiction treatment,
1149

SCOTT, S. Gilbert: Rheumatoid arthritis, 127—
Constitutional effects of, 1113

SCOTT, Sydney: Unsettled problems of neuro-
syphilis, 788—Meningitis of otitic origin, 1120

Scottish Department of Health. *See* Health
Scottish health services (leading article), 25—
Correspondence, 181

SCOWEN, E. F. (and A. W. SPENCE): Effect of
prolonged administration of acid extract of
anterior pituitary on the thyroid gland, 805 (O)

SPRODOWSKY, P. F.: Diphtheria immunization
in Leningrad, 1003

Seaham, public health in (parliamentary note),
1114

Seamen, working conditions of (parliamentary
note), 118

SEARON, Douglas: Playfair's probe as pipe
material wanted, 1030

Sedentary life, evil effects of (G. Laroche,
de Chasseaurain and A. Grisean), 1089

SELKIRK, W. J. Burns: Lethal noises, 754
SEMPLE, Philip Ignas, head of on a new
Hungarian stamp, 576

SEMON, Henry: Treatment of lupus vulgaris,
322—Fungus infections of the feet, 322

SEMON-WHITE, Dr.: Subspecies of *Anopheles*
maculipennis, 131

Septicæmia, 1079

Septicæmia following tonsillectomy (Branford
Morgan), 1145 (O)

Septum cauterization in asthma, 1017
Septum, knife for submucous resection of, 724

SERDARS, G.: Antimalarial campaign in Rhodo-
daphnia, 714

SERGEANT, E. L.: Oedema—its causation and
treatment, 315

SERGEANT, Emile: Phrenicectomy, 999
Seriological reactions, review of book on, 944

Serum tests in cancer. *See* Cancer
SEWARD, A. C., awarded the Darwin medal of
the Royal Society, 911

Sewer workers and Well's disease. *See* Well's
disease

Sewers, accidents in, report, 337
Sex anatomy, review of book on, 210

Sex behaviour, mechanisms which determine
(H. P. Wiseman), 82

Sex, biological aspects of (F. A. E. Crew), 82
Sex constitution, endocrines in (W. Blair-Bell),
83

(F. A. E.)
Sexual knowledge, encyclopædia of, 94, 152—
Summons by Director of Public Prosecutions,
94—Disclaimer by Dr. Norman Haire, 152

SHAFFER, G. Wilson (and Roy M. Doncus):
Textbook of Abnormal Psychology, rev., 991

SHANKS, C. Cochrane: Radiology of the stomach
and duodenum, 319, 1032 (O)

Shark oil. *See* Oil
SHARP, Buckley: Unsettled problems of neuro-
syphilis, 788

SHARPEY-SCHAFER, Sir Edward: Awarded the
Cameron prize, 179—*Essentials of Histology*,
Descriptive and Practical, thirteenth edition,
rev., 596—*Experimental Physiology*, fifth
edition, rev., 843

SHAW, E. H.: A mental hospital clinic, 1177
SHAW, J. V., elected mayor of Hereford, 976

SHAW, Maurice E.: Proposed medical school for
women, 374

SHAW, R. W.: Acute cholecystitis, 879—Intra-
tracheal method of anaesthesia, 1217

SEAW, Wilfred: Endometrial hyperplasia, 818
SHAY: Galactose tolerance test, 1057

SHEAHAN, D. H.: Chronic enlargement of the
liver, 1085

SHEARER, G.: Radiological practice, 1013
SHERRY, A. W.: Treatment of arterial embolism,
219—Hernia operations, 315

Sheffield: Radium centre opened, 129—Annual
report of medical officer of health, 1212—
Tuberculosis in, 1212

SHERA, A. G. (and W. G. WILLOUGHBY): Case of
spirochaetal haemorrhagic jaundice (Well's
disease), 14 (O)—Clinical pathology of coma, 81

SHERLOCK, Holmes. *See* Holmes
SHERWIN, Carl P. (and Benjamin HARNOW):
The Chemistry of the Hormones, rev., 773—A
correction, 844

SHIBLEY, G. S.: Prophylaxis of whooping-cough,
1109

Notes for Young
therapy and
(parliamentary
note), 888
and the

at the
See also

Diathermy
Sick Berth Staff Associations. *See* Associations

SIEGBAHN, K. M. G., awarded the Hughes medal
of the Royal Society, 911

Sight, recovery of, following severe corrosive
burn of cornea (Thomas H. Vignall), 992

Sigmoid, rupture of from compressed air (H. J.
Nightingale), 860

Signal lights and traffic control, 40, 141, 235.
See also Traffic

SILCOCK, F. A. E.: Concurrent varicella and
herpes, 884—Prevention of "steaming" glass,
1026

"Silent zone" and road safety (parliamentary
note), 888

Silicosis, compensation for (parliamentary note),
238

Silicosis disablement in South Wales (parlia-
mentary note), 96

Silicosis, modern views on (W. E. Cooke), 878

Sinus, bone, chronic, 617, 753
Sinus, coccygeal (J. B. Oldham), 960

Sinus, maxillary, infections of (I. B. Thorburn),
272

Sinuses, accessory, pyogenic infection of (Her-
bert Tilley), 866, 869

Sinusitis, maxillary, iodine vapour in, 936
Sinusitis, nasal, and epilepsy, 1219

Skeletal muscle pain. *See* Pain
Skill, manual, review of book on, 994

Skin, review of books on, 258, 722
Skin. *See also* Dermatology

SLADDEN, A. F. S.: Clinical pathology of coma,
81

therapy for
other of the
, 557

SLOT, Gerald (and A. H. GALLEY): Pharmacol-
ogy and therapeutics of sodium evipan,
201 (O)

Slum areas, new, creation of by smoke-polluted
atmosphere, 460

Slum clearance (parliamentary note), 840
Slum clearance in Scotland (parliamentary
note), 189

Slums. *See also* Housing
Small-pox in 1933-4, survey of, 642

Small-pox, diagnosis of by laboratory methods
(W. J. Tulloch), 711

Small-pox epidemic in Bombay, 1215
Small-pox, inherit d (J. Pickford Marsden and
C. R. M. Greenfield), 777

Small-pox isolation in India (parliamentary
note), 1184

Small-pox and vaccination in Nigeria (parlia-
mentary note), 1083

SMART, Sir Morton: Acute and chronic sprains,
321—Pathology and treatment of sprains, 673
(O)

SMITH, A. J. Durden: Treatment of genito-
urinary

SMITH, Geddes (and George S. STEVENSON):—
Child Guidance Clinics: A Quarter Century
of Development, 1184

lymph-
lete pro-

SMITH, Jean (and Eric PRITCHARD): Treatment
of fractures in the newborn, 363

SMITH, N. Ross: Adolescent and senile kyphosis,
271

SMITH, Rawdon: Dental problems of medical
interest, 832

SMITH, R. E.: Acute streptococcal throat infec-
tions, 563

SMITH, Reginald H.: Mastoid retractor, 597
SMITH, Sydney:—*Forensic Medicine: A Text-
book for Students and Practitioners*, fourth
edition, 1934

SMITH, Sydney:—*Forensic Medicine: A Text-
book for Students and Practitioners*, fourth
edition, 1934

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book for Students and Practitioners*, fourth
edition, 1934

SMITH, Sydney:—*Forensic Medicine: A Text-
book for Students and Practitioners*, fourth
edition, 1934

- Society, Devon and Exeter. *Medico Chirurgical*: Hodgkin's disease with erythema nodosum, 1172.—Non-malignant stricture of hepatic ducture in a boy of 6, 1173.
- Society, Eugenes: Programme, 733.
- Society of Gastro-enterology, Italian, foundation of, 927.
- Society, Hunterian: President's address, 820.
- Society, Industrial Welfare: Issues a pamphlet on administration, equipment, etc., of works laundries, 335.
- Society, Italian, of Anaesthesia and Analgesia, foundation of in Rome, 1023.
- Society, Japanese Pathological: *Transactions*, vol. xxiii, rev., 255.
- Society, Leeds and West Riding Medico-Chirurgical: The examination of renal function, 49.
- Society, Manchester Medical: Centenary of, 72, 653, 654.—Medical licensing and teaching in the province, 559.
- Society, Manchester Pathological: Cholesterol and disease, 730.—The allergic state, 950.
- Society of Massage and Medical Gymnastics, Chartered, issues a revised edition of its Directory, 553.—Annual dinner, 651.—Register of members (1934), 724.
- Society, Medical, of Harrogate, issues diet charts, 618.
- Society, Medical, of Individual Psychology: Annual general meeting, 165.—Awareness in psychological medicine, 739.—Psychological background of patients suffering from colitis, 1215.
- Society, Medical, of London: New session, 484, 1212.—Annual general meeting, 677.—President's address: "Medicine and morals," 697.—The sinus and their treatment, 830.—Diagnosis of intracranial tumours, 1070.—The thyrotoxic heart, 117.
- Society of Medical Officers of Health: Annual dinner, 997.
- Fever Group:—Puerperal sepsis: serum treatment, 1220.
- Society, Medico-Legal:—Sex: its nature and abnormalities, 82.—Annual dinner, 1165.
- Society, Midland Mental Pathological: Formation of, 875.
- Society, Mid-Staffordshire Medical: Advances in cardiology, 741.
- Society, North of England Obstetrical and Gynaecological: Lipiodol and x rays in pelvic trouble, 35.—Lower segment Caesarean section, 35.—Willett's forceps in placenta praevia, 961.—Aschlim-Zondek's reaction in general tuberculosis, 962.—Hypersexuality associated with cystic ovaries, 961.—Adenocarcinoma of cornu uteri, 962.—Actinomycosis of ovary, 962.—Clinical cases, 1221.—Unusual abdominal cyst, 1221.—Epithelioma of vulva, 1222.—Malignant ovarian tumour, 1222.—Angular pregnancy, 1222.—Adenomyoma of recto-vaginal septum, 1222.
- Society, North of England Ophthalmological: Case-history in ophthalmology, 1001.
- Society, North London Medical and Chirurgical: Opening of session, 832.
- Society, Paddington Medical: Issues a revised edition of their *Schedule to the National Formulary*, 573.
- Society, Pharmaceutical, of Great Britain: Hanbury memorial gold medal awarded, 705.
- Society, Physical: Annual exhibition of scientific instruments and apparatus, 1185, 1227.
- Society, Red Cross, British, and the Order of the Hospital of St. John of Jerusalem: Annual report, 524.—Youth and Health: What Can We Do to Help? Report of discussions now published, 122.
- Society for Relief of Widows and Orphans of Medical Men: Report of meetings, 95, 740.
- Society, Research Defence: *The Fight against Disease*, 818.
- Society, Royal: Award of medals, 911.—Election of officers, 911.—Presidential address, 1103.—Endowment of clinical science, 1106.
- Society, Royal of Arts: Biochemistry and nutrition, 125.—Albert medal presented, 125.
- SOCIETY, ROYAL, OF MEDICINE (continued):
Cerebral, some aspects of (G. R. Minot), 1067.
Cerebral tumour, influence of the first operation for removal of, 694, 1003.
Dixon Memorial Lecture: Pharmacology and nerve endings, 1161.
"Doctor from 'Adia,'" 909.
Section of Anaesthetics.—Personal factors influencing anaesthesia, 877.
Section of Children's Diseases, Study of.—Treatment of fractures in the newborn, 363.
Section of Epidemiology.—Ante-natal care and the maternal death-rate, 1009.
Section of the History of Medicine.—Harvey and literature, 124.
Section of Medicine.—Prognosis in coronary occlusion, 828.—Aetiology and treatment of asthma, 1069.
Section of Neurology.—Unsettled problems of neurosyphilis, 787.
Section of Obstetrics and Gynaecology.—Sex: its nature and abnormalities, 82.—Ante-natal care and the maternal death rate, 1009.
Section of Otolaryngology.—Meningitis of otitic origin, 1118.
Section of Physical Medicine.—Problems in the study of sciatica, 788.—Short-wave therapy, 956.—Exercises and manipulations in spinal conditions, 1216.
- SOCIETY, ROYAL, OF MEDICINE (continued):
Section of Psychiatry.—Psychology and religion, 958.—Mental hygiene: preventive measures in childhood, 1169.
Section of Sex.—
Disease of the blood pressure, 740.
- Society, Royal Philosophical, of Glasgow: The undrable tenant, 653.
- Society, Royal Photographic: Annual exhibition, 617.—Exhibition of cinematography, 883.
- Society, Royal Surgical Aid: Annual meeting, 1105.
- Society, Royal, of Tropical Medicine and Hygiene: Subspecies of *Anopheles maculipennis*, 134.—Medical services at home and abroad, 831.—Year book of, 1039.—Annual report, 1039.
- Society, St. John's Hospital Dermatology:—Prosper Whitte Oration: "Disease, Gaddy of the Mind," 53.
- Society, Sherlock Holmes: First dinner, 278.
- Society, Smoke Abatement: Change of address, 239.—Creation of new slum areas by smoke-polluted atmosphere, 460.
- Society, South-West London Medical: Lectures, 705.
- Society, Therapeutic, of Paris brings the Therapeutic Union into being, 1115.
- Society, Ulster Medical: Opening meeting of session 954.
- Society, University of London Medical Graduate: Autumn extra-metropolitan dinner, 650.
- Society, West Kent Medico-Chirurgical: Annual meeting, 842.—Opening of session, 842.
- Society, West London Medico-Chirurgical: Annual dinner, 77.
- Sodium evipan, pharmacology and therapeutics of (Gerald Slat and A. H. Galley), 201 (O)—Correspondence of, 235, 323, 534.
- Sodium evipan (H. J. A. Simmons), 224.—Discussion, 224.
- Sodium evipan. See also Anaesthesia, evipan Sodium pentose nucleotides ("pentide"), 68.
- Sotomoxon, Montague: Evipan anaesthesia, 141.
- Sotomoxon, Bethel: Report of the Rotunda Hospital, Dublin, 180.—Maternity cases, 918.—Dilating the cervix in placenta praevia, 920.—Honorary Fellowship of the American College of Surgeons conferred on, 927.—Operative masks, 1013.—Cervical myoma, 1013.
- Sonsby, Arnold: The pre-myopic state, 132.—Dystrophies and degenerations of the macula, 470.
- Sonsby, Maurice: Headaches, 223.
- ROBIN, S.: A metabolic tolerance test, 603.
- South Africa. See Africa.
- Southend-on-Sea, opening of an establishment for "medicinal" mud baths at, 695.
- SOULTAR, H. S.: Cancer of the oesophagus, 797 (O)—*Radium and Cancer*, rev., 1045.
- SPACKMAN, C. L.: Late recurrence of carcinoma, 115.
- SPACKMAN, W. C.: Local treatment of coryza, 835.
- Spain: Every cinema to exhibit films of a public health character at each performance, 337.
- SPALDING, Surgeon-Commander Archibald Denize, obituary notice of, 705.
- Spanish National Academy of Medicine, second centenary of, 1135.
- Spas, British, Federation, Leamington (1934), 655.
- Spas, French, voyage d'études médicales to, 47.
- Spectrophotometry, review of book on, 814.
- Speculum, vaginal, a new lighted, 170.
- Speech defects (O'Hea Cussen), 1122.
- SPEYCE, Arthur D.: Catarrhal jaundice following T.A.B. inoculation, 653.
- SPEYCE, A. W. (and E. F. Scowen): Effect of prolonged administration of acid extract of anterior pituitary on the thyroid gland, 805 (O).
- SPEYCE, C. H. (and Frank Dean): *Hospital Accounting and Secretarial Practice*, rev., 258.
- SPEYCE, J. C.: Nutritional anaemia, 122.—Nutritional problems in North Country children, 1065.
- Sp-ruatorrhoea when bathing, 192, 290, 337.
- SPIETHOFF, B., appointed editor of the *Dermatologische Wochenschrift*, 379.
- SPIELHUY, Sir Bernard: Medico-legal implications of masculinism, 83.—Endocrines in sex constitution, 83.
- Spinal conditions, exercises and manipulations in (T. Stacey Wilson), 1216.—(J. B. Mennell), 1216.
- Spine, fracture of. See Fracture.
- Spine, lower, diseases and injuries of the (C. W. Buckley), 64.
- Spine, lumbar, movement of and pregnancy, (C. Lambriandi), 1012.
- SPIRIDON, J. T.: Evipan anaesthesia, 706.
- Spirits, medical, rebate on (parliamentary note), 149.
- SPIRTEL, R. L.: Bad surgical risks, 265.—Sprue, 320.
- Spleen and carbohydrate metabolism, 477.
- Spleen, rupture of, after trifling causes (Harold Dodd), 1094 (O)—Correspondence on, 1219.
- Splenectomy curing severe menorrhagia (Stanley J. Hartfall and Carlton Oldfield), 8 (O)—Correspondence on, 284, 483.
- Splint, colloidion-gauze (W. Sayle Creer), 1199.
- Sprains, acute and chronic (W. Rowley Bristow), 320, 669 (O)—Discussion, 321.
- Sprains, pathology and treatment of (Sir Morton Smart), 675 (O).
- Sprue, fatal perforation of caecum in a case of (G. Carmichael Low and N. Hamilton Fairley), 678 (O).
- Sprue and its modern treatment (N. Hamilton Fairley), 320, 1192 (O)—Discussion, 320.
- SPRINGER, Harry, obituary notice of, 1182.
- SQUER, L. L.: *Acronyloclasis*, 29.
- STABLER, Frank: Case showing Cullen's sign, 255.
- STACEY, J. E.: Unusual abdominal cyst, 1121.—Adenomyoma of recto-vaginal septum, 1122.—Epithelioma of vulva, 1122.
- STAEHELIN, R. (and G. von BERGMANN, editors): *Infektionskrankheiten*, vol. I, rev., 594.
- STALLARD, H. E. W.: Superior mesenteric thrombosis, 721.
- STALLYBRASS, C. O.: Siliacosis, 879.
- STANNERS, F. A. R.: Inflammatory dislocation of the radius, 232.
- STARR, Hungarian: head of Semmelweis on new issue, 575.
- STAMPA, G. L.: Noise, 485.
- STANDFORD, Dr.: Animal paratyphoid and public health, 483.
- STANNUS, H. S.: Pellagra, 121.
- STANFIELD, George Sutcliffe, obituary notice of, 378.
- Staphylococcal infections (H. J. Parish), 318.—Discussion, 319.
- STANCK, Wilhelm von, death of, 572.
- Statistics: *Guide to Current Official Statistics of the United Kingdom*, Vol. xii, 246.
- STEARNE, George: Removal of tattoo marks, 350.—Spontaneous rupture of extensor tendons, 380.
- STECK, Professor: Infective mastitis, 481.
- STEEL, James W., obituary notice of, 187, 287.
- STEEL, W. Arklay: Full-term extrauterine pregnancy with living child, 62 (O).
- STEELE, G. H.: Medical benevolence, 745.
- STERN, Robert E.: *Ecma hygiene*, 735.
- Stenosis, pyloric, 57, 84, 135.
- Stenosis, pyloric, congenital, 833.
- Stenosis, pyloric, and thrush, 795.
- Sterility with ovarian dysfunction (T. N. A. Jeffcoat), 1217.
- Sterilization laws passed in Norway and Sweden, 1185.
- Sterilization report, London County Council and, 73.
- Sterilization of the unfit (Letitia Fairfield), 135.
- Sterilization, voluntary: Discussion at the Public Health Congress, 995.
- STERNBERG, Maximilian, death of, 1223.
- STEVENS, T. G.: Results of ante-natal care, 221.
- STEVENS, George S. (and Geddes Sauer): *Child Guidance Clinics: A Quarter Century of Development*, rev., 1150.
- STEWART, A. A., obituary notice of, 972.
- STEWART, Dr.: Mucopurulent tubo-tympenic infection, 227.
- STEWART, J.: Injuries of the knee-joint, 40, 657.
- STEWART, Matthew: Pathological research at Leeds, 327.
- STEWART, Stenhouse: Headaches, 227.
- STILL, G. F., appointed consulting physician to the Infant's Hospital, Westminster, 239.
- STOCHTZA, N. N.: Chest injuries and pulmonary tuberculosis, 689.
- STOKER, G. M.: Whither general practice? 968.
- STOKER, H.: Acute cholecystitis, 879.
- Stomach and blood formation, 1208.
- Stomach, radiology of the (C. Cochrane Shanks), 319, 1032 (O)—Discussion, 319.
- STONE, Captain J. E.: *Appeals for Funds and Hospital Publicity*, 1207.
- Stone dust on colliery roads (parliamentary note), 1184.
- STONER, R. A.: Adhesions in artificial pneumothorax, 790.—Acute cholecystitis, 879.—Intra-tracheal anaesthesia, 1218.
- STONER, Robert V.: *Gonococcal Infection. Recent Advances in Pathology, Diagnosis and Treatment*, rev., 557, 705.
- STOTT, A. W.: Oedema—its causation and treatment, 314.
- STOWELL, Thomas E. A.: Trichlorethylene, 1230.
- STRACHAN, A. S.: Pathology of coronary occlusion, 225.
- STRACHAN, C. Gordon: *B. coli* infections, 573.
- STRANGE, E. W.: Sodium evipan, 224.
- Strangeways Research Laboratory: Report, 1002. See also Research.
- STRATTON, W., elected an honorary member of the British Pharmacological Society, 74.
- STRAUSS, William T. (and Carl G. Hartman): *The Anatomy of the Rhesus Monkey (Macaca mulatta)*, rev., 635.
- Streptococcal infections: specific treatment (leading article), 950.
- Streptococcal throat infections. See Throat.
- Stretcher, railway, 210.
- STRICKLAND, Leonard Hubert, elected to a Beit Memorial Fellowship, 127.
- STRIDGER, F. F., obituary notice of, 1151.
- Sudan, control of infection by aircraft in (parliamentary note), 1154.
- Sudan Medical Service: Information concerning, 448.
- SUDHOFF, Professor, resumes the editorship of *Sudhoff's Archiv für Geschichte der Medizin und der Naturwissenschaften*, 843.
- Sugar, white and brown, 928, 1185.
- Suicide, practical note on (Frederick Dillon), 1093 (O)—Correspondence on, 1222.
- Suicides in Germany in 1932, number of, 934.

TILLEY, Herbert: Muco-purulent tubo-tymppanic infection, 127—Focal infection as a problem for the laryngologist, 227—Allergic factors in rhinitis, 269
maxillary:
chronic
antrum and other accessory sinuses, 866, 869

TIPPLET, Gordon: Tuberculin, 701

Tobacco angina, 922

Tobago, malaria in, 477

TOCHER, J. F.: Cow's milk, 558

TODD, A. T.: Spontaneous regression of cancer, 96

Toe-nail, ingrowing, 262, 922, 967, 1073, 1185

Tolerance test, metabolic exercise, 603. See also Exercise

Tonsil and adenoid operations in children.

Tonsillectomy followed by septicaemia (Bransford Morgan), 1145 (O)

Tonsillectomy, position of patient for, 922

Tonsillectomy with local anaesthesia (Geoffrey Morey), 930 (O)

Tonils and the rheumatic child (A. D. Kaiser), 953

Tonsils. See also Adenoids

TOOMBS, J. A.: Polymycolitis, 863

and contribute

Medical jurisprudence

Trachoma, campaign against: Conference in Budapest (1935), 104. 277—Meeting in Paris, 277—Pamphlet on, 277

Traffic control and signal lights, 40, 141, 235

See also Signal

TRAVIS, C.: Divisional

Transport of cases with back injuries. See Back

Transport of invalids. See Invalids

Trauma and pulmonary disease, 689, 791

Treatment in general practice: Influenza (Lord Holder), 1059—Acute bronchitis (R. A. Young), 1111—Pneumonia (W. H. Wynne), 1159—Pleurisy (F. G. Chandler), 1209

Treatment. See also Therapeutics

TREMPER, R. Ford: Agranulocytic angina in a diphtheria carrier, 902

TRETTOWAN, William Henry: Death of, 563—Obituary notice of, 614

Triethlorethylene, 1219

Trichophyton infection, treatment of, 754, 796, 843, 889, 928

TRIMBLE, Andrew: Report on tuberculosis in Belfast, 286

Trinidad, malaria in, 477

Triplets without tears, 152

Tropical disease, advances in the treatment of (leading article), 687

Tropical Medicine, Belgian State School for, changes its title to Prince Leopold Institute for Tropical Medicine, 97

Nanking (1934), 83

Tropical medicine, information concerning the study of, 432

Tripoli, malaria in, 477

Tropics, European children in, 1025, 1186

TROTTER, Wilfred, delivers a lecture on the importance of the first operation for removal of cerebral tumour, 1003

TROUT, W. Annandale: Infra-red rays in treatment of the septic hand, 375—Short-wave diathermy, 1124

TRUMPER, H. B.: Triethlorethylene, 1219

Trypanosomiasis, mechanical transmission of (J. Gordon Thomson and W. A. Lamborn), 506 (O)

TSURUHI, M.: Antityphoid inoculation in Japan, 985

Tubercle for November contains a translation of Forlanini's original paper on artificial pneumothorax, 927

Tuberculosis, discussion of, 137

(G. Gregory Kayne and B. Weill-Hallé), 464 (O)

Tuberculosis in Belfast, 280

Tuberculosis in Birmingham, 916

Tuberculosis, bovine, eradication of (Major A. Davies), 323

Tuberculosis, campaign against (Scotland), 565

Tuberculosis Council, Joint. Report of meeting, 1064

Tuberculosis, discussion on, 482

Tuberculosis, genital, Aschheim-Zondek reaction in (J. St. George Wilson), 962

Tuberculosis, hereditary (Karl Diehl and Omar v. Verschuere), 1055

Tuberculosis, infection and immunity in (leading article), 474

concerning the study of medicine, 407, 423, 435—
—Medicine, University examination in, 885—
—Meeting of Senate, 1180—Psychological medicine, 435—Reports of examiners, 835—Report from representative on the General Medical Council, 1180
University of Lausanne, information concerning the M.D. examination at, 450
University of Leeds: Degrees and pass lists, 90, 660—Honorary degrees, 90—Information concerning the study of medicine, 393, 418, 435—Pathological department, report, 327—Psychological medicine, 435
University of Liverpool: Awards, 145—Degrees and pass lists, 93, 701—Information concerning the study of medicine, 339, 418, 429, 432, 419—Post-graduate study, 429—Radiology, medical diploma for, 449—Title of Emeritus Professor conferred on, 924—Tropical medicine, 432
UNIVERSITY OF LONDON:
Applications for university chairs, 151, 837
Appointments, 89, 90, 187, 333, 379, 837, 924, 1131
Brown Institution lectures, 924
Chair of chemical pathology, 89
Dean of the Faculty of Medicine elected, 924
Degrees and pass lists, 142, 236, 333, 885, 1031, 1131, 1179
Diplomas, 333, 1051
Gifts to, 89, 749
Graham legacy, 89
Grants from Thomas Smythe Hughes Medical Research Fund and Beaverbrook Fund, 333
Honorary degrees, 1131
Information concerning the study of medicine, 393, 429, 432, 431, 449
King's College, 333
King's College Hospital Medical School, 333, 573
Lectures, 660, 749, 924
London Hospital Medical College, 90, 333, 703
London Inter-Collegiate Scholarships Board, 333
London (Royal Free Hospital) School of Medicine for Women, 187
London School of Hygiene and Tropical Medicine, 143, 236, 703, 885
Medical officers in industry over-seas, conference for, 1132
Recognition of the Institute of Medical Psychology as an approved clinic for the teaching of psychology, 1024
Recognition of teachers, 89, 333, 1131
Regulations for examinations, 333
Regulations for external teachers' diploma, 333
Titles conferred, 1023
Tropical medicine, 432
University chairs: change of title, 924
University College, 142
University College Hospital, 704
University readerships, 333
University of Manchester, Victoria: Appointments, 90, 187, 238, 794—Degrees and pass lists, 90, 1225—Information concerning the study of medicine, 400, 419, 429, 431, 435—Laboratory of surgical research equipped, 243—Lister House, silver dragon presented to, 1180—Post-graduate study, 423, 431—Psychological medicine, 435—Status changed, 50
UNIVERSITY OF OXFORD:
Appointments, 41
Bequest to, 564
Board of the Faculty of Medicine, 885
Boards of Faculties, 41
Convocation, 41
Congregations for graces and degrees, 1031
Degrees and pass lists, 41, 142, 333, 795, 1179, 1181
Honorary degrees, 41
Information concerning the study of medicine, 394, 416, 429, 449
Ophthalmic medicine, diploma for, 449
Post-graduate study, 429
Professor of pathology, 835
Radcliffe Prize, 835
Staines Medical Fellowship, 924
Welsh prize, 142
Williams (Theodore) Scholarship in Pathology, 89, 142—In Physiology, 187
Williams (Mrs.) Theodore, bequest from, 564
University of Paris: Chairs and assistant professorships abolished in the Faculty of Medicine, 889
University of Pennsylvania Graduate School of Medicine, Hoffman cancer library presented to, 1228
University of St. Andrews and Dundee: Degrees and pass lists, 34—Graduation ceremony, 34—Honorary degrees, 31—Information concerning the study of medicine, 403, 423, 429—Post-graduate study, 429

University of Sheffield: Appointments, 143, 749, 1180—Degrees and pass lists, 143—Information concerning the study of medicine, 400, 420, 429—Post-graduate study, 429—Resignations, 749

University of Wales: Degrees and pass lists, 288, 794—Information concerning the study of medicine, 400, 420—Welsh National School of Medicine, 401, 420, 749—New laboratories opened, 749

Unmarried mothers. *See* Mothers

Unqualified surgery, 1228

URBAN, H. (and A. SCHÜLLER): *Cranio-cerebrale Schemata für die Röntgenographische Lokalisation*, rev. 724

Ureter: transplantation of a single as a means of resting a tuberculous bladder (Vernon Pennell), 942

Urethral discharge. *See* Hemorrhage

Urinary infections, review of book on, 209

Urine as a diagnostic test for cancer (Aron), 176

Urine, retention of, acute, an unusual coincidence (Charles Joseph Gordon Taylor), 632

Urine stains, removal of from clothing, 380

Urine testing, modification of Benedict's test (Joseph Fine), 167

Urology, review of book on, 813

CRUQUART, D. A.: Multiple peripheral neuritis

1174

Uterus, retroversion of (Gordon Luker), 316, 760 (O)—Discussion, 316

Uterus, rupture of, spontaneous, at the twenty-fourth week of pregnancy (J. R. Campbell Canney), 63

Ureoparotid tuberculosis. *See* Tuberculosis

V.

Vaccination: Parliamentary notes on, 238, 974, 1022, 1083, 1135—Compulsory, compensation for, 974—Conscientious objections to, 1135—Followed by encephalitis, 238—And admission to day nurseries, 238—Numbers proceeded against, 1022—And small-pox in Nigeria, 1083

Vaccine, B.C.G., review of book on, 773—Correspondence on, 731, 885

Vaccine, "oil," in rheumatism, 233, 374, 491

Vaccinia investigated by laboratory methods (W. J. Tulloch), 711

VALENTINE Major William Arthur, obituary notice of, 42

in Pap-

therapy

is, 1222

VAUGHAN, Janet M.: Gee's disease, 728

VAUGHAN, Warren T.: *Allergy and Applied Immunology*, new edition, rev., 1104

VIRBS, George Rudolph: *Spina-Anaesthesia, Diagnosis and Clinical Application*, rev., 555

Vein, saphenous, internal, thrombosis of, 183, 232, 331, 884

Veneral diseases officers, information concerning, 437

Ventilation, review of book on, 516

VINOBY, J.: The general practitioner's nightmare, 754

VIRKHO, H. M.: *The Principles of Heating and Ventilation*, rev., 516

VERSCHUER, Othmar v.: *Zwillingstuberkulose (Zwillingforschung und erbliche Tuberkulose disposition)*, 1055

Vertex presentation, influence of decubitus on, 1228

Vetrico (R. C. Cummins), 1122

Vetrico, aural (W. S. Theaker Neville), 989 (O)

Veterinary College, Royal (Dick): Annual prize-giving, 79

Veterinary Congress. *See* Congress

Vienna: General hospitals, 150th year of, 1185—Post-graduate courses in, 336, 941, 1145

VILANER, M.: Hyperpituitarism and Graves's disease, 361

VILVANDRE, G.: Radiology of the stomach and duodenum, 319

VINE, J. Miller: A device for the deaf, 119

VINFS, H. W. C. (editor): *Green's Manual of*

Vitamin C. *See also* Ascorbic acid

Vitamin D concentrate, 618

Vitamin D, dosage of (leading article), 907—Correspondence on, 967

Vitamins, standardization of, 77—International conference, 77—Standards and units for four vitamins, 77

ics, 223
1224
o-tympenic in-

fection, 226

Vocalionic guidance (J. A. Wales), 558—Discussion, 558

VOIGT, C.: Therapeutic malaria and haemoglobinuria, 814

VOIGT, E. M.: Therapeutic malaria and haemoglobinuria, 884

VOIGT, H.: Bright's disease, 601

Vomiting, recurrent, in childhood (K. H. Tallerman), 767 (O)

Voyage d'études médicales to the French spas, 47

Voyage Médical International to visit the Riviera, 888

W.

WADE, Thomas Williams, appointed a medical member of the Welsh Board of Health, 1135

W.

WAILING, D. P., appointed an official member of the executive council of the Presidency of the Virgin Islands, 289

WAITE, S. H., appointed to the chair of ophthalmology at Harvard, 576

WAPLEY, Cecil P. G. (editor): *Modern Treatment in General Practice*, rev., 118

Waking hour in hospital, 1003. *See also* Hospital

WALIS, J. A.: Vocational guidance, 558

Wales, South: Silticosis disablement in (parliamentary note), 96

WALKER, E. H.: Report on the health of Manchester, 1213

WALKER, E. R. C.: *The Healthy Infant*, rev., 518

WALKER, E. W. Ainslie: Georges Dreyer's scientific work at Oxford, 946

WALKER, Hector M.: Advertisements of sex literature, 88

WALKER, Mina B.: Influence of decubitus on vertex presentation, 1228

WALKER, Sir Norman: Elections to the General Medical Council, 952

WALL, Sven: Infective mastitis, 481

WALLACE, H. L. (and James M. GRAHAM): Toxic goitre, 845

WALLACE, J. Edgar: Treatment of haemoptysis, 881

WALLACE, R. A. R.: Pyelitis of pregnancy, 316

WALLACE, W. H. S.: Vitamin A deficiency in childhood, 140

WALLIS, Preston R.: The swab in diphtheria diagnosis, 333

WALSH, C. H.: Actinomycosis of ovary, 962

WALSH, V. G.: Use of "oil" vaccine in rheumatism, 374

WALSHE, F. M. R.: Poliomyelitis, 863

WATSON, F. P.: Cyanide poisoning: Rasputin's death, 234

of genito-urinary

diseases, 226

WARD, Lieut-Col. L. B.: Treatment of Raynaud's disease, 151

WARD, Roy: Treatment of genito-urinary diseases, 226—Radiology and the general practitioner, 276—Report of the Radium Institute, London, 696

W.

W.

WARDLE, E. N.: Adolescent coxa vara, 1013

WARDLE, Major V. H.: Efficiency Decoration of the Territorial Army conferred on, 492

Wards, hospital, 753. *See also* Hospital

WARRE, A. M., appointed Knight of Justice of the Order of St. John of Jerusalem, 24

WAREMOUGH: Thoracic cancer, 1052

Warnings, 192

Warwickshire, health work in, 530

WASHBOURN, W.: Substitute for oiled silk (gelaphane), 664

Water, London, in a dry year: Report of the Metropolitan Water Board (leading article), 259

Water Pollution Research Board: Report, 1206

Water resources: deputations to Minister of Health, 179

Water storage against drought (parliamentary note), 46

Water supplies, domestic, collection and storage of rain water for, 151

Water supplies and the drought: meeting at the Ministry of Health, 281, 654

Watersupplies, present position (parliamentary note), 887

Water supplies, rural (parliamentary note), 239, 926

Water survey (parliamentary note), 1134, 1225

Water: Use less water, 785

WATERFIELD, N. E.: Oedema: its causation and treatment, 315

WATKINSON, David: The mechanism of pain, 317, 1087 (O)

WATSON, E. A.: Tuberculosis, 482

WATSON, Sir Malcolm: Subspecies of *Anopheles maculipennis*, 131—Medical services at home and abroad, 832—Mary Kingsley medal presented to, 916—Flinn Memorial Lecture on the history of the prevention of malaria, 1007

Watson and Sons (Electro-Medical), Limited, address, 705

... factors in of otitic origin,

1119

WATSON-WILLIAMS, Patrick, honorary degree of the University of Bristol conferred on, 77

WATT, M. H.: Influenza in Great Britain and New Zealand, 784

WATTS: Cerebral cortex and gastro-intestinal mobility, 646

490

WEATHERLY, Lionel: Organic and functional nervous disorders, 263—Mechanism of pain, 317

WEBBER, A. M.: Appreciation of Robert Montgomery Rendall, 1021

WEBER, E. Parkes: Aetiology and treatment of asthma, 1069

WEBER, E. Parkes: Thrombosis of the penis, 233, 489

WEBSTER, J. H. Douglas: Treatment of genito-urinary diseases, 226—Radiology and the general practitioner, 275, 460 (O)—Local treatment of cornea, 882—Short-wave therapy, 956

Weedon and Co., E. H., a warning from, 192

Week, five days, 1109

Weight, excessive, in childhood, 240

WELL, Mathieu-Pierre: Rheumatoid arthritis, 122

WEILL-HALLÉ, B. (and G. Gregory KAYNE): Tuberculin tests in infants and children, 464 (O)

and A. G.

Well's disease in England (leading article), 27—Correspondence on, 93

Well's disease in Holland (Dr. Klarenbeek), 482

Well's disease in Queensland (J. Grahame Drew), 1142 (O)

Well's disease: series of cases occurring chiefly among fish workers (L. S. P. Davidson, R. M. Campbell, H. J. Rao, and J. Smith), 1137 (O)

Well's disease among sewer workers in London (N. Hamilton Fairley), 10 (O)

Well's disease. *See also* Jaundice and Leptospirosis

WEISSBURG, Theodore H., death of, 972

WEISS, S.: Aetiology of arterial hypertension, 1057

WEISSBACH, R. J.: Rheumatoid arthritis, 127

Wellcome Archaeological Research Expedition to the Near East: Annual exhibition of antiquities, 47

WELLCOME, Sir Henry, honorary D.Sc. conferred on by the University of Marquette, Wisconsin, U.S.A., 97—Legion of Honour conferred on, 1024

Welsh National School of Medicine, information concerning, 401, 420. *See also* University of Wales

WELSH, Robert A.: House flies, 97—Results of ante-natal care, 220

WELTMAN, Oskar, death of, 616

WENTON, C. M.: Typhus fevers in the Tropics, 320

West Africa. *See* Africa

WEST, Ransard: Curarine in tetanus, 1173

West Hiding medical salaries, 1009

WEST-WATSON, W. N., appointed Officer of the Order of St. John of Jerusalem, 24

WESTWOOD, W. Thomson: Transport of invalids by railway, 538

WETTENHALL, Dr.: Treatment of lupus vulgaris, 322

WHEELER: Pellagra, 121

WHEELER, Sir William I. de Courcy: Ligature of the innominate artery, 38—Preliminary litigation in Graves's disease, 609

WHITPLE, George H., awarded the Nobel Prize, 819

WHIFFLE, Sidney B.: Noble Experiment. *A Portrait of America under Prohibition*, rev., 597

WHITBY, L. E. H.: *Medical Bacteriology, Descriptive and Applied, including Elementary Helminthology*, second edition, rev., 356

—*The Nurses' Handbook of Hygiene: An Elementary Textbook*, fifth edition, rev., 723

WHITBY, Morton: Control of haemorrhage in prostaticectomy, 744

WHITE, C. F.: Report on the Port of London in 1933, 480—*Acts to Sanitary Science and Law*, memorial, Familial

WHITE, Margaret Moore: Gas gangrene restricted to the subcutaneous tissues, 937 (O)

White slave traffic in the East, 239

- WHITELEY, M. A. (and Jocelyn Field THORPE): *Thorpe's Dictionary of Applied Chemistry: Supplement, vol. I, A to M, rev.*, 933
- WHITFIELD, Allan G. W. (and A. Victor NEALE): Rheumatism and its relation to arterial disease and periarteritis nodosa, 104 (O)
- Whither general practice? See General
- Whither medicine? (leading article), 645. See also Medicine
- WHITTINGDALE, J. F. L.: Fungus infections of the feet, 322
- WHITTINGHAM, Group Captain H. E.: Medical services at home and abroad, 832
- WHITTLE, Glynn: London University and its medical schools, 1019
- Whooping-cough, prophylaxis of, 1109
- Whooping-cough without the whoop, clinical diagnosis of (P. R. Evans), 1043 (O)—Correspondence on, 1221
- Who's Who, rev., 1232
- WHYTE, Adam GOWAN: The cancer problem, 48
- WISSENER, B. P.: Mechanisms which determine sex behaviour, 82
- WIGAND, R. (and L. SZIDAT): *Leitfaden der einheimischen Krankheitskrankheiten des Menschen*, rev., 851
- WIGHT, Dr.: Tuberculosis, 482
- WIGLEY, J. L. M.: Treatment of lupus vulgaris, 321
- WIGNALL, Thomas H.: Recovery of sight following severe corrosive burn of cornea, 932
- WILDBOLZ, Hans: *Lehrbuch der Urologie*, second edition, rev., 813
- WILDER, Russell M.: *A Primer for Diabetic Patients*, fifth edition, rev., 862
- WILDEY, Surgeon Rear-Admiral Alexander Gascoigne, obituary notice of, 1021
- WILKES, G. A.:—Cyanide poisoning: Rasputin's death, 184
- WILKIE, P. D. D.: Preliminary ligation in toxic colitis, 135
- WILKINSON, F. (and F. J. FORRY): *Swimming Bath Water Purification from the Public Health Standpoint. With Special Reference to Plant and Equipment and Hygienic Education*, 313
- WILKINSON, Jo
- WILKINSON, W
- WILLCOX, Sir
- 127—The thyroid gland, 111
- WILLETT, J. Hayward: Professor Briggs, 965
- Willett's forceps. See Forceps
- WILLIAMS, A. T.: Organic and functional nervous disorders, 258
- WILLIAMS, Everard: Surgical diathermy for cervicitis, 1125—Should pelvimetry be abolished? 1175
- WILLIAMS, Herbert: Electro-coagulation of the prostate, 549 (O)
- WILLIAMS, Leonard: Aerophagy with meteorism, 1136
- WILLIAMS, T. A.: Use of narcotics, 223
- WILLIAMS, Tom A.: Motor backache and neuralgia, 1026
- WILLIAMSON, Bruce:—*Vital Cardiology: A New Outlook on the Prevention of Heart Failure*, rev., 117—Menorrhagia after splenectomy for purpura haemorrhagica, 433
- WILLIAMSON, Major H.: Injection treatment of complete cataract, 1119—Cataract, 337
- ... diseases
- of the eye, 132
- WILLOUVER, P. (G. CARRIÈRE and Claude HURIEZ): *Le Barbiturisme aigu et les Antidotes* Gardenol (strychnine, Coramine, Alcohol), rev., 19
- WILLOUGHBY, W. G. (and A. J. SHERA): Case of apichretal haemorrhagic jaundice (Weil's disease) 14 (O)—Acute streptococcal throat infections, 567
- WILLOUGHBY, W. M.: Report on the City of London, 875
- WILNOT, Colonel R. C., appointed officer of the Order of St. John of Jerusalem, 24
- WILSON: La granulie froide, 815
- WILSON, C. M.: *B. coli* infection, 264
- WILSON, C. P.: Mucopurulent tubo-tympenic infection, 226
- WILSON, J. St. George: Aschheim-Zondek reaction in genital tuberculosis, 952
- WILSON, Justin: Short-wave therapy, 956
- WILSON, S. A. Kienler: Unsettled problems of neurosyphilis, 787
- WILSON, S. P.: Hexyl-resorcin during lactation, 975
- WILSON, T. G.: Haemorrhage from peritonsillar abscess, 491, 612—Intratracheal anaesthesia, 1218
- WILSON, T. Stacey: Rhythmical exercises for back pain, 1216
- Winsley sanatorium. See Sanatorium
- WINSLOW: Influence of heat and light on nasal mucosa, 951
- WINTERHITZ, Hugo, death of, 1223
- WISDOM, W. J.: The League and peace, 701
- WISLOCKI, L.: Special clinics for diabetics, 717 (O)
- WITTS, Leslie: Anaemias and their treatment, 830
- WODEHOUSE, R. E., appointed Commander of the Order of St. John of Jerusalem, 24
- WOLFE: Endometrial hyperplasia, 818
- WOLFENDE, Hugh H.: Insurance and public health, 559
- Women's diseases, review of book on, 308
- WOOD, F. G.: Radiology and the general practitioner, 275
- WOOD, Hamilton: Report on health work in Warwickshire, 530
- WOOD, J. E.: Sunbathing and tuberculosis, 133
- WOOD, J. S.: Antiseptics in control of bacterial infections, 318
- WOOD, W. Burton: Anaemias and their treatment, 830
- WOODMAN, G. Stewart: Injuries of the knee-joint, 572
- WOODS, Hugh: Death and the survival of rights of action, 658
- WOODS, J. A.: Dental problems of medical interest, 832
- WOODS, R. R.: Local treatment of coryza, 920
- WOODWARD, Sir Stanley: Climatic factors and disease, 32
- Workmen's Compensation: Adoption of Children Act, 147
- Workmen's Compensation and cardroom workers (parliamentary note), 857
- Workmen's compensation cases, hospital treatment (parliamentary note), 1134
- WONLEY, Ernest: Appreciation of David Ross, 83
- Worm disease, review of book on, 851
- WONSTEN-DROUGHT, C.: Headaches, 227
- WORTH, Reginald: Work of the mental after-care association, 995
- Wound, healing of a (Sir Andrew Macphail), 71—Leading article, 71
- WRIGHT, A. Dickson: Thrombosis of internal saphenous vein, 232
- WRIGHT, A. J. M.: Focal infection as a problem of the laryngologist, 153 (O), 227
- WRIGHT, Lieut.-Col. Edmund Hasell, obituary notice of, 492
- WRIGHT, E. J.: Vitamin A deficiency, 234
- WRIGHT, Garnett: "The Angel of Death," 885
- WRIGHT, Henry P.: *Essentials of Infant Feeding and Paediatric Practice*, rev., 256
- WRIGHT, H. W. B.: The septic hand, 220—Osteomyelitis, 272
- WRIGHT, A. J.: Chloroform inhaler, 316—Antenatal care and maternal mortality, 1010
- WROTH, C.: Hodgkin's disease with erythema nodosum, 1172
- WU, C. Y. (Wu LIEN-TEH, J. W. H. CHUN, and R. POLLITZER):—*Cholera: A Manual for the Medical Profession in China*, rev., 307
- WULF, Winifred: An Irish medical MS., 844
- WYATT, Herve, appointed deputy coroner for Central London, 97
- WYATT, Mr.:—Puerperal sepsis: serum treatment, 1120
- WYLER, E. J.: *Serological Tests for Syphilis with Very Small Amounts of Patients' Serum*, 955
- WYLLIE, W. G.: Encephalitis, 221, 241 (O)
- WYNN, W. H.: Treatment of haemoptysis, 833—Treatment of pneumonia, 1159
- X.
- X-ray cinematography, 1020
- X-ray examination of empyema cavities (Denis Browne), 807 (O)—Correspondence on, 881, 921, 1014
- X-ray protection, 689
- X-ray treatment of diseases of the genito-urinary system (G. Harrison Orion), 226, 343 (O)
- X-ray treatment in breast cancer by serum tests, control of, 534
- X rays, constitutional effects of (S. Gilbert Scott and F. Herniman Johnson), 1113
- X rays, effect of on the lungs, 564
- X rays and lipiodol in pelvic trouble (Farquhar Murray), 35
- X rays. See also Radiology, etc.
- Y.
- Yaws, mechanical transmission of (J. Gordon Thomson and W. A. Lamborn), 506 (O)
- Year-book, *Empire Social Hygiene*, 1934, rev., 774
- YELF, Robert Hervé, obituary notice of, 145
- YELLOWLEES, Henry: A disclaimer, 98
- YENKOWSHIAN, H. A.: Typhus fever in the Tropics, 320
- YONGE, C. M.: *The ABC of Biology*, rev., 905
- YORK, Courtenay: The swallowing of open safety-pins, 811
- YOUNG, James:—*A Text-Book of Gynaecology: For Students and Practitioners*, third edition, rev., 257—Ante-natal-care and maternal mortality, 1011—Puerperal sepsis: serum treatment, 1121
- YOUNG, John, obituary notice of, 615
- YOUNG, R. A.: Seaside resorts for respiratory diseases, 31—Treatment of acute bronchitis, 1111
- YOUNG, Terence: *Becontree and Dagenham*, 1208
- YOUNG, W. J.: Origins of Sherlock Holmes, 374—Dilating the cervix in placenta praevia, 884, 1016
- YOUNGERMAN, Lieut.-Col. Edward Pettingall, obituary notice of, 573
- Young's rule, 152
- "Youth and health: What can we do to help?" report of discussions now published, 721
- Yugoslavia, typhus fever in, 97
- Z.
- ZINSSER, Hans (and Stanhope BATNE-JONES): *A Textbook of Bacteriology. With a Section on Pathogenic Protozoa*, seventh edition, rev., 1103
- ZONDEK: Formation of the corpus luteum, 1056
- Zondek-Aschheim. See Aschheim-Zondek
- ZORAB, Arthur Batoum, obituary notice of, 662
- ZUCKERMAN, Solly, elected to a Beit Memorial Fellowship, 127
- ZWICK, Dr.: Tuberculosis, 482

LIST OF ILLUSTRATIONS

SPECIAL PLATES

	PAGE
Acid Extract of Anterior Pituitary. Effect of Prolonged Administration on the Thyroid Gland of Guinea-Pigs (E. F. Scowen and A. W. Spence) ...	inset between 820 and 821
Aneurysm, Left Subclavian, in Association with Cervical Rib (T. G. Quinn and George Davison) ...	facing 821
Atlas, Inflammatory Dislocation of (Duncan C. L. Fitzwilliams) ...	inset between 126 and 127
Caesarean Section (Archer Hosking) ...	facing 127
Cancer, Late Recurrence of (C. L. Spackman) ...	facing 127
Empyema, Mediastinal and Apical (Stanley J. Hartfall and Leslie N. Fyrah) (A correction) ...	facing 1059, 1136
Facial palsy (Arthur Baldwin Duet) ...	facing 1058
Gumma of the Brain (J. E. Paterson and Margaret Leslie) ...	inset between 126 and 127
Kyphosis, Adolescent and Senile (O. Lambrinudi) ...	facing 820
Rheumatism and its Relation to Arterial Disease and Periarteritis Nodosa (A. Victor Neale and Allan G. W. Whitfield) ...	facing 126
Stomach and Duodenum after Operation (S. Cochrane Shanks) ...	inset between 1058 and 1059
Syndactylism and Polydactylism, Hereditary (J. S. Manson) facing	1059
Uveo-parotid Tuberculosis (S. E. Tanner and A. L. McCurry) ...	inset between 1058 and 1059
Vitamin A Deficiency, Cutaneous Manifestation of (G. P. Goodwin) ...	facing 127
X-Ray Examination of Empyema Cavities (Denis Browne) ...	facing 821

ILLUSTRATIONS IN THE TEXT

	PAGE
Acid Extract of Anterior Pituitary (E. F. Scowen and A. W. Spence) ...	806
Adenotome, Ls Force, Modified ...	119
Anaesthetic Shield for Use in Mastoid Operations ...	518
"Arterial Embolectomy" (Geoffrey Jefferson) ...	1090
Asthma, Reflex (H. H. Moll) ...	300
<i>B. coli</i> Infection after Post-operative Retention (Cuthbert Dukes) ...	459
"Bleeders," Female (M. A. Foulis and J. W. Crawford) ...	594
Bournemouth, Crest of ...	174
Bournemouth and District ...	23
Caesarean Section (Archer Hosking) ...	111
Cataract Extraction, Irrigation Repositor for ...	682
Catgut Tube Cracker ...	597
Cautery and Light Apparatus in the Operating Theatre ...	556
Cervicitis, Chronic (J. C. Ainsworth-Davis) ...	935
Charles, Major-General Sir Richard Henry Havelock ...	838
Circumcision Clip ...	1104
Coates, Vincent Middleton ...	970
Collingwood, Bertram James ...	377
Cystotomy, Permanent, New Drainage Bag for ...	945
Dattner Needle ...	349
Davies-Colley, Eleanor ...	1181
Dreyer, Georges ...	376

	PAGE
Elbow-joint, Bilateral Congenital Malformation of the (Trevor Gwyn Thomas) ...	903
Electro-coagulation of the Prostate (Herbert Williams) ...	549
Forceps, Calculus ...	724
Forceps, Cervical Biopsy Punch ...	119
Fowler, Sir James Kingston ...	91
Gibbons, Robert Alexander ...	493
Hand, the Septic (H. Kennon) ...	1189
Harvey Tower, Hempstead Church, Essex ...	820
Headache following Lumbar Puncture (H. W. Allen) ...	349
Headlamp, an Improved ...	1202
Heart, Traumatic Rupture of, without External Injuries (H. O. Gunewardene) ...	942
Heart-block, Congenital (Joseph Lewis) ...	1096
Inhaler, Ether, Modified ...	473
Knife for Submucous Resection of Septum ...	724
Kyphosis, Adolescent and Senile (C. Lambrinudi) — (Jacques Calvé) ...	801, 983
Laws, Robert ...	334
London Hospital Students' Hostel ...	21
Maxillary Fractures, Treatment of (A. Simpson-Smith and W. M. Graves-Morris) ...	632
Maxillary Sinusitis, Iodine Vapour in ...	906
Mayou, Marmaduke Stephen ...	185
Medical Schools of London and London County Council Hospitals ...	211
Melbourne and District, Views of ...	731, 1050
Morbidity in a Family Tree (Walter P. Kennedy) ...	630
Oedema, Causation and Treatment of (T. Izod Bennett) ...	930
Paraffin Wax (Melted) Bath, an Economical Design of the Pembury, Marcus S. ...	171
Postural Drainage of the Lungs (H. P. Nelson) ...	252
Presacral Nerve (Albert A. Davis) ...	5
Radium in Carcinoma of the Bladder (A. J. Durden Smith) ...	585
Renal Function, Examination of (F. S. Fowweather) ...	51
Retractor for External Frontal Sinus and Ethmoidal Operations ...	473
Retractor, Mastoid ...	597
Rheumatoid Arthritis, Appliance for ...	1202
Safety-pins, Open, Swallowing of ...	1017
Scoliosis, Hereditary (W. J. Rutherford) ...	87
Speculum, Vaginal, a New Lighted ...	170
Spleen, Ruptured, after Trifling Mishaps (Harold Dodd) ...	1094
Sprue, Tropical (N. Hamilton Fairley) ...	1194
Stomach and Duodenum after Operation (S. Cochrane Shanks) ...	1032
Tendon of Extensor Pollicis, Bilateral Rupture of (A. T. Andreassen) ...	515
Tendon Suture, Late (Eric I. Lloyd) ...	165
Toe-nail, Ingrowing ...	1073
Tonsil Clamp, Beney's, Modified ...	635
Tonsil Guillotine ...	1152
Trothowan, William Henry ...	614
Umbilicus, Preservation of in Radical Cure of Umbilical Hernias in Children (R. Wood Power) ...	353
University of Durham College of Medicine, Newcastle-upon-Tyne ...	685

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THE PRESACRAL NERVE ITS ANATOMY, PHYSIOLOGY, PATHOLOGY, AND SURGERY*

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In January, 1932, while engaged in the study of the innervation of the pelvic viscera, it occurred to me that some types of pelvic pain—particularly certain dysmenorrhoeas, cystalgias, and pelvic neuralgias—were possibly the result of a neuro-vascular imbalance, or, at any rate, under the control of the autonomic nervous system. I had previously been particularly impressed by the brilliant results of lumbar sympathectomy obtained by Telford and Stopford in painful neuro-vascular diseases of the extremities, and suggested the possibility of similar relief for pelvic pain by an equivalent operation.

The anatomical configuration of the nerve supply to the pelvic viscera appeared to render such a procedure technically easy, as the abdominal sympathetic fibres to these organs are collected into a median accessible bundle, immediately before entering the pelvis, as the presacral nerve (superior hypogastric plexus). Cadaveric experiment proved the truth of these facts, but a good deal of diffidence was naturally felt before recommending an operation which involved entrance into the abdomen, and which was based upon such purely theoretical grounds.

Perusal of the recent literature, however, revealed that a similar procedure had been carried out in France for some few years, under the title of "resection of the presacral nerve," an operation introduced by Cotte, professor of surgery at Lyons, in 1925. The results obtained by that author and by his colleagues were impressive, so impressive that no hesitation was now felt in advising the operation for early performance.

Our first presacral sympathectomies were carried out in March, 1932. The immediate results were excellent, and it was felt that a definite field existed for the procedure, although many of the French statements appeared somewhat hyperenthusiastic. But these operative experiences exhibited many obscure points of importance concerning the surgical anatomy of the field of operation, and before proceeding further it was resolved to investigate more completely the anatomy of the nerve itself and of its relations.

This completed, a series of seventeen patients, suffering from a variety of conditions, were subjected to the operation during the subsequent twelve months. They were mostly cases of Dr. W. R. Addis's, and fourteen were operated upon by that surgeon, in ten of which I assisted. The remaining three, by kind permission of Dr. Addis, were operated upon by me, in addition to three further cases similarly treated for other surgeons.

Each specimen of presacral nerve was examined both macroscopically and microscopically, and the physiological effects of the operation upon each of the patients studied both immediately and remotely afterwards. The results

of these anatomical and physiological researches are described in the following account, in which an attempt has been made, by correlating my researches with those already published, to provide a reasonably standard description of the presacral nerve in all its aspects.

ANATOMY

The presacral nerve is that portion of the abdominal sympathetic nervous system which lies anterior to the bodies of the fourth and fifth lumbar vertebrae, in the interval between the common iliac arteries. The term "presacral nerve" is a peculiarly unfortunate one, as the structure is usually a plexus, and is pre-lumbar in position throughout its course; but the invention of this name by the anatomical authority Latarjet, and its subsequent adoption elsewhere as a less cumbersome title than the more legitimate one of "superior hypogastric plexus," make it necessary to follow precedent in its description.

The nerve extends from a point a little above the level of the aortic bifurcation to the promontory of the sacrum, a distance of approximately 5 cm. It is formed above by the confluence of the intermesenteric nerves, long fine para-aortic sympathetic trunks arising from the solar plexus and the adjacent lumbar ganglia. After passing vertically downwards, a little to the left of the midline, the nerve terminates below by spreading out into the structure which I have ventured to name the "middle hypogastric plexus." This is an isosceles-shaped mass of considerable size, from the lower angles of which emerge the bilateral inferior hypogastric plexuses, long narrow nerve bundles which run forwards and downwards along the pelvic wall to gain the pelvic ganglion, of which they form the sympathetic root proper. The parasympathetic supply to this ganglion is furnished by the *nervi erigentes*, and some additional (insignificant) sympathetic fibres also reach it from the sacral chain. As the pelvic viscera are supplied almost exclusively from the pelvic ganglion, it will be seen that the presacral nerve contains practically the entire nerve supply to those organs, a fact which, allied to its surgical accessibility, makes the nerve the ideal site for interruptive procedures on the pelvic sympathetic.

The immediate relations of the presacral nerve are of considerable importance. In front, the nerve lies in contact with, though not attached to, the posterior parietal peritoneum, through which it is occasionally visible. Behind, it is separated from the last lumbar vertebrae by the left common iliac vein above and the middle sacral artery below. It is, however, effectively separated from these structures by being almost completely enclosed in a fairly tough bilaminar sheath formed by a condensation of the sub eritoneal areolar tissue. Although the nerve is ~~none~~ adherent to this sheath the latter is

* A Hunterian Lecture delivered before the Royal College of Surgeons of England on February 5th, 1934.

very easily dissectible from the structures in front and behind, a fact which explains the ease with which the whole nerve plexus may be separated at operation. The mesosigmoid lies to the left of the nerve, but occasionally it crosses the midline, in which case the nerve can only be reached by dissection through its layers.

The exact form exhibited by the presacral nerve—a matter of paramount surgical importance—has been the subject of much controversy. Latarjet, Bergier, Morrison-Lacombe, and Roussel all consider that in the majority of cases a clean-cut single true "presacral nerve" is present, but Hovelacque, Kalberg, Chianello, Delmas, Cordier, Ferey, Jannu, Bernard, Laux, Learmonth, Segond, Hartmann-Weinberg, and Elant all equally hold the opposite view that the usual disposition is one of several parallel nerves intercommunicating to form a plexus of varying width. The solution of these divergent views would appear to lie in the varying standards of dissection adopted, allied to a lack of appreciation of the condensation which, in formalin-prepared cadavers, often coalesces nerve fibres and fibrous tissue into an apparently single structure. Taking these fallacies into consideration it seems certain that the so-called presacral "nerve" is far more often a true plexus than a single nerve, a fact borne out in my own observations. Thus in 45 (75 per cent.) of my sixty dissections a plexus of some type was present, a single true nerve being found in only fifteen. Similarly, only two of ten operative specimens showed the structure of a single nerve.

HISTOLOGY

Specimens of the presacral nerve removed in fifteen operations, and from ten cadavers, were examined histologically, a variety of staining methods being employed in each case. These included supravital and intravital methylene-blues, modifications of the Golgi, Cajal, and Bielschowsky techniques, and the usual cold contrast methods, and all equally showed the nerve as consisting essentially of several nerve bundles lying in a fibro-fatty cellular network. The number of nerve bundles present varies widely in different specimens, according to the size of the individual plexus, and each contains many bundles of ganglion cells disposed amongst the nerve fibres. The sympathetic nerve fibres are myelinated and non-myelinated in about equal proportion as a rule (Cotte and Noel), but occasionally, as in some of my specimens, there is considerable predominance of one or other type. They are enclosed in a thick fibro-elastic sheath, and are accompanied by tiny vasa nervorum.

The ganglion cells are collected at intervals in each nerve bundle into microganglia, and correspond to the types described by Stohr and Cajal as characteristic of the sympathetic nervous system—namely, astrocytes, crown cells, and glomerular cells. Each contains a well-marked nucleus and nucleolus, and is surrounded with a varying number of tiny "satellite" cells.

This arrangement is identical with the histological structure of the intermesenteric nerves, as described by Leriche and Fontaine, a fact which, considering the continuity of the presacral nerve with them, is not surprising. Indeed, the whole abdominal sympathetic nervous system may be regarded as a vast arrangement of microscopic ganglia joining very short relays of sympathetic fibres, myelinated or non-myelinated in varying proportion according to level.

Central Connexions of Presacral Nerve

The spinal centres for the efferent fibres of the abdomino-pelvic sympathetic and parasympathetic systems lie respectively in the intermedio-lateral and medio-ventral columns at the base of the anterior horn. The former extends from the first dorsal to the second lumbar segment inclusive, to be continued in the sacral region over

a variable (disputed) number of segments. The parasympathetic extends from the fourth lumbar segment through the remaining portion of the cord.

The evidence for a centre more cranially placed tends to become more dubious with advancing research, so much so that some modern writers, including Dahl, deny their existence completely, a view shared by the writer. The problem has been admirably reviewed by Cotte, who points out that while Ferrier, Franck, Bechterew, and Meyer produced contraction of the bladder by cortical stimulation, Dennig denies the existence of a specific cortical vesical centre, while the presence of similar sub-cortical centres in the thalamus (Mislavsky, Mosso, and Pellicani), or in the corpus striatum (Czylharz and Marburg), is still more problematical. Similarly, though Gall places the genital centre in the cerebellum, Goltz, Moebius, Kraft-Ebing, and Bechterew consider it present in the cortex, while Muller and Dahl deny its cranial existence altogether. The problem, it will be seen, remains more than obscure, but the recent views would appear to be more reasonable.

Course of the Nerve Fibres

The sympathetic efferent fibres pass out in the anterior root and then, via the white rami communicantes, to the corresponding ganglion of the lateral sympathetic chain. From here they pass either to the solar plexus or mesenteric ganglia, from which they are relayed to the presacral nerve, or directly from the sympathetic chain to reach the nerve or its parent trunks in their ganglionic roots. They then pass downwards through the middle and inferior hypogastric plexuses, the pelvic plexus, and its nerves of distribution, to reach the particular pelvic viscus for which they are destined.

The peripheral cell stations in these fibres lie, according to generally accepted theory, in any of the large ganglia of the pathway, or in the small ganglia lying alongside the supplied viscera, and a considerable amount of discussion has centred round the exact site adopted for these relays. But as we have shown above, the whole abdominal sympathetic system contains thousands of microganglia in its constituent fibres, and it seems unnecessary even to attempt to postulate a few definite positions of relay, when the cell stations may be situated at any one of so many places.

The parasympathetic—sacral autonomic—fibres to the pelvic viscera pass from the medio-ventral column of the sacral cord through the anterior roots of the second, third, and fourth sacral nerves. They leave these trunks to pass, without the intervention of a lateral spinal ganglion, to the pelvic plexus, in the nervi erigentes (which for this reason have been taken as homologous with white rami communicantes). Their subsequent course corresponds to that described for the sympathetic fibres proper.

The course of the afferent autonomic fibres from the pelvic viscera, and even their existence, are equally the subject of a good deal of highly theoretical dispute. Gaskell asserted that a centripetal sensory pathway was non-existent in the autonomic nervous system, visceral sensation being conveyed via the cerebro-spinal nerves, but our post-operative studies have convinced us of the truth of the teaching of the modern French school to the contrary. These fibres probably pursue a similar course to the efferent nerves, with the exception of a detour via the posterior roots to gain the centre in the posterior root ganglion.

PHYSIOLOGY

As with the functions of the sympathetic system elsewhere, the functions of the presacral nerve may be divided up as follows:

- | | | |
|----------------|----------------|-----------------|
| (a) Motor. | (c) Sensory. | (e) Nutritional |
| (b) Vasomotor. | (d) Glandular. | |

It is, of course, impossible to divorce any one of these functions from the others, but for the sake of clarity they will be considered separately, correlated with current literature and the results of personal observation:

The Motor Function

Perusal of the literature written upon this subject reveals a bewildering variety of findings and opinions. Valentin, Heddaus, Scanzoni, Rohrig, Bartling, Korner, Frankenhauser, Cyon, von Basch, and Howden, on experimental grounds, ascribed a motor function for the pelvic organs to the lower abdominal sympathetic nerves, a view flatly contradicted by Beck and Killian, who asserted that they were inhibitory, while Kehrer, Reimann, Langley, and Gaskell suggested that *both* functions were served by these nerves. It would appear that the precise part played by the sympathetic in the motor supply of the pelvic organs must remain doubtful, but a probable cause for the divergence of views may be a variation in its action in different animals. The question of prime importance is: Is the abdominal sympathetic nerve supply to the pelvis—that is, the presacral nerve—motor or inhibitory?

A case of particular interest in connexion with this question occurred in our series. A patient was carefully observed during parturition, following resection of the presacral nerve. She was an elderly primipara, aged 42 years, yet the labour was precipitate, a most unusual occurrence in this type of patient. In addition, we have noticed as a striking post-operative sequel in all our cases that the bladder and rectum are emptied easily and frequently in the few hours following operation and subsequently, an unusual (and most desirable) event in abdominal surgery.

There is nowadays a tendency to refuse to accept the old theory of the action of the sympathetic as an inhibitor, and of the *nervi erigentes* as excitator, of contraction of the pelvic organs, but the case cited above, and the post-operative sequelae mentioned, are a striking corroboration of that mode of action. It must be admitted that the case was an isolated one, and that the phenomenon is very occasionally reproduced normally; but being quite divorced from any influence by the subject herself, and so admissible as an uncontrolled experiment, it does provide some support for the view of the presacral nerve as an inhibitor of contraction. When the presacral nerve—the sympathetic supply—is resected the sacral parasympathetic system is allowed unchecked activity in performing its function as a detrusor of the uterus, just as it is of the bladder and rectum. (It is interesting to note that three patients, previously constipated, were completely cured of this disability after resection of the presacral nerve for other conditions.)

It is possible, as was partly suggested by Bard, that the spasmodic cystalgias, dysmenorrhoeas, and rectalgias are due to irregular contraction, with spasm, of the musculature of the appropriate organ, the result of an upset of the normal sympathetic-parasympathetic equilibrium. The spasm would appear to be the result of overaction of the sympathetic inhibitory factor, removal of which, by resection of the presacral nerve, cures the condition by allowing the peristaltic action of the sacral parasympathetic supply to proceed untrammelled. This reasoning is, of course, highly theoretical, but it does suggest a factor which, in view of our cases, cannot be ignored.

The Vasomotor Function

Spielberg, von Basch and Hoffman, Rein, Langley and Anderson, and Crainicianu all stated, on experimental grounds, that the hypogastric nerves were vaso-constrictor, but Barrington holds that they are vaso-dilator, while Rohrig suggested that they were both dilator and con-

strictor. Leriche and Stricker showed that excitation of the presacral nerves produced vaso-dilatation in the pelvic viscera verified microscopically, but, on the other hand, Sweet and Thorpe found that lower abdominal sympathectomy exercised no apparent influence upon the oestrous cycle of rats. In short, some authors believe that the sympathetic is vaso-constrictor to the pelvic viscera, and the parasympathetic vaso-dilator, while the reverse opinion is held by others.

Now one of the most striking sequelae of resection of the presacral nerve in our cases has been the almost universal increase in the time and quantity of menstruation. A period of two or three days has often been lengthened to one of seven or eight, while the menorrhagia has occasionally been a source of considerable inconvenience. In addition, a striking post-operative result in all cases was the appearance of a menstrual period twenty-four to thirty-six hours after operation. This period, although possessing the characteristics of normal menstruation, had usually no relation to the normal rhythm, which remained unchanged, the next period appearing at the usual time. It would thus appear that the presacral nerve exercises a profound effect of a vaso-constrictor or vasotonic nature upon the blood vessels of the pelvic viscera, a fact which explains the abundance of the sympathetic nerve supply to the vessels of those organs.

The Sensory Function

A variety of authors have published a very considerable number of cases in which resection of the presacral nerve has produced complete and lasting relief of pelvic pain, a sequel which we have repeatedly observed in our own cases. The question remains: Has the sympathetic system in general, and the presacral nerve in particular, any sensory function in the usually accepted sense of the term? The experiments of Learmonth and of Leriche, who managed to elicit pain by traction on the central cut end of the presacral nerve in a patient and a dog respectively, and the fact that both Frigyesi and Finsterer could perform pelvic operations under local anaesthesia of the nerve, are each corroborative evidence of the existence of such a sensory function. Cotte, Lawen, Mixter, Kuntz, Aburel, and Crainicianu all support this view of the sympathetic as a conductor of pain fibres, though the majority of modern authorities, in the absence of any anatomical proof, have been so far unable to accept it. But there is no doubt that sympathectomy *does*—though not invariably—relieve pain, and that permanently; and though the hypotheses that have been advanced to explain this are all, singly, somewhat unsatisfactory, each lies within the region of possibility. They are:

1. The sympathetic system contains specific sensory fibres (Aburel).
2. The relief of pain is the result of vaso-dilatation, the subsequent increase in blood supply allowing of more efficient removal of metabolic products (Telford and Stopford, Lewis).
3. The pain is vasomotor in origin, being an upset of the normal sympathetic-parasympathetic balance. Correction of this by removal of the offending constituent—the sympathetic presacral nerve—cures the condition by restoring equilibrium (Bard).
4. The sensory fibres in the sympathetic nerves are really cerebro-spinal in derivation (Mixter).

The first theory exhibits too many unsatisfactory points for complete acceptance. It is based almost entirely on theory, and is not verified anatomically. The second is more satisfactory, but is even more theoretical, as the immediate relief of pain following sympathectomy (which would appear to support it) was not characteristic of our cases, in several of whom the first menstrual period was still more painful than the preceding. The third is an old theory revived, and, apart from its purely hypothetical basis, leaves the question open as to why the

sympathetic constituent alone should be the cause of upset. The last is unverified anatomically. One is therefore inclined to conclude that the presacral nerve has no specific sensory function *per se*, and that the relief of pain following its eradication is vaso-dilator in origin, the exact mode of action being unknown.

The Glandular Function

Barrington has shown that the hypogastric nerves control the mucin secretion of the glands of Cowper and Bartholin, and Cotte and others have cured extreme leucorrhoea by resection of the presacral nerve, a result also obtained in two of our own cases. Gaskell states in his book that the nerve cells which supply secretory fibres to purely epidermal glands—for example, the sweat glands—all belong to the sympathetic system, and are connected with the central nervous system by the thoraco-lumbar outflow of connector nerves. At the extremities of the body, where the entoderm and ectoderm come together, the ectodermal and entodermal glands may become fused to form one gland, with the result that the gland is supplied with secretory nerves both from the sympathetic and from the external nervous systems.

Now several cases of pruritus have been reported cured by resection of the presacral nerve, and we ourselves have observed similar results. There have, on the other hand, been failures, and it is tempting to ascribe the cure, on the one hand, to a glandular origin for pruritus, and the failure, on the other, to an embryological anomaly. It must, of course, be admitted that the theory of direct sympathetic sensory supply to the skin itself is untenable as an explanation of these cases. I examined every case submitted to presacral resection carefully for anaesthesia, and in only one could find even a suggestion of change.

The Nutritional Function

Takahashi found degenerative changes in the testis following excision of the hypogastric nerves, but Bacq failed to confirm these findings. Cannon and his associates have shown that no nutritional changes follow complete sympathectomy in rats, yet Leriche cured a case of kraurosis by sympathectomy. We ourselves have noticed no change of a nutritional nature in our cases. The relief of kraurosis was probably vaso-dilator in origin, and it would appear that all similar cases have a similar source. But the sympathetic supply to the skin glands is significant, and although the skin changes in some vaso-motor disorders are probably vascular in origin, it is possible that the sympathetic does exercise a separate nutritional function in the integument, although its presence there does not appear indispensable.

Summary of Functions of Presacral Nerve

The presacral nerve is motor and vaso-constrictor to the pelvic organs. In addition, it is glandulomotor, and possibly nutritional. The relief of pain which follows resection of the nerve is probably the result of the vaso-motor rather than of any sensory function, but the absence of any definite sensory fibres in its substance is by no means certain.

PATHOLOGY

Present knowledge of the pathology of the sympathetic system is both sparse and theoretical, principally on account of the fact that so many variations occur in apparently normal characteristics that the basis of normality remains extremely doubtful. We have, however, encountered changes which, even if later shown to be within the bounds accepted as normal, are of a certain interest from the possibly pathological point of view.

In several specimens changes indicative of a subacute inflammatory reaction were present in the presacral nerve. These changes were similar to those described by Cotte and Dechaume, and Jianu, and consisted in congestion of the nerve, capillary thrombi, leucocytic nodules, oedema of the sheaths, and often a small round-celled infiltration. The ganglion cells themselves, however, showed the most profound changes. In many groups some cells were complete, others showed absence of nucleus, others absence of nucleolus, the last being accompanied by an increase in the number of "satellite" cells and by thickening of the microganglion sheaths. In one specimen the single presacral nerve present was found to be permeated by squamous epithelium from a coincident carcinoma of the cervix, in a similar manner to the case reported by Ferey.

It should be noted that several sections were taken almost serially to prove that the appearances described were not due to the level of section. In many cases the changes were striking, and included loss of cell substance and fragmentation of the Nissl bodies. But these changes have been observed elsewhere in apparently normal sympathetic nerves, and before a standard of what may be considered as basically normal is adopted one must hesitate to accept the appearances described as pathological, particularly as they did not correspond with the clinical symptoms in any definite manner. On the other hand, importance is lent to these findings by the fact that in only one out of forty-one specimens of the lumbar sympathetic cord removed by them for neuro-vascular diseases of the lower extremity did Telford and Stopford find any pathological changes.

SURGERY

The physiological basis upon which is founded the surgery of the sympathetic system in general has been, and still remains, more highly controversial and doubtful in its fundamental aspects than almost any other operative rationale, and from what has been gathered from the preceding consideration of the physiology of the presacral nerve itself it will be appreciated that indications for its removal must necessarily rest upon a very insecure foundation.

Indications for Resection of Presacral Nerve

Indeed, most of the physiology of the nerve has been studied post-rather than pre-operatively, the indications being arrived at on purely theoretical grounds. As a consequence, when resection of the presacral nerve was first mooted by Cotte, these indications were somewhat limited. With advancing experience and enthusiasm, however, more and more diseases were subjected to the procedure, with the result that it became used as a sort of universal panacea for a great variety of pelvic conditions, thus repeating the very similar wave which followed the introduction by Leriche of that authority's earlier sympathetic operations (on some of which, it should be stated, Cotte's operation is merely a slight advancement).

At the present time, Continental opinion (with one or two exceptions) remains at the peak of enthusiasm. Our own experience, however, based upon operative work and combined with caution and close consideration of the physiological facts and theories, has considerably restricted our ability to agree to all the indications suggested by the French authorities, and has limited our indications to the following diseases:

1. Dysmenorrhoea.
2. Idiopathic pelvic neuralgia in both sexes.
3. Pelvic pain the result of inoperable carcinoma.
4. Cystalgia.
5. Rectalgia.

We have, moreover, severely limited ourselves in the individual cases, using the procedure as a last resort in practically all the patients subjected to it. Only those cases in which all the usual medicinal and minor operative procedures had been tried out and found insufficient were treated by resection of the nerve, and then only after consideration of the possible presence of neurosis. As an additional and most frequent indication we have added the operation to other procedures decided upon beforehand as a preventive of the persistence of pain in cases of pelvic disease in which pain has been a long-standing symptom.

Technique of the Operation

I have elsewhere described the technique of the operation of resection of the presacral nerve in considerable detail, and it is only necessary to mention here its more salient features. The abdomen is entered via a generous paramedian incision, and the bowel packed away from the operative site. The sacral promontory is then identified and the level of the aortic bifurcation noted. A longitudinal incision is made in the posterior parietal peritoneum in the mid-line, extending from just above the bifurcation to the promontory. The divided peritoneum is lifted on either side of the incision and its deep surface carefully denuded of the sub-jacent attached areolar and nervous tissue. The presacral nerve or plexus is then removed completely by excising all the fibro-nervous tissue in the interiliac space, the left common iliac vein and both common iliac arteries being carefully denuded. Haemorrhage is negligible, and it is unnecessary, and indeed inadvisable, to ligature the cut ends of the nerve.

The operation is fairly easy in the majority of cases, and if the various anatomical anomalies are kept in mind should present few difficulties.

Results of Resection

In order to assess the value of the operation a survey was made of all the cases published to date. These included cases operated upon by Cotte (200), Fontaine and Hermann (22), de Grisogono (19), Michon and Haour (17), Donaldson (16), Hamant (15), Aubert (15), Ferey (15), Walther (14), Ekkert-Petersen (9), Jianu (9), Bernard (8), Pieri (4), Mornard (3), Paolucci (3), Tirelli (3), Heitz (2), and Michon, Chianello, Oliver, Baranger, and Hallopeau one case each. Most of the cases were necessarily gynaecological, but a definite percentage of surgical cases were also included, a number which is steadily increasing with increasing publicity. Cotte himself was responsible for the majority of the operations, and his results are uniformly excellent. Most of the rest show extremely good results, though Fontaine had a death. But the periods of follow-up are very short, and many authors appear somewhat hyperenthusiastic, while close examination often reveals that the term "cure" has been used a little elastically. Again, in nearly all the published cases some other, and often major, operative procedure accompanied the presacral resection, a very fallacious addition.

Our own cases show a cure rate of approximately 50 per cent., and I would suggest that this figure represents the result which may be expected in the majority. It would appear to suggest that more care than has hitherto been the custom should be employed in the selection of cases for what is, after all, a major operation, with all the inconveniences and risks implied in that term. In suitable cases the operation is often brilliantly successful, converting a life of misery into one of at least tolerance, and there is no doubt that when the present wave of somewhat misguided enthusiasm has abated, resection of the presacral nerve will take its deservedly secure place in the select list of the permanently beneficial operations.

CONCLUSIONS

1. The presacral nerve or superior hypogastric plexus is never presacral, and rarely a single nerve.
2. Histologically it is composed of sympathetic nerve fibres and microganglia.
3. It is vaso-constrictor and motor to the pelvic viscera. Its pseudo-sensory properties are probably vasomotor in foundation. It is also glandulomotor to the superficial and deep glands, and nutritional to the external genitalia.
4. The pathology is problematical, in view of the absence of a standard of normality.
5. The indications for its resection are limited.
6. The operation itself, usually easy, exhibits occasional difficulties and dangers.

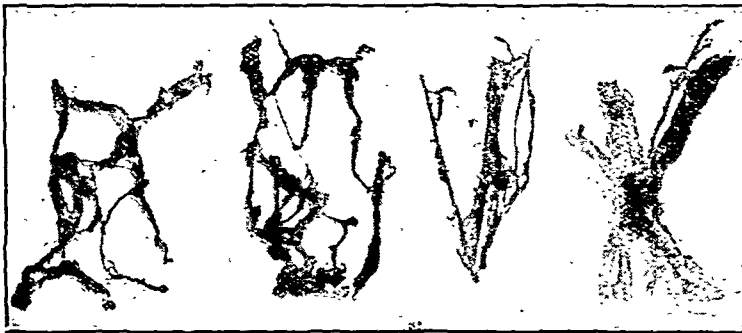
7. The results of the operation in our own series gave an approximate cure of 50 per cent., a considerably lower figure than most of the published statistics.

8. We would suggest that the operation is indicated in cases of intractable pelvic neuralgias of any type (including, of course, the dysmenorrhoeas of spasmodic origin), in which minor surgical procedures had failed to relieve; in certain cystalgias and rectalgias in male patients; as an accessory to other operative procedures in the pelvis where pain has been a characteristic of the case; and in certain rare cases of pruritus, after failure of the usual external procedures.

Acknowledgement.—I have to thank Dr. W. R. Addis for permission to investigate his cases; Professors J. S. B. Stopford and D. Dougal for the use of their anatomical and gynaecological research laboratories respectively; and Professors E. D. Telford and J. S. B. Stopford for their help and advice.

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THYROID ADDICTION

BY

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Thyroid addiction has not been previously described, so far as I know, and the following cases are reported as likely to throw light on other instances of obscure hyperthyroidism and for their intrinsic interest.

Case I

A woman, now aged 36, after a healthy childhood was much upset by menstruation, which began at 15; the periods were irregular in time of onset and duration, sparse rather than excessive, and always accompanied by abdominal pain, backache, vomiting, and attacks of diarrhoea. Married at 21, she had dilatation and curetting the following year, and four times inflation of the tubes during the next five years. She became pregnant once, but miscarried at the fifth month. At the age of 25 the bowels became more troublesome, with alternate diarrhoea and constipation. She was treated in Berlin with dieting, and improved; at the same time her weight was reduced by large doses of thyroid. On returning to England she relapsed, and had an operation at which the appendix and a cystic left ovary were removed. This was in 1925; the abdominal symptoms were not much improved, and the attacks continued in spite of varied treatment.

About 1929 frequency of micturition began, for which she had been cystoscoped four times, but nothing abnormal was found. In 1932 tachycardia started, and there has been a very rapid pulse since. About this time she was thoroughly investigated in Berlin; the findings were: super-acid gastric juice; spastic colon; raised blood pressure (175/95); and raised basal metabolic rate (+45 per cent.). The thyroid was not enlarged, and no evidence of substernal thyroid was found on x-ray examination. Improvement followed antithyroidin (Moebius).

SYMPTOMS

On admission to Ruthin Castle in 1933 she was a small, well-nourished woman, with pulse 140 resting in bed, and blood pressure 180/95; the heart was regular, and there was no murmur. The electrocardiogram showed rapid regular rhythm and reversed T III. The basal metabolic rate was +50 per cent.; the sugar tolerance curve was normal and the thyroid was not enlarged. There was a severe x-ray burn of the chin and chest, said to have been caused by a beauty specialist. The urine contained a few pus cells, but no bacteria, the stools a little mucus, but nothing else abnormal. X-ray examination showed residues of lipiodol injections in lumbar and gluteal muscles; the chest and stomach were normal, and the transverse colon spastic. The pelvic organs were healthy. A diagnosis of simple hyperthyroidism was made.

The symptoms were fatigue and sense of exhaustion; frequent attacks of palpitation, not sudden in onset or in finishing, in which the pulse rate was about 140; abdominal pain and generalized aching, worse when constipated; irregularity of the

bowels, small lumps of formed or semisolid faeces being passed up to thirty times a day; frequency of micturition during the day but not at night; severe hiccup, sometimes followed by vomiting; and occasional attacks of severe pain in the lower abdomen with inability to pass urine or faeces.

With treatment the abdominal symptoms lessened, but the pulse rate remained high, and progress was interrupted by crises during which the heart rate, though regular, was 130-160 per minute. At these times there was great abdominal discomfort, tenesmus, and feeling of incomplete evacuation of the bowels, with much frequency of micturition, which was not controlled by any of the measures usually efficacious. After finding some empty bottles it was possible to discover the whole story. Merck's thyroïdin was obtained in London, the labels of the bottles were washed off, and the bottles sent in with supplies of cigarettes. This procedure had been going on for at least three and a half years, and the day previous to special tests such as the B.M.R. in London a large number of tablets had been consumed. It is difficult to say how much thyroid extract had been taken, but seven empty bottles, each of which had contained 100 tablets, were found, a tablet being equivalent to about 0.5 gram of fresh gland.

This patient was a neurotic woman with dysmenorrhoea and spastic colon, whose maternal instincts were thwarted by inability to have a child, which she greatly desired. She had developed a craving for interest and sympathy, and tried to deceive everyone and to remain a medical problem and a puzzling anxiety to her friends and relatives. Even when confronted with the whole chain of evidence she denied having taken any thyroid gland for the past eight years. Her doctor wrote some months later, however, that the patient's health was now very much better, for obvious reasons.

Case II

A woman, aged 43, had had rheumatic fever over twenty years ago, also repeated attacks of quinsy until the tonsils were enucleated at the age of 30. At one time she had weighed 13 st., and had been treated with dieting and small doses of thyroid. About a year before her admission in 1929 she felt done up, and began to sleep badly after an acute streptococcal sore throat; and about six months later became much thinner and breathless. Her weight fell from 11 st. 2 lb. to 7 st. in three months. She complained of profound weakness, shortness of breath on the slightest exertion or mental excitement, fidgets and restlessness, insomnia, palpitation, disinclination for food, and periodic attacks of nausea and vomiting.

CONDITION ON ADMISSION

On admission she weighed 6 st., and was very emaciated. The heart rate was 110-130 per minute, with a mitral regurgitant murmur; the blood pressure was 125/80; and there was a mild secondary anaemia. There was no evidence of disease of the lungs. The nervous system was normal except for right nerve deafness, though at times transient diplopia was complained of. The roots of the remaining teeth were grossly septic; the digestive tract was otherwise normal. It was not possible to obtain reliable figures for the basal metabolic rate on account of the restlessness; the sugar tolerance curve was of non-diabetic type, and showed a lowered renal threshold.

A few tablets were found on making the bed, and, on searching, six packets, each containing 5-grain tablets of thyroid, and 200 to 300 tablets of aspirin and thyroid loose in a cardboard box in a cupboard. A week after their removal the pulse rate was 80 per minute and the breathing normal; the muscle movements had disappeared and the appetite improved. The septic teeth were then extracted. The patient gained 17 lb. in four weeks, and a further 1½ st. in the following six months. There was then a recurrence of symptoms of excitement, breathlessness, fidgets, and insomnia, with pulse rate of 130-160, and a number of empty bottles with thyroid gland labels were found. Improvement followed a stay in hospital of four weeks. Six months later there was auricular fibrillation and pulmonary infarction, from which a good recovery was made. During the next two years four attacks of heart failure, with decompensation and oedema, occurred. The family physician felt almost certain that the patient was continuing to take thyroid, and on admission to hospital in a fifth attack of congestive heart failure 20 5-grain tablets of thyroid were found in the fingers of a glove. A year later the general condi-

tion was somewhat better, but a partly empty bottle of 2-grain thyroid tablets was discovered in the patient's workbasket.

The psychological factors in this case were marital difficulties, to which the menopause may have contributed. Other factors were slimming and the malaise which followed the severe infection of the throat five years ago; the patient said that she took thyroid in the hope of getting a tonic effect, as small doses of thyroid had been prescribed for one of her children, who was somewhat backward.

Case III

A man, now aged 48, engaged in the import trade in the City, had all his life been stout, and at one time weighed 18 st. 2 lb. Ten years ago, after investigation of his metabolism, he was put on thyroid extract and has taken up to 5 grains a day since. He says that if he does not take the thyroid he rapidly puts on weight and is lacking in energy. Three years ago he was sent to Vichy to try and lose weight, with a view to leaving off thyroid, as palpitation was becoming troublesome. There he lost 11 lb. in eleven days, but palpitation became much worse, so that he could not walk any distance or exert himself in any way. A week after returning from Vichy, while walking, he felt giddiness, palpitation, precordial pain, and a sense of constriction in the chest. Similar attacks recurred fairly often, but he was able to resume work gradually.

He came to Ruthin Castle in 1931, his weight being then 16 st. 5 lb.; his complaint was that he was unable to walk for more than five minutes without palpitation, precordial pain, and constriction in the chest. The pulse was regular, but 76 to 80 per minute, and the blood pressure 135/80. The heart was enlarged clinically and by x-ray examination, but the sounds were clear. He was taking $2\frac{1}{2}$ grains of thyroid a day and the basal metabolic rate was + 11 per cent. With dieting, graduated exercise, and electrical treatment he lost 10 lb. in five weeks, and was able to walk for thirty minutes with comfort and without undue increase in pulse rate. We were able to reduce the thyroid to $1\frac{1}{2}$ grain twice a day.

A year later the patient's weight had again increased, and he was taking $2\frac{1}{2}$ grains of thyroid a day. He was reduced by 11 lb. in three weeks with much benefit to his symptoms, but could not be induced to do without $1\frac{1}{2}$ grain of thyroid three times a day. Last year he had increased the thyroid again to 3 grains a day, and in spite of this his weight had gone up to 17 st. After reduction of 12 lb. in three weeks he was able to walk for half an hour twice a day comfortably; but he continued to take 1 grain of thyroid twice a day.

The psychological background in this case appears to be that this man can indulge in the pleasures of the table to a greater extent, without putting on weight grossly, if he takes thyroid extract. Warned by his perturbing symptoms and on the advice of many doctors, he has reduced the amount of thyroid, but he is unwilling to give it up. The margin of safety is becoming narrower, and the electrocardiogram shows deterioration during the three years the patient has been under observation.

General Effects of Thyroid Administration

In animals a single injection of thyroid gland extract intramuscularly or intravenously lowers the blood pressure, probably from vaso-dilatation and not through the vagus, since the fall is just as much after atropine. Repeated injection in animals is followed by moist skin, wasting of the muscles, hypotension, tachycardia, and often arrhythmia, increased renal secretion, and glycosuria.¹ In normal man and healthy animals a fall in blood pressure occurs after moderate doses, and after large doses tachycardia, arrhythmia, nervousness, flushing of the skin, muscular weakness, pains in the joints, and increased perspiration.² Very large doses are said to cause exophthalmos, dilatation of the pupils, psychic excitement, tremors, and other indications of thyrotoxicosis.

In the classical case of v. Notthafft³, a man took to reduce his weight 1,000 thyroid tablets in five weeks; he lost 30 lb. in that time. At the end of the third week the neck became swollen and an irritable cough started. Then followed palpitation, insomnia, severe tremor, and ex-

ophthalmos, and at the end of the fifth week great thirst and glycosuria.

These symptoms were present in the second case now reported, and were accompanied by severe muscular wasting. This patient took large doses of thyroid continuously. In the first case, where the thyroid was taken intermittently, there was no wasting, and the severest symptom was spasmodic abdominal pain with irritation of bladder and bowel, leading to attempted evacuation two or three times an hour.

The ill effect of thyroid on cardiac muscle is well recognized, though Dryerre⁴ could find no evidence of any effect produced by thyroid extract or thyroxine on the cardiac or vasomotor nerves. In the second case the thyroid was acting on a heart already damaged by rheumatic fever, a combination that is known to be serious. The prolonged taking of thyroid in the third case appears to be affecting the heart deleteriously, as the patient is a comparatively young man coming from a long-lived and healthy stock. Monier-Vinard⁵ reports an interesting case of a woman of 50, who had taken a preparation of dried thyroid gland for ten years to keep down her weight. There were no signs of hyperthyroidism, no palpitation, tachycardia, sweating, or insomnia; but x-ray examination revealed signs of von Recklinghausen's disease of the bones. It was surmised that the bony changes were due to the prolonged administration of parathyroid substance, which had not been removed from the thyroid body in the preparation of the dried gland.

Effect on the Thyroid Itself

Krogh *et al*⁶ point out that by administration of thyroid hormone in sufficiently large amounts it is possible, both in man and in animals, to produce a thyrotoxic condition on many points resembling exophthalmic goitre. Usually, however, an overdose of thyroid substance does not produce that disease, as the condition of the individual comes back to normal within a few weeks when the administration of thyroid substance is discontinued. While examining many human thyroids these observers noted one case only which showed the histocytological picture characteristic of exophthalmic goitre. This gland came from a patient who, during five or six years, had taken a total of 1.4 kg. of dried thyroid gland. Though well aware that the large consumption of thyroid substance and the presence of exophthalmic goitre in this patient might be an accidental coincidence, they thought they could not exclude the possibility that the intake of large doses for a long time might have given rise to hyperactivity of the gland. They therefore fed guinea-pigs with thyroid. Their conclusions were that peroral administration, daily for up to a week, of large doses of dried thyroid, or subcutaneous injection of thyroxine solution, produces considerable increase in the metabolism but no change in the thyroid gland. Peroral administration of dried thyroid gland in full-grown guinea-pigs for a period of eight months produced an increased accumulation of colloid in the alveoli and a slight degree of atrophy of the lining cells in the thyroid gland.

Thyroid Addiction

The cases now reported appear to form one end of a series; at the other end are cases of hypothyroidism, which require doses of thyroid to bring the patient up to reasonable metabolic health. The man in Case II finds that by taking thyroid he can pander to his appetite and burn up more fuel, and he does this in spite of being warned of its deleterious effects. The two women are thyroid addicts. I have not been able to find reports of such cases in the literature or to hear of them from practitioners, though one doctor⁷ has told me of a patient who took thyroid surreptitiously with the idea that it would prevent lunacy, of which she lived in fear—I suppose from

some ignorant association with the idea of hypothyroidism, cretinism, and imbecility. Another practitioner⁸ has seen a patient who took thyroid in considerable doses covertly; this patient, a druggist's wife, had phlegmasia alba colens after childbirth, and she may have formed the idea that the condition of her leg was that of myxoedema. The continued use of thyroid in these cases points to there being some subjective tonic effect.

In a series of cases of thyrotoxicosis—that is, cases of not fully developed Basedow's (Graves's) disease—reported by Lublin,⁹ about half had no rise of basal metabolic rate. Some of these were "fat Basedow," and some were not benefited by operation on the thyroid, but no data are given indicating the possibility that any of these cases were similar to those now reported.

SEVERE MENORRHAGIA DUE TO CHRONIC THROMBOCYTOPENIC PURPURA, CURED BY SPLENECTOMY

BY

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Cases of successful splenectomy for essential thrombocytopenia (purpura haemorrhagica) are sufficiently rare to merit detailed description. In the case here reported, in addition to the extremely satisfactory end-result which followed the operation, there were several features of special interest, which emphasize some of the less generally recognized features of the chronic form of this disease.

In the first place the patient was a young woman, in whom the only manifestation of the haemorrhagic state was a recurrent symptomless bleeding from one mucous membrane only—that lining the uterus. Thus the primary condition might easily have been overlooked altogether. Although there were no other manifestations of a haemorrhagic state it was possible, by means of a complete blood examination and a few simple clinical tests, to demonstrate that a latent purpuric state was present and that the recurrent bleeding was in all probability due to it. Finally, it was possible to make continuous detailed examinations of the blood before and after the spleen was removed, and to follow the progress of the case up to the time of publication, ten months later. A chart has been constructed which shows the most important changes observed during the first two months.

Case Record

The patient was a single girl aged 25, an office clerk, who complained of excessive menstruation, which rendered her severely anaemic and, ultimately, quite unfit for work. Her periods commenced at 14 years of age, and were at first irregular, but the loss was not abnormal. From the age of 17 to 21 years the periods were regular, and the loss normal in amount. For the last three years there had been severe menorrhagia: both the loss and the duration of the periods had increased. During this time she became severely anaemic, but would partially recover quite quickly, only to be reduced once more by another bleeding. Sometimes the bleeding was almost continuous for several months together, there being no complete cessation. At other times, when the period could be defined, clots were passed in the second half of menstruation. There was no pain, except when these clots were passed. The patient did not complain of any other trouble, but admitted that she once bled rather excessively following a tooth extraction. There was no history of spontaneous

Summary

An account is given of three cases of thyroid addiction. Two of them, both in women, were severe; the third, that of a man, was less so. The clinical notes are followed by a short discussion.

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bruising. Neither of her parents nor any member of the family had ever bled excessively, or shown any symptoms of a haemorrhagic state.

Examination.—She was examined from time to time at the York County Hospital, where blood counts were made, and she was treated for a time with drugs, sera, and intramuscular whole blood, none of which effected an improvement in her condition. Examination under anaesthesia revealed no abnormality in the pelvis, and finally she was sent to one of us (C. O.) by Dr. Kathleen Bland, who wished to know if radium treatment was advisable. In August, 1933, she was admitted to the Women's Hospital, Leeds, and a complete haematological and general examination was made. The blood examination on admission was as follows: haemoglobin, 40 per cent.; red blood cells, 3,080,000 per c.mm.; colour index, 0.66; white blood cells, 6,700 per c.mm. (differential count—neutrophils 70 per cent., eosinophils 0.5 per cent., basophils nil, lymphocytes 21.5 per cent., monocytes 8 per cent.); platelets, 50,000; bleeding time, 13 and 19 minutes; coagulation time, 3½ minutes.

On clinical examination, apart from the appearance of anaemia in the skin and mucous membranes, there was nothing for special comment. The temperature was normal. The tongue, mouth, and pharynx were normal. There were no purpuric or urticarial lesions of the skin and mucous membranes. The spleen was not palpable.

Progress.—While the patient was in hospital she had two periods with a short interval between. At both, especially the first, there was severe bleeding, and the anaemia increased in severity. So critical did the condition of the patient become that two transfusions were given, and both afforded considerable temporary relief. The blood examination, together with the information provided by previous blood counts taken at York County Hospital, which had shown platelets of less than 40,000 per c.mm. on two occasions, immediately suggested the possibility of chronic idiopathic thrombocytopenic purpura as a cause for the continued excessive bleeding, despite the fact that there was no history of a purpuric rash, spontaneous bruising, or bleeding from other mucous membranes. The diagnosis was supported by the production of a fine purpuric rash in the arm subject to venous engorgement for twenty minutes by compression with a sphygmomanometer armlet. Light percussion over bony prominences, however, produced only very faint ecchymoses. The platelet count on the day these examinations were made was 60,000 per c.mm. Examination of the skin capillaries, by means of the capillary microscope under varying conditions of pressure, did not reveal any abnormality.

Operation.—In view of the critical condition of the patient and the favourable results of splenectomy, as first carried out by Kaznelson, it was recommended that the spleen should be removed in this case. Lord Moynihan kindly saw this patient, concurred, and agreed to remove the spleen. This was carried out forthwith. At the operation there was very free oozing from the abdominal wound. The spleen was slightly enlarged and was adherent to the parietes at one point, but no accessory spleens were encountered. The vessels of the pedicle were ligatured, and the organ was successfully removed. During the closure of the abdominal wall the amount of bleeding was notably less, and this was commented upon by the surgeon.

After-progress.—A blood count, taken within an hour of the ligation of the splenic vessels, was as follows—one taken the day before operation is shown for contrast:

	One Day before Operation	One Hour after Operation
Haemoglobin ...	50 per cent.	36 per cent.
Red blood cells ...	3,550,000	2,500,000
White blood cells ...	7,100	6,000
Platelets ...	30,000	85,000
Bleeding time ...	19 min.	2½ min.

The subsequent progress of the case can best be followed in the chart appended. The chief interest naturally lies in the quantitative changes in the platelets and in the improvement in the bleeding time. The former increased rapidly after splenectomy, and reached a maximum of 970,000 per c.mm. on the fifth day (much earlier than was expected); they then fell quickly to about 650,000 on the seventh day, and, after a temporary rise again on the eleventh day, reached a level between 500,000 and 600,000, where they remained until the twentieth day. They then fell gradually below

The most obvious feature of the microscopical picture is the increase in the pulp. This is composed of a congeries of well-defined blood sinuses, with fairly large and prominent lumina. These still contain numerous red blood corpuscles, together with many leucocytes. The walls are thickened and cellular, and the endothelial lining is unusually prominent and well defined. The Malpighian bodies are widely separated and rather small in size, but otherwise present in general, normal characters. In several places, however, small foci of cellular proliferation of a peculiar kind are present, nearly always in relation to, or actually embedded in, a Malpighian body. They are composed of loosely arranged aggregations of large cells of endothelioid or reticular type, each with abundant cytoplasm and round or oval nuclei, with a clear-cut nuclear membrane and from one to four nucleoli. The cells are irregular in size and shape, and ill-defined at the margins, but there is no evidence of fusion to form giant cells. Apart from these

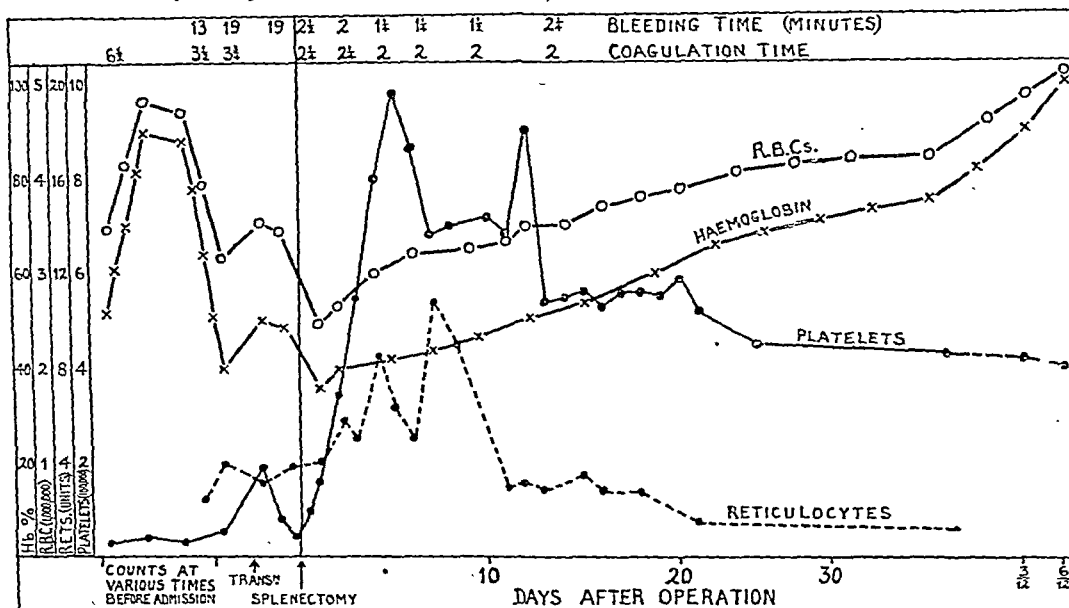


Chart constructed to show the changes in the haemoglobin, red blood corpuscles, reticulocytes, platelets, bleeding and coagulation time, (1) at various times over a period of two years before admission, (2) after admission and immediately before operation, (3) after the operation of splenectomy.

500,000 and the last count made was 390,000, six months after the operation. The bleeding time improved immediately after the operation, being reduced from nineteen to two and a half minutes. There was a reticulocyte crisis of 11 per cent. on the seventh day. The red cells and haemoglobin slowly increased under the influence of iron by mouth, and were practically normal after three months.

In other respects the post-operative course was uneventful. During the few days when the platelets were so extraordinarily numerous, thyroid extract was given to minimize the chance of thrombosis. The effect upon menstruation was remarkable. On the sixth day after operation the patient had a short period lasting three days—"the first normal period for years." A period was then missed, and thereafter they became perfectly regular, the loss being normal in quantity, and lasting four or five days only. The patient has increased in weight, and has resumed her work and all her social and athletic activities.

Pathology of the Spleen

The greater part of the convex surface was covered by old fibrous adhesions and tags of attached omentum. On the concave aspect there was a small area of similar adhesion across the middle. The organ after removal was not enlarged, being about normal in size, but this was after a quantity of blood had drained away. On section, the cut surface was smooth, homogeneous, and congested, with the Malpighian bodies small and widely separated. The tissue was fairly firm but not fibrous.

negative features the appearance of these follicles closely resembles that figured and described by Kettle (*Journ. Path. and Bact.*, 1919-20, xxiii, 413, Fig. 7) in one of his cases of splenomegaly associated with secondary anaemia. As in Kettle's case, the resemblance to early tubercle follicles is very close, but central caseation as well as giant-cell formation is absent. In contrast to Kettle's case, there is little or no formation of collagen fibrils at the periphery of the foci. A search for tubercle bacilli yielded negative results. It is suggested that this appearance may be an early example of the lesion described by Kettle.

Summary

A case is recorded of chronic thrombocytopenic purpura in a woman aged 25. The only symptom was recurrent menorrhagia causing severe anaemia. There was no bleeding from any other source, no purpura or spontaneous bruising, and the spleen was not palpable. The latent purpuric state was revealed, however, by the capillary resistance test. Splenectomy has cured the menorrhagia and restored the patient to health. The quantitative changes in the blood before and after operation were followed daily, and are presented as a chart, and the histology of the spleen is described.

We are indebted to Professor M. S. Stewart for help with the histological report.

WEIL'S DISEASE AMONG SEWER WORKERS IN LONDON

BY

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Since the causative organism was first demonstrated in Japan by Inada and Ido in 1915, Weil's disease (spirochaetal jaundice, infective jaundice, leptospirosis) has been recognized in many different countries, and during the war it affected German, French, and British troops on the Western Front. Schüffner¹ (1934), who reported that during the past ten years 452 cases have occurred in Holland with forty-six deaths—that is, 10.2 per cent. mortality—distinguishes three pathogenic leptospirae which may affect man in Europe: (1) the cosmopolitan *L. icterohaemorrhagiae* in rat and dog, the cause of classical Weil's disease; (2) *L. canicola*, causing a specific canine disease, but capable of infecting man (one case); and (3) *L. grippotyphosa*, the infective agent of swamp fever of Eastern Europe. Other strains have been encountered in the Dutch East Indies, Malaya, and the Andamans.

Weil's disease has been diagnosed among sewer workers on the Continent, but no such cases have been recorded in Great Britain, though in London Foulerton² (1919) found that four out of 101 rats harboured leptospirae pathogenic to guinea-pigs, and Stevenson³ (1922) reported leptospirae in 30 per cent. of rats examined. Only one authentic human case originating in England appears in the literature—namely, that described by Manson-Bahr⁴ (1922) from the Albert Dock Hospital in a seaman developing the disease four days after falling into the Thames at Gravesend. Wenyon and Brown⁵ isolated *L. icterohaemorrhagiae* from the citrated blood of this patient, collected on the seventh day of the disease.

During 1923 an epidemic of jaundice of unknown origin broke out among miners working in certain coal pits in East Lothian. Gulland and Buchanan⁶ (1924) investigated the epidemic. There were some eighteen cases with jaundice, and of six patients admitted to the wards of the Royal Infirmary two died. Clinically they were typical, and followed a course similar to that in the cases occurring in British troops in France, described by Stokes and Ryle⁶ (1916), and Dawson, Hume, and Bedson⁷ (1917). Guinea-pigs inoculated with urine from the East Lothian cases died with typical post-mortem findings, and *L. icterohaemorrhagiae* were demonstrated. The pits where the disease was contracted were all "wet," and rats, some of which were proved to harbour leptospirae in the kidneys, were plentiful there. Later, when investigating carrier hosts, Buchanan⁸ (1927) showed that sixty-one out of 166 wild rats were infected with virulent leptospirae, and found leptospiral organisms in fungal slime hanging from the roof of the mines and in pit-surface waters. Inoculation of a certain specimen of slime into two guinea-pigs produced typical leptospirosis. He concluded as a result of experimental investigations in the guinea-pig, and from conditions in the coal mines, that human infection was more likely to arise as a result of leptospiral invasion through skin abrasions or by way of the eye and the nasal mucosa from contaminated hands.

Case History I

A sewer worker of fine physique, aged 25 years, was admitted to the Hospital for Tropical Diseases on May 17th, 1934, with jaundice and a history of five days' fever.

PAST HISTORY

The patient, who was an ex-soldier, had returned from India in November, 1932, after seven years' service. During the voyage home, he stated, he had had an attack somewhat similar to the present one, with generalized aching pains, anorexia, lassitude, and (?) jaundice. He was kept in hospital on board ship for about sixteen days, and was treated with quinine, although malarial parasites were not found. Since then he had had at least two milder attacks, without jaundice, which subsided in two to three days after quinine therapy.

PRESENT ILLNESS

The present illness started on Saturday evening, May 12th, 1934, with aching pains in both shoulders and neck, which later became generalized; there was associated headache and shivering, but no nausea or vomiting. The following day his legs "felt too weak for him to get up." On the third morning (Monday) he went out to work, but in the afternoon was so ill that he had to return to bed. On the fourth day he began to cough up blood and black sputum. Jaundice appeared on the fifth day, and the urine was extremely dark coloured; constipation had been marked for several days. He was now seen by Dr. Rosen, who next day noted that the jaundice was increasing and sent him to hospital (May 17th).

PHYSICAL EXAMINATION

The patient was prostrated and markedly jaundiced. The conjunctivae were injected, and had a deep icteric tinge, which also involved the skin and mucous membranes. The temperature was 100.4° F., the pulse 118, and respirations 28.

Examination of the heart and lungs revealed no abnormality. The abdominal wall moved moderately with respiration, but on deep palpation there was definite generalized tenderness, most marked in the right iliac fossa. There was very little rigidity immediately on palpation, but the abdominal muscles contracted after deep pressure was applied, and the patient flexed the knees, grunted, and obviously resented what was being done. Digital examination of the rectum elicited some tenderness anteriorly, but next day this had entirely disappeared. The rectum was then ballooned out, and there was no evidence of any pelvic collection of pus. There was no demonstrable enlargement of the liver or spleen, although, owing to muscular tenderness, examination was difficult. The pupils were pin-point in size and reacted sluggishly, if at all, to light. The tendon-jerks of the arms and legs were absent and the calf muscles exceedingly tender. The plantar reflex was flexor in type.

LABORATORY INVESTIGATIONS

Blood collected under paraffin was oxalated and centrifuged and the plasma examined spectroscopically: no trace of haemoglobinaemia was found. Malarial parasites were absent from the blood smears, in which anisocytosis and a polymorphonuclear leucocytosis were evident. The blood count showed: red cells, 4,300,000 per c.mm.; haemoglobin, 90 per cent. (Haldane); colour index, 1.0; leucocytes, 18,000 per c.mm., of which there were 90 per cent. neutrophil granulocytes and 10 per cent. lymphocytes. Van den Bergh reaction: direct, prompt biphasic reaction; indirect, positive (24 units). Eight ounces of urine were obtained by catheterization: specific gravity, 1010; acid reaction; albumin ++; acetone, a trace; sugar, nil; bile pigments ++; bile salts ++; urobilin ++. A few pus cells but no casts were observed in the centrifuged deposit. Spectroscopic examination revealed an absence of both oxyhaemoglobin and methaemoglobin.

These findings eliminated blackwater fever from the differential diagnosis, which was now considered to lie between some form of toxic jaundice, Weil's disease, and suppurating pyelophlebitis, the abdominal condition suggesting the possibility of peritonitis. Mr. A. H. McIndoe saw the patient in consultation from this standpoint: it was decided to withhold food per os and give large intravenous injections of glucose (5 per cent.) in normal saline, 1 litre of which was given at 6 p.m. and repeated at 11 p.m.

PROGRESS OF CASE

The patient vomited eight ounces of blood and had a severe epistaxis. Herpes was present on the lips. A catheter was passed, but only a few drops of bile-like material were obtained. Massive intravenous glucose injections were continued. Blood cultures on different media were negative. As leptospirosis was suspected on clinical grounds citrated blood was sent to Dr. C. M. Wenyon of the Wellcome Bureau of Science for inoculation into guinea-pigs.

On May 19th the condition was worse, with headache, epistaxis at frequent intervals, and a troublesome hiccup. Anuria and obstinate constipation continued. Intravenous injections of glucose were maintained. On May 20th the patient was drowsy. Melaena was present, and the bowels were opened five times. Epistaxis and hiccup still occurred. Faeces were negative for ova and protozoa. Intravenous injections were continued. On May 21st the mental state was confused and drowsy. The following day the patient was desperately ill and intensely jaundiced, with oedema of the subcutaneous tissues and ascites. Intravenous injections were stopped.

Wassermann reaction negative. Van den Bergh reaction: prompt biphasic reaction, indirect positive (41 units). Blood urea: 346 mg. per 100 c.cm. Urine obtained by catheterization showed albumin ++, bile pigments ++, bile salts nil. Centrifuged deposit contained a few leucocytes and epithelial cells, with an occasional red blood corpuscle but no casts. Bilirubin crystals and amorphous urates were present.

The patient died at 7.45 a.m. on May 23rd.

POST-MORTEM FINDINGS

A necropsy was performed by Colonel F. P. Mackie, I.M.S. The body was well nourished, the skin was deeply jaundiced, and the subcutaneous tissues of the neck, feet, and legs were oedematous.

Abdomen.—Much clear, bile-stained fluid was present in the peritoneal cavity. There were submucous haemorrhages in the cardiac portion of the stomach, and the small intestine was congested. The liver was very large (87½ oz.), soft in consistency, and a yellowish chocolate colour on section; the contents of the gall-bladder consisted of brownish-black fluid, which contained bile salts but no bile pigment. There was no bile duct obstruction. The spleen weighed 12 oz., and was dark in colour and firm in consistency, with prominent Malpighian bodies on section. The kidneys were large and semi-lobed, the right weighing 12 and the left 12½ oz.: the capsule stripped readily, the cortex appeared swollen and yellowish red in colour, while the medulla was deeply congested. The mesenteric glands were somewhat prominent, and the pancreas and suprarenals were normal.

Thorax.—The endocardium was bile-stained; there was oedema of the lungs and free fluid in the pleural cavities.

MICROSCOPICAL FINDINGS

The sections of special interest were those of the liver and kidney.

There was cellular infiltration of the periportal zone of the liver and cloudy swelling of the polygonal cells, but no focal or general necrosis. Malaria pigment was absent from Küpffer's cells, the liver cells contained haemofuscin, while the infiltrating cells in the vicinity of the bile ducts were mainly neutrophils with occasional macrophages.

There was widespread destruction of the tubular epithelium of the kidney, with no change in the glomeruli other than some surrounding leucocytic infiltration, while some of the straight tubules were plugged with debris, red blood corpuscles, and disintegrating haemoglobin. Immediate examination of liver smears with Indian ink failed to reveal leptospirae, and sections of the liver, spleen, and kidneys stained by the Levaditi method were also negative.

In the absence of demonstrable leptospirae the cause of death was assessed as (1) toxic jaundice, (2) nephrosis.

LABORATORY DATA

Major H. C. Brown, I.M.S., subsequently reported from the Wellcome Bureau of Scientific Research that both the guinea-pigs inoculated with blood collected on May 18th—the seventh day of the disease—had sickened, and that necropsy revealed the characteristic post-mortem features of Weil's disease—

jaundice and visceral haemorrhages. Typical leptospirae were demonstrated by dark-ground illumination in emulsion of liver pulp from one animal and in the heart blood of both. This strain was isolated in pure culture, and subcultured in series on Fletcher's medium.

Professor Schüffner also reported that the serum of the patient, collected on May 22nd (that is, on the tenth day of the disease), gave a strongly positive agglutination reaction (1 in 1,000) with the typical "Weil" strain, whereas it was absolutely negative for *L. canicola* and the "Rachmat" strain from the Dutch East Indies.

Comment on Case I

From a clinical point of view this case was typical of Weil's disease, presenting the usual sudden onset with rigor; extreme prostration; muscular tenderness; severe jaundice on the fifth day; multiple haemorrhages, including epistaxis, melaena, and haematemesis; herpes; renal involvement with albuminuria, oliguria, anuria; and, finally, death on the eleventh day. Interesting features were the severe constipation, the temporary non-passage of flatus, tenderness on deep palpation of the abdominal muscles of such a nature as to arouse suspicion of peritonitis, and free fluid in the abdominal cavity. The terminal waterlogging was probably related to the massive intravenous injections of glucose in an anuric subject; the nitrogenous retention at this time was marked, the blood urea equalling 346 mg. per 100 c.cm. The jaundice itself was very intense, the bilirubin content of the blood equalling 41 van den Bergh units, or 20.5 mg. per 100 c.cm. Early in the disease the urine contained both bile pigments and bile salts, but before death the latter had disappeared. At necropsy, on the other hand, the brownish-black fluid contents of the gall-bladder contained only bile salts and no bile pigment, the iodine test and the van den Bergh both being negative. Evidently, during the latter phase of the illness, the liver had lost the power of excreting bilirubin, while retaining its excretory function in regard to bile salts; the reverse happened in the kidney.

Since returning from India this patient had been mostly unemployed, but twenty-two days before the onset of his illness he joined a gang of workmen engaged in repairing a sewer in Chesham Street, Hyde Park Corner. His work included chiselling out the old bricks, the inner surfaces of which were stated to be covered with a slimy deposit from the sewer, and in other ways he came in contact with sewer water. Furthermore, being new to this occupation, his hands were badly contused and abraded by the hammer used for the work. His father, who had been a flusher of sewers for twenty-seven years, stated that rats were common in the sewers, and that jaundice was a not uncommon complaint among sewer labourers and builders in London. As an instance of this, a fatal case of jaundice in a sewer worker was cited where the coroner had given an "open verdict." The records of this case were consulted, and the facts, based on medical and lay evidence, were as follows:

Case History II

A sewer repairer, aged 34 years, who enjoyed excellent health, came home on October 14th, 1933, and in the evening complained of feeling ill with a sore throat; shivers and rise of temperature followed. Next day he felt better, and attempted to get up, but had to go back to bed. Anorexia and constipation were marked. On the third day (October 16th) he was seen by his panel doctor, who reported he had a red and slightly ulcerated throat, and was suffering from acute tonsillitis. His general condition, instead of improving, became worse: he was markedly prostrated, and had difficulty in moving the limbs. On the fifth day he developed jaundice and passed a blood-stained stool. The jaundice deepened, his condition became more and more grave, and he was removed to hospital on

the ninth day, dying four days later—that is, on the thirteenth day of the disease. A necropsy by the medical officer revealed jaundiced organs, a liver normal to the naked eye, and an enlarged gall-bladder, but no gall-stones were found anywhere in the biliary system.

The panel doctor, in his statement, said "there were no signs of liver disease, and it was difficult to account for the jaundice except on the grounds of some form of toxic poisoning which, in fact, it seemed to be." A foreman employed in the same firm as the deceased said that the work of the deceased on the last day had been to take bricks down to the bricklayers inside the sewer and to remove any rubbish down there. He made no complaint of having smelled gases, but he complained of foul smells; the man-holes were open every day, so gases could not accumulate. It was suggested that certain sewer gas, such as sulphuretted hydrogen, might cause jaundice, and a pathologist stated that he found sulphæmoglobin, 2 to 3 per cent., in the blood, and had searched for arsenic and phosphorus, but had found none. The coroner returned an "open verdict—toxic hepatitis—but there was no definite evidence to show how or by what means the toxic condition had arisen."

Past Jaundice in Sewer Workers

The facts regarding this case appeared so similar to Case I that it was decided to inquire into the history of some of the sewer workers who had suffered from jaundice in the past, and also to subject their blood to certain specific leptospiral agglutination tests, to which Schüffner and his colleagues have recently made such valuable contributions.

AGGLUTINATION REACTION IN WEIL'S DISEASE

Professor Schüffner was actually lecturing in London on leptospirosis at the time Case I was admitted to hospital, and later, when I wrote informing him of my suspicions regarding an endemic focus of Weil's disease among sewer workers in London, he generously agreed to test sera from these cases in his own laboratory at Amsterdam, specimens being sent across by air mail.

Weakly formalized (1/2 per cent.) cultures of leptospiræ, which prevent lysis, were used as antigen, and each serum was tested against the classical "Weil" strain, *L. icterohaemorrhagiae*, the East Indian human strain "Rachmat," and the dog strain, *L. canicola*. In addition, living cultures of *L. icterohaemorrhagiae* were employed as antigen in most instances. In performing the tests sera are diluted 1 in 10, 1 in 30, 1 in 100, 1 in 300, 1 in 1,000, etc. The reaction is highly specific, weak positive being indicated by 1 in 10 and 1 in 30 dilutions, and strong positive reactions by dilutions of 1 in 100 and upwards. Control sera have never shown agglutination in Schüffner's hands, even in a 1 in 10 dilution.

Residual agglutinin persists for many years, and Postmus⁹ (1933), re-examining Schüffner's old cases, found positive reactions of from 1 in 100 to 1 in 300 over a range of from 218 to 6,066 days after the disease. The last patient contracted his jaundice in the war, and his serum gave a positive reaction (1 in 300) sixteen years and seven months later. Obviously, therefore, the reaction affords a very important index to past infection.

Case II had been employed at the Kensal Road sewer when he contracted his fatal malady, and the first workman with past jaundice to be interrogated (Case III) stated that he also had developed his illness while working there some eighteen months previously. His case history is epitomized below.

Case History III

The patient, aged 28 years, had been employed for five years in rebuilding sewers. On December 26th, 1932, he felt ill, and went to bed with aching pains in the feet; in the morning he had severe stiffness and pains in the legs, and next day his doctor reported a high temperature and diagnosed influenza. Anorexia and vomiting were present. On December 31st (the sixth day of the illness) jaundice developed, and subsequently increased in severity. Constipation was marked; the motions were black like tar (melæna); and the urine was dark yellow. The jaundice persisted for several weeks, and the patient lost his hair during convalescence.

Agglutination.—Serum collected eighteen months after jaundice—"Weil" strain + (1 in 1,000); "Rachmat" strain 0; dog strain + (1 in 100).

The clinical history, combined with the high titre agglutination of the serum when tested against the classical "Weil" strain of leptospira, shows that this patient had undoubtedly suffered from true Weil's disease. The fact that he contracted his infection some ten months before Case II when working in the same sewer entirely supports the view that Case II also died from the same disease.

Case History IV

The patient, aged 22 years, was repairing the Priory Street sewer, Bromley. On June 12th, 1933, he felt weak, and two days later had cold shivery feelings also. There were severe pains in the legs. By June 15th he could not stand up, and went to bed. Generalized jaundice set in on June 17th (that is, the sixth day), and persisted for nearly six weeks. The motions were clay-white and the urine was black. In the early stages the muscles were so tender that he could hardly bear being touched. Catarrhal jaundice was diagnosed by his panel doctor. During convalescence most of his hair came out.

Agglutination.—Serum collected twelve months after jaundice—"Weil" strain, both living and formalized cultures; + (1 in 300); "Rachmat" strain + (1 in 30); dog strain + (1 in 10).

Case History V

The patient, aged 28 years, was engaged on the same sewer. At 5 a.m. on August 19th, 1933, while at work, he suffered from a shivering attack with fever and aching pains in the head and body, but stayed on until 9 a.m. next day, when he went home to bed. He did not get up again for about two months. He raved for the first three days, and was diagnosed as a case of influenza and bronchopneumonia by his panel doctor. Jaundice developed on the fourth or fifth day; fever also was present. The jaundice increased; vomiting was severe; he coughed up blood and had tarry black motions. The limbs ached, and the legs felt like "falling off." The jaundice lasted nearly a month, and he was home almost eight weeks after that. His eyes became troublesome, necessitating treatment at Moorfields Hospital, and he did not return to work for six months.

Agglutination.—Serum collected ten months after jaundice—"Weil" strain, living cultures + (< 1 in 300), formalized cultures + (1 in 300); "Rachmat" strain + (1 in 10); dog strain + (1 in 30).

Case History VI

The patient, a labourer aged 31 years, was also handling bricks in the sewer at Bromley. He came on to relieve another worker, and thirty-six days later, on November 13th, 1933, developed shivering, fever, and backache, and went home to bed. He became very restless and light-headed, and next morning lacked the strength to get up. He tried to shave, and when a looking-glass was brought to him states he was astounded to find he was yellow. The urine later became black and the stools putty-coloured, and he could neither micturate nor get the bowels to act. On November 19th, 1933, there was coffee-ground vomit. Herpes also was present, as well as severe loin pain. He was jaundiced for six weeks while in hospital, and this had not completely cleared when he was discharged. He was about four months away from work, had trouble with his eyesight, and lost his hair in convalescence.

Agglutination.—Serum collected seven months after jaundice—"Weil" strain, living cultures + (1 in 1,000), formalized cultures + (> 1 in 300); "Rachmat" strain 0; dog strain 0.

Comment on Cases IV, V, VI

These three cases are of special interest as they had all occurred within the last year, the patients having contracted the illness when working in sewers at Bromley some twelve, ten, and seven months previously. Their histories are very typical, except that the jaundice in Case VI appeared early—according to the patient's statement on the second day of illness. The agglutination reactions were of high titre in all instances, and leave no doubt regarding the diagnosis.

Case History VII

The patient, aged 32 years, had been engaged as a sewer labourer since January, 1932. One Saturday evening in June, 1933, while working at the Wick Road sewer, Hackney, he was seized with a shivering attack, loin pain, and fever. Generalized pains, especially involving the head and neck, followed. He spent next day in bed, and on Monday went over to Peckham, took to bed, and was treated by his panel doctor. On Tuesday the temperature was 103.6° F., and on Wednesday (fifth day) jaundice with itching of the skin was noted. The motions now resembled "white paste," and were sometimes admixed with dark red blood. Epistaxis, haematemesis, and labial herpes subsequently developed. Weakness was extreme and the pains in the legs excruciating. He was in bed for two months, and the jaundice itself lasted six weeks: even then a yellow tinting of the conjunctivae persisted some time.

Agglutination.—Serum collected two years after the jaundice—"Weil" strain, living cultures + (1 in 1,000), formalized culture + (> 1 in 300); "Rachmat" strain 0; dog strain + (1 in 30).

Case History VIII

A sewer repairer, aged 60 years, stated that one Sunday evening in March, 1929, he felt cold and shivery, and developed fever. The preceding day he had been quite fit, being engaged in chiselling out brickwork at the Alexandra Road sewer, Kilburn. On Monday he had a severe headache and was so weak that he could not lift his head from the pillow; the following day his panel doctor diagnosed influenza. On Wednesday (fourth day) jaundice first appeared; this increased in intensity, and the skin became exceedingly itchy and the urine very dark. The stools were tarry black (melæna). Jaundice persisted for about six weeks, and during convalescence his hair came out "in handfuls."

Agglutination.—Serum was collected five years and four months after the jaundice—"Weil" strain, living cultures + (1 in 30), formalized cultures + (1 in 30); "Rachmat" strain 0; dog strain + (1 in 10).

Case History IX

The patient, aged 40 years, stated that in April, 1926, when doing brickwork in a Tottenham Court Road sewer, he had a headache and began to feel cold and shivery. He collapsed that evening and became semi-conscious; he remembers very little about his illness, which lasted six to seven weeks, except that he was intensely jaundiced, his skin was extremely irritable, and the pain in his muscles was so great that "he screamed when touched." It is noteworthy that prior to the onset of jaundice pleurisy was first diagnosed, and later, owing to abdominal tenderness, appendicitis was suspected.

Agglutination.—Serum was collected eight years and two months after the jaundice—"Weil" strain, living culture + (> 1 in 300), formalized culture + (1 in 100); "Rachmat" strain + (1 in 10); dog strain + (1 in 10).

Case History X

The patient, a brother of Case III, stated that he had fever about Christmas, 1922, when cutting out brickwork at a sewer near St. Pancras. Intense jaundice followed and persisted for several weeks.

Agglutination.—The serum was collected twelve and a half years after the jaundice—"Weil" strain, formalized culture + (1 in 100); "Rachmat" strain 0; dog strain + (1 in 30).

General Discussion

Most of the sewer workers in this series were treated by their panel doctors, and in the early stages, prior to the onset of jaundice, the provisional diagnosis was generally some general infection like influenza or tonsillitis. The absence of evidence of local hepatic disease, such as gall-stones in the common duct, naturally led to the diagnosis of catarrhal jaundice in those patients who recovered, while fatal cases, such as Case II, which appear generally

to have been admitted to hospital in the later stages of the illness, were regarded as due to toxic or obstructive jaundice of unknown causation. Several such cases among sewer workers have been brought to our notice during the course of this very limited inquiry.

When viewed in retrospect, the occupational relationship to sewer rats, the course of the disease, and its symptomatology leave little doubt on purely clinical grounds that for many years sewer workers in London have been subject to the ravages of Weil's disease. This is entirely supported by the mode of onset, the great prostration, the pain and muscular tenderness, the prolonged and severe jaundice generally commencing about the fourth to the sixth day, the tendency to haemorrhage from mucous membranes, and the occurrence of patients dying from the ninth to the thirteenth day of the illness; all these features the case histories definitely reveal. Loss of hair, sometimes amounting to actual baldness, was a not infrequent sequel. What little doubt regarding diagnosis might exist on the basis of these data is immediately dispelled when the results of the agglutination tests performed by Professor Schüffner are considered. In seven out of eight cases strongly positive agglutination reactions were demonstrated, the titre of the serum varying from 1 in 100 to 1 in 1,000 in different instances when living or formalized cultures of the classical "Weil" strain, *L. icterohaemorrhagiae*, were employed. The remaining serum (Case VIII) alone gave a weak positive reaction (1 in 30), but, as control sera do not react even in a dilution of 1 in 10, here also the serological evidence supports the clinical diagnosis. Three out of eight sera had lower titre group reactions (1 in 10 to 1 in 30) with the Dutch East Indian "Rachmat" strain; while seven out of eight presented group reactions with the dog strain, *L. canicola*, the titre in three being 1 in 10, in three others, 1 in 30, and in one instance (Case III) 1 in 100. Group agglutination of this nature, to which various leptospirae are prone, can be distinguished from specific agglutination by absorption tests where necessary.

One other case of jaundice in a sewer worker (as long ago as 1912) was also investigated. The history was atypical, the patient stating that at the time he had been definitely diagnosed as a case of typhoid and that jaundice had occurred as a later complication. On the supposition that the diagnosis might have been erroneous, his serum was sent to Professor Schüffner as that of Weil's disease: the agglutination reactions for all strains were, however, negative.

These serological findings, no less than the clinical evidence, prove conclusively that the cases cited have suffered from true Weil's disease, and that this disease has been endemic among London sewer workers for at least twelve and a half years.

Mode of Infection and Treatment

The present series of cases comprised sewer labourers engaged in repairing or rebuilding old sewers; none of them were "flushers," whose duty it is to clean the sewers. Amongst other duties their work consisted in chiselling away and removing the old brickwork in a section of sewer under repair, and during this process the skin of their hands was often traumatized. The inner surfaces of bricks lining the sewer are covered with a slimy deposit, and all stated that soiling of the hands was unavoidable. The sewers in which the repair work was undertaken were wet and, especially in the smaller sewers of from four to six feet in diameter, the work had to be undertaken in a very confined space. Contact with sewer water was inevitable, though waders were worn.

The incidence of sewer rats was said to vary in different sewers, and some of the men stated that it was occasionally

necessary to remove dead rats from sewer water. As rats in London are known vectors of *L. icterohaemorrhagiae* the opportunities for human infection with leptospirae must be considerable under the conditions described. Buchanan* (1927) found that the fungal slime in the East Lothian coal pits contained leptospirae pathogenic to guinea-pigs, and similar inoculation experiments with slime from London sewers might well yield positive results.

A discussion on prophylactic measures hardly falls within the scope of the present paper, but it is obviously important, as approximately only 50 per cent. of cases of leptospirosis develop jaundice, that a serological as well as a clinical investigation of sewer workers for infection with Weil's disease should be undertaken to determine the real extent of this disease: this must be considerable, since the present inquiry was only made at odd times over a period of a few weeks, and was restricted to a limited section of sewer workers employed by a large firm of London contractors.

Specific therapy in the form both of convalescent serum and of anti-leptospiral serum (B.W. and Co.) is available, and the institution of such treatment, especially if carried out prior to the onset of jaundice, should undoubtedly save life. For early diagnosis both clinical and laboratory investigations, such as the centrifugation of blood to concentrate leptospirae, are essential, and for this purpose the early centralization of doubtful cases in one hospital might prove advisable. Prophylactic leptospiral vaccines might also prove valuable in sewer workers.

Summary

1. A widespread and hitherto unrecognized focus of Weil's disease affecting the sewer labourers of London has been demonstrated.

2. Its existence for at least twelve and a half years has been conclusively proved.

3. The mode of acquiring infection and certain other issues are discussed.

I am greatly indebted to Professor Schüffner, Dr. C. M. Wenyon, Major H. C. Brown, and Colonel F. P. Mackie for their invaluable assistance, and also to Dr. R. H. Wiseman and others in connexion with certain of the case records.

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R. S. F. Hennessey (*East African Med. Journ.*, May, 1934) records an outbreak of eighty-two cases of typhus which occurred in the Western Province of Uganda in June, 1932. The general manifestations of the disease corresponded more or less closely with those of the European form of typhus. Thirty-six were males and forty-six females; sixty-three out of seventy whose ages had been recorded were between the ages of 10 and 30; practically all were peasants. There were eight deaths—a mortality of 9.7 per cent.—four of the fatal cases being males and four females. The high degree of infestation with the body louse made it probable that the insect played an active part in the transmission of the disease, and this view was confirmed by inoculation of guinea-pigs, who developed a definite form of pyrexia of from four to ten days' duration.

CASE OF SPIROCHAETAL HAEMORRHAGIC JAUNDICE (WEIL'S DISEASE)

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The rarity of Weil's disease in this country makes it worth while to publish a case which has occurred in Eastbourne.

Clinical History

A female Post Office employee, aged 23, was admitted to hospital on April 7th, 1934. The condition on admission was as follows: very considerable jaundice, enlarged glands in general, especially the left parotid, swelling of the neck, swollen tongue, erysipelatous condition of the face, which was much swollen, and general inflammation of the skin, with commencing desquamation all over, particularly of the hands and feet. There were two small bullae similar to pemphigus on the fingers. The left conjunctiva was half covered with haemorrhage, and there were haemorrhages all over the skin from the size of a shilling downwards, especially on the arms and abdomen. There was also rectal haemorrhage. The liver was enlarged, but the spleen was not felt. The temperature was 102° F. There was no "typhoid" condition, but the patient was obviously extremely ill with slight delirium.

The history was that on March 29th she had had a slight shivering fit, with backache, and gradually her legs felt heavy. Her tongue was ulcerated; and she had been vomiting and coughing up mucus from time to time. The jaundice was not noticed until the day of admission, but the swelling of the neck and of the parotid had occurred the day before. The haemorrhages had started eight days before admission, in the arms and per anum, and there was increasing pain in the back, arms, and legs, especially in the arms.

Course of the Disease

There was occasional vomiting even after the temperature became normal, which it did in two or three days. There was a gradual improvement, and desquamation became general. There was no objection by the patient to taking fats or eggs, and the digestive processes were all normal. The patient steadily recovered, leaving the hospital on May 8th. On May 16th she was convalescing with still a little trace of jaundice and faint haemorrhagic stains in the skin, and the weakness that would follow an illness of some duration. She is now (May 28th) practically well. There was no relapse. Since the symptoms appeared to point to Weil's disease, pathological examinations were made, and *Leptospira icterohaemorrhagiae* were found in the urine on three separate occasions.

In trying to trace the cause of this isolated and unusual case, it was ascertained that no animals were kept in the house, and that no rats or mice were known to exist there. There was no history of any bite from a rat or other animal, and the other causes of jaundice were excluded. The girl was healthy and enjoyed a normal life. The disease resembled the numerous cases of Weil's disease that have occurred in Holland in the last few years, particularly in Amsterdam and in Dordrecht, in which the patients had been for the most part bathing in the canals. Shortly before the onset of the illness, the patient had eaten "Dutch" tomatoes. The recorded cases in this country are very few and far between.

The patient was not given any specific treatment, as she began steadily to improve from the date of admission to the hospital. After the temperature had become normal she seemed especially to improve on a tonic which contained strychnine and nitro-hydrochloric acid.

Bacteriological Notes

Microscopical.—On three separate occasions, the first on the fourteenth day, the urine was examined for spirochaetes, and these were found. The specimens were centrifuged, and the deposit examined under dark-ground illumination, and also stained by Fontana's silver method. It was found necessary to obtain a very fresh specimen in order to observe the movements, which consisted of rotation and undulation. In stained preparations the spirochaetes were not very numerous, but about a dozen or so of these were seen, and one (the first) preparation was photographed. There was a distinct hook-like tendency at the termination of the spirochaete, but the textbook well-marked hooking was only obvious in a few specimens. It must be remembered that the urine has an action on the morphological appearances, and tends to make the organism appear somewhat atypical.

Biological.—Rather late in the disease animal inoculation of the centrifuged deposit was tried, and a guinea-pig was injected intraperitoneally. No effects were observed, the animal being killed a fortnight after injection.

A. D. Gardner¹ states that the organism occurs both in fresh and in sea water, and can be cultivated therefrom.

Dr. R. A. O'Brien very kindly consented to test to serological agglutination against the leptospira with a specimen of the patient's serum, but suitable strains are not for the moment available.

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- ¹ Gardner, A. D.: *Bacteriology for Medical Students and Practitioners*, 1933, p. 195.

PULMONARY TUBERCULOSIS AFTER SUNBATHS

BY

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The decline in the annual death rate from tuberculosis of the lungs has been so steady since 1860, apart from the war years, that this disease may reasonably be expected to be rare in twenty or thirty years. While therapeutics have helped, the main cause of this magnificent improvement is to be found in the amelioration of social conditions and the education of the patients and the public in preventive measures. The relation of any change in social customs to the development of tuberculosis should be carefully watched. Towards the end of the hot summer of 1933 there appeared in our wards patients with recently developed pulmonary tuberculosis, who were heavily tanned from sunbathing. We therefore decided to make a clinical study of the relation, if any, between this hobby of sunbathers and this disease of the lungs, and we here present the results and some conclusions.

Careful inquiry in each case elicited the fact that out of sixty-six cases of pulmonary tuberculosis admitted under our care between August and December, 1933, the onset, or exacerbation, of symptoms in eleven cases followed sunbathing. Brief histories of these cases are appended, and a study of them shows that there are certain points of similarity in the development of symptoms.

Case Notes

Case 1.—A male, aged 33, admitted August 30th, 1933. In spite of night sweats in January for two weeks, he sunbathed in July. Three weeks later he noticed a cough and felt weak. Sputum positive, x ray positive, on admission.

Case 2.—A male, aged 19, admitted September 13th, 1933. Had haemoptysis in April, 1933. In the following June he sunbathed for one whole day; felt dizzy and lost appetite for two weeks. Sputum positive, x ray positive, on admission.

Case 3.—A man, aged 29, admitted September 20th, 1933. Pneumonia last year; no residual cough. Cough commenced in August, 1933, with one haemoptysis. Sputum positive. In spite of this he sunbathed at Margate for a week, but felt dizzy and sweated at night. Sputum positive, x ray positive, on admission.

Case 4.—A female, aged 20, admitted September 20th, 1933. Quite well and sunbathed during week-ends until, on August Bank Holiday, after sunbathing at Folkestone, felt short of breath and ill for the next few days. Haemoptysis ten days later, then cough developed. Sputum none, x ray positive, on admission.

Case 5.—A female, aged 25, admitted September 28th, 1933. Influenza three previous winters. Quite well till she sunbathed at Broadstairs for one week in June, and on one day had a "bilious" attack, which was attributed to excess of sunbathing. Six weeks later developed a cough. Sputum positive, x ray positive, on admission.

Case 6.—A female, aged 19, admitted November 1st, 1933. Pneumonia in January, 1933. Quite well when she sunbathed at Margate for a week in July, 1933, and felt no ill effects. In September and October dyspnoea. Sputum negative, x ray positive, on admission.

Case 7.—A male, aged 20, admitted November 3rd, 1933. Quite well while he extensively sunbathed at his home and for a week at Westcliff in August, 1933. Haemoptysis in October, 1933, first symptom. Sputum negative, x ray positive, on admission.

Case 8.—A woman, aged 26, admitted November 13th, 1933. In spite of a cough sunbathed for one week early in September, 1933. Did not feel well all the week. Five weeks later, blood-stained sputum. Sputum positive, x ray positive, on admission.

Case 9.—A female, aged 20, admitted November 22nd, 1933. Dry pleurisy 1932; cough persisted. Sunbathed on the river during the week-ends all through the summer of 1933. Haemoptysis in November, 1933. Sputum positive, x ray positive, on admission.

Case 10.—A female, aged 23, admitted December 13th, 1933. Cough since August, 1933. Sunbathed in August for one week. No ill effects at the time. Sputum positive, x ray positive, on admission.

Case 11.—A male, aged 24, admitted December 30th, 1933. Slight cough last winter. Quite well in July, 1933, when he sunbathed for a quarter of an hour each day. No ill effects noticed. Had haemoptysis in November, 1933. Sputum positive, x ray positive, on admission.

The age incidence ranged between 19 and 33, years common to sunbathing and to the production of the exudative type of the disease, which was the one present in all these eleven cases on radiological appearances. On the other hand, although there was a considerable proportion of the fibroid type of disease among the other fifty-five patients, each one of them denied indulging in sunbathing during the summer, and an absence of sun pigmentation supported their statements as far as it could. The fibroid type was present in some patients whose age was greater than the average of sunbathers, and in others who had passed the exudative stage. Many of these patients had a long history of tuberculosis, and had been deliberately warned by their doctors against the danger of sunbathing.

That the abnormal exposure of the usually covered skin surfaces to the action of the sun's rays aggravates the development of pulmonary tuberculosis is a conclusion suggested by these eleven cases and others we

have examined, and we believe this new social custom has elements of danger if indulged in extensively and indiscriminately. This is, of course, in accordance with the known danger of treating apyrexial cases of pulmonary tuberculosis by insolation or carefully graded exposure of the skin to the sun. Years ago it was found by one of us, as by many others who tried it as a therapeutic procedure, that pyrexia and increased activity of the disease sometimes resulted. The danger of artificial sunlight to a patient with tuberculosis of the lungs must also be remembered.

The exact manner in which sunbathing may aggravate tuberculosis is not understood. We do not know whether long sunbaths raise the body temperature in healthy young adults or possibly only in those in a hyper-allergic state. For this latter possibility there is some support in the fact that in our cases several patients showed an immediate reaction in the form of malaise and sweats, as well as a delayed reaction some weeks to three or four months later in the more dramatic form of haemoptysis among other symptoms.

A further point of interest is the fact that our clinical study automatically terminated itself at the end of the year by the non-appearance of new cases with a relevant history of sunbathing. There were none in January or February, 1934. Hence we conclude that the ill effects of sunbathing may be expected to manifest themselves within four or five months of exposure.

Conclusions

In view of our opinion from the experiences gained from this clinical study we venture to draw the following conclusions:

1. It is dangerous for anyone who has had haemoptysis, especially if recent; to sunbathe until tuberculosis of the lungs has been excluded by a thorough examination, including an x-ray examination of the chest.
2. It is inadvisable for people who have recently lost weight, or who are feeling abnormally tired, or who have other suspicious symptoms to sunbathe without the same precautions.
3. Sunbathers who feel tired or feverish, or who perspire at night after a sunbath, should take their temperature, and, if it is above 99° F. in the evening, no more sunbaths should be attempted until they have been passed as fit.

At the June meeting of the Central Midwives Board for England and Wales a letter was read stating that the Minister of Health had approved the existing Rules for a further period of three months from June 30th. A letter was received from the Women Public Health Officers' Association suggesting that, in view of the difficulties experienced by health visitors whose names had been removed from the Roll under Section 3 (2) of the Midwives Act, 1926, in undergoing further training before the restoration of their names, the Board might restore the names on an undertaking being given by the health visitors concerned that they would not practise midwifery without undergoing such further courses of training as the Board deemed necessary. It was agreed to reply that women whose names have been removed from the Roll under Section 3 (2) and who are in actual practice as health visitors be re-enrolled on application and the payment of the restoration fee, and that this instruction should apply to women in practice as health visitors whose names have been removed from the Roll and who would have been ordered further training as a condition precedent to the restoration of their names.

Clinical Memoranda

DRY PLEURISY WITH HIGH EOSINOPHIL LEUCOCYTOSIS

The following is a case of dry pleurisy with a high degree of eosinophilia.

An Indian Christian, aged 21, was admitted to hospital on January 21st, 1933, complaining of cough, low fever, and pain in the chest for one month. He had had cholera in May and heatstroke in June, 1932, but no other previous illness. His trouble had started with a slight attack of cold, passing on to severe spasms of cough, which lasted for half an hour or so and caused breathlessness. At first there was no expectoration; later a thin, white, and slightly frothy sputum was brought up. The fever had reached 100° or 101° F., and was often preceded by rigor. Occasionally he passed into a semi-conscious state, especially after an attack of coughing, accompanied by profuse perspiration. Insomnia was marked.

Physical examination showed, in a thinly built, rather toxic-looking youth, signs of disease at the right pulmonary base—namely, a dull percussion note, diminution of vocal fremitus and resonance and of breath sounds, fine intrapulmonary crepitations, and a loud pleural rub. Elsewhere there were no abnormal signs. Radiological examination revealed infiltration and pleural shadow of the lower part of the right lung; no indication of involvement of the liver could be made out, and the right diaphragm moved fairly even when later there was some swelling of the hepatic region, and the possibility of liver abscess was considered.

The patient's clinical condition varied very little during his three months' stay in hospital, except that the fever became very slight. Pain was most acute, and insomnia very troublesome. He developed dry pleurisy on the left side also, but the signs, radiological and clinical, on both sides gradually cleared up. Needling revealed no fluid, nor was an attempt to relieve the pleural pain, by the induction of artificial pneumothorax, successful. He was given a course of emetine injections on account of the swelling over the liver, and a clinical effect was certainly produced.

So far the probable diagnosis would have been tuberculosis, or possibly amoebiasis, but the pathological examinations introduced a disturbing factor. The sputum was consistently negative for tubercle bacilli and fungi, the blood showed no parasites, and the stools contained no pathogenic organisms. The leucocyte count, however, was abnormal; successive counts were as follows:

Date	Total white blood cells	Eosinophils per cent.
January 21st, 1933	36,800	80
" 27th, "	28,080	78
" 30th, "	35,000	82
February 2nd, "	47,000	79
" 9th, "	51,000	81
" 14th, "	54,000	81
" 25th, "	55,600	83
March 6th, "	108,000	82
" 23rd, "	36,000	77

The eosinophils were both bi- and tri-lobed. The treatment was mainly symptomatic, but, in addition to the emetine, on the possibility of a fungus infection of the lung, large doses of iodide were given for a time, and, on the theory of some allergic condition, auto-blood injections.

Being tired of hospital, the patient was removed by his relations considerably improved, and various indigenous treatments were tried until, in May, he came under the care of the junior author. He was then experiencing every afternoon very severe attacks of cough, followed by thin, frothy sputum, often tinged with blood. After these attacks he passed into a hysterical or semi-comatose condition lasting an hour or two. He was given one dose of 1/2 grain ephedrine hydrochloride, which was followed by an alarming condition of collapse, with a feeble pulse of 140 per minute; from this he recovered after volatile stimulants, bandaging the lower limbs, and raising the foot of the bed. From the next day he was given ephedrine in doses of 1/12 grain four-hourly, and a mixture containing iodide, bromide, and tincture of belladonna. Whenever he experienced a choking sensation he was given a dose of "syrup sourkalp" (a preparation of *Ephedra vulgans*). He was at the same time taking various Ayurvedic

preparations reputed to be useful in chronic lung and debilitating conditions.

As a result of this treatment, combined with careful nursing and feeding, the patient has improved very much. He is now moving about, with no fever, no cough, no pain, and no physical signs, and he has gained sixteen pounds in weight. Radiological examination shows that the lung infiltration has cleared up, leaving simply prominent bronchial markings. The total leucocyte count, however, is still 29,000, with 70 per cent. of eosinophils.

COMMENTS

The cough, pyrexia, pleurisy, and infiltration of the lung strongly suggested a tuberculous cause, and the absence of tubercle bacilli from the sputum did not negative this, but the high degree of eosinophilia could not be reconciled. The possibility of fungus or fluke infection was excluded, so far as repeated sputum examinations could do so. Amoebic infection of the liver with extension to the pleura was seriously considered, and the fact that some benefit followed the administration of emetine gave some support to this, but again it was difficult to account for the eosinophilia; and the leucocytosis, if due to that infection, should have subsided with the treatment. An asthmatic condition did not seem at all likely at first, but the later observations and the final result obtained through ephedrine, iodine, and belladonna, strongly supported the view that it was a case of acute allergic asthma. The infection, as evidenced by the clearing up of the pleurisy and pulmonary infiltration, was an acute but not a tuberculous process. The height of the eosinophilia was the most interesting feature. Reaching 82 per cent. of 109,000, it suggested even an eosinophil leukaemia.

As in the case published in the *Journal* of August 5th, 1933, none of the relations of this patient show eosinophilia. High eosinophilia is a common manifestation of allergic states, and may be the only one. Could the extreme eosinophil leucocytosis in this case be also a rare manifestation of the same allergic state?

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PELVIC CELLULITIS OF UNKNOWN ORIGIN

This case has been reported for two reasons. In the first place it is the only instance known to the writer of pelvic cellulitis of apparently unknown origin, and secondly, it illustrates the imperfection of our knowledge in regard to the aetiology of this type of cellulitis.

A man, aged 45, an inmate of Brentry Colony, who had been in good health, had sudden abdominal pain with vomiting, and a temperature of 101° F., on March 21st, 1934. A flatus tube was passed in vain. Two enemata, one with turpentine, given through a rubber tube as the patient resisted a Higginson syringe, were retained. A small amount of blood was passed per rectum. At midnight the symptoms had not abated, and the enemata could not be siphoned from the rectum. Finding distension in the hypogastrium Dr. Rudolf, medical superintendent, to whom I am indebted for the case, passed a soft rubber catheter easily into the bladder, and withdrew eighteen ounces of normal urine. This was repeated the next day, and thirteen ounces were withdrawn, while a further enema was half returned.

At 2 p.m. I saw the patient at the Bristol Royal Infirmary. He was lying on his side, groaning, and vomiting a brownish fluid, and was obviously ill. The circulation in the extremities was very poor, and they were bluish. The pulse was rapid and small in volume, and the temperature 101.8° F. Clinical examination revealed a dirty tongue but a normal chest. The abdomen was full and rounded; tenderness and rigidity were very marked. A left inguinal hernia, which had been tense,

but yielded to taxis the previous night, felt innocuous. Rectal examination gave no further information. The patient could give very little help in answer to questions, so that the clinical diagnosis of peritonitis from a perforated appendix was somewhat speculative. At immediate operation a right paramedian incision was made below the umbilicus. On reaching the submuscular plane, greenish-black discoloration of the fat was noticeable, but no obvious faecal odour. The extra-peritoneal fat was thickened to half an inch in a sodden, watery state, and was an unusual obstacle to the finding and opening of the peritoneum. Owing to the grave condition of the patient, the operation was finished as soon as a large tube had been inserted in the peritoneum, out of which gushed a brownish fluid with a musty odour. The whole aspect of the case was lethal, and the patient died within a few hours.

The post-mortem findings, for which I have to thank my colleague Dr. A. D. Fraser, revealed a normal peritoneum and contents, apart from a little free fluid. No explanation of the illness was forthcoming from the left inguinal hernia. The whole bladder and adjacent seven inches of the recto-colon were invested in the same rotten greenish-black thickened state of the cellular tissue as revealed by laparotomy. Naturally, possible causes suggested themselves, such as extravasation of urine, etc. However, a detailed inspection of the bladder cavity revealed no trace of leakage, and what odour was present was of a musty character and not that associated with urinary extravasation. The recto-colon was then examined with the same negative results. No visible tear or inflammatory area was visible, nor any sign of mutilation of the skin in that region of the body. No trace of septic or other disease was found in the body.

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A CONVENIENT METHOD OF EXAMINING BLOOD FILMS IN PERNICIOUS ANAEMIA

The comparative diffraction method of estimating the size of red blood corpuscles in cases of pernicious anaemia has frequently been mentioned in the *British Medical Journal*, and it has been noted that elaborate apparatus is not necessary.

One method of observation makes use of the fact that if a steady candle flame is sighted through a film held close to the eye a coloured halo is seen, the size of which varies inversely with the size of the red blood corpuscles. If in front of one eye is held a normal film and in front of the other eye an abnormal film the two haloes are superimposed: if now a voluntary diplopia is produced the images are separated and a comparison can be made as to their size. The muscular effort to produce voluntary diplopia is quickly fatigued, and after a few moments leads to a feeling of giddiness and sense of strain.

The following method, which is not dependent on muscular action, has proved very satisfactory in the author's hands.

The film to be examined is held, with the long axis vertical, by the thumb and second finger of the right hand in front of the right eye, the top of the slide steadied against the eyebrow. The pulp of the first finger of the right hand is placed at the outer margin of the orbit, and diplopia produced by pressure against the eyeball. The standard film is held in front of the left eye. The haloes are produced in the usual way, by sighting a steady candle flame through the two films. In order to avoid error (chiefly from anticipation of the result) it is better to mix the slides, so that the observer does not know which is standard and which anaemic, and then to change over and observe again before noting which slide is which.

The method described is very simple, and allows for a prolonged inspection of the haloes without fatigue. The degree of diplopia can be varied by pressure of the finger, so that the haloes can be entirely separated or partially superimposed—the latter being a useful device when the difference in size is not at once obvious.

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Reviews

FOUNDATIONS OF SURGERY

The recently published *Textbook of Surgical Anatomy and Physiology*,¹ by NORMAN C. LAKE and C. JENNINGS MARSHALL, is an important addition to surgical literature. The status and experience of the authors as operating surgeons, teachers, and examiners would lead one to expect a work of more than ordinary merit: this expectation has been fully realized. The scope of the book is much more comprehensive than its title would suggest. Its subject-matter ranges over the whole field of surgery and its subsidiary sciences, and a vast amount of information, hitherto only obtainable from a multiplicity of sources, is brought together in a single volume.

The work is divided into two main sections: general and regional. The general section is devoted to a consideration of the principles of anatomy, physiology, and pathology in their broad application to surgical diagnosis and treatment. The chapter on the central nervous system, for example, deals with the general structure and function of the brain and spinal cord, intracranial pressure, examination of the cerebro-spinal fluid, spinal anaesthesia, radiography, and cerebral localization; that on the peripheral nervous system, with the arrangement and structure of the somatic and sympathetic nerves, the results of nerve division, and the phenomena of visceral pain. The descriptions of the fasciae and connective tissues, skin, and subcutaneous tissues make interesting reading: full of important practical observations, they are among the best in the book. The chapter on muscles and tendons contains, at some length, Hunter's theory of muscular control. The general section also includes accounts of the vascular system, bones and joints, serous cavities, and alimentary canal. In the regional section the sequence—development, anatomy, structure, physiology, pathology, operative, and practical applications—is generally followed. Development is given in sufficient detail to enable the student to understand clearly the more important congenital defects. In particular, the account of the development of the urogenital system is exceptionally clear, with admirable diagrams. The addition of a few more diagrams to the descriptions of the development of the serous cavities and diaphragm would increase their value. Systematic descriptive anatomy is presented in a compact, slightly condensed form, near the beginning of each chapter, easily accessible for revision or reference. It is accurate, complete, and well illustrated. There are numerous allusions to comparative anatomy and morphology. The physiology is generally brief, but adequate for the understanding of pathology: in the parts where a fuller treatment is called for, such as the stomach and biliary systems, this is given. Pathology is dealt with systematically and in fair detail.

The special value of the book, however, and that which gives it its peculiar quality, lies in the correlation of these fundamentals with the problems of surgery. This object has been achieved with remarkable success. It is here that the experience of the authors as practising surgeons, and their abilities as teachers, become most evident. The whole aim of the book is practical. A sound sense of proportion is maintained throughout, and the common temptation to devote an undue amount of space to a topic merely because it is a prevailing surgical fashion has been resisted. The important subject of the surgery of the hand, with special reference to infection, receives the large amount of space which it deserves. The chapter on the sympathetic nervous system

is brief but clear, with good diagrams, and contains all that the student needs to know of the subject. The "special" subjects, particularly the eye, are comprehensively treated.

The style of writing is clear and concise—a model of what scientific writing ought to be. The illustrations, of which there are 238, many in colour, are a notable feature. They are well chosen and very clear, and the great majority are original. Many of them are beautifully drawn: in this respect the work of Miss Barclay Smith deserves particular mention. There are a number of misprints in the text and illustrations, and it is to be hoped that more careful proof-reading will remove these in a second edition. Judged by every standard, this is the best English textbook on the subject, and we congratulate its authors on their achievement.

EXPERIMENTAL EMBRYOLOGY

It adds greatly to the pleasure to be gained from a scientific book when the authors have not only an intimate acquaintance with their subject-matter but also a thorough mastery of the technique of writing. Professor JULIAN HUXLEY and Dr. G. R. DE BEER have produced a book on *Experimental Embryology*² which starts, goes on, and finishes, and one of the most valuable chapters is No. XIV, "Summary," which is an admirably lucid essay on what it has all been about.

The problem of the manner in which the animal embryo develops from the fertilized egg is one which has given rise to many a dusty battle among the giants and lesser fry of biology ever since the invention of the microscope led to the discovery of the sex cells. On the one side were ranged the champions of pre-formation, who claimed that embryological development was due to the gradual manifestation of a complex structure already pre-existing in the egg (or even in the sperm), and on the other, the protagonists of epigenesis, who claimed that every embryo arose anew. The present authors have brought under review an immense amount of observational and experimental evidence, gathered from studies in embryology, cytology, physiology, and genetics, as well as from the younger science of experimental biology. Their verdict is best given in their own words:

Animal development is truly epigenetic, in that it involves a real creation of complex organization. It is also pre-determined, but only in the sense that an egg cannot give rise to an organism of a species different from its parent. The development of each individual is unique. It is the result of the interaction of a specific hereditary constitution with its environment. Alterations in either of these will produce alterations in the end-result.

With this verdict the reader must agree, for the book is a monument of reasoned thought and balanced judgement. Not the least impressive part of the evidence is that derived from experiments which involve surgical operations on eggs and embryos so fine that even single cells, or parts of cells, are excised or transplanted. The outstanding facts which modern experimental research has brought to light are the existence of "organizers" and of "gradient fields." Organizers, which are usually localized in a specific region in the early embryo, such as the dorsal lip of the blastopore in amphibian embryos or the primitive streak in avian embryos, have now been shown to be chemical substances, in the former case, at least, probably lipoidal in nature. Unless the organizer is present no embryo will develop, and, conversely, if the organizer is grafted into an abnormal position in the blastula, embryological development will be induced in an abnormal position. Gradient fields are regions in the egg

¹ *Surgical Anatomy and Physiology*. By Norman C. Lake, M.D., M.S., D.Sc., F.R.C.S., and C. Jennings Marshall, M.D., M.S., F.R.C.S. London: H. K. Lewis and Co., Ltd. 1934. (Pp. x + 888; 238 figures. 30s. net.)

² *The Elements of Experimental Embryology*. By Julian S. Huxley, M.A., and G. R. de Beer, M.A., D.Sc. London: Cambridge University Press. 1934. (Pp. 514; 221 figures. 25s. net.)

or the embryo in which there is a gradient of metabolic activity. One, two, or more gradient fields may be present, probably each based on a specific chemical cycle, and these may overlap. Not only does the discovery of organizers and gradient fields account for normal development, but it also shows why anything which dislocates or disrupts the organizer region, or which disturbs the normal gradient, must lead to the production of abnormal or monstrous forms. For instance, the internal asymmetry of the externally symmetrical vertebrate embryo has been shown to be due to a left-to-right gradient of growth rate, the left side growing more actively than the right. Controlled application of cold or other damaging agencies to the left side of the embryo leads to a reversal of the growth gradient and the production of embryos with reversed internal asymmetry.

The authors have ranged far. They have dealt with the significance of nucleus and cytoplasm, restoring to the latter its true value, of which an over-zealous pursuit of genetics has in recent years been inclined to rob it; of the influence of the parts of the embryo on the whole, and vice versa; of the special influence of the nervous system, and of the development of function by the differentiated parts. The problem of the influence of both internal and external environment on development is handled clearly; and to the age-old question whether the organism is the product of its heredity or of its environment the authors answer, very explicitly—of both.

BARBITURATE POISONING

During the past year a great deal has been written about barbiturate poisoning, and hence a recent monograph on this subject, entitled *Acute Barbiturism*,³ has a special topical interest. The authors (Professor CARRIÈRE, Dr. HURIEZ, and M. WILLOQUET) are attached to the Medical School of Lille, and their inquiries show that barbiturates have in recent years become a common method of suicide among French women. They give an excellent summary of the clinical features of the condition, and supplement this with an account of the morbid effects observed in experimental poisoning of animals. The most striking pathological change is an acute tubular nephritis, and this accords with the fact that oliguria and albuminuria are frequently observed in severe clinical cases of poisoning.

Most of the volume is concerned with treatment. In 1932 Haggard and Greenberg showed that dogs could survive two or three times the usual lethal dose of a barbiturate if given strychnine in quantities equivalent to three or four times the usual lethal dose. The results of their work were popularized in France and in Belgium by Professor Ide, who supported this treatment with enthusiasm. Several other very varied methods have also been recommended in recent years—for example, adrenaline, intravenous injections of hypertonic glucose, camphor injections. (An account of these results was published in the *British Medical Journal* of December 16th, 1933, p. 1131.) The authors of the monograph under review studied the barbiturate-strychnine antagonism in animals, and found it only moderately effective. They therefore tried other methods. First, they used injections of coramine (di-ethylamide of pyridine carbonic acid), and found this more successful and less dangerous than strychnine. They next tried the somewhat surprising method of intravenous injections of 30 per cent. alcohol in doses of 1 c.cm. per kilo repeated hourly. This treatment had a remarkable action in cutting short the coma produced by barbiturates. It was tried successfully with a case of poisoning in a human being: the patient received four doses (20 c.cm. each) of 30 per cent. alcohol intravenously.

³ *Le Barbiturisme Aigu et les Antidotismes Garderel*. (Strychnine, Coramine, Alcool) Par G. Carrière, Claude Huriez, et P. Willoquet. Lille. Imp. A. Durant. 1934 (Pp. 164)

The authors conclude that both coramine and intravenous alcohol are superior to strychnine in the treatment of barbiturate poisoning. It must be confessed that the results with alcohol are very surprising, since high concentrations of alcohol in the blood can produce a coma as deep as that produced by poisonous doses of a barbiturate. In view of the frequency of barbiturate poisoning in some countries it is a matter of practical importance to determine the most effective means of treatment. The work recorded in this monograph is very interesting and suggestive, but the experimental results are rather few in number, and it is to be hoped that more extensive inquiries will be made into the comparative value of remedies.

RADIOLOGY OF THE ACCESSORY SINUSES

In a large series of monographs on radiology from the publishing house of Thieme at Leipzig is included an admirable production on the Accessory Sinuses of the Nose and the Ear by Dr. RICHARD MITTERMAIER, from the clinic of Professor Kahler in Freiburg.¹ This is partly a monograph on the technique required to obtain constant and reliable views, and the positions of the head and target required are fully studied and described. The greater portion of the book is really an atlas of radiographs illustrating the anatomy and pathology of these regions as shown in x-ray films taken by the methods described. The reproductions are so good that but little detail has been lost, and the collection of films contains specimens illustrating almost every variety of simple inflammation, suppuration, and tumour formation which is to be found in these situations.

The work should be a good guide to those who have to undertake this special branch of radiology, and a study of it will be of great help to those on whom the responsibility for interpreting these radiographs ultimately rests. It will therefore be quite as valuable to those who practise otology and rhinology as to radiographers.

RECENT ADVANCES IN PATHOLOGY

When reviewing the first edition of *Recent Advances in Pathology*,² by Professor HADFIELD and Dr. L. P. GARROD, we recommended it for its simple, clear, and straightforward accounts of most of the recent work which had not then found its place in textbooks of pathology. The second edition, which is better than the first, but lacks its novelty, contains fifty-five more pages, and there has been some addition to, and rather more rearrangement and rewriting of, the sections.

The main alteration is a new section on the pituitary gland, which had been unaccountably omitted from the first edition. In the same section some account is given of the influence of the adrenal cortex on sodium metabolism and the importance of this in the treatment of Addison's disease. Anaemia is discussed under gastric pathology, and here the authors overstate their case when they say that in gastric cancer "the macrocytic ('pernicious') type of anaemia to be expected from this loss of secretory function is common, and is now known to respond promptly to liver treatment." The chapters on Bright's disease have been revised, and now include descriptions of focal and embolic nephritis. The chapter on vitamins and vitamin deficiencies has been presented afresh as a review of deficiency diseases from the standpoint of their pathology. This is well done, a short

¹ *Die Krankheiten der Nasennebenhöhlen und des Ohres im Röntgenbild*. Von Priv.-Dor. Dr. Med. Richard Mittermaier. Leipzig: G. Thieme. 1934. (Pp. 141; 213 figures. M.25; geb. M.27)

² *Recent Advances in Pathology*. By Geoffrey Hadfield, M.D., F.R.C.P., and Lawrence P. Garrod, M.A., M.D., M.R.C.P. Second edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 457; 69 figures. 15s.)

account of the vitamin being followed by a note on the changes brought about in the body by their insufficient intake. Monocytic leukaemia is dealt with in the chapter on the reticulo-endothelial system, and here the useful suggestion is made that supravital staining should be more generally applied in examining the blood in cases of leukaemia of uncertain type.

The authors have chosen wisely from the mass of available material, and put forward the facts and their interpretation with sufficient dogmatism and clarity to make their book useful to students and practitioners of medicine alike.

THE WORK OF MESMER

In these days, when the influence of the mind on the body is a phrase in every mouth, and when learning and assertion concerning mental processes command more attention than almost any other branch of medical science, few people perhaps pause to inquire what manner of men founded the movement whose ramifications have become so universal. In the age of faith psychological medicine of a kind was a commonplace, but with the growth of physical science the nature and influence of the mind were almost completely forgotten—so much so, that even nowadays a belief in healing by means of "mental" therapy is still viewed with suspicion. The name of one prominent early worker in this field has passed into more than one language in a cant phrase, but little is popularly known of him, even among psychotherapists, beyond that he was a pioneer of the study of animal magnetism.

In her life of Friedrich Anton Mesmer (1733-1815)* Miss GOLDSMITH traces the development of his researches into the new principle through his days at the Jesuit College at Dillingen in Bavaria, where he came in contact with the rationalistic work of Christian Wolff, which gave him scientific method, and with the work of Descartes, who convinced him that men's lives were influenced by movements of the heavenly bodies. He was passionately fond of music, and his marriage to a wealthy woman made him financially independent, though his married life gave him no emotional interest. If he had had no personal claim on posterity he would have deserved highly of it for the indispensable help he gave Mozart in his early days. Mesmer's association with Father Maximilian Hell, a pioneer in the therapeutic use of steel magnets, turned his mind in the direction of other means of using the mysterious "fluidum" in which he believed. He thought that his own body emanated the fluid and that he was able to cure by passes of his own hand. To the end of his life he seems to have rationalized his results in terms of physiology and astrology, without realizing that he was really practising psychotherapy. His astonishing history of miraculous cures led to unpopularity, and he had to leave Vienna for Paris, where he attracted a large following, and at one time attained the standing almost of a prophet. His methods were investigated by a commission of the Academy of Sciences, which, from an entirely materialistic point of view, condemned him. His popularity waned, and he became more and more the butt of satirists, and was finally taken off the Register. Nevertheless he continued, as a layman, to study sleep and somnambulism, and to investigate mental disorder. His disciples disappointed him by developing his ideas along lines with which he did not agree.

Miss Goldsmith's story is as much about the development of Mesmer's theories as about the man, but she shows clearly the connexion between his inspired gropings and the latest developments of psychotherapy. She writes clearly and interestingly, and the large print and handy format of her book should recommend it to many readers.

* *Mesmer: the History of an Idea.* By Margaret Goldsmith. London: Arthur Barker, Ltd. 1934. (Pp. 276. 10s. net.)

Notes on Books

The third edition of *A Text-Book of Medicine*,⁷ by American authors, revised and entirely reset, is the work of over 140 contributors, and is edited by Professor CECIL of Cornell University Medical College. It is a good straightforward textbook, clearly written, full of facts, not overburdened with pathological data, sound, and conservative in the matter of treatment. The book reflects current American practice at its best, and may be warmly recommended to both practitioners and students of medicine. It is well turned out, and has an excellent index.

*Cheap Diets*⁸ contains menus, with ingredients and amounts required, for a week's meals for (a) four men doing light to moderate work, or (b) a family with a man-value of 4 (Cathcart scale). Cost is not given, as that is dependent on too many conditions. The total value for each day's diet is stated, and the average for the week is: proteins 86.3 grams, carbohydrate 426.5 grams, fat 100.5 grams, calcium 1.2 grams, phosphorus 1.5 grams, and iron 0.013 gram; and calories 3,022. Milk allowed is sufficient to give at least one pint daily to each child under 14; vegetable allowance is high, and these two factors admit of an adequate vitamin as well as mineral supply. The notes on cooking in general, and the recipes for dishes, are practical and easily followed, and the diets are simple enough to be prepared by unskilled workers. The cost should be moderate and the food palatable, while alternative recipes suggest variations. Miss MACKIRDY and Miss ANDROSS have produced a most useful booklet, the small price of which permits of its being in the hands of housewives with very modest means.

SCHUNTERMANN's book on Inflammation of the Lungs⁹ gives the reader a very full account of pneumococcal pneumonia in all its aspects, more than a third of its pages being devoted to treatment. It is well written, with full discussions of the many disputed or doubtful points on which decisions must be made by those who are responsible for the treatment of patients with pneumonia; the author states that the vaccine treatment of the disease finds few supporters in Germany. The book may be strongly recommended to all practitioners of medicine who can read German.

The treatment of tuberculosis of the lungs and of other parts of the body by the hydrotherapeutic and climatic resources of France (including Corsica and Algiers) is described by BERNARD and EVEN in their small book on the Hydroclimatic Treatment of Tuberculosis.¹⁰ The technique of the various treatments recommended is described, as are the indications for their employment. The volume should be of service to medical practitioners who have to treat tuberculous patients in France. A second volume by M. PIÉRY¹¹ deals similarly with the treatment of the non-tuberculous diseases of the respiratory tract, and may be recommended in the same terms.

A further instalment of the *Collected Papers of the Walter and Eliza Hall Institute of Research in Pathology and Medicine*, Melbourne, of which Dr. C. H. Kellaway is the director, has now been published in a single volume, covering the years 1930 to 1933. These forty-one papers are reprints from various medical journals in Australia and Great Britain.

⁷ *A Text-Book of Medicine.* By American Authors. Edited by Russell L. Cecil, A.B., M.D., Sc.D. Third edition, revised and entirely reset. Philadelphia and London: W. B. Saunders Company. (Pp. 1,664; 30 figures. 42s. net.)

⁸ *Cheap Diets. Representing a Week's Meals.* Compiled by Mary Mackirdy and Mary Andross, B.Sc. Foreword by Professor E. P. Cathcart, M.D., D.Sc., F.R.S. Glasgow: Wm. Collins Sons and Co. Ltd. (6d. net.)

⁹ *Die Lungenerkrankungen.* Von Dr. Med. Carl-Erich Schuntermann. Immunität, Allergie und Infektionskrankheiten, Band iv, Heft 1-3. München: Verlag der Ärzteischen Rundschau Otto Gmelin. 1933. (Pp. 140; 38 figures. R.M.7.50; geb., R.M.9.)

¹⁰ *Thérapeutique Hydro-Climatologique de la Tuberculose.* Par Léon Bernard et Roger Even. Paris: Masson et Cie. 1934. (Pp. 146. 20 fr.)

¹¹ *Thérapeutique Hydro-Climatologique des Maladies non Tuberculeuses de l'Appareil Respiratoire.* Par M. Piéry. Paris: Masson et Cie. 1934. (Pp. 160; 20 figures. 20 fr.)

LONDON HOSPITAL STUDENTS' HOSTEL

OPENING BY THE QUEEN

The new London Hospital Students' Hostel was opened by Her Majesty the Queen on Tuesday last, July 3rd. The Queen, on arrival, was received by the chairman of the hospital, Sir William Goschen, and among those presented were Professor L. N. G. Filon (Vice-Chancellor of the University of London), Dr. Edwin Deller (Principal of the University), Lord Dawson of Penn, Sir E. Graham-Little, M.P., Professor W. Wright (dean of the London Hospital Medical College), Colonel W. M. Pryor (chairman of the College Board), Dr. Cecil Wall (senior physician), Mr. Hugh Lett (senior surgeon), and the Mayor of Stepney (Mr. R. J. Woodham). A guard of honour, made up of the medical section of the University O.T.C., was drawn up in front of the building.

The Queen was presented by the architect, Mr. Edward Maufe, with a ceremonial key, and with this Her Majesty opened the main door, afterwards inspecting the hostel and ascending to the roof garden. After the ceremony she walked through the hospital gardens, visited several of the wards, and before returning to Buckingham Palace took tea in the committee room with the chairman, the matron, and Lord and Lady Dawson.

The new building, which is close to the hospital, is a noteworthy addition to East End architecture, and brings a grace and modernity to the London Hospital site which no part of the older fabric can claim. Its architectural distinction is such that a drawing of it is hung "on the line" in the present exhibition of the Royal Academy. A feature of the frontage is the handsome colonnade, supporting a balcony to which access is obtained from the first floor. There are bay trees at each end of the balcony, and over the central window there is a touch of colour in the shape of the crest of the London Hospital worked in the stone.

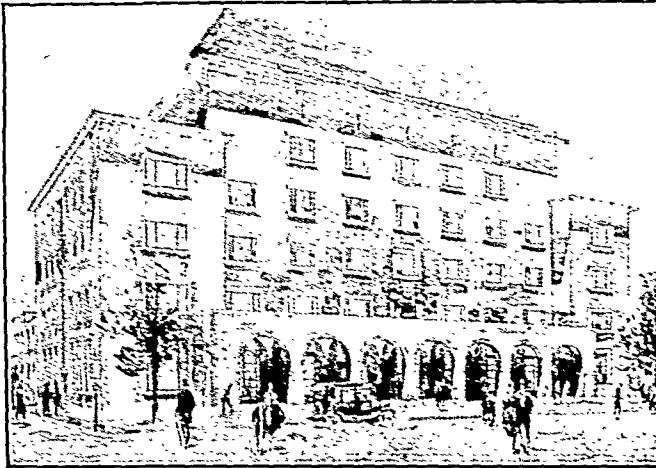
On the four upper floors residential accommodation is provided for fifty-two students, a bed-sitting room for each, very neatly furnished, with double sets for the warden, matron, and senior students. The ground floor contains the dining room, the common room (the furniture of which includes a grand piano), the library, and a small writing room. The dining room and common room, divided by the central hall, run the whole length of the main front. The library is to be named the Knutsford Library, as some acknowledgement of the provision from the Knutsford Remembrance Fund of a contribution of £3,000 towards the hostel. A large painted portrait of Lord Knutsford appears above the fireplace. A feature of both the library and the writing room is the wall illumination; both rooms look out on an internal court. In the basement is ample storage room for luggage. The two side wings of the building are finished with roof gardens, and on the main roof are two standard squash

racket courts with a gallery between them. The external walling of the building is in brown-red brick with wide joints; the cornices and window surrounds are of reconstructed stone, and the glass of the windows is set out in front of the walling. The hostel, which is on an open site, looks out on to Philpot Street in the rear of the hospital, and is only a minute's walk away from the Medical College.

The first active steps towards the erection of a students' hostel for the "London" were taken nearly four years ago. The need for such a building was so urgent that it was felt that a determined effort should be made to collect the money required, in spite of the fact that the economic depression was already casting its shadows before. Ultimately £15,000 was collected and the building was started, but

a further sum of £17,000 is necessary in order to free the hostel of debt. The Hostel Committee, with Mr. Hugh Lett as its chairman, has issued an appeal for the reduction of this debt, for if the debt remains, involving heavy interest charges, it will seriously deplete the resources of the hostel and necessitate a higher charge for residence than had been contemplated. It is hoped to make the charge for the rooms such as is within the means of the students generally,

and even to give special concessions in deserving cases.



LONDON HOSPITAL MEDICAL COLLEGE STUDENTS' HOSTEL

The July number of the *Practitioner* is largely devoted to neurological subjects. It opens with a paper on some common "functional" disorders by Dr. Edwin Bramwell, who is followed by Professor Arthur Hall on the prognosis and treatment of chronic epidemic encephalitis, and by Dr. James Collier on epilepsy and its treatment. Dr. Macdonald Critchley discusses the mechanism and treatment of migraine, Dr. Anthony Feiling writes on hemiplegia, and Dr. O. H. Gotch on paraplegia. Dr. Robert Lees contributes an article on the treatment of syphilis of the nervous system, based on the papers and work of his uncle, the late Dr. David Lees of Edinburgh. Mr. L. R. Broster writes on concussion and its treatment, and Dr. J. St. C. Elkington on the significance of wasting of the upper extremity in nervous diseases.

Dr. J. R. Yung, corresponding secretary and president-elect of the American Association for the Study of Goiter, writes to inform us of the award of the Van Meter prize of 300 dollars for the best essay written on the subject of goitre, especially its basic cause. Essays were received from England, Germany, Switzerland, Italy, Canada, Austria, Hungary, and the United States. The prize has been awarded to M. A. B. Brazier, Ph.D., B.Sc., the Maudsley Hospital, London, for "The Impedance Angle Test for Thyrotoxicosis." First honourable mention is awarded to Professor Ugo Cerletti of the University of Genoa, Italy, for his essay, "Three Years of Experimental Research in the Aetiology of Endemic Goitre"; and second honourable mention to D. Roy McCullagh, M.D., of the Cleveland Clinic Foundation, for "Studies in Blood Iodine using a New Chemical Method."

ONE HUNDRED AND SECOND ANNUAL MEETING
of the
British Medical Association
BOURNEMOUTH, 1934



THE one hundred and second Annual Meeting of the British Medical Association will be held in Bournemouth this month, under the presidency of Dr. S. Watson Smith, who delivers his address to the Association on the evening of Tuesday, July 24th, in the Pavilion concert hall. The sectional Meetings for scientific and clinical work will be held on Wednesday, Thursday, and Friday, July 25th, 26th, and 27th, the morning sessions being given up to discussions and the reading of papers, and the afternoon to demonstrations. The Annual Representative Meeting for the transaction of medico-political business will begin on the previous Friday, July 20th. The full list of presidents, vice-presidents, and honorary secretaries of the sixteen Scientific Sections, together with the provisional time-table and programme, was published in the *Supplement* of June 16th. Other details of the arrangements for the Annual Meeting will appear in subsequent issues. We publish below the fourth of a series of descriptive and historical articles written for the occasion. The first, on Bournemouth and its attractions, appeared on January 6th (p. 22); the second, on the hospitals, etc., on March 3rd (p. 391); and the third, on some geological and archaeological features, on May 5th (p. 814).

THE NEIGHBOURHOOD OF BOURNEMOUTH

Than Bournemouth there can be few places in the British Isles more perfectly set and naturally beautiful. Both within the boundaries of the town and on the outskirts are numerous beauty spots and viewpoints which command landscapes that, of a sudden, break upon the eye in their surprising magnificence, embracing as they do vast stretches of coast line, cliffs and coves, woods and heath, and hills. From Hengistbury Head (now scheduled as an ancient monument) can be viewed at one sweep the Isle of Wight, the Solent, Highcliffe, Christchurch, and the whole of the Bournemouth Bay as far as the Old Harry Rock near Swanage; from the East Cliff and Canford Cliffs can be seen at one stretch the bay from the Needles to Old Harry; and, most splendid of all, the panoramic view from Constitution Hill, Parkstone, of Sandbanks, Brownsea Island, the lakeland of Dorset, the Purbeck Hills, and many miles into the county of Dorset—the view the splendour of which so startled King Edward VII when he drove out on to the summit of the hill there.

Bournemouth forms a good base from which to visit the adjacent parts of Hampshire and Dorset. This city by the sea has been described as the gateway to a realm of historic interest and scenic beauty. From the Square roads run fanwise into the two counties, and give ready access to every hamlet and point of interest. Each place visited has a history and an attraction of its own. Even the trip to Sandbanks by way of Branksome Avenue and Chine and through the pine woods of Canford Cliffs has its delightful surprise as the top of the hill is reached in the view of Brownsea Island, Poole Harbour, and Sandbanks itself, which forms the eastern promontory enclosing the harbour.

At Sandbanks a chain ferry takes passengers and vehicles across the narrow channel to Shell Bay and Studland along the shorter road to Swanage. The longer route passes through the ancient seaport town of Poole, an old Roman station on the Via Iceniana, where Alfred the Great is said to have built his ships, and curves on through Lytchett Minster, where the inn displays a sign showing St. Peter holding up a bleeding hand—a corruption of St. Peter ad Vincula, one of the days under the old feudal land tenure when predial service was done for the lord of the manor. The approach road to the Roman town of Wareham bridges the Frome, and brings into view the ancient earthworks outside the present borough

boundaries. Below Wareham the river, which runs down into the Dorset lakeland, is still navigable by yachts and small vessels. In the Church of St. Mary here King Edward the Martyr, who was stabbed and killed at Corfe Castle, was buried; three years after, his casket was disinterred and his body removed to find its last resting-place in Shaftesbury Abbey.

From Wareham the road to Swanage passes over bleak and at times forbidding moorland, passing close by Corfe Castle, now a magnificent ruin, and on through the old-world village of Corfe. The Purbeck Hills now come into view on the right. From the Swanage cliffs are seen on the east the Old Harry Rock, and on the west Durlston Head, St. Aldhelm's Head, and the majestic white cliffs of the Dorset coast. At Worth Matravers Benjamin Jesty of Downshay, who anticipated Jenner's experiment by two years, is buried; Jesty inoculated his wife and two sons with cow-pox. The inscription on his gravestone is as follows:

"He was born at Yetminster in this county and was an upright honest man: particularly noted for having been the first person (known) that introduced the cow-pox by inoculation and who from his great strength of mind made the experiment from the cow on his wife and two sons in the year 1774."

Further west are Kimmeridge Bay; Warbarrow Bay, where from the promontory on its east side are to be had glorious views of the Dorset coast, the Purbeck Hills, and on the south-west Portland Bill; and Lulworth Cove.

THE HARDY COUNTRY

Returning to Wareham and thence to Wool, we find the manor house of the D'Urbervilles, the scene of the memorable wedding night of Tess and Angel Clare of Hardy's *Tess of the D'Urbervilles*. Close by is Binden Abbey, and in the grounds is the stone coffin where Tess rested. If on another occasion Dorchester be the objective, a winding country road between hedges and past typical Dorset farmsteads carries one to Bere Regis, a village of thatched houses and a one-time royal seat, situated on a hillside commanding extensive views towards the Purbeck Hills and the coast. Bere is the "Kingsbere" of Hardy's novels, and the canopied tomb of the D'Urberville family is to be seen in the church. Woodbury Fair, held each year in September, is mentioned in

Far from the Madding Crowd; this fair draws visitors from far and near. King John probably made many visits to Bere when he came to hunt in the royal forest of Purbeck. Out of Bere the road forks to the right in the direction of Milton Abbas, the centre of some of the most charming country in England. Milton Abbey, which was built by King Athelstan and was recently purchased by the Ecclesiastical Commissioners, has only to be seen to be admired.

Returning to the main Dorchester Road Puddletown is reached, where there is a glorious relic of ancient Dorset—Athenhampton Hall, one of the many lovely old Dorset manor houses. The church is one of the few in the county which have escaped the restorer. The old oak pews still remain; the ceiling panelling is of Spanish chestnut; and there is a very fine singing gallery, a Norman font, and an old wood pulpit with a clerk's stall beneath. Dorchester itself, the county town of Dorset, was of considerable importance in Roman times. It has four main thoroughfares, and takes a cruciform shape. It is noted for its beautiful avenues and walks. Here are the most noted earthworks in England: the Roman amphitheatre near by Poundbury Encampment, Maumbury Rings, and Maiden Castle. In 1685 Judge Jeffreys, at the Bloody Assizes, sentenced 300 adherents of Monmouth to various punishments; most of them were hanged. Outside St. Peter's Church is a bronze statue of Barnes the poet. Dorchester is the "Casterbridge" of Hardy, who lived at Max Gate, a mile outside the town. Wynford Eagle, a few miles beyond Dorchester, was the birthplace of Thomas Sydenham (1624-89), the "Father of British Medicine"; and in 1598, at Rampisham, was born Francis Glisson, an original Fellow of the Royal Society, and the author of *De Hepate*.

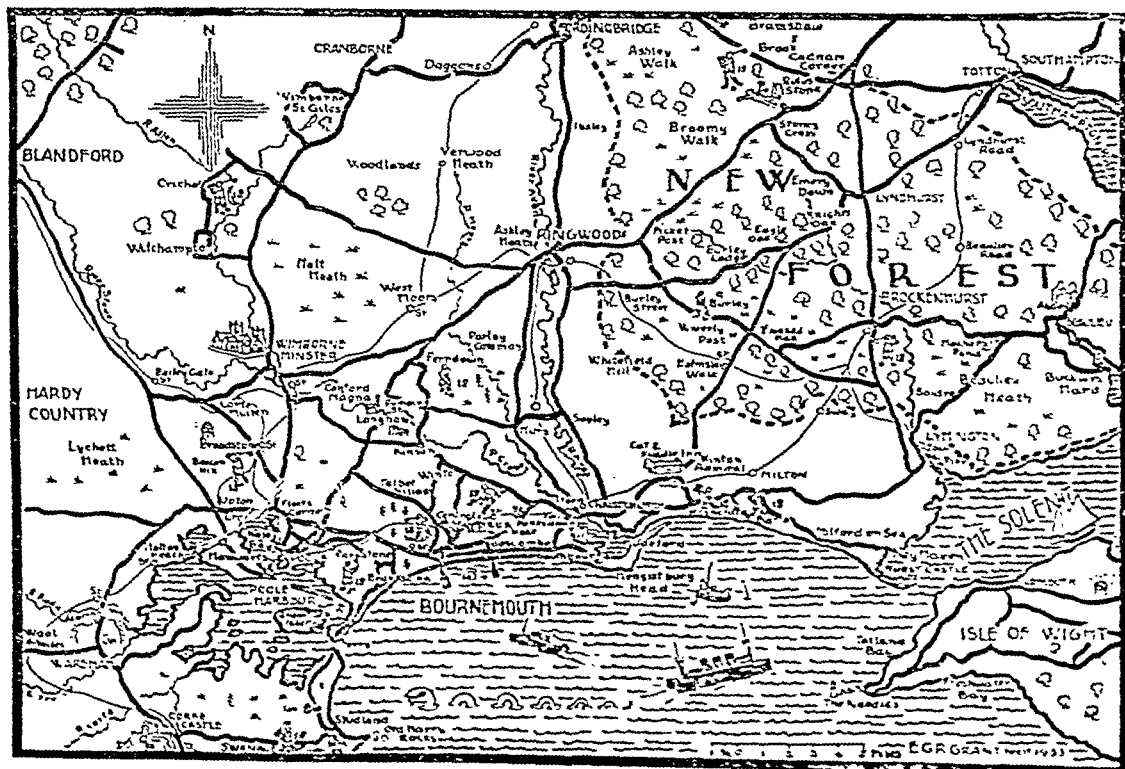
Another very delightful drive from Bournemouth is by way of the old market town of Wimborne. The Minster here is very ancient, and has a chained library of books, at the moment being renovated, of 243 volumes. In the Minster Tower is a quaint astronomical clock constructed during the fourteenth century by a monk of Glastonbury. A nun was first founder of the Minster, Edward the Confessor being second founder. On the grounds that the

Minster was once a "Royal Peculiar," the choirboys wear scarlet cassocks.

On the Blandford Road out of Wimborne, along the avenue of magnificent beech trees, is Badbury Rings, the camp which is situated on high ground (327 feet) and commands views to the sea and for many miles in all other directions. A fine example of an ancient British stronghold, the encampment is formed of a triple vallum and fosse, the area enclosing some eighteen acres. Probably the camp was occupied in turn by Romans and Saxons. At Witchampton some interesting Roman remains have recently been unearthed. Taking the road towards Cranborne, Woodlands is reached, where, after his defeat at Sedgemoor, the Duke of Monmouth was captured. The Duke's pursuers found him hidden by ferns and bracken under an ash tree, still pointed out as "Monmouth's ash." Cranborne is an ancient market town where in 980 a Benedictine priory was established by Aylward de Meux. Some years ago certain paintings, centuries old, were uncovered on the south wall of the church, where also a Norman doorway was found and restored; the old communion plate is of very beautifully wrought and beaten silver. The Manor House at Cranborne dates from the twelfth century. Cranborne Chase was described by Hardy as "a truly venerable tract of forest land, of undoubted primeval date," and is famous in history as a royal hunting forest.

If the road is taken eastwards out of Bournemouth the Stour is crossed and Christchurch reached. The magnificent Priory Church here is one of the finest in the country, and has examples of successive schools of architecture from the Norman to the Renaissance. Near to the church are the ruins of the Castle and a Norman house. The town lies at the junction of two salmon rivers, the Avon and Stour, which here unite to form the harbour, where there is a double tide. The view from St. Catherine's Hill (160 feet) behind the town embraces the Avon Valley, from Christchurch Harbour to the spire of Salisbury Cathedral.

Crossing the Avon by the two ancient bridges, the road to Ringwood passes by Mudeford, an old seaside resort which has seen better days: where at "Gundimere"



Drawn and Published by Dr. E. G. R. Grant.

lived Rose, who translated Ariosto, and where he entertained Sir Walter Scott, who wrote a part of *Marmion* there. Rose also entertained Coleridge at "Gundimore." The road to Ringwood passes Sopley and the sleepy village of Avon, where is pointed out the smithy at which Tyrrel, fleeing after the death of Rufus in the New Forest, had his horse's shoes reversed, then forded the Avon in his flight. Passing on through woods and villages of thatched houses, Ringwood, named "Rincevede" in Domesday Book, is reached. The town lies in a beautiful valley. Monmouth, taken prisoner, lay a night here; and it was here that he wrote his letter to the Queen appealing to her to intercede for his life with the King.

From Ringwood to Fordingbridge the roadway runs through lovely scenery along the valley by gentle Avon and between well-trimmed hedges and past thatched cottages, with nearing hills on each side, giving a vivid and lasting impression of the real beauty of rural England. Here at Fordingbridge Dr. Nathaniel Highmore, who discovered the maxillary antrum, was born (1613). At Braemore, three miles north along the Salisbury Road, is a pre-Conquest church of date A.D. 950-1000, one of the largest and most complete in England. Off the road to Fordingbridge is Ellingham, where there is an early English church, and in the churchyard, near the south wall, is the tomb of the venerable Dame Alicia Lisle, who, at the age of 70, was arraigned for high treason at Winchester before Judge Jeffreys. She was the first and noblest victim of the Bloody Assize (1685), and was condemned by him to "be burned alive until you be dead" that same afternoon. This savage sentence was commuted by the King to one of beheading. Dame Alicia's only "crime" was that at her house, Moyle's Court, she unwittingly gave shelter to two fugitives from Sedgemoor. Close to Moyle's Court is the finest oak in the district; it measures 20½ feet at four inches from the ground.

THE NEW FOREST COUNTRY

If the return journey is made via Gorley, the road runs along the edge of the New Forest in most charming scenery, by fords over two streams, and takes one to Burley, a village lying in a hollow in a clump of trees in the heart of the forest, where some care must be taken to avoid collision with pigs in pannage-time! Thence the road crosses the moor to join the main Southampton Road, which can be followed to Lyndhurst, the capital of the New Forest. Drivers on the roads here need caution because of straying forest ponies: In the Church of St. Michael at Lyndhurst there is the large fresco of the "Ten Virgins" painted by the late Lord Leighton. The King's House (1634), from which the forest is administered, was formerly the residence of the Lord Warden. In the Verderers' Hall (1388), close by, the Forest Court is held every forty days, and the stirrup said to have been used by Rufus the day he was killed hangs over the fireplace. The forest itself covers about 90,000 acres, and measures in length about twenty miles. The greater part is public land. It comprises woods, marshlands, moors, and glades. There is a variety of trees, chiefly oak, with yew, fir, ash, silver birch, wild rose, cherry, elder, hazel, and also gorse, heather, and bracken. Wild flowers and ferns abound. The old gnarled oaks, and the peaceful sequestered glades where the grass grows green, have a beauty all their own. Forest ponies roam at will, but seldom far from their usual haunts. Otters are numerous, and there are a few fallow deer in the forest, and fewer red deer. The timber being no longer needed for men-of-war, the forest has been left in its natural state. Rufus Stone, near Stoney Cross, is well worth visiting; tradition has it that here William Rufus the inelegant, of the red hair and complexion, was accidentally slain by a deflected arrow aimed at a stag by his hunting companion, Walter Tyrrel. At Minstead Church, which is easily visited by way of Lyndhurst Road, is a characteristic old forest church with a three-tier pulpit, two west galleries, and two squire's pews, one having a fireplace. The north doorway is thirteenth century, and inside the church is some fine panelling erected to the memory of Matthews Duncan.

From Lyndhurst to Beaulieu is a run through the forest proper to the beautifully situated village at the head of the winding estuary of the Beaulieu River. About 1204 King John founded a Cistercian abbey here, which in 1327 was endowed by Innocent III with special rights of sanctuary. In 1471, after Barnet, Margaret of Anjou took refuge in the Abbey, and in 1497 Perkin Warbeck took sanctuary there. The Abbey was dissolved about 1538-40. The foundations of the first church are outlined on the turf, the ground plan showing the longest Cistercian church in England (336 feet). The refectory is still used as the Parish Church. Buckler's Hard, on the west bank of the Beaulieu River, is a peaceful village of one broad street, lined on each side by old red-brick cottages. Down this roadway to the waterside were drawn the oak trees for shipbuilding; and here were built and launched forty-four men-of-war, three of which were used at the battle of Trafalgar.

The road back to Bournemouth takes one through Lymington of ancient lineage, which in the fourteenth century contributed as many ships for the invasion of France as did Portsmouth. At Buckland Rings, north of the town, is an ancient British camp. East of Milford-on-Sea can be seen Hurst Castle, one of the line of block-houses built in 1535 by Henry VIII for the defence of the south coast against the French. Here Charles I was brought prisoner from the Isle of Wight, and held until his abrupt removal to Windsor on December 19th, 1648. It is interesting that, after his execution on January 30th, 1649, all editions of the Book of Common Prayer contained a special service for January 30th, the day of execution, as an "anniversary day of fasting and humiliation to implore the Mercy of God."

Returning homewards we pass Chewton Glen, the haunt in spring of the nightingale, the village of Highcliffe, and Christchurch. To those who wish to leave the highways there are many circuitous byways and paths in both counties which lead to sequestered places, "the world forgetting, by the world forgot"; to ancient churches, each with its venerable yew tree in the churchyard, so placed because poisonous to cattle, and in olden days pollarded for bows; to exquisite old manor houses, each with its mulberry tree; and to nearby clusters of ancient homesteads, many with mud walls and thatched roofs, and with little old-world gardens, where, in the words of Galsworthy: "Every blade of grass and flower has a kind of pride about it; knows it will be cared for; and all the roads, trees, and cottages seem to be certain that they will live for ever."

S. W. S.

The following medical promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem are announced in the *London Gazette* of June 26th: As Knights of Justice—Lord Moynihan, K.C.M.G., F.R.C.S., and A. M. Ware, M.D.; as Knights of Grace—the Hon. James H. King, M.D., late Minister of Pensions and Public Health for Canada, the Hon. Herbert A. Bruce, M.D., F.R.C.S., Lieut.-Governor of Ontario, the Hon. Hugh E. Munroe, O.B.E., M.D., Lieut.-Governor of Saskatchewan, and Sir Frederick Menzies, K.B.E., M.D.; as Commanders—A. T. Lakin, M.B., Captain R. J. Isaac, L.R.C.P. and S., Colonel J. T. Clarke, C.B.E., M.C., M.D., R. E. Wodehouse, O.B.E., M.D., Lord Horder, K.C.V.O., M.D., and William Hutton, L.R.C.P. and S.; as Officers—F. B. G. Holmes, M.B., H. E. Gibbs, M.D., F.R.C.S., C. H. Tewsley, M.D., F.R.C.S., Major-General R. B. Ainsworth, O.B.E., D.S.O., K.H.P., Colonel R. C. Wilmot, R.A.M.C., W. D. Kirkwood, M.D., Colonel H. V. Prynne, C.B.E., D.S.O., F.R.C.S., George Thornton, M.D., C. H. Francis-Williams, M.R.C.S., P. R. Bolus, M.B., G. B. Peat, M.D., Major William Nunan, M.D., R. L. E. Downer, M.D., Arthur Heys, M.B., F.O.B. Ellison, M.D., W. N. West-Watson, M.D., and Mrs. Phyllis P. Pigott, M.B.; as Associate Officer—D. H. Mehta, C.I.E.; as Serving Brothers—H. J. Slane, M.D., G. Ll. Pierce, L.R.C.P. and S., S. B. Turner, M.R.C.S., and E. P. Dickinson, M.D.,

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SCOTTISH HEALTH SERVICES

For a number of years the British Medical Association has been sedulously and continuously engaged in formulating a policy which would provide a complete and unified national health service. A hospital service, a Poor Law service, a public health preventive service, a national health insurance service, have been established in this country in that order over a period of centuries, but almost wholly independent of one another in purpose, finance, and administration. Together they have covered a large part of the field and made the major part of the necessary provision. There are, however, a number of gaps still left in this provision; there is in some directions a great deal of overlapping; there are multiple agencies covering much the same ground, involving much waste of time, effort, and money; and there is a certain detachment or isolation of the various services which is seriously detrimental to the efficiency of them all. The aim of the Association has been to improve the effectiveness of each of these services within its own sphere, to widen some of them so that there shall be no class of the population and no kind of medical help left unprovided for, to minimize the waste of overlapping, to break down the barriers between those working in the several services, and, finally, to co-ordinate and then to unify the machinery and administration of these separate services so that they shall become one organized whole, based upon a well-established foundation, doing no undue violence to well-tried methods, and combining to make complete provision for public health in its curative, preventive, and constructive aspects alike.

This policy has been, in its earlier stages, largely successful. The development of hospital provision, usage, and management, with regard both to in-patients and to out-patients, is being gradually—in many areas too gradually—directed along the lines suggested by the Association. The public health services, including the school medical service, have been enhanced in their status and improved in their conditions by the combined efforts of the Association and of the Society of Medical Officers of Health. The national health insurance service has, during the twenty-one years of its working, been transformed by the cordial co-operation of the Insurance Acts Committee of the Association, the Government Departments concerned, and the more enlightened approved societies, from an over-complicated and almost chaotic scheme into one which works relatively smoothly and effectively. The public assistance health provision, both institutional and domiciliary, is now beginning to be improved and reorganized on lines which the Association was the first to advocate; and it is now widely realized that the field of work of the general medical practitioner must be brought into much

closer relation to that of the public health services on the one hand and to the hospital services on the other.

The complete co-operation between all these services has still to be achieved and their unification accomplished. A method of bringing this about and of completing the national health provision was set out five years ago, after much thought, in the British Medical Association's pamphlet, "Proposals for a General Medical Service for the Nation." This was published ostensibly as a contribution to discussion, and comment and criticism were freely invited. The reception of the proposals has been generally very favourable, and a quite recent review of the proposals in the light of the comments which they have provoked, and of legislation which has bearing upon them, has, in the opinion of the Council of the Association, shown that the principles on which they are based still hold good, and that the methods suggested require only slight modification and some amplification. Financial stringency is still too severe to allow of these proposals being immediately carried into effect, and there are a number of difficult questions arising from them which require serious consideration. The next practical step appears to be the calling of a conference of all those bodies which are most concerned with the matter, and the setting up by such a conference of machinery to deal with different aspects of the subject. A strong desire to this effect has been expressed in more than one quarter, and it is hoped that the Ministry of Health may be able to initiate a conference for this purpose at no distant date.

Meanwhile in Scotland movements have been a little more rapid. There the Department of Health has set up a Committee on Scottish Health Services, and has invited the British Medical Association to give evidence before it at the outset of its proceedings. The memorandum of this evidence has been prepared by the Scottish Committee of the Association and approved by the Council. It will be found in this week's *Supplement*. The Scottish Committee deserves congratulations on the result of its labours, and the memorandum may be commended as a very valuable review of the situation as it appears to the medical profession in Scotland. This review and the proposals arising out of it are, of course, entirely consistent with the Association's policy as outlined above, and as described in the various pamphlets issued by the Association on the instruction of the Council or Representative Body. The memorandum sets out the general considerations which have determined the attitude and action of the Association, describes the present position and needs in relation to the several health services, and makes detailed suggestions for meeting the requirements. There is an appendix concerning the Highlands and Islands Medical Service, which is described as "a unique and almost complete medical service for its specified area."

The contents of the Scottish memorandum cannot be summarized, but attention may be drawn to three particular features. It is insisted very effectively that the status of the family doctor and the

standard of his work are of the very first importance, and that in this regard adequate pay without the need for incessant overwork in unfavourable conditions in order to attain it is a prime necessity. Leisure for thought, reading, and renewed hospital experience is imperative. Further, it is pointed out that the relative smallness of the local government areas in Scotland, as compared with England, makes it desirable that, for health purposes, areas of a wider kind should be arranged. Five such regions are proposed. It is possible that one, or perhaps two, of those suggested may be found unduly large, but the proposal will no doubt receive careful consideration. Lastly, the relation of the health services to medical education is touched upon. This is by no means irrelevant; on the contrary, the need for improved education, undergraduate and post-graduate, for the personnel of the service, and the enhanced opportunities that may be afforded by the service for such education, are alike important. It might have been advantageous if the memorandum had referred more specifically than it does to the corresponding relations with medical research. No national health service which does not afford an appropriate place to research can be regarded as complete. The Scottish Committee is giving oral evidence on the basis of the memorandum, and this will allow of such matters receiving further mention.

CHANGES AT CAMBRIDGE

The next academical year at Cambridge will see some important and interesting changes both in the medical curriculum and in the personnel. The generous bequest of the late Mr. Marmaduke Sheild is now at the disposal of the Faculty Board of Medicine, and the first use made of this has been to re-establish a Readership in Pharmacology, which lapsed after the death of Dr. W. E. Dixon in 1931. As the Downing Professorship of Medicine, which had generally been associated with pharmacology, had already lapsed, a subject which had been so successfully fostered by Dr. Dixon was in sore straits, and Dr. Eric Holmes carried on the work almost single-handed under considerable difficulties. Even after he was appointed to a University Lectureship in Biochemistry Dr. Holmes continued to keep the department in being, aided by Dr. G. N. Myers. Now that excellent laboratories have been provided within the new extension of the Physiological Department and Professor E. B. Verney is returning from University College, London, to his old university to take up the Sheild Readership in Pharmacology, we may confidently anticipate a continuance of the high traditions of teaching and research that Dr. Dixon established. Professor H. A. Harris comes to the Chair of Anatomy also from University College. To further the radiological method in the teaching of anatomy, which he had developed so successfully there, the Faculty Board has provided from the Sheild bequest the sum of £2,000 for equipment and a substantial annual grant for maintenance. This is very appropriate, since Mr. Sheild's

special interest in anatomy was shown by his making a studentship in anatomy the first charge on his bequest. It is hoped with the remainder of the available income to do something for medical parasitology.

This splendid gift to medical education is most opportune, for the new curriculum at Cambridge comes into force in October, 1934. After much discussion, a solution has been reached which commanded general approval in the Regent House. The main point is the disappearance of the second M.B. examination. All students intending to proceed to the degree of M.B. must take a tripos, and if that be the Natural Sciences Tripos, and the required standard is reached in anatomy and physiology, there is no further examination in these subjects. Thus an annoying duplication of examinations is abolished. For those who have not taken these subjects or have failed to reach the standard, a qualifying examination will be held in October and in December. As for the other subjects in the old second M.B., organic chemistry is transferred to the first M.B., while pharmacology is dealt with simply by an oral examination, though optional questions in this subject will also appear in the physiology of the tripos. Now that pathology becomes a subject, though not a compulsory one, in the first part of the tripos, and remains a subject in the Final M.B., a special examination in it is held to be no longer necessary. The tripos itself has been modified to include "half-subjects," more limited in scope, but of the same standard as the others. Chemistry, zoology, pathology, and biochemistry are thus designated, though the first two can be taken as half or whole subjects. A candidate must offer three subjects, or else two subjects and two half-subjects. Assuming that all medical students will take anatomy and physiology, an interesting range of half-subjects is available. The syllabus for half-subjects in chemistry and zoology includes those aspects more particularly suitable for students of medicine. Although the tripos can be taken at the end of the second year, the courses are so arranged as to encourage the student to spend three years over it, unless his advisers consider him competent to enter for the second part of the tripos at the end of three or possibly four years.

It will be noted that the principles underlying these alterations are threefold: the avoidance of duplication of examinations, the insistence on an honours standard, and a still further departure from any attempt at making Cambridge a complete school of medicine—as no doubt Sir George Humphry and subsequently Sir G. Sims Woodhead would have preferred. A student can more profitably devote his three years at Cambridge to a thorough training in the pre-clinical sciences. At the same time arrangements are being made for the clinical teachers at Addenbrooke's Hospital to provide illustrations of anatomical and physiological principles from patients, thus bridging the gap between the normal and the abnormal, of which the student is often so conscious on migrating from the laboratories to the wards. Finally, a word should be added concerning the changes in the regulations for the Cambridge M.D.

An erroneous impression seems prevalent on this point. There is no intention to make it harder to become a doctor of medicine. Rather is it intended to meet the difficulties of those in general practice, to whom the compilation of a strictly academic thesis is often a real hardship. A thesis is still required, but the M.D. committee has the power to give a candidate the opportunity of supplementing this by showing good knowledge of the branch of medicine to which his thesis belongs, at an oral and clinical examination. For such candidates the thesis will be regarded merely as establishing a claim thus to be examined. It is hoped in this way that experienced practitioners, who have become out of touch with academic studies, may attain the dignity of the M.D.

WEIL'S DISEASE IN ENGLAND

Weil's disease, or leptospiral jaundice, is regarded as a rarity in human beings in England, though it has been met with in dogs, particularly foxhounds, among which outbreaks have arisen from time to time. Only one human case has been previously recognized in this country—namely, the one described by Dr. Manson-Bahr in 1922—so that it is something of a coincidence that two cases are recorded in our present issue, and that these two should have occurred within a short time of one another, and in places so far apart as Eastbourne and London. The coincidence is perhaps more remarkable in that the London case was admitted to the Tropical Diseases Hospital actually when Professor Schüffner, who has had such an extensive experience of the disease in Holland and had come to London to lecture on the subject, was visiting that institution. The frequency of the disease in Holland, where during the past ten years 452 cases, with a mortality of 10.2 per cent., have been identified, was attributed to the presence of the canals, which are often in a polluted condition and visited by rats. Like Dr. Manson-Bahr's case, in which the disease was contracted as a result of falling into the Thames, the majority of cases in Holland are due to immersion in the canals from accident or for the purpose of bathing.

The apparent immunity of England will be seriously challenged by the revelations contained in Dr. Hamilton Fairley's paper (p. 10), from which it seems clear that not only did the case described by him contract the infection in a London sewer, but that during the past few years there has been a regular series of infections of sewer workers. These cases have occurred chiefly, if not entirely, among those whose duty it is to repair the brickwork, and who consequently are liable to injury of the hands. We understand, however, that cases have also been observed among the flushers. It has long been known that rats are carriers of the causative leptospira of Weil's disease, and in 1922 the late A. C. Stevenson announced that he had found 30 per cent. of a series of London rats infected. Furthermore, it has been shown by Okell that guinea-pigs seem to be more easily infected with leptospira from the kidneys

of rats if a drop of the kidney material is rubbed into a scarification of the skin than if it is inoculated subcutaneously or even intraperitoneally. As the sewers are swarming with rats, the footprints of which can readily be seen on the slimy material covering the bricks above water level, it is easy to understand how this slime, constantly contaminated with the urine of infected rats, can cause Weil's disease if it gains access to scarifications on the hands of those who are working there, particularly of those whose duty it is to break up the old brickwork with hammer and chisel. Investigations in Holland have actually shown that guinea-pigs may contract the infection if they are made to paddle with scarified feet in polluted canal water. Though the sequence of events seems clear in the case of infections in the sewers, it is more difficult to account for the isolated case described from Eastbourne by Drs. Willoughby and Shera (p. 14). No contact with rats or material known to be contaminated by rats could be traced, so that the source of the infecting leptospira has not been determined. It is recognized that water everywhere, including ordinary tap water, harbours leptospira, but though these are unfortunately indistinguishable from the pathogenic forms from rats and from cases of Weil's disease, and may be cultivated under the same conditions, they do not, except on occasions that are so rare that doubt always surrounds the result, give rise to haemorrhagic jaundice when inoculated in guinea-pigs as do the pathogenic forms. It seems unlikely, therefore, that the Eastbourne case is an instance of the common water leptospira becoming pathogenic. It is more probable that infection arose in some undiscovered manner through rat-contaminated material or even possibly from some infected dog. Rats in Eastbourne, as in many other places in England, have been shown to be carriers of leptospira.

Attention having been called to the association of the disease with London sewers it will be of interest to discover whether the cases are to be regarded as representing a limited outbreak like that studied by Gulland and Buchanan a few years ago in coal pits in East Lothian, or whether they have been occurring unrecognized, as seems likely, over many years, perhaps ever since sewers came into existence. It will also be of interest to know whether the London sewers are peculiar in the production of this type of infectious jaundice or whether other large cities in the country have had a similar experience. There is evidently abundant scope for future investigation, particularly from the point of view of prevention, which might take the form of measures directed towards the avoidance of skin scarification and the cleansing and disinfection of the brick surfaces before breaking-up work commences. Whether any form of protective inoculation can be applied future investigations alone will show. In animals a temporary passive immunity can be produced by the inoculation of immune serum, while a more lasting protection can be effected by means of vaccine prepared from the pathogenic leptospira. Immune serum (which is available in this country) is used for the treatment of leptospiral jaundice in dogs, and undoubtedly should

be administered as early as possible in any human case. Nevertheless it must be admitted that its curative value in animals is little manifest unless given during the early days of incubation. Schüffner records an instance of an infection of a laboratory worker as the result of cutting the finger with a broken test tube containing a culture of leptospira. The temperature rose in seven days, and a search for leptospira in the blood was successful. Immune serum was immediately administered, with very satisfactory results. It is important, therefore, that the diagnosis should be established as quickly as possible, a procedure which presents many difficulties. Direct examination of the blood or plasma, before or after centrifuging, by dark-ground illumination, or even the preparation of stained thin or thick films, may occasionally reveal the organisms in the early stages of the disease. At later stages the leptospira may be found in the urine, while they are more certainly recovered by inoculation of guinea-pigs, in which, however, the infection may not be apparent for a week or more. Serological tests have to await the development of immune bodies, and can only be absolutely diagnostic if they show a rising titre on repetition. It would seem, therefore, that in most cases, to be effective, immune serum would have to be administered on clinical grounds alone, especially when, as in the case of sewer workers, there was good reason to suspect infection from rat-contaminated material.

DANGEROUS DRUG TRAFFIC IN EGYPT

T. W. Russell Pasha, the Director of the Central Narcotics Intelligence Bureau for Egypt, and Commandant of the Cairo City Police, in his report for 1933¹ reviews, with justifiable satisfaction, the progress achieved during the last quinquennium. He claims that, as measured by the number of addicts among convicts in the State prisons, "the narcotic menace" to the country has been largely removed. Reports from the villages confirm this conclusion, while the rising prices for heroin and other narcotics indicate the growing scarcity of drugs of addiction. Many gangs of drug traffickers have been tracked down and eliminated, and it is estimated that thereby some 5,000,000 Egyptian pounds have been saved from transfer from the pockets of Egyptians to the bank balances of these nefarious traders. As regards international traffic, while the export of morphine and heroin from Turkey has been checked, large quantities of illicit opium still leave that country, and Bulgaria has been shown to be a considerable producer of illicit heroin. Contraband hashish of Turkish origin fetches good prices in Egypt, while export from Syria has been checked by the energetic action of the French authorities. Traffickers who were caught received condign punishment by fines and imprisonment, but organized smuggling still flourishes in the Levant, and Greece, though not a producing country of any importance, is nevertheless the centre of contraband commerce of considerable dimensions. Russell Pasha shares the apprehension

felt by the Opium Advisory Committee of the League of Nations in regard to the situation in Manchuria. In this territory opium cultivation is extending, under a Government monopoly, the traffic in prepared opium for smoking is being exploited, Persian opium is being imported, and clandestine drug factories will, it is feared, before long be a serious menace not only to the Far East but to the world. Meanwhile Manchuria, detached from China, is outside the purview of the League of Nations, whose Advisory Committee and Opium Board are without information as to what is going on there and are impotent to control the production and distribution of narcotic drugs therein or to regulate their import and export under international conventions.

THE TRAINING OF CRIPPLES

Ever since cripples' hospitals were first established it has been recognized that it is not enough to correct deformities and to alleviate disabilities, but that the vocational training and maintenance of the cripple still remained to be provided for. After training, however, in a large number of cases, the cripple finds himself still handicapped in his efforts to compete with normal people, and to meet the needs of such cases and to provide a permanent home for workers was one of the aims of the founder of the Cripples' College at Alton. The need of such an important ancillary institution had long been felt in Shropshire by the late Sir Robert Jones and by Dame Agnes Hunt, the founder of the open-air cripples' hospital at Baschurch, afterwards removed to Oswestry. A beginning was made in 1927 when the committee of the hospital, on the urgent representations of Dame Agnes, agreed to purchase a country house and grounds near Oswestry and thus to found "The Derwen Cripples' Training College," which is associated with the Shropshire Orthopaedic Hospital and Agnes Hunt Surgical Home, the annual general meeting of which was held at Oswestry on June 21st, under the chairmanship of Sir Watkin Williams Wynn. At this meeting the honorary superintendent, Dame Agnes Hunt, presented the sixth annual report and balance sheet. Since the Derwen Cripples' Training College was started 273 crippled students have been dealt with, of whom 116 are still in training: sixty-one have found employment outside and are still employed. As showing the precarious state of health of even officially "cured" cripples, it may be noted that thirteen have died during training (from causes not stated), while eighteen others had to be transferred to hospitals for further treatment, presumably on account of relapses or recrudescence of disease; fifteen proved unsuitable for training, and yet another fifteen have not been heard of since discharge. The workshops are at present fitted up for boot making and repairing, the making of Thomas splints of all types, celluloid jackets, mattress making and repairing, upholstery and cabinet making and joinery, toy making, tailoring and painting, and sign making. All these activities cost money, and we are not surprised to find on examining the balance sheet that the college is in debt. To an optimist such as Dame Agnes this matters little, and we feel confident that this difficulty will be got over as others have been in the past history of the Shropshire Orthopaedic Hospital.

¹ Egyptian Government, Central Narcotics Intelligence Bureau. Annual Report for 1933. Government Press, Būliq, Cairo. 1934.

AGRANULOCYTOSIS

F. W. Madison and T. L. Squier,¹ who record fourteen cases in patients aged from 20 to 80, state that the increase in the incidence of agranulocytic angina has synchronized with an increase of drugs containing amidopyrine, and especially those containing amidopyrine with a barbiturate. The disease was found to be most frequent in doctors, nurses, and those directly under medical care. In each of the fourteen cases the onset of primary granulocytopenia was directly preceded by the use of amidopyrine alone or in combination with a barbiturate. All the six patients who continued the use of drugs containing amidopyrine died, while of the eight patients who did not continue their use only two died, and both of these in the initial attack. The administration of a single dose of amidopyrine to two patients who had recovered from the acute attack was followed by a rapid and profound fall of the granulocytes. A rabbit given large doses of allyl isopropyl barbituric acid with amidopyrine by mouth showed an abrupt drop in granulocytes and died on the thirtieth day. The authors conclude that amidopyrine alone or in combination with a barbiturate may produce a primary granulocytopenia in sensitive individuals, and that its appearance after the use of such drugs is the result of an allergic or anaphylactoid drug reaction. An investigation into agranulocytosis in children has been carried out by H. Willi,² who has collected thirty-one cases from the literature in patients aged from 3 months to 11 years, of whom twenty-six died and five recovered, and records four personal cases in children aged $1\frac{1}{2}$ to $5\frac{1}{2}$ years, of whom three died and one recovered. He states that agranulocytosis in children differs from that found in adults by the almost constant occurrence of a previous disease, anaemia, and the frequency of a haemorrhagic diathesis. In his own four cases there was a more or less complete disappearance of the granulocytes. One case proved fatal in eighteen hours, with symptoms of fulminating septicaemia. In the other three cases there was a granulocytopenia with a monocytic reaction. In two of them there was also a very severe thrombocytopenic purpura, and an enormous myeloid reaction followed the agranulocytosis. In this condition there is not only severe damage to the function of the bone marrow, but also paralysis of the rest of the systemic defences. It is attributable not so much to the toxicity of the noxious agent as to hypersensitiveness set up by previous sensitization of the system by a bacterial or chemical agent, such as salvarsan or nirvanol.

"MEN IN WHITE"

To a list of recent medical plays, which includes *The Late Christopher Bean*, *The Wind and the Rain*, and *Living Dangerously*, must now be added Mr. Sidney Kingsley's *Men in White*, at the Lyric Theatre. One comes away well pleased with this performance, for it is brilliantly produced, well cast, and well acted, and presents a story much less improbable than most—well told, and possessing definite dramatic value. It is a serious attempt to solve, amongst many problems, that of the promising but impecunious young surgeon whose career has reached the bifurcation leading to general practice and surgical specialism. The scene is

laid exclusively in a London hospital, where George Ferguson, the hero (excellently portrayed by Mr. Robert Douglas), is R.M.O. and assistant to Mr. Braddock (Mr. Lewis Casson), who gives probably the best piece of character acting in the play. The hero's fiancée, the attractive Miss Jill Esmond, daughter of a rich business man, soon realizes the demands which her future husband's career will make upon her domestic life and peace of mind. A disagreement ensues, and George, weary after a typically hard day in the hospital, succumbs to the attractively provocative wiles of the lonely Nurse Denny. The result is a septic abortion, upon which the hero has to operate under spinal anaesthesia, Mr. Braddock, his chief, having rather gruesomely invited the fiancée to witness George's surgical skill on this occasion. The turmoil which results from this incident is conveniently settled by the death of the unfortunate nurse (from pulmonary embolism) and the anticipated happy ending is eventually reached. Throughout the play the characterization is excellent—there is the pompously incompetent physician whose misdiagnosis of a child suffering from insulin shock enables the hero to effect a dramatic cure with glucose; there is the pontifical surgeon, Mr. Braddock, whose singleness of purpose, sound sense, and honesty command our admiration; in an incidental character there is a fine study of a "failure" who has sacrificed a promising specialist career for general practice; while there are also some good delineations of "housemen," sisters, and members of the hospital staff. Medical (and surgical) details are astonishingly accurate throughout the play, and the scene in the operating theatre is very well done. Whatever may be its implied criticisms of the voluntary hospital and of the law relating to abortion, the play states a very good case for the medical profession.

We regret to announce the death, at Wolverhampton, of Mr. Bernard Cridland, F.R.C.S.Ed., within a few days of the Oxford Ophthalmological Congress, over which he presided in 1929-31 and of which he had been honorary secretary for sixteen years.

We regret to announce also the death, on July 3rd, at the age of 82, of Sir James Kingston Fowler, M.D., consulting physician to the Middlesex Hospital and the Brompton Hospital.

The Minister of Health has reappointed the Advisory Committee on the Welfare of the Blind for a further period of three years. The committee is constituted so as to afford representation to the local authorities concerned with the working of the Blind Persons Act, 1920, and to voluntary associations for the blind, as well as to organized blind workers. The following have been appointed members: Lord Blanesburgh (chairman), Mr. P. M. Evans (vice-chairman), Councillor W. Asbury, Mr. J. W. Black, Dr. Charles W. Brook, Mrs. Montagu Brown, Alderman C. T. Budgett, Mr. E. W. Cemlyn-Jones, Mrs. Kathleen Chambers, Councillor J. A. Clydesdale, Mrs. I. M. Cowley, Sir Ian Fraser, M.P., Dr. S. J. C. Holden, Miss J. L. King, Councillor E. H. Lee, Alderman C. Lucas, Dr. J. Middleton Martin, Mr. G. F. Mowatt, Mr. Ben Purse, Dr. J. M. Ritchie, Mr. W. H. Tate, and Mr. A. H. Whipple. The committee will advise the Minister on matters relating to the care and supervision of the blind, including any question that may be specially referred to it by the Minister. Mr. H. G. Benjamin of the Ministry of Health will act as secretary.

¹ Journ. Amer. Med. Assoc., March 10th, 1934, p. 755.
² Jahrb. f. Kinderheilk., March, 1934, p. 102.

INTERNATIONAL CO-OPERATION ON HEALTH QUESTIONS

Several matters of interest are dealt with in a résumé¹ just issued from the Office International d'Hygiène Publique in Paris on the proceedings at the April-May session of the Permanent Committee of that body, which was attended by the delegates of thirty-nine Governments, under the presidency of Sir George Buchanan. The work, as in previous sessions, concerned in part the settlement or application of international agreements between Governments on health questions and in part a comparison of data on topical questions of epidemiology and hygiene.

PORT SANITATION

In the first of these categories came the question of standard quantities to be recommended in the case of ships being "deratized" by sulphur for the purpose of the International Sanitary Convention of 1926. The committee agreed to a report to be presented to health departments concerned dealing separately with fumigating by burning sulphur, fumigation by mixtures of sulphur and charcoal, sulphur dioxide in cylinders, and the use of the Clayton apparatus. Special attention was given to the allegation that jute sacks or gunny bags loaded in Calcutta had been responsible for the importation of plague into various places on the coast of South America. Suspicions of this method of transmission were supported by circumstantial evidence, but the committee was unable to regard the thesis as fully proven, and recommended its further consideration when additional data are obtained by the Pan-American Sanitary Conference, which will be held at Buenos Aires in November. An opinion was expressed adverse to giving certificates that ships have been effectively cleared of rats when the holds of the ship have not been emptied before the deratization process.

Some agreements between individual countries for facilitating quarantine operations were noted and supported. Among these is a system by which in northern European ports, from Brest to the mouth of the Elbe, including British ports, the port sanitary authorities follow a system of direct communication one with another in regard to infectious diseases on ships. A more important agreement, particularly from the ship-owners' point of view, is that by which a considerable number of countries are now concluding an accord to dispense either with the production of a bill of health or, at least, with the requirement that bills of health should bear visas obtained from their consuls in foreign ports.

RECENT WORK ON YELLOW FEVER

In connexion with the extension of international health regulations to air traffic which has been effected by the Hague International Sanitary Convention for Aerial Navigation, 1933, the committee gave its attention to evidence that on some air routes mosquitos are habitually carried from country to country by aircraft, and decided on a study of the most effective methods of clearing aircraft from these insects. Note was also taken of the progress made in the application of the mouse protection test in regions of Africa to determine whether particular regions show evidence of the existence within recent years of the virus of yellow fever infection. A study was undertaken of the significance in this respect of what are termed "silent areas"—that is, those in which a material proportion of positive results to the mouse protection test are obtained, but in which there has never been evidence of the actual presence of yellow fever. An investigation of the several questions arising out of these findings is being pursued.

The International Agreement of Brussels, 1924, which provides for the treatment of merchant seamen suffering from venereal diseases, received further attention, and a modified form of the international card given to the seaman has been proposed to the signatory Governments. Finally, the committee reverted to a previous decision. The Office International d'Hygiène Publique, 195, Boulevard

that, for the purpose of the Opium Convention of 1925, an exemption should be made for ampoules of sterilized solutions of morphine and atropine containing as maxima 2 per cent. of morphine salt and 0.05 per cent. of atropine salt. It appeared that there was some risk of the use of these preparations as drugs of addiction, even when put up in this way. A further investigation was decided upon.

The second branch of the work of the session needs less notice, since the different contributions on epidemiological and public health subjects will in due course be published in the Monthly Bulletin of the Office International d'Hygiène Publique. Notable among these contributions are reports from the Yellow Fever Commission of the Office based on work in Africa and America, associated with that of the Rockefeller Foundation, on the distribution and transmission of yellow fever, including a discussion of the "silent areas" above mentioned. Recent work on vaccination against yellow fever by attenuated viruses and by the serum of immunized horses was reviewed.

CHOLERA PROPHYLAXIS

The question of the degree of danger presented by the healthy carrier of cholera vibrios, or vibrios allied to them, constantly arises in quarantine practice, and comes repeatedly before the committee. A new stage was reached at the present session. It was announced to be the intention of the Indian Health Service, with the aid of the Indian Research Fund Association, to follow the recommendations pressed at previous sessions, and that a carefully planned scheme of work on typical and atypical vibrios will now be undertaken in suitable areas in India under conditions which permit the bacteriological results and the appearance of clinical cholera to be studied in association. Special attention will in this connexion be given to typing by sugar fermentation and also to the use of sera prepared from a heated antigen, as proposed by Bruce White. The committee had been asked to specify the dosage of cholera vibrios necessary where protection has to be given by a single inoculation. With certain cautions and reservations, it adopted the figure of 8,000 millions as an average dose for this purpose. A proposal to give official recognition to cholera prophylaxis by the administration of vaccine by mouth was rejected.

SOME MISCELLANEOUS ACTIVITIES

An omnibus report presented by the Subcommittee on Small-pox and Vaccination on modern methods of vaccinating and the effects of vaccination was accepted, and will shortly be published. Further contributions were received on neurovaccine, and on dried vaccine, as well as on vaccine virus grown on the allantoic membrane of the incubated hen's egg. The latter included a report by Goodpasture and others, presented by the delegate for the United States, covering some 1,000 vaccinations done with this virus in schools in Tennessee, which yielded normal results and an insertion success of 94 per cent. The committee considered that it remains desirable to destroy lymph from calves which, on post-mortem examination after the collection of lymph, are found to have tuberculous lesions.

Some new epidemiological data regarding the increase of typhus in several countries were supplied; note was taken of the general interest which attaches to the work of Smith, Andrewes, and Laidlaw on the nature of the influenza virus, and arrangements were made for further international studies of the incidence of Weil's disease and leishmaniasis in Europe and along the basin of the Mediterranean. The present distribution of psittacosis shows that the particular preventive measures taken in the several countries affected need to be adjusted to very different circumstances, and that, while there has been a definite gain to European countries by their having acted together in 1931 to prohibit all importation of parrots at their ports, this joint action no longer has the importance which it then possessed. On more general questions of hygiene it may be noted that a report is to be presented on the practice and results of "terminal disinfection" in different countries.

¹ Paris: C. 1934.

Saint-Germain.

HEALTH VALUES OF THE EAST COAST

CONFERENCE AT CROMER

In its work of appraising the advantages of British watering places, the British Health Resorts Association, after visits south, west, and inland, has turned to the East Coast, and last week-end, under its auspices, a number of well-known members of the medical profession journeyed to Cromer and Sheringham. The local medical profession—with Dr. R. B. Fawkes in charge of the arrangements—and even the profession from a wider area, as far as Norwich and Yarmouth, contributed largely to the success of the visit, and hotels, business firms, and private individuals co-operated in the welcome. The Cromer and Sheringham Urban District Councils arranged official receptions, and visits were paid to the Cromer and District Hospital and other places of professional interest, as well as to some of the lovely gardens, bird sanctuaries, and remains of ancient man of which this unspoiled part of East Anglia can boast. The weather, which figured rather prominently in the discussions, showed in the course of the forty-eight hours how variable, but on the whole how kindly, it can be on the East Coast.

PROGRESS OF THE HEALTH RESORTS ASSOCIATION

In opening the conference Lieut.-Colonel R. H. ELLIOT said that, notwithstanding the difficulties of its first two years of existence, the association had now gained a more secure footing, though it was still not in a financial position to pursue to the extent it desired the ambitious programme of activities which its enterprising secretary, Dr. Alfred Cox, had planned. But it was steadily teaching the medical profession where to look for authentic information, and the leading medical bodies, and the Royal Colleges, the British Medical Association, and the Society of Medical Officers of Health, and the British Spas Federation had sent to its council men whose names were a guarantee of their appreciation of the reliability and importance of the movement.

Lord Meston, president of the association, at a dinner at Cromer, struck the same note. The association was directing itself to the work of assembling and pooling the information obtained at local conferences and by other means, in which work it was enlisting the support of medical bodies and civic authorities. In this way an encyclopaedia of information would be compiled, so that the general practitioner would know where to send a particular patient, or, what was equally important, having regard to his condition or other circumstances, where not to send him. Three things the association had never attempted to do: to "boss" anybody, to poach on the preserves of other organizations, to decry foreign spas. Justice was done to the toast of "Cromer," or rather to that sunlit arc of coast, from Blakeney to Mundesley, with Cromer in the middle, by Professor W. LANGDON BROWN.

Sheringham, not to be outdone in hospitality, gave a luncheon to the visitors, over which Dr. W. J. E. SUMPTER presided. Here Dr. ALFRED COX voiced the objects of the association, saying that there was no reason why health resorts should not be prescribed with as much precision as drugs. Medical men ought to study the peculiarities of the places to which they sent their patients. In the past the health resort movement in this country had been spoiled by exaggerated and unscientific claims, and one of the purposes of the association was to reduce these to their proper proportions. Sir HOLBURN WARING made the suggestion that the whole subject of health resorts and their utilization in medical practice was deserving of more than a brief notice in textbooks or lectures; it called for a regular course of instruction, preferably post-graduate.

SEASIDE RESORTS FOR RESPIRATORY DISEASE

The first of the two main discussions of the conference, presided over by Dr. F. W. BURTON-FANNING, was on the seaside resort in the treatment of respiratory diseases.

Dr. R. A. YOUNG began by quoting a remark of Ellsworth Huntington the American geographer, that the climate of England is nearer the ideal than almost any other, and that the climate on the shores of the North Sea is the best in the world for human health and activity. In helping patients suffering from diseases of the respiratory organs, a pure air of high humidity, relationally free from dust, a fairly equable temperature, and air changed and moved by breezes and winds, all played a beneficial part. Physiologically the increased respiration and the greater loss of heat might lead to improved metabolic changes, greater sense of well-being, and better sleep. At coast resorts under certain protective conditions elderly bronchitics, instead of being immured out and get the benefits of fresh air, warmth, and sun. The psychological effects, too, were not unimportant, for monotony was an outstanding down-grade factor, and "change of air" was more than a phrase. Cases suitable for coast resorts could be described alliteratively as convalescents, chronic cases, children, and, possibly, the cured consumptive. In convalescence after conditions of the upper respiratory tract the seaside had almost magical properties. The Norfolk coast, with its bracing climate, comparatively rain-free, had much to offer to convalescents and those debilitated by disease or exhausted by overwork.

Dr. L. S. T. BURRELL said that change of climate, like any other restorative, should be ordered with care. On the bracing East Coast one type of patient might recover, while another would be rendered more miserable. It was a common mistake to believe that because a place had a reputation for being healthy, therefore it was healthy for everybody. To regard one place as suitable for the consumptive, another for the bronchitic, and a third for the asthmatic would only lead to error. The variability of the English climate was its outstanding advantage. The patient who needed bracing up did better on the East, whilst the elderly bronchitic, as a rule, favoured the West. On comparing foreign resorts with British ones he had been impressed by the fact that those who stayed in this country and enjoyed it did much better as a rule than those who went to foreign spas, though there were exceptions, and the mere psychological effect of going abroad had gained a certain type of patient. To some people who an annual Swiss visit seemed to become as necessary as cocaine to a dope fiend.

Dr. A. J. MORLAND (Mundesley) declared the East Coast to present one of the most healthy climates in the world for convalescents from respiratory affections. The sufferer from pulmonary tuberculosis, even in its early stages, would do well, however, to enter a sanatorium. Moderate winds, although invigorating for the convalescent, were never advisable for the consumptive, and the two sanatoria situated in that area, thanks to the forethought of Dr. Burton-Fanning, who selected the sites some years ago, were placed somewhat inland. The East Coast climate was classed with that of the High Alps, but having spent some years in treating respiratory diseases in both climates, Dr. Morland said that although he had seen remarkable instances of recovery in apparently hopeless cases in Switzerland, he had seen a still larger proportion of such in England. Perhaps in the more robust type of patient progress in the Alps was more rapid than was to be expected here, but in general he thought that better results were obtained in active cases of tuberculosis if cases were treated at a low or moderate altitude. The rest which was necessary was more complete at sea-level than it could be at heights. With sanatorium patients in Switzerland drugs for sleeplessness were far more often necessary than in England.

In some further discussion Dr. PHILIP ELLMAN agreed as to the respective merits of the East and West Coasts, and said that for patients who, after making some progress, had reached a fairly stationary condition, treatment on the East Coast was more than favourable. Dr. BROWNING ALEXANDER said that a patient with a neurotic type of asthma was likely to benefit much at seaside resorts on the East Coast, but to send a patient with the

bronchitic or emphysematous type to such a bracing climate was likely to be harmful. Dr. V. H. BLAKE (Yarmouth) mentioned that there was a certain type of asthmatic who, arriving on the Norfolk coast in July or August, appeared immediately to encounter some irritating influence and had a severe attack. Patients with residual attacks of bronchitis might find it advisable to get away from the salt and hard air; a few miles inland seemed to make all the difference. Dr. W. S. C. COPEMAN referred to the need for textbook instruction on this subject; before he himself was qualified he heard scarcely a reference to climate in relation to disease, save perhaps the role of Swiss sanatoria. Dr. LEONARD FINDLAY was of opinion that, apart from the asthmatic child and the epileptic, any child might be sent to East Coast resorts. Dr. BURTON-FANNING added migraine to the short list of conditions for which some people should not be sent to the East Coast; he had seen cases in which migraine appeared to be exacerbated. Otherwise it was impossible to exaggerate the therapeutic advantages of the Norfolk seaboard.

CLIMATIC FACTORS AND DISEASE

The second discussion, over which Dr. V. H. BLAKE, president of the Norfolk and Norwich Medico-Chirurgical Society, presided, was opened by Dr. R. FORTESCUE FOX, who declared the east region to be the most bracing and invigorating part of the British coast line; it had summer warmth with a stimulating and even exciting climate. The value of it was indicated by the fact that in Norfolk and Suffolk there were some 700 homes for convalescents. Incidentally, it would be interesting to have the experience of these homes as to the reactions obtained. He gave some particulars of the international movement for the study of marine therapy which started some five or six years ago.

Dr. S. H. LONG of Norwich mentioned that for over thirty years he had been connected with a convalescent home at Cromer attached to the Norfolk and Norwich Hospital. With the exception of asthma, he could not think of any condition which was not benefited. He had been told that cases in which there was mental trouble also did not do well, but of that he had no personal experience. Years ago Norfolk was noteworthy for what was called "fen ague," now known to have been malaria, but this, following the draining of the marshes, had disappeared. Dr. W. J. PEARSON said that observations on quite young children supported the view that conditions of environment were of the very first importance; possibly it might be shown in time to come that failure to become conditioned to climatic surroundings created disease owing to metabolic disturbances. The choice of a seaside resort for the child was a simpler problem than for the adult, for it was not necessary to consider as a rule whether the surroundings were stimulating or relaxing. This part of the East Anglian coast was undoubtedly the most invigorating in Great Britain, and induced a feeling and appearance of well-being within a few hours of arrival which was almost unbelievable. With the exception of asthma, and possibly epilepsy, there was no disease from which a child should not recover quite quickly on the Norfolk coast. The effect on catarrhal conditions of the nose and throat, on tuberculous glands, and on the debilitated "lymphatic" child was very striking. Finally a meteorologist, Mr. L. C. W. BONACINA, gave some particulars of the climate of the district.

Altogether the impression left on the mind was that, as Sir STANLEY WOODWARD suggested, the association of the East Coast and the east wind is an association of words and not of facts. As for longevity, Dr. R. B. FAWKES mentioned that the average age shown on the counterfoils of his death certificate books was well over 70. To restore the balance, however, Dr. BURTON-FANNING reminded the meeting of a visitor to one of these resorts who, inquiring as to the death rate, was informed by a native, "One per person—same as everywhere else!"

On the Sunday morning a number of visitors went to Mundesley, calling at the recently opened Leicester City and County Convalescent Home, Overstrand, and returning by way of Mundesley Sanatorium, where they were received by Dr. Morland and other members of the staff.

HEALTH OF SCOTLAND *

INFECTIOUS DISEASES

Increases in the number of cases of diphtheria, enteric fever, erysipelas, scarlet fever, and acute influenzal pneumonia were recorded, the most serious being scarlet fever, which accounted for 38,887 cases as compared with 27,975 in 1932. Tuberculosis, puerperal fever, ophthalmia neonatorum, and acute primary pneumonia showed decreases. The death rate for pulmonary tuberculosis fell to 60 per 100,000 of the population, the lowest yet recorded, and that for other forms of the disease to 20, which is also the lowest recorded. During 1932 29,690 cases of venereal disease received treatment; of these 15,285 were new patients, but 28 per cent. of the latter were found not to be suffering from the disease. Of cases which were undergoing prolonged treatment, 48 per cent. did not complete the course. Among the 3,360 new cases of syphilis which came forward during the year, 13 per cent. occurred in children under 15, and 20 per cent. of all the cases were classified as congenital syphilis.

HIGHLANDS AND ISLANDS MEDICAL SERVICE

In consequence of difficulties and delays in removing patients to hospital from remote districts, the Department has taken steps to develop an air service, and negotiations were entered into with the County Council of Argyll. The responsibility for summoning the aeroplane rests with the local doctor, and the cost is defrayed partly by the council, partly from the medical service fund, and partly by the patient, if he is able to do so. The Department has also made a contribution towards the annual rental of doctors' telephones and the establishment of new telephone call offices. During the year the Post Office proposed to proceed with a trial installation for transmitting and receiving wireless messages in some of the remote islands.

NATIONAL HEALTH INSURANCE

The main provisions of the amending National Health Insurance Act (1932) came into operation on January 1st, 1933, and amended the rates of sickness benefit for women and the regulations excusing only part of the arrears from unemployed. Approximately 25,000 unemployed persons, whose ordinary insurance rights had already expired but who did not retain any medical benefit, ceased to be entitled to benefit at the end of 1933. The total sum paid out in sickness and disablement benefits in 1933 was £1,750,000, which is a reduction on the £1,807,000 for 1932, but still maintains an increase over the £1,664,000 paid in 1931. The average cost per member per week of both benefits was 4.77 pence for men and 4.12 pence for women. Cases referred to regional medical officers for examination during the year numbered 51,630 by approved societies, and 1,814 by practitioners, as compared with 60,043 and 2,251 respectively in 1932. In 23,860 cases the practitioner's certification was upheld, while in 10,403 it was reversed. Among the cases not examined, final certificates had been granted in 10,839 instances, and a test over six months showed that fully 90 per cent. of final certificates were issued either immediately prior to, or within two days of, the doctor being informed that the insured person was to be examined by the regional medical officer. The provision of medical benefit by insurance practitioners continued on the usual lines, and some 1,900,000 insured persons were entitled to receive medical benefit from 2,030 practitioners under contract with insurance committees. The number of cases of alleged failure by practitioners to comply with their terms of service was only twenty-nine during the year, and in ten of these the Department decided that deductions should be made from the practitioner's remuneration of sums varying from £1 ls. to £25. There were nineteen claims by practitioners for fees from insured persons in respect of services which did not fall within their contract, and in eighteen of these cases both the local medical

* The first part of this notice of the Annual Report of the Department of Health for Scotland appeared on June 30th (p. 1179).

committee and the insurance committee supported the claim. The number of certificates of incapacity issued during the year was 400,052, representing approximately one commencing incapacity for every five insured persons. The average duration of all incapacities which terminated during the year was 45.7 days as compared with 46.4 days in 1932. Reference is made to the clinical research into valvular heart disease, including treatment, which began on July 1st, 1933, and which will continue for a year or such other period as may be decided. The number of chemists' shops at which insured persons could obtain drugs and prescribed appliances was 1,792, and during the year 448 samples of drugs and 142 appliances were tested. In only fifteen of these cases were the circumstances considered to be such as to warrant withholding a portion of the remuneration.

The report contains over fifty pages of statistical appendices. It may be obtained from H.M. Stationery Office, 120, George Street, Edinburgh (price 3s. net).

England and Wales

Memorials to Manson and Ross

With the incorporation of the Ross Institute in the London School of Hygiene and Tropical Medicine another chapter has opened in the history of the control of tropical diseases. The official ceremony took place at a reception at the school on June 29th, when the Earl of Athlone, as Chancellor of the University of London, unveiled a memorial tablet to Sir Patrick Manson and a bust of Sir Ronald Ross. The proceedings opened with the reception of the guests, on behalf of Sir Austen Chamberlain, by Sir Charles McLeod and Sir Herbert Read. At the unveiling ceremony which followed, Lord Athlone said that the occasion was one for honouring the memory of Manson and Ross. Manson had the vision and courage to inspire teaching and research in tropical medicine and to lay the foundations of a nobly conceived centre of research. He was a pioneer in the untrodden paths of medicine. After leaving Scotland at the age of 21, he went to Formosa and worked there and in China for nearly a quarter of a century in isolation. He discovered that the mosquito acted as a host in the transmission of filaria. He also discovered several new parasites of man and several new diseases. In 1897 he set himself to found the London School of Tropical Medicine and laid the scheme before the then Secretary of State for the Colonies, Mr. Joseph Chamberlain, with the result that in 1899 the original school was built and organized in connexion with the Seamen's Hospital Society in the Albert Docks. Sir Ronald Ross, the Chancellor continued, was, in turn, inspired by "the father of tropical medicine" as Manson was called, to study malaria, especially its prevention. While serving in India he realized that many tropical diseases were preventable, and that malaria was a greater scourge than either plague or cholera. His study of the mosquito and the spread of malaria led to the investigation of insects as disease carriers, and the discovery that the germs of yellow fever, relapsing fever, sleeping sickness, etc., all had insect hosts. The tablet and bust were received on behalf of the school by Sir Charles McLeod, the former being presented by Lady Manson and family and the latter by the sculptor, Lady Welby. The guests at the reception found a wealth of interesting exhibits and demonstrations, which had been arranged especially to illustrate the work of the school in relation to industry. They included living insects noxious to man and protozoal parasites causing disease in man, and exhibits concerning bacterial fermentation, the adulteration of food and its detection, safe milk and pasteurization, health propaganda, etc. In addition there were exhibits illustrating

the discoveries of Manson and Ross, a lecture-demonstration by Dr. G. P. Crowden on "Insulation against Heat and Cold for Human Comfort," and a film presentation entitled *The Rat Menace*.

Wakefield Municipal Hospital

The Minister of Health on June 29th opened the new Wakefield Municipal Hospital for notifiable diseases; this will now take the place of the very out-of-date isolation hospital, erected in 1874, which contained only thirty beds. The new series of buildings accommodates ninety-seven patients, and comprises two fever ward blocks, each with twenty-four beds, one diphtheria pavilion containing seventeen beds, one cubicle block of twelve beds, one discharge block with four beds, and a tuberculosis pavilion with sixteen beds. The administration block contains forty-two beds for the staff; there are separate residences for the medical officer, the engineer, the ambulance driver, and the gate porter. The grounds are adequate for the outdoor recreation of patients and for future extension of the hospital if required. The ward blocks and day rooms are situated to secure the maximum amount of sunlight. Verandas with glass roofs extend the full length of the south side of each block, and will accommodate beds in suitable weather conditions. There is a day or recreation room in each ward block for the use of convalescent patients. Single-bedded wards are also provided. The ground area round the tuberculosis pavilion will be separated from the part of the ground reserved for fever patients. The cubicle block has twelve single-bedded wards with glazed partitions between them, enabling the nurse in the central day room to have direct observation of all patients in this block. It is hoped to add an x-ray department at some future date. The diphtheria pavilion has an operating room behind it, but the sterilizers are contained in the adjoining duty room. Steam-heated radiators have been installed, and the electric lighting includes a shadowless type of operating-room electric light. In the tuberculosis pavilion there are two six-bedded wards, and four single-bed wards, two day rooms, and a duty room. A veranda with a glazed roof extends the full length of the block on the south, and the wards on this side can be opened out by means of glazed sliding screens. The pavilion is placed away from the other blocks, and on a more sheltered and level part of the site.

Royal London Ophthalmic Hospital

The first part of the programme of extension, reconstruction, and modernization of the Royal London Ophthalmic Hospital (Moorfields) was completed in December, 1930, by the provision of the private ward block, together with the necessary increased accommodation for the nursing staff. The second and larger part of the scheme was begun in March, 1933, with the demolition of the out-patient department, embodying the minor operation theatre, dispensary, spectacle room, almoners' offices, orthoptic department, pathological and bacteriological laboratories, museum, and library. To provide accommodation for these without serious reduction of the bed accommodation temporary structures were erected. Day rooms were converted for use as an out-patient department and wards, but the bed complement of the hospital has had to be reduced for the time from 152 to 136. At the end of last year the whole of the glazed stonework of the front elevation had been completed, and in the annual report for 1933 of this institution the committee of management expresses the hope that it will be possible to occupy the new buildings in the late autumn of this present year. Despite the fact that the main financial activities have been concerned with the raising of money for the new buildings, a surplus of £989 of income over expenditure was achieved on the year's working.

Scotland

Honorary Degrees at Edinburgh and St. Andrews

At a graduation ceremonial held in the University of Edinburgh on June 28th, with Principal Sir Thomas Holland presiding, a large number of graduands received degrees in Arts, Commerce, Divinity, Law, and Science. Among seventeen recipients of honorary degrees were two members of the medical profession who received the Doctorate of Laws. The Dean of the Faculty of Law, in presenting Dr. Robert Hutchison, physician to the London Hospital, said that the latter was now an undisputed leader in the medical profession of London. He was well known for rapid and accurate diagnosis, for resourcefulness in treatment, and for expert knowledge of dietetics and the diseases of children. What he had learned in practice he had put at the disposal of his medical brethren in lectures and writings of exceptional authority and wide popularity. Much might be said of the confidence and respect he enjoyed among his professional colleagues, and so high did his reputation stand as a clear thinker and an admirable debater, equipped with a power of quick repartee and a keen sense of humour, that, had he elected to follow the law, he would assuredly have been a formidable competitor for its most glittering prizes. In presenting Dr. Theobald Smith, Director Emeritus of the Department of Animal Pathology of the Rockefeller Institute for Medical Research, the Dean said that the University was honouring a pioneer in bacteriology and comparative pathology. Dr. Smith was a veteran scientist who could look back on a lifetime of achievement in medical and veterinary research, during which he had held several important scientific and academic posts in the United States. He had probably been the first to call attention to the experimental production of a deficiency disease and to reveal the existence of serum anaphylaxis. He had also led the way in differentiating between the human and bovine types of tubercle bacilli. It was especially appropriate that in the year in which the Royal (Dick) Veterinary College had become affiliated to the University of Edinburgh they should be honouring one who had contributed so largely to the advancement of the science which that college represented in Scotland.

At a graduation ceremony at St. Andrews University on June 29th, over which Principal Sir James Irvine presided, about 160 students received degrees in Arts, Divinity, Law, Medicine, and Science. Among the seven recipients of honorary LL.D. degrees were two members of the medical profession: Sir Frederick Gowland Hopkins, Professor of Biochemistry in the University of Cambridge and President of the Royal Society, who in 1929 was awarded the Nobel Prize in Medicine for his work on vitamins; and Lord Moynihan, Chairman of the Medical Advisory Board of the Army, late President of the Royal College of Surgeons of England, and founder of the Association of Surgeons.

Edinburgh Royal Blind Asylum

At the annual meeting of the Edinburgh Royal Blind Asylum and School the Rev. Dr. Thomas Burns, chairman of the institution, said that there were 124 children at present in the school, a greater number than ever before. Attached to the school was the only Braille publishing house outside London. This employed twenty blind persons, and produced not only many books and magazines but a number of musical publications which would not otherwise be available to the blind. Recently an American musician, having failed to find any institution

in the New World which could transcribe the orchestral score of *Brigg Fair*, had had this work done with complete success at the Edinburgh Blind School. Subscriptions for the year had shown a slight increase. In recent years, however, the directors had had financial anxiety through the difficulty of finding sufficient work for the blind, and the number of industrial workers on the roll was greatly in excess of requirements. The deficit for the year's working, which amounted to £8,400, could only be reduced in the future by greatly increased sales of the work of blind persons. Various steps had been taken to effect economy, and it was hoped that the deficit would be considerably reduced next year.

Edinburgh Dental School

A meeting for the distribution of prizes at the close of the session was held in the Incorporated Edinburgh Dental Hospital and School on June 29th, when the dean of the school, Mr. A. C. W. Hutchinson, presided, and Mr. J. W. Dowden presented the prizes. The Dean said that the work of the hospital had been satisfactory. The number of students on the register at that time was 158, so that the Edinburgh Dental School was the second largest in the United Kingdom. During the year thirty-nine students had obtained the L.D.S. diploma. In nearly all departments the competitive results had shown a remarkably high standard, and in general subjects taken in competition with medical students the dental students had earned their full quota of medals and certificates.

Reports of Societies

STUDY OF DISEASE AS AN INTELLECTUAL STIMULUS

DR. W. A. PUSEY'S ORATION

The annual Prosser White Oration before the St. John's Hospital Dermatological Society was given on June 27th by Dr. WILLIAM ALLEN PUSEY of Chicago, formerly President of the American Medical Association and of the American Dermatological Association, and present editor of *Archives of Dermatology and Syphilology*. The oration bore the curious title of "Disease, Gadfly of the Mind," which, being interpreted, meant the stimulus which the study of disease, especially skin disease, in all ages has given to the development of the intelligence.

Dr. Pusey began by remarking that there were few incentives to thought that had more constantly prodded man in his intellectual progress than the injuries and pains and illnesses that had beset him. In Egypt, Babylonia, Greece, from Imhotep to Hippocrates, medicine had been one of the chief concerns of the mind. Reactions to the study of disease accounted for the greatest heights of early independent thought. Aristotle found biological facts so thought-provoking that they occupied no small part of his attention. In the Middle Ages, when men were reduced almost entirely to superstition, the imperious necessity of getting relief from misery made them give at least some consideration to their bodily ailments, and when the revival of learning did come the interest excited by the biological sciences was not surpassed by that of any others. In our own time, Pasteur the chemist, for example, found the field for the development of his unexampled genius in the problems of disease. It was a frequent assumption that medicine and the biological sciences had lagged behind the other physical sciences. The Orator maintained the opposite position, that medicine from the beginning of history could claim to be the mother of the sciences, and always one of the most active and reproductive members of the family.

ROLE OF DERMATOLOGY

From the beginning of medicine dermatology had constituted one of its major interests. It loomed large in the earliest literature of Egypt and Babylonia, and right through Greek, Roman, and Arabian medicine. In the Middle Ages probably the best illustration of the vitality of medicine was furnished by dermatology. The plague of leprosy, beginning about 500 A.D., and reaching its height in the Crusades, had two useful effects on the growth of medicine, being specially responsible for the development of hospitals, and giving a new impetus, as did syphilis in a later age, to the objective study of diseases. He proceeded to cite evidence that the study of leprosy brought dermatology and medicine in general to a higher plane of knowledge in this period. As for syphilis, it was unnecessary to enter into the details of its history in the last four hundred years in order to emphasize the importance of syphilis as a gadfly of thought. It had engaged the ablest minds of medicine, from Paracelsus and Fracastor to Virchow. Turning to other skin diseases, he instanced in particular the work of Ramazzini, about 1700, in occupational dermatoses, and another striking illustration in this field of dermatology was the description of the chimney-sweeps' cancer of the scrotum by Percivall Pott in 1775—a pioneer landmark in the history of our knowledge of the causes of cancer. Subsequent research had continued to emphasize the influence of long-continued irritation in cancer production. Pott's penetrating genius hit upon the substance, tar, which recent research had shown to be the one of all others most definite in its capacity to produce cancer by irritation.

The Orator mentioned a recent leading article in the *British Medical Journal* emphasizing the importance of the skin in the study of cancer, in which the reflection was made that in the skin as nowhere else was given the opportunity for the recognition and study of cancer in its early stages, for the tracing of the direct relationship of carcinogenic influences and of the relation of cancer to occupations, for the study of the general structure of tumours in their early stages, and for the accumulation of statistical records of many of the exact details of cancer which were elsewhere difficult or impossible of observation. Another landmark of peculiar significance in the modern progress of medical thought was the beautiful demonstration by Bonomo at the end of the seventeenth century of the causal role of the itch mite in scabies. The Orator made some long quotations from Bonomo's writings, and concluded that there was no more scientific or conclusive argument against the humoral and other hypothetical pathologies of disease than Bonomo's simple demonstration of the production of inflammation in the skin by the invasion of animal parasites.

The skin was still a happy hunting ground for investigators of the facts, particularly the minute facts, of biology and medicine. In it biological and pathological phenomena were spread out for direct observation. Unna, in 1896, wrote that a "thorough study of cutaneous pathology must have a great bearing on general pathology. Inflammation and the formation of tumours have a very close relation to the skin, for there they can be observed with the naked eye. A whole series of processes are visible only on the skin." The reality of these advantages had been abundantly established in modern study, which had resulted in a continuous series of new facts significant for medical science and art. A good modern illustration was seen in Thomas Lewis's use of the cutaneous circulation to illustrate methods of physiological investigation and interpretation of the phenomena of the peripheral circulation under natural conditions. Another recent illustration of the usefulness of the skin in the study of large biological subjects was Cockayne's study of inherited abnormalities of the skin and its appendages, with a view to the light which these abnormalities threw upon genetics. The successful study of the finer details of tissues dated from the perfection of section cutting and the introduction of differential stains by Carl Weigert.

¹ 1933, ii, 67.

who first applied these methods to the skin—to a study of the eruption of small-pox.

GENERAL IDEAS OF CONTAGION

The general ideas of contagion and the demonstration of its minute causes were likewise in great part the result of the study of diseases of the skin. The recognition of contagion went back to very early times in the history of medicine. In the Middle Ages the bubonic plague, leprosy, and, later, syphilis, were the diseases which crystallized the idea in concrete form. Hauptman of Dresden, and Lange of Leipzig, independently, in the seventeenth century, even before the demonstrations of micro-organisms by Leeuwenhoek, suggested that all skin diseases were of parasitic origin. The first definite knowledge of living contagions was reached after the modern microscope made the beginnings of bacteriology possible. The first fact in microparasitology was Bassi's discovery in 1837 that muscardine, a disease of silkworms, was due to a micro-organism, and the first fact in human microparasitology was Schönlein's discovery in 1839 of the organism of favus; while in 1842 Remak, Schönlein's pupil, cultivated the organism of favus on apple, and from the culture reproduced the disease on his own arm—the first artificial production of a disease by inoculation with a specific micro-organism.

The skin stood out with equal significance in the history of bacteriology in the strict sense of the word. Modern conceptions of infection and immunity had been influenced profoundly by studies of the skin manifestations of the exanthemata, conceptions which originated with Thomas Fuller, and were first expressed in his remarkable *Exanthematologia* in 1730. Fuller was a country doctor, and spent his professional life in practice at Sevenoaks. The skin was likewise the site of the first studies of the manifestations of what was now called allergy and sensitization. These were made and interpreted by a remarkable group of Englishmen and Scotsmen as early as the last years of the eighteenth century and the first of the nineteenth in connexion with vaccinia. The earliest description of the allergic relationship between small-pox and vaccinia was given by Jenner, and the early studies by Cox, Bell, Adams, Willan, Moore, and Monroe were remarkably accurate studies in allergy, all of them upon the skin. The conceptions of immunity had their origin in dermatological observation, and still to-day the fruitful study of immunity was largely a study of the manifestations of the details of its processes as they occurred in the skin. In a paper recently presented before the American Association for the Advancement of Science (for which he was awarded the annual prize of that organization for the most significant work brought before it) Reuben Kahn had shown that the skin possessed a degree of immunity more than ten times as great as that of muscle or brain tissue or blood plasma.

THE SKIN AND THE GENERAL HEALTH

From time immemorial the influence of the general health upon the skin had been emphasized, perhaps over-emphasized. The opposite conception, the influence of the skin upon the general health, was a new one, or at least a new realization of its importance was arising. Only lately had it come to be understood that the skin had functions of the highest usefulness in the maintenance of health, that, especially under the influence of light, it performed chemical functions of vital importance, and that it was probably the chief organ in the mechanism of immunity. The knowledge that the skin was influenced by certain disturbances of the ductless glands went back at least a century, to the time when Addison described the disease known by his name. It was not without significance that this determination of Addison's disease was made by a pupil of Willan, who was familiar with skin diseases and described scleroderma.

A new fact was now emerging, that the skin itself was also an organ of metabolic activity, which was important in maintaining a balance of viscous health. How extensive the ramifications of that discovery might prove could

not be prophesied, but it had important possibilities of useful knowledge.

Finally, the Orator glanced at the definite information of the importance to the general health of the metabolic activities of the skin which had been gained in connexion with the vitamins. It had now been shown by Lucas of the Lister Institute that the production of vitamin D might not simply be through the effect of ultra-violet rays on the ergosterol in the fat which was accumulated in the epidermis, but that the corium possibly participated in this production.

Returning to his main theme, that diseases had been among the greatest incentives in the making of the mind, and that among diseases few had been as great in this respect as diseases of the skin, Dr. Pusey said that his excursion might be regarded as a fanciful, perhaps a trivial, speculation; but he thought not. There was nothing more important in the evolution of civilization than those goads of the mind, relatively few, which first gradually lifted part of the human race out of barbarism. The way the mind had grown through its reactions to its experiences was one of the basic and most inspiring facts of human history. His address, so far as it was a consideration of skin diseases as a stimulus of the mind, was not a glorification of dermatology, but of its field. No specialty had a proprietary interest in its own field, or could, if it would, exclude other workers from it. But in increasing proportion the contributions to biological knowledge in modern times had come from men whose interest was the skin and its diseases. His point, however, was the role that skin diseases had played in the advancement of medical knowledge, and, more impressive still, in the making of the mind—a role which was a challenge to dermatology to be worthy of its heritage and its opportunity.

LIPIODOL AND X RAYS IN PELVIC TROUBLE

At a meeting of the North of England Obstetrical and Gynaecological Society, held in Newcastle-on-Tyne on June 8th, Dr. FARQUHAR MURRAY read a communication on the value of lipiodol and x rays in the diagnosis and treatment of pelvic mischief.

The technique consisted in injecting 8 c.cm. of slightly warmed lipiodol with Bengué's screw syringe, the patient being under anaesthesia and the vagina and cervix having been swabbed with acriflavine. Dilatation was not done, and the cervix was clamped to the cannula by a vulsellum. The patient was sent direct to the x-ray department with the vulsellum still clamping the cervix, and a second photograph was taken in twenty-four hours. The need for the second photograph was imperative for correct interpretation, because the primary photograph might be misleading. In a normal case the shadow of the uterine cavity, attenuated threads representing the tubes, and a mass (usually well defined) near the ostia, were visible. In twenty-four hours the uterine and tubal shadows had disappeared, and there was merely diffuse blurring. The presence of vaginal shadow and clinical observation indicated that drainage in these cases was both per abdomen and per vaginam. Normal tubes were distensible; they were also contractile, and this was a disadvantage with the thinner neo-hydriol, as far as the shadows were concerned. Interpretation of tubal and terminal shadows was most important. Obviously if no solution passed into the tubes cornual occlusion was present: from a diagnostic point of view the state of the tubes was unknown, and therapeutically the injection was futile. Again, a proved terminal occlusion with a large dilated tube was a different proposition from a proved terminal shadow with the thin line representing the tubes. The first suggested that apart from the occlusion the tube was normal, while the latter suggested an interstitial fibrosis, or at least some abnormality. Again, tubal distensions at the primary examination were hard to interpret, but a residual shadow indicated clearly imperfect tubal drainage. Terminal shadows were difficult to explain until the second photograph showed whether

they were open or closed, and, in brief, whether the solution was free in the peritoneum or encysted in a sealed abdominal ostium.

Sterility.—Lipiodol provided a method of obtaining information in cases of sterility which prevented purely speculative and often futile operations. There were three main types of case. In the first the uterus was shown up in the photograph, but not the tubes. Advice was given against operation in this type, as the state of the tubes was unknown and a plastic operation at the cornua produced results too speculative to be justified. In the second type, the solution distended the tubes to the abdominal ostium, which was sealed. Terminal blobs of solution were noted in twenty-four hours. This showed a patency and normality of the tube as far as the ostium, and salpingostomy was indicated. In the third type the solution passed to the abdominal ostium merely as a fine thread: in twenty-four hours there were only two small dots corresponding to the ends of the tubes. This, in Dr. Murray's opinion, probably meant fibrosis of the tube; the result of salpingostomy in such a case was very doubtful. Sometimes lipiodol with an x-ray photograph revealed an error in the insufflation test.

Inflammation.—In cases of pelvic pain where examination was negative and diagnosis rested between urinary and tubal infection, Dr. Murray, with the idea of avoiding operation if possible, proceeded as follows. The general condition and urinary tract were treated for two months, citrates, bromides, and aperients figuring prominently in the regime. If this did not cure, injection of lipiodol and x-ray examination was done. Laparotomy was advised if the solution did not enter the tubes. If it entered, the tubes but did not escape into the abdomen, or if it passed into the abdomen freely with normal photographs, further symptomatic treatment was recommended. It might be asked how one knew that the tubes were at fault if the shadows appeared normal. One could be reasonably certain if the patient admitted that the injection made the pain worse, and by the indirect evidence that in some cases the pain had been ultimately relieved. It might also be asked why operation was not done if a definite lesion was proved to exist. The answer was that the damage could not be gross, or it would have been palpable: if the solution reached the ends of the tubes, though it failed to reach the abdomen, this proved that there was tubal drainage, and justified optimism. Also some of these cases with a definite pathology were relieved by the injection. If in such cases the pain remained after a further two months' treatment, operation was justified. The main trouble was an associated chronic perimetritis, if appearances at operation were to be believed. Sometimes cases of chronic cervicitis and vaginitis required radical disinfection. For some time past it had been the rule to inject lipiodol and have these cases radiographed, whether there was complaint of pelvic discomfort or not. Definite proof of tubal disease was sometimes found even without any complaint of pain.

Pre-operative Diagnosis of Inflamed Appendages in Young Women.—In this class of case the woman might be in her twenties and childless. She had pelvic pain, and a diseased appendage was found. The object of operation was often to relieve an unpleasant symptom and restore health. The importance of maintaining or restoring fertility might be overlooked. Lipiodol and x-ray examination would give information not only about the diseased appendage but also about the one which it was hoped to conserve. This might mean intelligent instead of speculative treatment at laparotomy. Dr. Murray added that in spite of x-ray diagnosis he did not attempt salpingostomy without having the insufflating cannula *in situ* at the time of operation and confirming patency to the salpingostomy opening.

Lower Segment Caesarean Section

Mr. HARVEY EVERS read a communication on experience of 150 cases of the lower segment Caesarean section operation. The results are shown in the accompanying table.

Whole Series (150)		Suspect or Septic Cases (123)	
Mothers died ...	4 (2.6 per cent.)	Mothers died ...	4 (3.2 per cent.)
Babies: stillborn, 5	11 (7 per cent.)	Babies: stillborn, 4	10 (8.1 per cent.)
died ... 6		died ... 6	
Morbidity ...	29 (19.6 per cent.)	Morbidity ...	27 (21.1 per cent.)
Cases Operated on Before Labour (27)		Failed Forceps Cases (24)	
Mothers died ...	0	Mothers died ...	3 (12.5 per cent.)
Babies: stillborn ...	1 (3.8 per cent.)	Babies: stillborn, 2	5 (20.8 per cent.)
died ... 0		died ... 3	
Morbidity ...	2 (7.4 per cent.)	Morbidity ...	14 (58.3 per cent.)
Suspect Cases, excluding Failed Forceps (99)			
Mothers died ...	1 (just over 1 per cent.)		
Morbidity ...	13 (just over 13 per cent.)		

He considered these results very satisfactory as a whole; they compared favourably with previously published series. The figures for suspect cases were extremely good, considering that many of these would have been regarded by some obstetricians as unfit for Caesarean section. The failed forceps group, as might be expected, gave the worst results, but in view of the serious condition of several of the patients before operation he thought them reasonably good; 75 per cent. of the maternal, and nearly 50 per cent. of the foetal, mortality occurred in this group, and the morbidity was strikingly high. It would be difficult to produce a parallel series of cases treated by the classical method with such satisfactory results.

Indications.—The great majority were cases of contracted pelvis. In some the operation was done after trial labour, and the basic factor at fault was poor uterine action rather than disproportion. It was in these cases that the lower segment approach had special advantages over the classical method: obviously it reduced the number of inductions of labour. In five cases there was a placenta praevia, but in only three of them was it the real indication for operation; there was troublesome haemorrhage, and Mr. Evers was not impressed with this means of access for this type of case. Fibroids were present in four cases, but provided the indication for intervention in only one. There were several cases of breech presentation, several elderly primiparae, and one of sacro-coccygeal tumour. In three cases operation followed induction of labour which had failed; one of them showed severe morbidity. In one case the cord was a hundred inches long and was round the neck nine times.

Technique.—Mr. Evers agreed with Stabler that a douche, followed by antiseptic treatment of the vagina and cervix, was sound practice, though he had only had this carried out on rare occasions. Anaesthesia had usually been general, never local; spinal anaesthesia was used twice.

The patient was kept horizontal: a slight Trendelenburg position encouraged flow of septic matter from the vagina into the uterus. The ordinary low vertical subumbilical transperitoneal incision was adopted: on two occasions when the extraperitoneal route was used this proved unsatisfactory. The bladder must be quite empty. The peritoneal cavity was packed off by gauze. The peritoneum of the utero-vesical pouch was incised transversely, and the bladder pushed down. This was only liable to be difficult in repeat cases. In sixteen of the early cases a transverse uterine incision was used: it had, however, no advantage in delivering the head, bleeding was more severe, and it was difficult to prevent tearing into the blood vessels at the sides. A vertical incision was now used, the uterus should be pushed into the middle line first, and any torsion present undone. An accurately median vertical incision minimized haemorrhage; it should begin as low as possible, and should be extended upwards by scissors. Extension downwards of the incision during delivery might wound the bladder, and extension or tearing up into the upper segment increased bleeding and weakened the scar. The membranes were preserved while the incision was made: then 1 c.cm. of pituitary extract was injected into the uterine muscle. Bleeding from the cut edges was controlled by catch forceps or by special forceps designed by Mr. Evers. The head was delivered by lifting the caput and moulded part up into the wound; then pressure was exerted on the fundus, the head being kept fully flexed. The previous injection of pituitary was a great help. In difficulty, one or both blades of a pair of short forceps were used. This was often necessary in cases not in labour or when the head was floating. On 1 blade was used in twenty cases, two blades in ten cases, and the feet were extracted first in eight cases of deliberate version or of breech presentation.

In fifteen of his early cases he delivered the placenta *per vias naturales* at the end of the operation. Case 73, in which the retained placenta had to be manually removed, induced him to discard the method. This was a failed forceps case, and the manual removal might have contributed to the fatal result. Since then he had always waited for the placenta to separate, and in many cases it was expelled into the lower segment and could be removed by roping the membranes. In a few the hand must be passed into the upper segment to remove it, but this should be avoided if possible. The uterus was closed by two layers of sutures. The first was always continuous: it avoided the decidua and inverted the cut edges. The second was continuous if bleeding was difficult to control or if the lower segment was thin, but interrupted if it was thick: this layer took in the main part of the uterine wall and overlying fascia. The peritoneum was sutured by continuous catgut. There was complete lack of tension, apposition was excellent, and healing sound. In suspect and failed forceps cases, a piece of tissue drain was split at one end: one portion drained the uterine wound, and the other the utero-vesical pouch. It should not be removed too soon.

Advantages.—Mr. Evers summed up the points in favour of the method as follows: (1) Trial labour could be made with much less risk. This diminished the number of Caesarean sections and inductions. (2) The danger of sepsis was much less, and if it occurred it was likely to be pelvic and not general. (3) There was a definitely lower maternal mortality in suspect and failed forceps cases. (4) The operation, though technically more difficult, was accompanied by much less haemorrhage. (5) The convalescence of the patient was much less stormy. (6) The risk of subsequent rupture of the scar appeared very slight. The only disadvantage of the operation was that it was admittedly sometimes difficult to do in cases not in labour.

CORRESPONDENCE

Pyloric Stenosis

SIR,—I have read with great interest the article by Dr. H. L. Wallace and Mr. L. B. Vevill, and I should like to congratulate them on their careful and painstaking *résumé*. A chart is given showing the birth weight and the weight on admission to hospital, in which there is a difference of 2 lb. There is undoubtedly a loss of weight before the condition is recognized and sent for treatment, but it is doubtful if the difference is quite so great as the authors find—at any rate in this part of the country. It is never safe to rely on birth weights, as so often the midwife makes it more than it really is; and again, so many infants are weighed at birth on a spring balance which is often quite inaccurate. In my experience 8½ lb. for a pyloric baby is generally too high, especially as so many are first babies.

Cases of pyloric stenosis seem to be recognized earlier in this part of the country than in Edinburgh, and the large proportion of my cases have come soon after the baby is 4 weeks old, instead of 6½ weeks, as in the authors' cases. This is of the greatest value, and the mortality in my series of ninety-nine cases is 15 per cent. This mortality can only be further reduced by not merely getting them still earlier, but also by strict attention to every detail. Every infant is operated upon as soon as the diagnosis is made. Immediately before operation a glucose saline is given and the stomach washed out, the latter to help the surgeon so that there is no vomiting or distension of the organ at the time of operation. As regards the anaesthetic I have a great preference for gas and oxygen given by a skilled anaesthetist. This enables the surgeon to do the operation as quickly as possible, and there is a minimum of shock. A detail worth attention is to run saline into the abdominal cavity through a catheter as the surgeon is stitching up. Highly skilled individual nursing after operation is essential, and this is borne out by the fact that the mortality in private cases is almost negligible. If the infant is in a ward he must

be most carefully guarded against intercurrent infections like enteritis.

I agree with the authors that the outstanding features in all cases are the projectile vomiting, visible peristalsis, and constipation, and that the presence of a tumour which can be felt is of little significance. Breast-feeding is always of great value, and arrangements should be made for the mother to continue this, although the baby is in hospital.—I am, etc.,

HUGH T. ASHBY, M.D., F.R.C.P.

Manchester, July 1st.

SIR,—In the excellent article by Dr. H. L. Wallace and Mr. L. B. Wevill, analysing 145 cases of pyloric stenosis (*Journal*, June 30th, p. 1153), there are three striking features: (1) the high mortality; (2) the small percentage of cases in which the tumour was felt; and (3) the lack of information about the feeding methods employed.

With regard to the first point, pyloric stenosis is essentially a condition to be treated by "team work." The pre-operative and post-operative technique are the paediatrician's special care, and on him should rest the onus of deciding when to get the surgeon to perform the operation of mechanical relief, so that the infant's "poor general condition" should never enter the statistics as an operative mortality factor. Pre-operative transfusion, intravenous and subcutaneous dextrose, or Hartmann's solution can in almost every case give the surgeon a fair task. The post-operative technique is just as important, and includes further transfusion or intravenous and subcutaneous fluids and a routine feeding schedule. While working in America some six years ago I had the opportunity of seeing Hartmann and Clopton's pyloric stenosis team work, and their results were most impressive (fifty-two cases with a 4 per cent. mortality). Later, in Stockholm, I found that Ernberg, at the Sachska Barnsjukhuset, had a similar mortality figure treating all his cases medically—with the advantage of a resident wet-nurse staff.

As to the palpability of the tumour, the oftener the infants are examined the higher the percentage of cases in which the pylorus is felt. In some infants it can only be felt when the stomach is empty, in others only when the stomach is full, but 60 to 70 per cent. is a more usual figure than the 24 per cent. quoted.

Finally, the problem of how to feed these infants after operation; whether they be weaned or still on the breast the adoption of a routine technique will go far towards diminishing enteritis. Such a schedule as advocated by Clopton and Hartmann (*Surg., Gynecol. and Obstet.*, 1928, xlvii, 527) gives excellent results.—I am, etc.,

Liverpool, July 2nd.

WILFRID F. GAISFORD.

Ligature of the Innominate Artery

SIR,—Mr. Souttar's interesting description of a carefully planned and successful procedure for the cure of innominate aneurysm (June 16th, p. 1066) will be read with interest, especially by those surgeons who have had the opportunity of ligaturing the innominate artery. Such opportunities are few and far between. In the future they will be still less frequent, for medicine has obtained the mastery over syphilis, and early attention is given by physicians to other predisposing causes. Traumatic subclavian aneurysm is a rarity. From time to time instances of ligature of the innominate artery have been carefully tabulated. Up to and including the year 1922 approximately fifty-seven cases, with nineteen recoveries, had been recorded. Mr. Granville Chapman, in the current

number of the *Journal*, adds another case to the list given by Mr. Souttar. He recalls his successful ligation of the innominate artery in 1928 (*British Medical Journal*, 1929; ii, 49). Two additional cases are, I think, worthy of mention.

The first patient was presented by the late Mr. Coppinger, surgeon to the Mater Hospital, Dublin, at a meeting of the Royal Academy of Medicine in Ireland on February 22nd, 1893. The record states that this was the first successful case of ligature of the innominate artery ever exhibited at any medical society in Europe.

The second case was under my own care at the Ministry of Pensions Hospital near Dublin. The innominate was ligatured in 1932 for aneurysm of the subclavian artery involving the first and second stages. The aneurysm was the result of a bullet wound received in 1915. The artery was exposed by division of the clavicle and the reflection of the inner extremity of that bone upwards, together with a portion of the manubrium sterni. Two years after operation it was reported that the patient was cured. The details of the case and the operative procedure were published in *Surgery, Gynecology and Obstetrics* (February, 1933, lvi, 257; Murphy Oration).

It is freely stated in the literature that the common carotid artery should be ligated simultaneously with the innominate in the treatment of subclavian and innominate aneurysm. But why? All admit that there is grave danger to the cerebral circulation if the double ligation is performed. Furthermore, it is difficult to understand why an additional procedure in a somewhat dangerous undertaking lowers the mortality; yet this reduction in mortality is repeatedly claimed. Is there not some fallacy in such beliefs? Could it be that operations performed in pre-aseptic days are classed together with those undertaken with modern technique? Conclusions drawn from such data are obviously fallacious. Is it not more reasonable to advocate proximal ligature of the innominate artery alone, followed by distal ligature of its branches if the primary operation fails?

On careful study of the published reports I decided, in the case of my own patient, to ligature the innominate alone. The final result justified the decision. Mr. Souttar contemplated ligature of the carotid, but abandoned his intention. He completed his operation by distal ligature of the subclavian—a far more rational procedure when conditions permit.—I am, etc.,

London, W.1, July 2nd.

W. I. DE C. WHEELER.

Cervical Cancer after Artificial Menopause by Radium

SIR,—I noted with great interest the report in your issue of June 16th (p. 1089), by Mr. Maslen Jones, of a case of carcinoma of the cervix following on production of artificial menopause by radium. I have been looking for such cases for some time, and hoped that none would ever occur, as there is such strong evidence that radium will, to a large extent, prevent cancer developing in a pre-carcinomatous condition. It will be many years yet before there are a sufficient number of patients on whom an artificial menopause has been performed to see whether statistically there is any evidence of this prophylactic effect.

When Mr. Maslen Jones goes on to say that he does not think it always possible to exclude carcinoma of the cervix by histological examination, one is left in doubt as to whether he thinks that in this particular case the growth was already present. Although he may be correct in saying that there have been and will be cases in which such efforts at diagnosis have failed, yet I cannot agree with him that on account of these possible failures in

diagnosis the hundreds of patients who can be so easily relieved of their symptoms should be subjected to a total hysterectomy.—I am, etc.,

London, W.1, June 30th.

MALCOLM DONALDSON.

Tuberculin

SIR.—In the *Journal* of June 23rd Sir Robert Philip tells us on page 1107 that, "looking through the records of the continuous use of tuberculin during more than forty years, in hospital and private practice, I remain deeply impressed by the mass of evidence pointing to its therapeutic efficacy. It will suffice to recall that I have seen tuberculous disease in almost every part of the body yield remarkably during the continued use of tuberculin." On page 1136 of the same *Journal* Dr. N. D. Bardswell is quoted as saying that "the popularity of tuberculin treatment had gradually faded away, and was not to-day seriously considered as a cure."

I agree entirely with Sir Robert Philip's statement quoted above, and have statistics of twenty-one years' work which fully bear it out. Dr. Bardswell gave tuberculin a trial for eighteen months at King Edward VII Sanatorium a little over twenty years ago. His book, entitled *Preliminary Report on the Treatment of Pulmonary Tuberculosis with Tuberculin*, 1914, shows that he had not acquired the correct method of using tuberculin, so that I am not surprised that his investigation led to no decisive result. Tuberculin, when not properly administered, may do no good, or even do harm.

I have still some reprints of a paper, "The Use of Tuberculin in Diagnosis and Treatment," and shall be glad to send a copy gratis to any of your readers who may be interested enough to send me their names and addresses.—I am, etc.,

JOHN R. GILLESPIE,
Chief T.M.O., Co. Down.

28, Knockdene Park South,
Belfast, June 27th.

Mental Deficiency and Heredity

SIR.—Of the numerous recent contributions to your columns on the aetiology of mental deficiency none has yet considered as a possible factor the psychic environment (affective contacts, interest, play, etc.) of the very young child. Dr. F. Grundy's third conclusion (*Journal*, June 30th, p. 1166) is that "feeble-mindedness and dullness are familial to a much greater extent than lower-grade deficiency," and on this point there is a general consensus of opinion. He says also (p. 1165) that the milder deficiency "has no pathology in the ordinary sense," and is analogous to stature, representing the "lower" end of a "frequency curve." If this is correct, then clearly we must exclude the notion of any specific germinal determinant—Mendelian or otherwise.

That being so, the actual mechanism of transmission of neuropathia becomes of crucial interest. We ought surely to inquire into the upbringing of high-grade defectives to determine whether the lack of interest, adaptability, intelligence, etc., is not a consequence of, or reaction to, the mentality of the mother and the general affective atmosphere of the home. Yet it seems to be taken for granted that the channel of inheritance must be organic. It is becoming increasingly evident that character, temperament, and mental stability are largely built up on the very early affective relationships to immediate relatives. Can we afford to ignore the possibility that interests and ultimately I.Q. itself owe something to the same factors?—I am, etc.,

London, W.C.1, June 30th.

IAN D. SUTTIE.

Intracranial Injury in the Newborn

SIR.—Dr. Alan Moncrieff's letter (June 16th, p. 1068) was of such particular interest to me that I hope I may be pardoned for commenting thereon.

I was quite unaware of the paper by J. N. Cruickshank, but I have observed the intense cerebral oedema in these cases, and in my own experience of post-mortems on neo-natal deaths with a history of cerebral injury this oedema is invariable. The symptoms of drowsiness, etc., appear about the end of the second or third day. They are usually accompanied or followed by twitchings and convulsions, and death rapidly supervenes. Again, as far as my personal experience goes the oedema is invariably associated with haemorrhage of some degree, more often in the nature of bruising. This bruising is to be found in close proximity to the straight sinus. The matter is of interest to the obstetrician, since to this type of injury has been ascribed the cause for stillbirth following breech delivery—a view which I feel will soon be discarded. It is more reasonable to think that the haemorrhage may at least be a factor in the later development of cerebral oedema.

On several occasions I have found what appeared to be well-marked haemorrhage in the region of the straight sinus; and, seeing that this sinus drains the interior of the brain through the vein of Galen, is it not possible that the resistance to venous drainage through the sinus, resulting from thrombosis or pressure from haemorrhage outside it, may influence the secretion of cerebro-spinal fluid from the choroid plexuses? Acting on the view that these children died from exhaustion resulting from the fits. I have always treated them with chloral, playing with time, as it were, to allow the oedema to subside. Dr. Moncrieff's treatment sounds much more rational and certainly much more successful.—I am, etc.,

Wembley, July 1st.

J. SHIRLEY CALLCUTT.

Hyperpiesia

SIR.—In his letter in the *Journal* of May 19th (p. 919), Dr. Herbert H. Brown raised several important questions that have not been answered satisfactorily in textbooks. Many readers will agree that heredity plays an important part in the production of hyperpiesia; in fact, numerous American writers regard heredity and prolonged mental strain as predominant factors. As the pace of life quickens and the struggle for existence becomes more severe for successive generations, it may be anticipated that the incidence of hyperpiesia will increase.

Regarding the final paragraph of Dr. Herbert Brown's letter, and also Dr. Graham Grant's letter (June 16th, p. 1093), I can confirm Dr. T. Izod Bennett's remarks (June 23rd, p. 1139). Records of systolic and diastolic blood pressures in a considerable number of cases of chronic alcoholism and of drug addiction show that hyperpiesia was not found unless alcoholism was accompanied by organic disease of the heart or kidneys. Even in cases of hepatic cirrhosis a systolic blood pressure of over 160 mm. Hg has not been observed, but the "pulse pressure" in cirrhosis is usually very low, being seldom more than 30 or 35 mm. Hg, suggesting that alcohol has a selective toxic action on the heart. Many persons of "apoplectic" appearance have a comparatively low systolic pressure with a high diastolic pressure. These patients do not suffer (as their friends imagine) from "high blood pressure," but from circulatory stasis, a very common symptom of chronic alcoholism, frequently associated with albuminuria and hepatic congestion, if not actual cirrhosis. This circulatory stasis is aggravated sometimes by heroin or morphine addiction.—I am, etc.,

Great Nessenden, Bucks, June 29th. C. W. J. BRASHER.

Injuries of the Knee-joint

SIR,—I have very few, if any, beliefs in the permanence of theories in either medicine or surgery, but it is refreshing to find one whose views are so firmly fixed that it is impossible to shake them. Mr. Stewart Woodman (June 23rd, p. 1142) regards rupture of the cartilage whilst the joint is extended as a heresy, forgetting that many of the heresies of yesterday are the orthodoxies of to-day. He seems so obsessed with his "old chief's" views that if a case occurred under his eyes he would probably imitate our Yankee cousin who, on seeing a giraffe, exclaimed "There ain't no such animal."

Mr. Woodman goes on to say: "There is nothing in Dr. Stewart's description . . . to prove that the injury occurred in extension." I gave the history of two cases as they were described to me, holding no beliefs one way or the other as to the position of the joint. The rail-layer was most certainly erect and rigid in all his joints, as he was supporting a very heavy weight, and a man does not do that with bent knees and bowed back. In the second case, does "he infer" the leg is never straight when running? The only addition I can suggest is a slow-motion picture. Another point I wished to make was that the foot was fixed in each case, not at all admitted by the theorists.

There is a sentence in Mr. Stewart Woodman's letter that I do not fully understand: "the presence of locking in extension—he does not say full extension." May I ask Mr. Woodman has he ever seen the knee locked in extension? If he has, assuredly the sun shines fiercely in Baghdad! I should like to ask in passing, What has the case he has quoted in the latter half of his letter to do with the mode of production, or the position of the joint, in rupture of the internal semilunar cartilage?—I am, etc.,

Leeds, June 25th.

J. STEWART.

Evipan Anaesthesia

SIR,—In reply to Dr. Montague Solomon's remarks in the current number of the *Journal* on my short article published on June 9th: His criticism is so logical and conclusive that I felt at first like a schoolboy having "an essay torn to shreds by a hard-minded schoolmaster." May I in turn venture to criticize some of Dr. Solomon's remarks.

He writes: "The patient was the same; evipan was used on both occasions; the only new factor was that of omnopon and scopolamine," and previously, "Might I suggest that the depressant effects which occurred have been due rather to the previous administration of a very large dose of omnopon combined with scopolamine, both of which are powerful respiratory depressants, rather than to evipan?" This seems hardly logical and certainly not scientific. The injection of omnopon and scopolamine was given one hour before the injection of evipan, and the alarming symptoms occurred fifty minutes after the latter. Surely if the first injection is entirely to blame the symptoms would have occurred earlier. The only conclusion one can draw is that the symptoms were due to the combined effects of all three depressants, but only after evipan had been added as a third depressant. My view of the case is as follows: In the first instance, when evipan alone was used, the respiratory centre was no doubt depressed but not sufficiently to cause any symptoms. In the second instance evipan was acting on a centre already depressed by the premedication.

Dr. Solomon's second criticism states that with a very limited number of cases—namely, two—I claim to have proved that evipan is a respiratory depressant, etc. May I point out that I have assumed the depressant action of evipan, and all I claim is that my case "illustrates"

its effects. I hope that I may still maintain that my case illustrates, but does not prove, the depressant action of evipan on a respiratory centre artificially weakened by premedication, and also its selectivity for that centre.

Dr. Solomon may be interested to know that this was the first occasion on which I have used premedication with evipan, and up to the present it is also the last case in which I have tried it.—I am, etc.,

PAUL KUHN.

Buchanan Hospital, St. Leonards-on-Sea, July 1st.

Roger Bacon and Thirteenth Century Medicine

SIR,—It is perhaps as a philosopher and Franciscan friar that Roger Bacon is best known. The versatility of his knowledge overlapped, however, the boundaries of many sciences, both pseudo and real, and he certainly deserved the title of Doctor Mirabilis. It is generally accepted that he was born about 1214 near Ilchester in Somerset: he is credited with being the inventor of gunpowder, and his work on optics led him to anticipate the camera and the telescope.

His alchemical doctrines led him in the direction of medicine. In the *Philosopher's Stone* he saw the medicine of the metals, and in his *Opus Majus* it constituted the elixir vitae, which was to cure all the ills of the flesh and to act as a specific against old age. Roger Bacon styled gold "this best of medicines because there is in it an equal or right nature and it is not subject to the corruption of any of the elements." In his treatise entitled *De retardandis senectutis* he was, however, much in advance of his time in drawing attention to the importance of diet and hygiene.

Bacon did not apply experimental evidence to medical practice in the same way as he applied his versatile and critical mind to certain other branches of learning. In this we see he was not very far in advance of the medicine of his day, except as a dietitian and hygienist, as previously mentioned. As an alternative to gold as a remedy for old age "the wonderful doctor" mentioned viper's flesh, because when the viper became old it cast off its skin and became rejuvenated. A more quaint remedy for senescence was "the bone of stag's heart," and he mentioned, as evidence of its value in promoting longevity, that a stag was captured in his own day wearing a collar dating back to the time of Julius Caesar.

Owing to Roger Bacon's influence the doctrine of signatures or signs arose later in mediaeval medicine. This theory suggested that the external form of a plant or mineral indicated its medicinal value. Lungwort (*Pulmonaria officinalis*) was prescribed for pulmonary disease because the leaves resembled the outline of the lungs. Eye-bright (*Euphrasia officinalis*), a plant with a black spot on the corolla like the pupil, was considered to be a remedy for diseases of the eye. In spite, however, of some false views, Bacon was, generally speaking, far in advance of his time, even more in advance than he dared to admit. It must be remembered he lived in an age in which the speculative mind sometimes ran contrary to the views of the Church, and therein lay a danger.—I am, etc.,

R. B. F. FRAZER, L.R.C.P. and S.Ed.,

London, N.W. 6, June 27th. Barrister-at-Law.

Traffic Control by Light Signals

SIR,—I am asking you to take up this matter in your columns because there is quite an element of medical, or at any rate physiological, science involved in the controlling of traffic by sudden signals to stop. The present system of a sudden change from the green "Go" signal to the yellow "Caution," which is technically on a par

with the red "Stop," makes no allowance at all for the fact that each person has a different reaction time, and that a fast-moving car cannot be brought to rest in the twinkling of an eye.

The point I wish to emphasize is that the designers of these signals found it necessary to provide a warning to start a car after a halt at a crossing by providing an initial red-yellow signal before the green appears, which is obviously superfluous. Amazingly, they omit to provide a green-yellow sign to fast-moving traffic, as a warning that by the time the driver has travelled 100 yards or so he must expect to find the short "Caution" yellow light appear, and be prepared to stop. In a nutshell, there is far too little warning given to relatively fast-moving main road traffic that it must stop. The present position leads to two classes of evil. Driver A, careful and correct, gets his car thoroughly in hand when he sees a signal in the distance, and takes an altogether unreasonable time about his journey in consequence. Driver B, human and in a hurry, stamps on his accelerator every time he sees a green light, in the hope of just cheating the yellow. Driving strain would be much reduced and compliance with the law made reasonable and possible if the light sequences were made as follows: Green; green-yellow (implying a definite instruction to bring the car under control and be prepared to stop); yellow (a very short safety period, during which no vehicle may cross in either direction); and red—full stop. If technical considerations demand the use of red-yellow in the restarting process, well, there is no objection.

I maintain that the present system of sudden changes imposes an unnecessary mental strain on drivers, makes the real compliance with the law very difficult, takes no account of the slow reaction time or faulty quick judgement of numerous individuals, and finally imposes a quite unfair strain on the mechanism and tyres of cars by bringing them suddenly to a stop with hard braking. I suppose my remedy is too simple ever to be considered by the ingenious people who design these signals without first consulting someone with a little common sense and a little knowledge of human psychology and physiology. For, after all, it is not wheels and engines that are being controlled by these signals; it is the human brain.—I am, etc.,

London, S.E.5, June 24th GUY BOUSFIELD, M.D.Lond.

Universities and Colleges

UNIVERSITY OF OXFORD

At a convocation held on June 20th it was resolved to confer the degree of D.Sc. *honoris causa* upon Professor Archibald Vivian Hill, O.B.E., F.R.S., M.A., Sc.D.Camb.

Boards of Faculties

The Vice-Chancellor and Proctors have made the following nominations of persons to hold office for two years as members of Boards of Faculties: *Faculty of Medicine (Ordinary Members)*: T. B. Heaton, D.M., student of Christ Church; R. S. Creed, D.M., and F. G. Hobson, D.M., Fellows of New College.

The following candidates have passed in the examinations indicated:

FORENSIC MEDICINE AND PUBLIC HEALTH—R. I. Bence, H. S. Brothribb, R. Clarke, J. P. Dewsberry, A. Farnley, R. C. Gurnan, G. F. Greenwood, T. W. Lloyd, R. McDonald, T. M. Williams.
MEDICINE, SURGERY, AND MIDWIFERY—P. C. Alexander, J. H. Bartlett, R. I. Bence, C. A. Bracher, F. M. Bazzard, A. M. G. Campbell, J. P. Dewsberry, W. F. Fawcett, R. H. Gardner, D. W. Gault, C. E. Greenwood, T. W. Lloyd, J. R. Nassim, A. G. Palm, J. F. G. Pearson, W. H. A. Picton.
PNEUMONOLOGY—W. J. C. Anstee, R. I. Bence, H. S. Brothribb, S. H. L. Bellmore, M. C. Chapman, G. A. Holston, G. O. Jell, Ned Leitch, G. L. M. McElhigott, W. P. Mallinson, D. F. G. Muir, J. C. Patten, F. M. Poulton, J. L. Reed, O. H. J. M. Telling, E. G. Tuckwell, J. W. A. Turner, G. Ward, T. M. Williams.
MATERNAL MEDICINE—W. J. C. Anstee, R. W. Barr Brown, G. H. L. Bellmore, W. W. Coppinger, D. L. Davies, J. W. B. Douglas, A. F. Foster-Carter, D. M. T. Gardner, W. E. Gibb, J. B. M.

Green, Neil Leitch, S. H. Llewellyn-Smith, K. H. A. Marshall, N. H. Martin, N. J. de V. Mather, A. T. M. Myres, N. A. Neville, R. W. Parnell, M. A. Partridge, H. M. Sinclair, M. A. Stee, N. K. Stott, D. H. Swayne, P. de B. Turtle, R. J. Stephens (St. Hilda's).

UNIVERSITY OF BIRMINGHAM

At a congregation held on June 30th the following degrees were conferred:

LL.D. (Honoris Causa).—Professor C. A. Lovatt Evans, F.R.S., F.R.C.P.

M.D.—H. P. Gilding.
M.B., Ch.B.—*†Phyllis M. Ball, *R. M. Case, *F. H. Kemp, N. Angel, T. D. Brettell, C. H. Catlin, C. H. Goodliffe, Bessie W. Goodwill, E. G. Gregory, Joan E. Hickinbotham, Christia F. Lucas, E. C. Ostler, O. C. L. Pitter, A. B. Rowlands, †C. R. St. Johnston.

* Second-class honours. † Distinction in Surgery.
‡ Distinction in Medicine.

The following scholarships, medals, and prizes have been awarded. **Richard Fenwick Post-Graduate Scholarship**: W. H. P. Cant. **Queen's Scholarships**: (third year) G. Mitchell, (fourth year) J. A. R. Johnson and A. H. Khan (divided), M. K. Tabataba, (fifth year) J. L. Collis, (final year) Phyllis M. Ball. **Ingleby Scholarships** (final year): C. H. Catlin, Joan E. Hickinbotham. **Arthur Foxwell Memorial Medals** (final year): R. M. Case, C. R. St. Johnston. **Sampson Gamgee Memorial Medal in Surgery** (final year): Phyllis M. Ball. **John Barritt Melson Memorial Gold Medal for Physiology** (third year): C. M. Fenn. **Priestley Smith Prize for Ophthalmology** (final year) and **Russell Memorial Prize**: F. H. Kemp. **Foyle Prize**: J. A. R. Johnson and A. H. Khan (divided), M. K. Tabataba. **Peter Thompson Prize in Anatomy** (third year): Frances B. Robinson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Primary Fellowship Examination

The following have been successful at the First Professional Examination for the diploma of Fellow:

H. Ackers, H. Agar, H. R. Alban, M. Albert, H. G. E. Arthure, J. I. M. Black, I. N. Blusger, A. Bowen-Davies, W. Bullock, H. L. Cochran, L. Z. Cosin, A. G. Cross, H. L. Davies, I. H. Davies, H. K. Doctor, A. Dorman, Katharine W. Dunn-Pattison, B. H. Ellis, J. S. Ellis, F. R. Edwards, R. H. Franklin, S. G. French, H. W. C. Fuller, Dorothy M. Gladwell, H. Goldfarb, D. L. Griffiths, E. H. Hambly, A. J. Henriot, G. Hyman, W. H. G. Jessop, H. H. Langston, A. D. Le Vay, J. W. S. H. Lindahl, C. J. Longland, G. H. Macnab, R. L. Mehra, M. S. M. Mehta, D. V. R. Nadkarni, M. L. Pan, A. R. Parkes, E. R. G. Parse, E. W. Peet, G. L. Pett, J. W. Pugh, J. L. D. Roberts, A. Rose, H. L. M. Roulle, V. Sankarambal, K. C. Sarkar, P. G. Scott, H. Scudamore, W. M. H. Shaw, F. W. Shepherd, J. Sherne, J. G. C. Spencer, J. A. Stallworth, R. Strang, A. W. G. Sutherland, T. G. Swinburne, M. Talwar, R. G. Taylor, G. Townsley, H. I. Turnbull, R. E. Waterston, W. E. Wimberger, R. F. Winckworth.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—R. M. Outfin.
MEDICINE.—G. A. Bell, G. W. Bender, P. E. Cresswell, C. McK. Johnston, S. Klein, A. Lassman.
FORENSIC MEDICINE.—G. W. Bender, P. E. Cresswell, C. McK. Johnston, S. Kay.
MIDWIFERY.—W. C. Campbell, W. McC. Graves Morris, H. W. John, S. Kay, G. F. Metcalf.

The diploma of the society has been granted to S. Kay and G. F. Metcalf.

LONDON INTERCOLLEGIATE SCHOLARSHIPS BOARD

The following awards of medical entrance scholarships and exhibitions have been made on the results of the Board's examinations.

UNIVERSITY COLLEGE.—*Medical Scholarship*, L. J. Temple; *First Medical Exhibition*, W. S. Lewin; *Second Medical Exhibition*, R. Mawson.

KING'S COLLEGE.—*Warneford Scholarships*, R. G. Evans, J. L. Lawrence; *Sambrooke Scholarship*, G. T. E. Jenkins.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—*Science Scholarship*, R. P. Crick.

LONDON SCHOOL OF MEDICINE FOR WOMEN.—*A. M. Durd Entrance Scholarship*, J. Avarne; *Mabel Sharwan Crawford Scholarship*, M. L. Taylor.

LONDON HOSPITAL MEDICAL COLLEGE.—*Price Scholarship*, D. A. Miln.

STREATFEILD SCHOLARSHIPS

Mr. Iver Griffiths and Mr. P. Jacobs have been appointed Streatfeild Scholars, under the trust administered jointly by the Royal College of Physicians of London and the Royal College of Surgeons of England, to carry out an investigation into "The Tonsil—its Anatomy, Physiology, and the Relations of its Lymphatic Vessels."

Obituary

W. A. VALENTINE, M.D.

Major R.A.M.C. T.A. (ret.)

We regret to announce the death of Dr. William Arthur Valentine, at the age of 65, at his home in Appledore, Devon, where he settled thirty-five years ago. He was born in Co. Fermanagh, and was trained in Dublin, graduating M.D. at Trinity College in 1894. Dr. Valentine held many posts. He was district medical officer for the Northam District, medical officer of health for the Barnstaple Port Sanitary Authority, surgeon agent to the Admiralty, and medical inspector of seamen for the port of Bideford. He was also surgeon to the Bideford and District Hospital. For more than twenty years he was medical officer of the Territorial battalion of which his son, Captain A. W. Valentine, is now adjutant. He volunteered for active service in 1914, and accompanied the 1/6th Battalion the Devonshire Regiment to India. He was later in France, where he served with the 3rd Battalion Royal Fusiliers, and for the last two years of the war was attached to the Serbian Army in Salonika. For his services in Salonika he received the Serbian Order of St. Sava and that of Knight of Redeemer of Greece. He was also keenly interested in the British Legion and the lifeboat work at Appledore. He took a great interest in yachting, and had been vice-commander of the Taw, Torridge, and North Devon Sailing Club.

Dr. Valentine joined the British Medical Association immediately after graduation, and was always a very active member, attending all the Divisional meetings. On two occasions he held the post of chairman of the Barnstaple Division—1909 and 1932—and last year he attended the Dublin Annual Meeting as Representative. In 1933 he was nominated president-elect of the South-Western Branch. He looked forward with great pleasure to acting as president. As the time approached, however, he realized that his failing health would not permit him to undertake the onerous duties of president of the Branch, and it was with the greatest regret he resigned. He had already prepared his annual address on a gynaecological subject, this department of medicine being one in which he was greatly interested. By a sad coincidence his death occurred three days after the holding of the annual meeting of the South-Western Branch in Bideford, at which, had his health permitted, he would have been installed as president. His younger son, Dr. Desmond Valentine, succeeds to his father's practice in Appledore. The large attendance at the funeral service, consisting of representatives of all classes, showed the high esteem in which he was held throughout North Devon.

We regret to announce the death, on June 15th, of Dr. GEORGE JONES at his home in Church Terrace, Lewisham. He was born at Stoneleigh in Warwickshire on July 4th, 1860, and from Rugby went with a good grounding in the classics to Oriel College, Oxford, in 1879. After studying medicine at the London Hospital he graduated M.B.Oxon in 1891 and obtained the English Conjoint diplomas and the L.S.A., and a few years later the D.P.H. At the London Hospital he was in turn house-physician, aural house-surgeon, junior resident accoucheur, and senior receiving room officer; at the West End Hospital for Nervous Diseases he was house-physician; and at the Victoria Park Chest Hospital, resident medical officer. In 1903 Dr. Jones was called to the Bar, and some years later was appointed lecturer in forensic medicine and hygiene at the London Hospital Medical College, combining this with general practice in the City. He edited the third edition (1929) of the late Dr. F. J. Smith's *Forensic Medicine and Toxicology*, thus bringing up to date the published version

of the course of lectures in this subject given to students at the London Hospital. Dr. Jones had been a member of the British Medical Association for forty years, and in 1930 he represented the Lewisham Division at the Annual Representative Meeting. Occasional notes and letters by him, some of them over his signature and others over the pseudonym "*Senex*," appeared from time to time in these columns: they were generally of the nature of brief excursions down a side-path of forensic medicine or medical sociology, with perhaps one or more classical allusions, and an apt line from Juvenal or Shakespeare, or a reference to some mediaeval legal authority. This erudition was unforced: George Jones had a well-furnished mind, and could not comfortably put pen to paper without drawing upon his rich store of knowledge. We shall miss his little contributions, written in a legible scholar's hand with fastidious care for accuracy of quotation.

The death took place suddenly on June 24th, at his residence in Newton Place, Glasgow, of Dr. E. H. LAWRENCE OLIPHANT, who was well known as a specialist in obstetrics and gynaecology. Dr. Oliphant was born in 1860 at Pau, in the South of France, and after taking a medical course at Edinburgh graduated M.B., C.M. there in 1882, proceeding to the M.D. degree in 1886. After a period as resident physician with the late Sir Douglas MacLagan in the Royal Infirmary, Edinburgh, he studied for some time in Paris and Vienna and then took up practice in Glasgow. Here he was dispensary physician for diseases of women in the Western Infirmary, and physician to the Maternity Hospital; he was also associated with the Glasgow Hospital for Women in Burnbank Terrace. He enjoyed a large practice in his specialty, but retired some ten years ago. For sixteen years he was librarian to the Faculty of Physicians and Surgeons, Glasgow, a post which he resigned last year. He took a keen interest in various medical activities, having been a director of the Eye Infirmary, Glasgow, and at one time president of the Obstetrical and Gynaecological Society of Glasgow.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

THE LAW OF PARTNERSHIP

Partnership, in so far as it creates a legal relationship, is governed by the courts which administer the system known as equity. The law of partnership has been built up through centuries by the application of equitable as opposed to legal rules. ("Equitable" is here used as the adjective of "equity," and not in the popular sense.) The essence of equity is that it inquires first, not into a man's strict legal rights, but into the fairness of his dealings with others.

In the early Middle Ages the justice administered by the ordinary courts of law left much to be desired; they were often so hide-bound by precedent that they could not grant a just remedy, and sometimes they could not enforce their judgments against a powerful defendant. Aggrieved persons would petition the King on the ground that it was against the Royal conscience to permit injustice. These complaints went to the Chancellor, who as the King's confessor was the keeper of the Royal conscience, and who conducted the Court of Chancery. He gave remedies based on conscience: if a party, though on the right side of the law, acted against conscience, the Court of Chancery would forbid him to profit by his legal rights.

Nowadays all courts, in theory at least, administer equity as well as law, but the Chancery Division applies rules based on conscience to all the transactions which come under its jurisdiction, and partnership is one of these transactions. This is why a partnership is created not merely when the partners sign a typed agreement

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), and a second on June 23rd (p. 1145).

in the presence of witnesses. In the eyes of equity, the essence of partnership is that two or more persons, acting together with a view to making a profit, thereby trust one another to behave according to good conscience. Whenever, therefore, this relation of trust subsists the court may infer a partnership, with all its rights and obligations, even though nothing has been put on paper or even said between the parties. A legal partnership may be created if two or more persons share joint profits, or allow their names to appear, or behave, in such a way as to imply that they are practising as partners. Moreover, throughout its dealings with a partnership the court will apply the test of conscience to all the claims and conduct of the partners, and will not enforce an unfair agreement or allow a partner to benefit by unfair conduct, even though in strict law these might be justifiable.

WHAT IS PARTNERSHIP?

The Partnership Act, 1890, was an attempt to make a coherent code out of the mass of decisions which had been piled up in the course of time by the courts of equity. It is not a complete code and did not supersede any existing rules of law and equity, but it reduced an undigested mass of law to a series of authoritative and considered propositions. Medical partnerships, since they possess little property, and have few financial dealings, are affected only by some of its provisions. It defines partnership as the relation which subsists between persons carrying on a business in common with the view of profit. There need not be any joint capital or stock, and so a legal partnership may exist between medical men even where the goodwill itself is not a partnership asset and each partner pays his own expenses. The Act lays down several sets of circumstances which do not of themselves create partnership, such as common property, the sharing of gross returns, or even the sharing of profits, and if two or more medical men desire to work together without being legal partners there is no difficulty in framing an agreement which will allow them to do so.

In fact, it is impossible to find any definite unqualified statement, either in the Act or outside it, that if two persons do thus-and-thus they are partners, and their mutual rights and obligations shall be so-and-so. *Prima facie*, persons who share the profits and losses are partners, and the Act lays down a number of rules governing the rights and obligations of partners to one another, but all these rules can be varied or set aside by express agreement. Whether in a particular case there is a partnership or not depends on whether or not the parties intended to be partners, and the question is answered by considering all the terms of the contract, and the conduct of the parties, as a whole. The vital question is, What was the real bargain between the parties? Even if the written agreement says that the relationship is not a partnership, it can still be one in the eyes of the law if the agreement, construed as a whole, gives the rights and imposes the obligations of partnership.

The truth is that if there is a clear agreement between the parties it does not matter much as between themselves whether they are called partners or anything else. If, however, the terms of their bargain are not clear and they appear from all the circumstances to be partners, their rights and duties to one another are fixed by all those provisions of the Partnership Act which they have not agreed to negative or vary. In regard to outside persons, on the other hand, the question of partnership or no partnership is very important indeed, for each member of a partnership is an agent of it, and his acts in the course of business bind the firm; the partners are jointly liable for the firm's debts,* and each is liable civilly, though not criminally, for the wrongful acts of any other in the ordinary course of the firm's business.

THE PARTNERSHIP ACT, 1890

As far as the relations between the partners themselves are concerned the provisions of this Act are binding if they are not clearly varied by the partnership agreement.

* In Scotland each partner singly is liable. The liability of partners to third parties will be discussed more fully later on.

or the conduct of the partners. They create a relationship which is unsatisfactory in the same way that a ready-made suit of clothes is unsatisfactory; it serves its purpose in a rough-and-ready way, but does not really fit. The shortcomings and difficulties of the statutory relationship can be corrected as between the parties by properly drawn articles of partnership, in which the draftsman has tried to anticipate intelligently the difficulties which may arise between partners. In the relations of the partnership with outside people, the provisions of the Act are binding, no matter what arrangements the partners have made between themselves.

If the partners have not agreed otherwise, their rights and duties are as follows. They are all entitled to an equal share in the profits, and must contribute equally towards the losses. The partnership must make good to a partner any payments he has made or personal liabilities he has incurred in the ordinary and proper conduct of the firm's business, or in taking necessary steps to preserve its business or property. Each partner may take part in the management, but no partner is entitled to remuneration for acting in the partnership business. If there are more than two partners, and they disagree on some ordinary matter connected with the business, the decision of the majority will hold good, but an actual change in the nature of the partnership business requires the consent of all the partners.

NEW PARTNERS

No partner may introduce a fresh member into the partnership without the consent of all the other partners. The admission of a partner's son into the business has been held to be an ordinary matter connected with the business, and therefore capable of being decided by a majority (*Highley v. Walker*, 1910). This, however, was an ordinary business partnership: in a medical partnership the personality of the new partner is much more important, and if this factor were made clear to the court it might well decide that the admission of a partner's son was not an ordinary matter, but needed the consent of all the members of the firm.

Partners sometimes agree in their written articles that if one of them wishes to retire, or is incapacitated, or dies, he or his personal representatives (the persons who by law act in his place after death) may introduce a new partner with similar rights and obligations. The remaining partner or partners, having agreed in advance to the admission of the new partner, must admit him. If they refuse, the court may grant an injunction preventing them from excluding the new man; or may order them to render an account (*in Featherstonhaugh v. Turner*, 1858, the representatives were given what would have been the deceased's share of two years' net profits); or may order them to execute the necessary and proper deeds admitting the new man; or may decree a dissolution of the partnership.

In *Byrne v. Reid* (1902) a partner was given the right under the articles to nominate and introduce a son or any other person into the partnership. He nominated a son, whom the other partners refused to admit. The Court of Appeal decided that the son had already become, in equity, a partner, as he had been duly nominated, and the others, although they had not admitted him, ought to have done so. As equity regards a thing as having been done if it ought to have been done, the son was held entitled to have the necessary deeds drawn up.

The court will, in some cases, not be content with allowing damages for breach of contract; it will actually enable the nominee to take his place as a partner. Whether it would treat a medical partnership in this way is doubtful, because the business requires willing co-operation between the partners. It would probably stop short at forcing a new medical partner on an unwilling firm.

EXPULSION OF A PARTNER

No majority of the partners can expel any partner unless they have been given power to do so by express agreement between the partners. Even if they have the power, they must exercise it carefully and in extreme

good faith, for the court is very strict in upholding the rights of the expelled partner, and will at once declare an expulsion void if it considers that the partners have at all failed in their duty or exceeded their power. The excluded partner must be given a full opportunity of stating his case. (These rules do not apply to the right sometimes given by articles to one partner of terminating the partnership if any of the others commits a breach of duty.)

PARTNERSHIP AT WILL

If the time originally fixed for a partnership has expired, but the partners continue to carry on the business without any settlement or liquidation, it is considered in law still to be a partnership on the same terms as before, so far as these are still applicable. The rights and duties of the partners remain the same. Their relationship is, however, now called a "partnership at will," and any partner can instantly dissolve it when he wishes, provided he is acting in good faith and not for the purpose of deriving any undue advantage for himself. There is no expulsion from a partnership at will, whatever the original articles may have laid down. If, however, they contained a provision that, on the death of one partner, the others should buy his interest or admit a nominee in his place, this provision will probably be held to apply to the partnership at will as well as to the original partnership.

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Partners must, when required, render true accounts and full information of all things affecting the partnership to any partner or his legal representatives. Moreover, to fulfil the duty which equity lays on all partners of acting in scrupulous good faith to one another, a partner who derives benefit from any transaction concerning the partnership, or from any use of the partnership name or connexion, without the consent of the others, must account to the others for that benefit. This obligation persists even after dissolution by the death of a partner, until the affairs of the partnership have been completely wound up. A partner must not compete with his firm, and a medical partner who, without the consent of the other partners, carried on practice in the district in his own name would have to account for and pay over to the partnership all the profits he made. If he carried on his practice outside the district and not in competition the case might be different, but he would still be using time and effort that he owed to the partnership, and the court might well hold that he was bound to account for his profits. If a partner's appointment expires and he gets it renewed, it is still partnership property, and he cannot profit by it for himself. If he obtains any information in the course of the firm's business he must account to the firm for any profits he may make thereby. If, however, a doctor, using the knowledge he has gained in partnership, writes a textbook, he is doing something which is not within the scope of the partnership's business, and, in the unlikely event of his making any profits, he need not account for them.

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Medical Notes in Parliament

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Mr. RHYNS DAVIES, moving a reduction, asked that the reports and statistics in regard to infantile mortality, which at one time were compiled as between district and district, should be restored. He asked if the Ministry was taking any steps to extend hospital accommodation for the treatment of cancer patients, and to deal with the increase in the number of cases of rheumatism, also what the Minister's policy was in relation to the provision of more maternity homes. In 1934 the grant for the training of midwives and health visitors was £26,500, compared with £27,000 in 1933—a reduction of £500. If money could save the lives of mothers more should be spent. The Minister had had in his department a famous medical woman—Dame Janet Campbell. She resigned a few months ago. Had a successor been appointed? The Minister, in a recent speech, stated that he proposed shortly to issue a circular to local authorities pointing out the directions in which development of their services was still required, particularly in those areas where the rate of maternal mortality was highest. Had that circular been issued, and, if not, when might it be expected?

The Medical View

Sir FRANCIS FREMANTLE said those concerned in the advance that was being made towards the discovery of the causes, prevention, and treatment of cancer were generally of the opinion, though not unanimous, that there was no real increase, age for age and like for like, in the incidence of cancer. As far as they could make out from the actual figures in any one area under like circumstances the total affected of those between 40 and 70 was fairly stationary, although unfortunately it was not being much reduced. The same thing applied to a certain extent to the increase in

rheumatism. There had been a constant decrease in the figures of infant mortality, from 153 per 1,000 seventeen years ago to 62 per 1,000 last year. This drop applied not only to infancy, but was continued through the second, third, fourth, and fifth years of childhood. He would compare the statistics for the years 1911 to 1915 with those for 1932. Taking the mortality in the second, third, fourth, and fifth years of life and comparing it, per 1,000, with the mortality before the war, they found that whereas 35 per 1,000 died in their second year before the war, the figure had been reduced to 14; in the third year of their age it had been reduced from 14 to 6 per 1,000; in the fourth year from 9 to 4 per 1,000; and in the fifth year from 6 to 3 per 1,000. So that in each of the years of the child's life the mortality had been halved in the last twenty years. That was a matter for great satisfaction. Referring to the report of Dame Janet Campbell on maternal mortality in the Netherlands, Sir Francis said that the Netherlands was the only country comparable with ours. Their maternal death rate was lower than ours, but was still increasing, as was ours. He said he would like to see a return to the old system of leaving maternity work in the hands of midwives, bringing the medical man in only as a consultant or in cases of need. In carrying out that idea, it was most important to provide a better training for midwives. With regard to housing, he asked if some of the money that was given for slum clearance could not be used for rehousing tuberculous people in village settlements such as Papworth. Some machinery might also be established between the Minister of Health and the new Unemployment Board, whereby the Minister of Labour might be able to give employment under the Unemployment Act to those who were tuberculous.

Mr. SHAKESPEARE said that it was absurd to say that the condition of the water supply was critical. He denied a statement which recently appeared in a newspaper that because of water shortage there was an outbreak of scarlet fever and diphtheria. When he saw that statement he sent for the best expert in the country, who pointed out that scarlet fever and diphtheria were not diseases associated with the absence of water. With regard to housing, the Government was bringing in a Bill to deal with the troublesome aspects of the problem of overcrowding in London and elsewhere.

Sir HILTON YOUNG, replying to the debate, said that a concession had been arranged in regard to arrears of national health contributions which had not yet been announced to the House. The reduced contribution of 9d. instead of 1s. 6d. hitherto only available to those who had covered three-quarters of the year's contributions, would in future be available to all those who, owing to unemployment, fell into arrears. The cost of the concession would fall on the fund, and ultimately on the Exchequer. To put the country in full possession of the latest position in regard to housing in general and slum clearance, he proposed to make full half-yearly returns. The first would be published after the next September figures. With regard to maternal mortality, the Government's policy was to press ahead with the development and improvement of existing services. It was not content with them, and would not be content until those services under every local authority were in a position as good as the best. He proposed, in the early autumn, when the local authorities were preparing their budgets, to stimulate action by a circular.

Illicit Drug Trade

The 1922 Committee of Conservative M.P.'s was addressed at the House of Commons, on June 25th, by Russell Pasha of the Egyptian Police upon the campaign against the illicit manufacture and smuggling of narcotic drugs. He said that the number of addicts in Egypt had been reduced to one-tenth, and that Governments generally were loyally carrying out the precautions necessary to prevent illicit manufacture and transport of drugs. He praised the work of the Narcotics Bureau at Geneva, but spoke of the manner in which the factories supplying the trade were re-created in new countries, with the most modern equipment after their suppression elsewhere. The center of the trade was now Manchuria, where factories had been established, and the sale of the product in China would give great concern. The most

common drug in the international traffic was now heroin. He had found in the Paris police a disposition not to interfere with the supply of such drugs to "society" addicts.

Training of Nurses in Scotland: Inquiry Committee

Mr. SKELTON informed Mrs. Shaw, on June 26th, that the Secretary of State for Scotland proposed to institute an inquiry into the system of training and registration of nurses in Scotland, and had appointed a Departmental Committee on this subject. The members of the committee would be: Sheriff A. Campbell Black (chairman); Dr. W. L. Burgess, medical officer of health, Dundee; Lady Susan Gilmour, Queen's Institute of District Nursing; Miss M. R. Knight, medical superintendent, Paisley District Asylum; Mr. T. B. M. Lamb, Scottish Education Department; Sir Henry Mechan, Western Infirmary, Glasgow; Mr. John Reid, medical superintendent, County Hospital, Motherwell; Miss Elizabeth Smail, matron, Edinburgh Royal Infirmary; Miss Christina Whyte, matron, Robroyston Hospital, Glasgow; and Dr. John Young, Falkirk and District Royal Infirmary. Mr. W. T. Mercer of the Department of Health for Scotland has been appointed secretary to the committee. The terms of reference of the committee are:

"To inquire into the training and system of registration of nurses in Scotland and to recommend what amendments, if any, should be made in the Nurses Registration (Scotland) Act, 1919, or the rules made thereunder, and what other steps, if any, should be taken to improve the existing system of training and registration."

No Lotteries for British Hospitals

In the House of Commons, on June 27th, the Betting and Lotteries Bill was read a second time after discussion but without a division. While expounding its provisions Sir JOHN GILMOUR said the hospitals throughout the United Kingdom did not desire to enter the field of lottery promotion, since at the present moment they were receiving contributions from every working man in every works and from individuals throughout the country. In these circumstances the Government was right in deciding against the legalization of large-scale lotteries. In closing the debate for the Government Mr. HACKING said that from a motion on the order paper he noticed Sir Wm. Davison had discontinued his demand for hospital lotteries. Those who controlled hospital finances no longer desired this help.

The Bill was referred to a Standing Committee.

Road Traffic Bill Passed

The Road Traffic Bill passed through report stage in the House of Commons on June 28th and 29th. On Clause 13 (payments and insurance in respect of emergency treatment of injuries arising from the use of motor vehicles on roads), a minor amendment was moved and withdrawn, but the matter of the clause was not discussed. The third reading was moved on June 29th after the report stage ended. During discussion Mrs. TATE said she regretted the provision in Clause 13 which made the user of a car liable for payment to doctors for emergency treatment, whether or no the motorist had been in any way responsible for the accident. All sympathized with doctors who were unable to collect their fees; the law was unjust which provided that someone in no way responsible should be penalized. Mr. STANLEY said that since the campaign of propaganda for safety on the roads began in April the figures of fatal accidents had kept level with the totals of last year, although there were about 100,000 more cars on the roads.

The Bill was read a third time.

Unemployment Assistance Board

The Unemployment Act received the Royal Assent on June 29th. On June 30th, in the House of Commons, Mr. RUSSELL MACDONALD announced that Sir Henry Bottomley would be appointed chairman of the Unemployment Assistance Board under Part II of the Act. The Board would also include Sir Ernest Simon, late of the Ministry of Health, Professor H. M. Halliwell, Dr. Thomas Jones, secretary of the Welsh National Campaign against Tubercu-

good faith, for the court is very strict in upholding the rights of the expelled partner, and will at once declare an expulsion void if it considers that the partners have at all failed in their duty or exceeded their power. The excluded partner must be given a full opportunity of stating his case. (These rules do not apply to the right sometimes given by articles to one partner of terminating the partnership if any of the others commits a breach of duty.)

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Training of Nurses in Scotland: Inquiry Committee

Mr. SKELTON informed Mrs. Shaw, on June 26th, that the Secretary of State for Scotland proposed to institute an inquiry into the system of training and registration of nurses in Scotland, and had appointed a Departmental Committee on this subject. The members of the committee would be: Sheriff A. Campbell Black (chairman); Dr. W. L. Burgess, medical officer of health, Dundee; Lady Susan Gilmour, Queen's Institute of District Nursing; Miss M. R. Knight, medical superintendent, Paisley District Asylum; Mr. T. B. M. Lamb, Scottish Education Department; Sir Henry Mechan, Western Infirmary, Glasgow; Mr. John Reid, medical superintendent, County Hospital, Motherwell; Miss Elizabeth Smail, matron, Edinburgh Royal Infirmary; Miss Christina Whyte, matron, Robroyston Hospital, Glasgow; and Dr. John Young, Falkirk and District Royal Infirmary. Mr. W. T. Mercer of the Department of Health for Scotland has been appointed secretary to the committee. The terms of reference of the committee are:

"To inquire into the training and system of registration of nurses in Scotland and to recommend what amendments, if any, should be made in the Nurses Registration (Scotland) Act, 1919, or the rules made thereunder, and what other steps, if any, should be taken to improve the existing system of training and registration."

No Lotteries for British Hospitals

In the House of Commons, on June 27th, the Betting and Lotteries Bill was read a second time after discussion but without a division. While expounding its provisions Sir JOHN GILMOUR said the hospitals throughout the United Kingdom did not desire to enter the field of lottery promotion, since at the present moment they were receiving contributions from every working man in every works and from individuals throughout the country. In these circumstances the Government was right in deciding against the legalization of large-scale lotteries. In closing the debate for the Government Mr. HACKING said that from a motion on the order paper he noticed Sir Wm. Davison had discontinued his demand for hospital lotteries. Those who controlled hospital finances no longer desired this help.

The Bill was referred to a Standing Committee.

Road Traffic Bill Passed

The Road Traffic Bill passed through report stage in the House of Commons on June 28th and 29th. On Clause 13 (payments and insurance in respect of emergency treatment of injuries arising from the use of motor vehicles on roads), a minor amendment was moved and withdrawn, but the matter of the clause was not discussed. The third reading was moved on June 29th after the report stage ended. During discussion Mrs. TATE said she regretted the provision in Clause 13 which made the user of a car liable for payment to doctors for emergency treatment, whether or no the motorist had been in any way responsible for the accident. All sympathized with doctors who were unable to collect their fees; the law was unjust which provided that someone in no way responsible should be penalized. Mr. STANLEY said that since the campaign of propaganda for safety on the roads began in April the figures of fatal accidents had kept level with the totals of last year, although there were about 100,000 more cars on the roads.

The Bill was read a third time.

Unemployment Assistance Board

The Unemployment Act received the Royal Assent on June 29th. On June 30th, in the House of Commons, Mr. RAMSAY MACDONALD announced that Sir Henry Betterton would be appointed chairman of the Unemployment Assistance Board under Part II of the Act. The Board would also include Sir Ernest Strommenger, late of the Ministry of Health; Professor H. M. Hallsworth; Dr. Thomas Jones, secretary of the Welsh National Campaign against Tubercu-

losis, 1910-11, and secretary of the National Health Insurance Commissioners for Wales, 1912-19; Miss Violet Markham, and Mr. M. A. Reynard, a member of the Consultative Committee on Local Health Administration and General Health Questions, 1926-29. Subsequently an announcement was made that Mr. Oliver Stanley succeeded Sir Henry Betterton as Minister of Labour, Mr. Leslie Hore-Belisha becoming Minister of Transport, with other consequential changes in the Government.

Restriction of Immigrant Doctors to Palestine

On July 2nd Colonel WEDGWOOD asked whether, and if so why, new immigrant doctors into Palestine were restricted to five a year, and whether there was a limitation on the number of doctors allowed to practise in any other British Colony or Dominion. He also asked if there were restrictions on the number of Jewish refugees from Germany practising as doctors in Palestine. Sir P. CUNLIFFE-LISTER replied that in March last the Executive of the Jewish Agency in Palestine was informed of a proposal of the Palestine Government to institute measures for the limitation of the number of licences to be issued annually to doctors, dentists, and advocates. No legislation had yet been enacted to give effect to these proposals, which were the subject of correspondence between the High Commissioner and himself. He knew of no similar system of limitation in other British Dependencies or in the self-governing Dominions.

Quinine Stocks of Government of India

On July 2nd the DUCHESS OF ATHOLL asked why the 300,000 lb. of quinine owned by the Government of India were lying idle, for how long had this been the case, and what arrangements were in contemplation for making this stock of quinine available for those who annually suffered from malaria and could not procure it. Sir S. HOARE said that the Government of India habitually maintained a reserve stock of quinine for emergencies. This reserve rose to 300,000 lb. about 1926 and continued at or above that figure until 1932. Measures had since been initiated to reduce it to 150,000 lb., which was regarded as a sufficient reserve. In March, 1933, it had been reduced to 282,759 lb. He had no later figure, but the Government of India was doing its best to increase sales. He would ask for a further report with reference to the last part of the question. The Duchess further asked if the recommendation of the Royal Commission on Agriculture in 1928 that the Government of India should control the production, manufacture, and distribution of quinine in the interests of those who suffered from malaria, had been held up since the first Round Table Conference. Sir Samuel Hoare said there was no foundation for this suggestion.

Contraceptive Advice at Clinics. Replying to Mr. Potter, on June 21st, Sir HILTON YOUNG said he had not made any regulations concerning the giving of contraceptive advice at institutions provided by public authorities, but had indicated the extent to which they were empowered under the statute law to make arrangements for giving such advice. The question of making a charge for any appliances supplied by the local authorities was a matter within their discretion. He had no complete information on this subject.

Physical Training in Scottish Schools.—Replying to Mrs. Shaw, on June 21st, Mr. SKELTON said the number of specialist teachers of physical training employed in State-aided schools in Scotland was 424, of whom 271 were women. Physical training was receiving increased consideration, but he was not convinced it yet occupied in all areas its proper place in the school curriculum, and he would continue to press its claims on the education authorities.

Water Storage Against Drought.—Sir HILTON YOUNG told Mr. Summersby, on June 21st, that large economies in water consumption could be and were being secured without any serious hardship on consumers. With few exceptions, the capacity of storage reservoirs was ample even for dry summers, but storage sufficient to provide unstinted supplies during so exceptional a drought as the present would be very costly, and involve a large permanent increase in the price of water, or a heavy deficiency to be met out of the rates.

Foot-and-Mouth Disease and Animals' Diet.—Dr. ELLIOT, replying to Sir A. Wilson on June 25th, said that it was difficult to summarize the work of the Foot-and-Mouth Disease Research Committee during the last two years. The fifth progress report was in course of preparation, and was expected to be available in the autumn. The Research Committee had considered the possibilities of the connexion between the quality of the food of cattle and the incidence of foot-and-mouth disease, and had advised that there was no evidence to show that diet or hygiene, or a combination of both, had any influence on the spread of the disease. Clinical observations and experimental work carried out by the committee had, in fact, shown that animals in good condition might contract the disease in a more severe form than animals in poor condition. Dr. Elliot also informed Lieut.-Colonel Ackland-Troyte that the conclusions reached by the Departmental Committee on Foot-and-Mouth Disease in 1925 and subsequent experience did not appear to justify further prohibition of the importation of straw, which was already prohibited from countries where foot-and-mouth disease existed.

New Housing Bill for Scotland.—On June 26th Mr. SKELTON told Mr. N. Maclean that the Secretary of State for Scotland proposed to introduce the new Housing Bill for Scotland next session. The object of the Bill would be to stimulate the erection of houses which could be let at rents within the means of people now living in overcrowded conditions who could not afford to pay ordinary rents.

Inoculation of Elementary School Children.—Replying to Mr. Groves on June 27th, Mr. RAMSBOTHAM stated that measures for the inoculation against infectious diseases of children attending public elementary schools were taken by the public health authority and not by the local education authority. The responsibility for obtaining the consent of the parent or guardian did not rest with the education authority. Official memoranda advised that no child should be inoculated without this consent. He had no reason to suppose that this advice was not generally followed. Mr. Groves, on June 27th, drew attention to a remark reported to have been made in a speech to sanitary inspectors by the deputy medical officer of health for Leeds that 8 per cent. of the children inoculated by him with toxoid, with a view to preventing diphtheria, had very severe reactions. Sir HILTON YOUNG said this related only to the use of powerful forms of diphtheria prophylactic employed to induce rapid immunization. The speaker had stressed the importance of applying a preliminary test which would discover the possibly severe reactors, and of immunizing these by the ordinary routine method. Sir Hilton did not think it necessary to ask medical officers of health to report to him all serious results of such inoculations.

Compensation in Cases of Nystagmus.—Sir JOHN GILMOUR told Mr. Tinker on June 28th that nystagmus was not the only injury or disease in view of which employers might be unwilling to take the risk of re-engaging the workman for his old work when he had become physically fit. Whether in such circumstances it was desirable, and in his own interests, that the workman should be entitled to further compensation was by no means simple. Various proposals had been made for modifying the conditions under which compensation was payable for nystagmus, and a full inquiry would be necessary before amending legislation could be considered. If Sir John were satisfied that there was a general demand in the mining industry for an inquiry into this subject he would set up a committee.

Salaries of Civil Servants.—Mr. WILMOT, on July 2nd, asked for a statement as to the intention of the Government on the consolidation of bonus and salary in the Civil Service. Mr. DUFF COOPER replied that the Government had reviewed the position and was satisfied that the proposals made were fair, and that it would be right to put them into operation from July 1st. Detailed instructions would be issued at an early date.

Notes in Brief

Sir HILTON YOUNG has informed Sir Francis Fremantle that the draft of an interim report is now being considered by the Advisory Committee on London Refuse, and that he hoped the committee would be able to complete this report at an early date.

Medical News

The next meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, W., on Tuesday, July 10th, at 4 p.m., when Dr. John Y. Dent will read a paper on "Apomorphine in the Treatment of Anxiety States, especially Alcoholism."

The Vice-Chancellor of the University of London will present the prizes to students of the London School of Medicine for Women, in the Albert Levy Hall, Royal Free Hospital, on Wednesday, July 11th, at 3.30 p.m. Academic dress will be worn; tea at 4.15.

The Fellowship of Medicine (1, Wimpole Street, W.) has arranged lecture-demonstrations at 11, Chandos Street, W., on July 10th and 17th, at 2.30 p.m.; demonstrations at West End Hospital for Nervous Diseases (in-patient department) on July 10th, at 8.30 p.m.; at 11, Chandos Street, W., July 18th and 19th, at 4.30 p.m.; at National Temperance Hospital, July 14th, at 3 p.m.; courses in urology at All Saints' Hospital from July 9th to 27th; and in dermatology at Blackfriars Skin Hospital from July 9th to 21st. Particulars are given week by week in our *Supplement in the Diary of Post-graduate Courses*.

The director of the Wellcome Archaeological Research Expedition to the Near East announces that the annual exhibition of antiquities from Tell Duweir, Palestine (1933-4 excavations), will be open at 2, Hinde Street, Manchester Square, W., until July 21st from 11 a.m. to 5 p.m. daily, and until 8 p.m. on July 12th and 20th. Admission free without ticket.

A conference on occupational therapy, arranged by the National Council for Mental Hygiene, will be held at 26, Portland Place, W., on Wednesday, July 11th. The afternoon session commences at 2.30 p.m., under the chairmanship of Sir Henry Gauvain, when Dr. J. B. McDougall will speak on "Occupational Therapy and its End-results," and Dr. Veronica Dawkins on "Occupational Therapy, its Possibilities and Limitations in a Sanatorium." Mr. H. J. Seddon will open the discussion on "Occupational Therapy in Relation to Orthopaedic Surgery." At 8.15 p.m., with Dr. Nathan Raw in the chair, Mrs. Eleanor C. Slagle will describe recent methods and advances in America. The discussion will be opened by Dr. J. R. Rees, Dr. Elizabeth Casson, Dr. N. A. Haworth, and Miss Ruth Darwin. Tickets (1s. 6d. for each session or 2s. 6d. for the whole conference) are obtainable from the Secretary, National Council for Mental Hygiene, 78, Chandos House, Palmer Street, S.W.1, or at the doors.

A voyage d'études médicales to the French spas will take place this year in South-East France from September 5th to 16th inclusive, under the conduct of Professor Maurice Villaret, Professor Giraud, Professor Serr, and Dr. Etienne Chabrol. Apart from a visit to the spas in the district, such as Vernet-les-Bains, Luchon, the tour will embrace interesting touring centres like the Gorges du Tarn, Carcassonne, and the Republic of Andorra. Further information may be had from the Federation of the Health Resorts of France, Tavistock House (North), Tavistock Square, W.C.1.

On June 21st Mr. L. G. Brock, chairman of the Board of Control, laid the foundation stone of the Runwell Mental Hospital, which will be shared by the county boroughs of East Ham and Southend, and is designed to accommodate in the first instance 875 patients.

A meeting of the School Medical Service Group will be held at 81, Addison Road, Holland Park, W., on Thursday, July 19th, at 5.15 p.m., when Dr. Gerald Slot will give an address on "Absenteeism in Defective School Children."

The new Queen Victoria Memorial Hospital, Welwyn, will be opened by H.R.H. The Duchess of York on Tuesday, July 24th, at 3 p.m.

Professor G. Grey Turner, Newcastle-upon-Tyne, has been elected a Foreign Honorary Member of the Accademia Lancisiana di Roma.

Councillor and Mrs. W. Barratt have given £20,000 for the erection of a maternity wing at the Northampton General Hospital.

Sir Donald MacAlister, President of the General Medical Council 1904-31, Principal of Glasgow University 1907-29, and afterwards Chancellor, left estate valued at £61,575.

June 26th marked the centenary of the death of Sir Gilbert Blane, author of *Observations on the Diseases of Seamen*, who successfully brought about the disappearance of scurvy from the British Navy by the enforced use of lemon juice.

Mr. Edward William Meyerstein of Dunton Green, Kent, has sent to Prince Arthur of Connaught, chairman of the Middlesex Hospital, a cheque for £70,000 towards the completion of the hospital buildings. He gave £30,000 to the same hospital three months ago.

We much regret to learn, at the moment of going to press, of the death of MADAME CURIE, in a sanatorium in Haute Savoie. The name of Marie Sklodowska Curie, with that of her husband Pierre Curie, who died in 1906, will be for ever associated with the discovery of radium.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62530 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

House Flies

"G. L." writes: From May until the autumn, during the last three or four years, in a house containing nearly forty windows, one single window has been chosen as a promenade by a large number of flies of all sizes; chemical warfare has been waged with paraffin, formalin, camphor, "flit," lavender, citronella, etc., and the windows have been taken out of their frames in order to look for breeding places, but all without success. Can anyone suggest a cause and a lethal permanent cure?

Persistent Epistaxis

"H. H." (Salford) writes with regard to the case mentioned on June 2nd (p. 1015): Might I ask "W. D. C." if haemoplastin (Parke, Davis and Co.) has been tried? Two injections, given close together, followed by others, if necessary, at longer intervals, might quite well cure the condition. Thromboplastin, made by the same firm, is for local application, and would probably be found to be very useful during any attack.

Pruritus with Jaundice

"B. S." writes in reply to the query by "P. J. M." (June 16th, p. 1103): In *Clinical Memoranda*, by Brand and Keith, thyroid extract is recommended to allay the pruritus of jaundice. Of local applications, one of my patients found a solution of Jeyes's fluid most useful, but I had not heard of this possible use of thyroid extract when this patient was ill.

Results of Operations for Elephantiasis

Mr. H. F. BLACKLEE (Barrow-in-Furness) writes in reply to the inquiry by "I. S. Q." (June 30th, p. 1195): May I refer to a case of extreme lymphatic stasis of one lower limb in a young male patient. The condition had persisted since childhood, and had resulted in a huge useless limb, as illustrated in the textbooks of tropical medicine. I performed a Kondoleon operation some four years ago, and the end-result has been highly satisfactory—so much so that last week I met the patient returning from his evening tennis. An especially gratifying feature is the return of soft pliable skin, and also the disappearance of ulcers caused by the pressure of rolls of elephantoid tissue in his original condition.

Exercises for Lumbago

"B. R." (Glasgow) writes in reply to the inquiry by "W. T. H." (p. 1195): Hornibrook's *Culture of the Abdomen* provides several exercises of great value in lumbago. These exercises are meant primarily for the abdominal muscles, but several of them have a marked effect in loosening up the muscles in the lower part of the back. For years I had chronic lumbago, developing severe attacks every few months, and being confined to bed in great pain for several days. I have got almost entirely rid of this trouble, and put my cure down to three things—water, self-massage, and exercises. The self-massage is best done through the pyjamas, using two round-ended rulers. With these a fairly powerful massage can be managed by the patient himself. Water by itself being admittedly an uninteresting drink, I take my extra fluid in the form of weak tea during the afternoon, when I do not eat anything. My experience would go to show that in the cure of chronic lumbago there remain these three things, self-massage, exercise, and water, and the greatest of these is water.

Income Tax**Allowance for Car**

"W. T." purchased a car in April, 1933, for £135, and used it for locumtenent work until September, 1933, when he obtained a resident permanent appointment. The car was wrecked in December, 1933, and the insurance company paid £95. What can he claim?

** (1) Running costs, including licence and insurance, in so far as they were incurred on professional work and were not covered by an allowance received from the practitioner for whom he worked. (2) Depreciation allowance for the six months while he was using the car professionally—that is, 1/2 of 20 per cent. of £135 = £13 10s. With regard to commissions paid to a medical agency for locumtenent work, in our view the earnings of such work are assessable (Schedule D) as professional profits (rather than as emoluments of specific employments), and the deduction of the commission should be allowed.

Payment for Introduction of a Partner

"W. E." asks whether a payment of £50 to a medical transfer agency for the introduction of a partner is an allowable expense.

** No. It is not incurred in the carrying on of the practice, but in connexion with a change—or partial change—in proprietorship, and as such is a "capital" expense.

Fees Paid by Locumtenent

"W. W." asks whether agency fees paid for procuring locumtenent work are deductible.

** We consider that they are deductible. Where they are refused it is usually because the remuneration received is regarded as the earnings of an "employment," and therefore assessable under Schedule E. In our opinion the various earnings are assessable under Schedule D, as the profits of carrying on a profession—the periods of engagement being normally fairly brief—and on that basis the expense is properly allowable, as is also the cost of travelling from place to place while carrying on the profession in that particular way.

Car Transactions—New Practice

"PUZZLED" bought a car for £110 in October, 1931, and commenced to use it professionally on July 1st, 1933, when he entered a G.P. partnership. He sold it in December, 1933, for £40, buying a new car for £127 10s. That car he sold in June, 1934, for £105, and bought another for £140. The first accounts of the new partnership are being made up as for the year to June 30th, 1934.

** On the basis of writing off 20 per cent. on written-down value the original car would be valued at £75 on July 1st, 1933. The replacement allowance would therefore be £75 - £40 = £35 only, and it would seem best to adhere to the alternative depreciation allowance and drop a "renewal" claim. On that basis he should claim:

(a) For the period July 1st, 1933, to April 5th, 1934:

	£	s.	d.
£75 at 20 per cent. for six months ...	7	10	0
£127 10s. at 20 per cent. for three months ...	6	10	0
Total ...	£14	0	0

(b) For the year to April 5th, 1935:

£127 10s. - £6 10s. = £121 at 20 per cent. for three months ...	6	0	0
£140 at 20 per cent. for nine months ...	21	0	0
Total ...	£27	0	0

LETTERS, NOTES, ETC.**The Cancer Problem**

Dr. H. SEARLE BAKER (London, N.3) writes: My attention has been drawn to a letter from Dr. E. F. Hunt in your issue of June 16th (p. 1096). If he will refer to a paper of mine, published in the *Lancet* of September 16th, 1933, he will note that the treatment he advocates has been tried, with results that were definitely encouraging. The method is now being explored intensively, but it is unlikely that any further publication will be made from the purely clinical angle for about a year from now.

Mr. ADAM GOWANS WHYTE (The British Electrical Development Association, 2, Savoy Hill, W.C.2) writes: In your issue of June 16th (p. 1096) Mr. A. W. B. Livesay makes the following observation: "What we want to find is the unknown irritant that is responsible for the abrupt rise in the cancer death rate that occurred in the latter third of the nineteenth century, the time of the introduction of the gas ring and the electric kettle; the rise has continued ever since." I offer no comment upon the suggestion that some connexion may exist between cancer and the boiling of water by one method rather than another, but as a matter of historical fact the electric kettle was a rare phenomenon until the present century, and well on its way.

Asthma in Childhood

"G.P." (Surrey) writes: I have an asthmatic child ephedrine, sodium iodide, and belladonna with excellent results, and I gained great kudos. I did not trouble about a vaccine, as the mother gave me to understand the child was cured. One night the child got another attack of asthma, and the father, with whom I was not very well acquainted, went for another doctor, who gave a vaccine made from the child's sputum, and the child has been in excellent condition ever since. It follows, then, that all drugs are only for temporary use in asthma in children.

The firm of W. Martindale, manufacturing chemists and wholesale druggists, have issued a handy list of their medical products. The booklet is intended primarily for medical men, and any doctor who does not receive a copy by post may have one if he applies to 12, New Cavendish Street, W.1.

The address of the Grenfell Association of Great Britain and Ireland has now been changed to 66, Victoria Street, S.W.1.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 48, 49, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 50 and 51.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 24.

BRITISH MEDICAL JOURNAL

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THE EXAMINATION OF RENAL FUNCTION*

BY

F. S. FOWWEATHER, M.D., M.R.C.P., M.Sc., D.P.H., F.I.C.

READER IN CLINICAL CHEMICAL PATHOLOGY, UNIVERSITY OF LEEDS; CHEMICAL PATHOLOGIST, GENERAL INFIRMARY AT LEEDS

In his presidential address at the opening of this session Dr. G. W. Watson called attention to the large number of laboratory tests that patients are very frequently submitted to nowadays; he considered that many of them were superfluous, and, what was worse, there was a great tendency to allow these tests to take the place of sound, intelligent clinical examination of the patient. I agree with much that he said, but I should like to point out, in the strongest possible terms, that it is not the clinical pathologist who is responsible for this state of affairs, but rather that type of clinician who believes he sees in the clinical laboratory an instrument which can relieve him of much of the work of examination of his patient, and can be made to bear the labour and responsibility of making his diagnosis for him. In this connexion let me quote what I wrote in a little book published in 1928.¹ Other clinical pathologists have written in the same strain.

"The clinical laboratory should never be regarded as an institution which of itself is capable of supplying a diagnosis. It is a means of obtaining additional information about a patient, where it is felt that further information is needed, to add to that already obtained by careful and complete clinical examination. A diagnosis must then be made in the light of all the evidence available. But sound clinical observation is, and must remain, the principal means of arriving at a correct diagnosis. . . .

"The correct attitude of the clinician to laboratory work is that if in any case, after using all the available clinical means at his disposal, he is not thoroughly satisfied concerning the matter in hand, whether it be one of diagnosis, prognosis, or treatment, then he should consider in what way laboratory information may help him, whether to throw further light on a doubtful case, to confirm or negative a probable diagnosis, to decide between alternative views, or in any way to make more certain his knowledge of the matter in hand. This procedure involves the intelligent consideration of the relation of laboratory work to each individual case, and is the reverse of the method of routine application of numerous laboratory tests before a serious attempt is made to consider a case from the clinical standpoint."

The clinical pathologist never intended that his methods and his work should supplant the ordinary methods of clinical examination; but he does believe that, in suitable cases, they supplement these ordinary methods, and frequently add useful information that could not otherwise be obtained.

Acute and Chronic Nephritis

Renal disease is one of the subjects on which information beyond that obtainable by ordinary clinical examination is frequently desired. With regard to acute nephritis, examination of the patient and his urine gives, in the great

majority of cases, sufficient information to establish the diagnosis. (Here I should like to point out that I consider the simpler tests of urine—for example, for albumin, and examination of the centrifuged deposit—as part of the ordinary clinical examination of a patient, and not as special laboratory procedures.) But the matter of prognosis may call for laboratory assistance. There is always the possibility that a case may not recover completely, but that the acute nephritis may become subacute or chronic. Laboratory tests at intervals to show the state of renal function are here very useful, and give the best indication of the progress the patient is making.

So far as chronic nephritis is concerned, laboratory tests may frequently be required to establish the diagnosis: the symptoms may be far from diagnostic; there may only appear to be a general asthenia, or anaemia may be the most outstanding feature; in another case vomiting may be prominent, or headache may be the only symptom complained of. Oedema is, of course, usually absent. The urine, so far as the simpler tests go, may yield little information, for albuminuria is rarely more than slight, and often is absent altogether. Casts, too, are not a constant feature. But careful examination by approved renal function tests frequently makes the diagnosis clear. And in many cases where one feels certain that some renal impairment is present, such tests are useful in giving an indication of the degree of such impairment; for on this point symptoms and physical signs are not always very reliable. We are all familiar with the type of case in which signs and symptoms have appeared relatively slight or almost non-existent until a short time before death has occurred from renal failure.

Blood Urea Concentration

I do not propose to make anything like a complete survey of renal function tests. Many have been tried, but only a few are in anything like general use. Something must be said first about blood urea concentration as an index of renal function.

The important point in this connexion is that a raised blood urea is simply evidence of urea retention; but urea retention is not always due to impaired renal function. Anything tending to produce an oliguria—reduced fluid intake, loss of fluid by vomiting, the formation of effusions, and thus the withdrawal of fluid from the blood—may cause a rise in the blood urea where the kidneys themselves are functionally normal. A similar rise may result from excessive protein intake, or excessive protein metabolism, as in fevers or starvation. If all extrarenal causes can be excluded, then a raised blood urea is evidence of deficient renal function. Any obstruction to urinary outflow also causes urea retention—for example, in enlarged prostate; often the removal of the obstruction

* Delivered to the Leeds and West Riding Medico-Chirurgical Society, April, 1934.

results in a rapid return of the blood urea to normal, and where this occurs we have clear evidence that the urea retention was not due to primary failure on the part of the kidney itself, but to the interference with its normal action caused by back pressure. To the surgeon dealing with this kind of case determination of blood urea at intervals, and, in particular, noting the rate of disappearance of urea retention after removal of obstruction, is a very satisfactory renal function test.

But some impairment of renal function may coexist with absence of urea retention—that is, we may have a normal blood urea in cases in which renal function is deficient. One result of failing function on the part of the kidney is loss of concentrating power, and this occurs in nearly all cases sooner or later. But in earlier stages this failure to produce a concentrated urine may be masked by the ability to produce an abundance of dilute urine, so that actually the normal amount of urea and other waste products is still got rid of, and consequently there is no retention—failure of concentration is compensated for by polyuria.

On account of these limitations on blood urea figures as evidence of the true state of renal function, other tests have been devised in an attempt to obtain a more accurate picture of the real state of affairs, and my chief object now is to describe one of these tests in which I have been particularly interested, and which, so far as my experience goes up to the present, is the best test available.

A Simple Test of Renal Function

But before passing on to describe this I want, briefly, to draw attention to one very simple method of examining renal function which can be carried out with very little equipment or labour, which depends on principles well known to all, but which is generally overlooked.

The test is simply to instruct the patient, while continuing his normal routine, to preserve every specimen of urine passed during a complete twenty-four-hour period, to keep all the specimens separate, and to label each one with the time at which it was passed. At the end of the test he will present you with six or seven specimens. Determine the volume of each and also its urea content, or, failing the latter, the specific gravity is almost as good in nearly all cases; also add the approximate volume per hour for each specimen. Then tabulate the results; they will be somewhat as follows:

A: Normal				B: Nephritic			
Time	Volume	Urea per cent.	Approximate Volume per Hour	Time	Volume	Urea per cent.	Approximate Volume per Hour
11.15 p.m.	—	—	—	11.30 p.m.	—	—	—
7.30 a.m.	390 c.cm.	2.7	47 c.cm.	6.0 a.m.	550 c.cm.	1.4	50 c.cm.
11.10 a.m.	295 c.cm.	1.6	63 c.cm.	10.5 a.m.	350 c.cm.	1.3	84 c.cm.
1.50 p.m.	140 c.cm.	1.8	51 c.cm.	2.0 p.m.	340 c.cm.	1.4	85 c.cm.
4.10 p.m.	110 c.cm.	2.3	47 c.cm.	5.30 p.m.	315 c.cm.	1.5	90 c.cm.
6.0 p.m.	90 c.cm.	1.1	103 c.cm.	8.0 p.m.	210 c.cm.	1.3	84 c.cm.
11.15 p.m.	315 c.cm.	2.0	60 c.cm.	9.55 p.m.	165 c.cm.	1.2	83 c.cm.
				11.30 p.m.	130 c.cm.	1.5	80 c.cm.
Total ..	1,440 c.cm.			Total ...	2,100 c.cm.		

Compare the volume and concentration of the urine secreted during the night with that secreted during the day. Note whether the volumes and concentrations show much or little variation. With normal function the night urine is less in volume, but greater in concentration than the day urine. As the kidneys become inefficient this difference becomes less marked, and as inefficiency advances, the reverse condition begins to appear—the kidneys have to make up during the hours of rest for what they were unable to do during the

period of bodily activity. Throughout the day period, with normal function, individual specimens vary much from one another, the kidneys being quick to respond to changed conditions of waste nitrogen production and fluid intake. With loss of efficiency there is loss of elasticity and ready response to varying conditions—the inefficient organs begin to work at a dead level.

Rate of Urea Clearance

In many cases such a simple test is capable of giving quite useful information. But where its indications are doubtful, or where it is felt that the best available information not only as to the presence but also the degree of functional deficiency is required, other tests are called for, and I want to deal now with the determination of the rate of urea clearance, as a measure of the efficiency of renal function. This conception of rate of urea clearance was introduced by van Slyke and his collaborators, and is dealt with in a series of papers from the end of 1923 onwards.

They had shown that when the urine volume output exceeds about 2 c.cm. per minute (called the augmentation limit) urea excretion proceeds at maximum speed, and the output per minute represents the urea content of a maximum blood volume, which in normal men averages about 75 c.cm. This they termed the maximum blood urea clearance (C_m), or simply the maximum clearance. This is given by the formula

$$C_m = \frac{UV}{B}$$

Where U = urea concentration of urine, B = urea concentration of blood, V = urine volume per minute.

Below the augmentation limit urea excretion is not constant, but varies with the square root of the urine volume. Hence, if we wish to compare urea excretion below the augmentation limit, either we must have a definite standard worked out for every volume below 2 c.cm. that we are likely to encounter, or we must arrange that the subject excretes a fixed volume per minute for which standards are known, or we must be able to calculate from observations for any volume occurring during a given test what would be the clearance if the urine output were a certain definite standard volume. The last is the only practicable procedure, and from observed volumes of U, B, and V it can be shown that the clearance which would occur if the urine volume were 1 c.cm. per minute (called the standard clearance, C_s) is given by the formula

$$C_s = \frac{U}{B} \sqrt{V}$$

The average value of C_s in the normal adult was found to be 54 c.cm.

The results as worked out from these formulae are in cubic centimetres. For clinical work it is much more convenient to have the results expressed as a percentage of average normal function. This can be done if we write the formulae

$$C_m = \frac{100 UV}{75 B}$$

and

$$C_s = \frac{100 U}{54 B} \sqrt{V}$$

Möller, McIntosh, and van Slyke² give line charts which simplify the calculation.

For children, or others whose size differs considerably from that of average adults, a correction is introduced by multiplying the observed V by the factor

$$1.73$$

square metres surface area

Now when renal function becomes inefficient the rate of urea clearance falls below the normal. Hence the determination of the urea clearance will tell us whether renal

function is normal or impaired, and also, where impairment is present, will indicate, at any rate approximately, the degree of impairment that is present.

The test is not difficult to perform. It requires only the determination of the blood urea, the urine urea, and the volume of urine excreted over a known period. It is not necessary to resort to any special preparation of the patient, nor is it necessary to withhold food for some time before the test; vigorous exercise, however, is avoided, and the previous meal should be a moderate one, preferably without coffee. The most desirable time of day is found to be the hours between breakfast and lunch. Moreover, it is not necessary to keep the patient in bed during the test.

In the original van Slyke method urine was collected over two successive hour periods, blood being taken a few minutes before the end of the first hour. The clearance was calculated for each hour period, and, presumably, the average of the two results is taken, though the original paper is not definite on this point. If the urine excreted in the hour period exceeds 2 c.cm. per minute (or if the corrected volume $V \times \frac{1.73}{A}$ exceeds 2 c.cm. per minute in a child) the maximum clearance is calculated; if the urine is less than 2 c.cm. per minute, then the standard clearance is calculated.

Urea Clearance After Dose of Urea

When this work came to my notice I found that I had data from a previous investigation which enabled me to calculate urea clearances not only under conditions similar to those laid down by van Slyke, but also for periods after the patient had taken a 15-gram dose of urea. An important fact which assisted me was that I found the blood urea at the beginning and end of the second hour after this dose of urea to be approximately the same, at an average of about 15 mg. urea nitrogen per 100 c.cm. in excess of the value before urea. The blood

In these tests the students were allowed their ordinary breakfast, except that they were instructed not to take coffee; they were also allowed to carry on their usual activities in the hospital, only interrupting these when it was necessary to come to the laboratory for specimens of blood and urine to be taken. A further series of tests was also carried out on hospital in-patients. Besides being in bed during the test, food had been withheld from the previous evening. Two classes of patients were dealt with—namely, those in whom renal disease was believed to be absent, and those in whom it was believed to be present. The results on the non-nephritic group are in Table I.

TABLE I

Sex	Age	Blood Urea Clearance		Diagnosis
		Before Urea	After Urea	
1 F	32	39	82	Osteitis fibrosa
2 F	47	54	82	Hyperthyroidism
3 M	32	74	83	Nervous vomiting
4 M	45	82	73	Vitreous hæmorrhage
5 F	24	71	95	Cerebral tumour. (Death 16 days later. At necropsy small glioma of sup. corp. quadrigemina found)
6 F	38	55	78	Dyspepsia
7 M	62	90	85	Diabetes.
8 F	54	76	76	Hyperchlorhydria
9 M	35	66	74	Dyspepsia
10 M	47	61	86	Polyarthritis
11 F	—	86	120	Morning vomiting with pregnancy; subsequently cleared up
12 F	—	49	81	Morning vomiting with pregnancy; subsequently cleared up
13 M	63	65	69	Nervous dyspepsia
14 F	28	65	95	Retinitis proliferans
15 F	12	76	76	Delinquency and backwardness; no unhealthy signs apparent
16 F	19	82	85	Fibrositis
17 F	59	28	65	Otosclerosis
18 F	46	48	70	Atrophic gastritis
19 F	50	66	72	Vertigo—(considerable improvement in a few days and patient discharged apparently well)
20 M	26	87	83	Functional albuminuria

Facts Revealed by Test

At this stage it will be convenient to consider some of the facts brought to light by the results so far obtained.

Van Slyke's normal range for Cs, calculated from data obtained from nineteen subjects, some of whom had been examined a number of times, is from 76 to 120. His range for C_m is very similar, and for practical purposes may be considered the same. In my own cases I have made no distinction in the table between C_s and C_m . Actually only a few of the latter occurred.

In the results on students the range before urea is from 29 to 107, while after urea it is 73 to 120.

Of the twenty cases in Table I, seventeen give results, after urea, between 73 and 120 as in the case of students; of the remaining three, two, giving values of 69 and 65, were elderly patients (63 and 59 years respectively), and the third, a patient of 46, gave a value of 70. Before urea the results in these twenty cases lie between 28 and 90.

The great similarity of these results to those on healthy students shows that the difference in conditions observed during the tests has no appreciable effect on the actual results—that is, whether you allow breakfast and mild exercise during the test, or withhold breakfast and keep the patient in bed, does not matter.

The results also make it quite clear that figures, on non-nephritic subjects, obtained without giving urea cover such a wide range as to be really useless as a practical

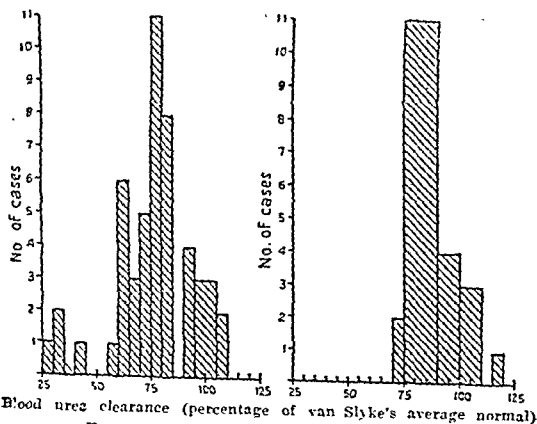


FIG. 1.—Before urea.

FIG. 2.—After urea.

urea, therefore, during this second hour period is approximately constant (though raised above normal) and a value obtained at any time during this period serves for clearance calculations for the period. On working out clearances before urea and during the second hour period after urea, I found, in persons with presumably normal function, that the values after urea lay within a narrower range than those before urea. It is an obvious advantage to have the normal range as narrow as possible; hence this point seemed worthy of closer investigation under properly controlled conditions, and I therefore made a careful re-examination of the point, using fifty presumably healthy male students as subjects. The results are shown in Figs. 1 and 2.

test; the figures after giving urea, however, do lie within a well-defined range, which can be conveniently used as a standard of comparison. Considering all the results after urea, it seems justifiable to regard the normal value as anything exceeding 70. (The maximum doesn't really matter in this case: it is the minimum that counts.) Some allowance, however, should be made for advancing age, for which a figure of 65 might be taken, from about the end of the sixth decade. Now let us see what results are obtained in patients suffering from renal disease. These are shown in Table II. There

TABLE II

Sex	Age	Blood Urea Clearance		Diagnosis
		Before Urea	After Urea	
1 M	31	42	52	Chronic bone tuberculosis; parenchymatous nephritis. (Subsequently died; at necropsy subacute nephritis; sinus from tuberculous disease of 5th lumbar vertebra and sacro-iliac region)
2 F	23	46	57	Acute nephritis
3 M	36	60 35	48 (23/2/33) 50 (16/3/33)	Albuminuria; oedema— ? subacute nephritis
4 F	17	5.4	6.5	Renal rickets
5 M	17	39	12	Renal rickets
6 F	58	8.7	9.5	Polycystic disease of kidneys
7 M	29	8.4	11.5	Chronic nephritis. (Subsequently died; no necropsy)
8 F	—	22	42	Pregnancy; persistent albuminuria; pyelitis
9 F	47	36	45	? Polycystic disease of kidneys
10 M	34	21	11.2	Chronic interstitial nephritis
11 F	20	25 31	49 (2/1/33) 45 (2/7/33)	Acute nephritis becoming chronic
12 M	25	33	37	Acute exacerbation of chronic nephritis
13 M	35	50	52	Acute nephritis, becoming chronic
14 M	37	41	47	Interstitial nephritis
15 F	29	34	42.5	Pyelitis
16 F	58	53	56	Chronic nephritis
17 F	62	30	9.5	Hypertension; epistaxis. ? Chronic nephritis
18 M	22	58	57	Chronic nephritis
19 F	60	48	52	Granular kidneys; chronic uraemia
20 F	23	31	33	Acute nephritis

is again a difference between the results before and after urea. If we considered the range, on normal patients before urea, of the figures before urea in this table, seventeen would fall within that range. Of the figures after urea, however, the highest is 57—that is, not one falls within the normal range found after urea. This clearly shows that the urea clearance obtained after urea is a better indication of the state of renal function than figures obtained without giving urea; and since it is shown that where renal disease is present figures are obtained which are definitely below what are considered normal, the use of the test for investigating possible departures from the normal is clearly demonstrated.

Technique of Test

The method of carrying out a urea clearance test after urea is as follows:

At 7 a.m. the patient may be allowed a light breakfast; coffee must be avoided, but tea, if weak and in small quantity, may be permitted. At 9 a.m. the bladder is emptied, and immediately afterwards the urea is given. At 10 a.m. the bladder is again emptied. At about 10.45 a.m. a specimen of blood is taken for urea determination, and at 11 a.m. the bladder is once more emptied. The clearance value is of course calculated from data obtained from the

third urine specimen (exact volume, exact time of secretion and urea concentration) and the blood specimen.

These times I have selected as being most suitable for hospital practice; but they can be modified somewhat, so long as the intervals are the same, to suit the convenience of the persons concerned.

Two points are of especial importance—namely, that the bladder must be completely emptied on each occasion urine is passed, and the exact time of secretion represented by each specimen must be known. For the latter purpose it is best to instruct the nurse, or whoever is in charge of the patient during the test, to label each specimen passed with the time to the nearest minute at which it was passed, rather than to insist that specimens shall be taken at exact 60-minute intervals. In the latter case, if, as often happens, the attendant is engaged in some other task when she should be instructing the patient to pass urine, the interval becomes extended to sixty-five or seventy minutes, but she rarely owns up to this, whereas if she is told that a few minutes' variation on either side of the sixty is permissible, so long as the exact time the specimen is passed is recorded, one generally gets more exact data. With an intelligent patient, the requirements of the test can be explained to him, and he will do the time-keeping himself.

Complete emptying of the bladder at the beginning and end of the second hour is, of course, of paramount importance, and this must be carefully explained to the patient. Incomplete emptying of the bladder is, I think, the chief cause of the wide variation of results before urea, for in most cases the volume of urine secreted over the first and second hours after urea is greater than that before urea. At the beginning and end of the second hour, then, there is a more satisfactory stimulus for the bladder to empty itself than when no urea is given. Frequently, in tests of this nature, what occurs immediately before the test is not sufficiently controlled. Thus, a short time before a test begins, a patient may require to empty his bladder. If he does so, when the time for a test specimen arrives the amount of urine secreted during this interval is so small that the impulse to empty is insufficient, and complete emptying does not occur. Or it may be that he is told not to empty his bladder when the impulse arises, but to wait until the test specimen is required. When this time does arrive, over-distension may have occurred, and again we get incomplete emptying. It is for this reason that in the directions for the test I have advised emptying of the bladder at 9 a.m., although it is only the specimen secreted between 10 and 11 a.m. that is really required for the test.

Occasionally one meets with persons who exhibit a psychical inhibition to micturition to order. This occurred twice during my investigation of students—in one case the patient thought he was being overlooked during the act. If the patient is not fussed, rushed, or observed during the act, this difficulty will not often arise. Where retention is believed to be present, or if for any reason it is thought that emptying of the bladder may be incomplete, a catheter should be used.

Advantages of Urea Clearance Test

Having so far described the urea clearance test and its technique, what are its advantages? The greatest appears to be that it takes mathematical account not only of the urea concentration of the blood and urine, but also of the urine volume output. Not only is the ability to excrete urea examined, but the ability to excrete water is also included.

The renal function test hitherto most frequently employed here has been the urea concentration test, together with a blood urea determination. In this test, however, difficulties in interpretation frequently arise when the urine volumes differ greatly from the average, for, although attention is chiefly directed to the urea concentration, the implication of large volumes of urine cannot be entirely ignored; urea is itself a diuretic, and where large volumes of low concentration are obtained, it is frequently impossible to say whether we are to accept this as evidence of a nephritic polyuria, due to loss of concentrating power, or whether we have the

results of a simple diuresis induced by the urea. This difficulty is avoided to some extent by limiting the patient's fluid intake for some hours before the test, but it is not entirely eliminated. No such difficulties arise in the urea clearance test, since volumes as well as urea concentration are taken into account mathematically by the van Slyke formulae.

In all the cases shown in Table II the routine renal function test, consisting of blood urea determination before urea, followed by a urea concentration test, was carried out, in addition to the clearance test already described.

In eight of them this routine test failed to show any impairment of renal function, yet all gave a urea clearance very definitely below the normal range. A careful consideration of all the facts obtainable clearly showed that renal function in these cases was definitely impaired, and left no doubt that the blood urea clearance value is the more correct index of the true state of the kidneys.

I have been making urea clearance determinations for some time now, in all cases where a renal function test has been required, and provided sufficient care and attention are paid to the two points I previously stressed—namely, complete emptying of the bladder and accurate timing of the specimens—I am convinced that the urea clearance is a much better index of the true state of renal function than the test formerly in routine use; I believe it to be, in fact, the best renal function test we possess.

REFERENCES

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REVIEW OF BLADDER-NECK OBSTRUCTIONS

WITH SPECIAL REFERENCE TO TRANSURETHRAL PROSTATIC RESECTION.*

BY

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It is perhaps not yet fully appreciated that the symptoms which are regarded as characteristic of an enlarged prostate are common to a number of other causes, not only in elderly men, but in other decades, as well as in the opposite sex. The same symptom group is referred to as diurnal or nocturnal enuresis in the young, frequency in adult life, and prostatism as senility is approached in the male.

The French were probably the first to point out that the urinary difficulties observed in elderly women were similar to those of prostatics, but obviously due to other causes. From the same source we have the term "prostatism sans prostate," when the symptom group is present without any obvious prostatic enlargement being felt per rectum. Accordingly, since this symptom group is common to various ages and both sexes, it is evident that full data should be obtained in each instance before an accurate diagnosis can be given and appropriate treatment instituted. In this paper, however, it has been considered advisable to review only the commoner conditions found in the male, and to exclude malignant disease.

The symptoms referred to are generally a gradually increasing urinary frequency by day and night, the quantities of urine voided at each act becoming smaller. The act may be precipitate, or there may be initial delay; the stream lacking in force and being smaller than normal, it thus takes longer to perform the act, which concludes with dribbling. Variations and additions to the above

will be noted as the individual causal lesions are discussed. This group of symptoms usually indicates some change at the bladder neck which is interfering with the proper emptying of the bladder. To appreciate the various types of obstruction that occur, and the changes they induce, let us briefly refresh our memories with the anatomy and physiology of the parts involved.

Anatomy

The Bladder.—The musculature of the bladder is described as divided into three parts: (a) The walls. (b) The trigone. (c) The vesical neck.

(a) The bladder is lined by a transitional epithelium which is continuous with that of the ureter and the urethra. The wall, aside from this epithelial lining, is made up chiefly of muscle fibres, arranged in an outer longitudinal and an inner circular manner. Because of these acting together on the bladder contents it is better to consider them as one muscle, the "detrusor" of the bladder. Between the musculature and the epithelial lining, or mucosa, is a loose cellular tissue, which is only absent over the trigone. Over the trigone the epithelial lining is firmly attached to the underlying muscle, while in all other portions of the cavity the epithelial lining is so loosely attached to the detrusor that when the organ is empty the epithelial lining falls into folds.

(b) The trigonal muscle develops in the embryo from the muscle layers surrounding the lower ends of the Wolffian ducts and ureters. Later in foetal life these muscles come to lie in the bladder, and their main bundles run from the ureteral orifices to the vesical orifice, where the bundles from the two sides join and run down, just beneath the urethral mucosa on the aspect posterior to and beyond the verumontanum. The upper margin of these bundles passes across from one ureteral orifice to the other, forming a slight elevation—the interureteric ridge—at either end of which the ureteral openings are situated.

(c) The term "neck" of the bladder is employed to designate the region around the vesical orifice. Here the division of the detrusor muscle into two layers is more marked. From each of the two layers, just posterior and lateral to the vesical orifice, is sent a strong band of muscle fibres, which runs down and forward to the prostate to form a loop around the front of the urethra. The bundle from the external longitudinal layer is thicker than that of the internal circular. These together form the "internal sphincter," which is not a circular muscle like the sphincter ani, but only forms an arch around two-thirds of the vesical orifice. The external sphincter is a voluntary muscle, while the "internal sphincter," being supplied by sympathetic and parasympathetic fibres, is an involuntary muscle.

The Prostate.—In the development of the prostate it will be recalled that, in about the twelfth week of foetal life, five groups of tubules grow out from the posterior urethra towards the bladder. At first the five lobes are distinct, but later the two lateral and the middle lobes tend to coalesce. The posterior lobe lying behind the ejaculatory ducts remains distinct. The anterior lobe, which commences by being the same size as the others, retrogresses after four weeks and is completely atrophied before adult life. In a few instances the tubules of the anterior lobe may persist and even be the seat, ultimately, of an enlargement. The lateral lobes, however, are the most active as to growth, and comprise the major portion of the adult prostate.

The Submucous Glands.—Lying under the mucous membrane of the posterior urethra and trigone, and independent of the prostate, are certain accessory glandular structures. They are localized in three situations: (a) the prostatic urethra; (b) the vicinity of the bladder neck; and (c) the trigone. These submucous glands are of importance, since, like the prostatic tubules, they are liable to undergo enlargement in middle and old age, and on account of their situation are likely to give rise to obstruction.

The subcervical group, known also as the glands of Albarran, consist of some thirty branched tubules, whose ducts open into the floor of the urethra proximal to the verumontanum.

The subtrigonal glands lie anywhere between the mid-point of the trigone and the bladder outlet, and are similarly composed of branched tubules. Enlargement of either of these groups may be sufficient to cause typical symptoms of

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prostatic obstruction, and some authorities maintain that a large percentage of so-called prostatic enlargements are really due to changes in these submucous glands, and not in the actual prostate itself.

Physiology

Considerable attention has been paid recently to the nerve mechanism of the bladder and the various reflexes involved during urination. For present purposes it will be sufficient to gain an impression of the resultant action.

The act of urination is initiated by a contraction of the trigonal muscle, which pulls open the vesical orifice; thereupon the detrusor steadily contracts on the contained urine till the latter is completely expelled. If changes have occurred which make the action of the trigonal muscle difficult its efforts to overcome the difficulty will result in hypertrophy—that is, the trigone becomes raised, the interureteric ridge accentuated, thickened, and approximated to the bladder neck because of the foreshortening associated with a chronic state of undue tonus. If, on the other hand, no impediment exists in the actual opening action of the bladder neck, but some narrowing or obstruction exists distal to the bladder neck, then the detrusor muscle will require to contend with overcoming this difficulty, and in consequence will hypertrophy.

In the relatively earlier stages, accordingly, the site of a lesion may be readily determined on cystoscopic inspection by ascertaining whether the trigone or the detrusor is undergoing hypertrophy. Later, as can be appreciated, both the detrusor and the trigone share in the hypertrophic changes.

Types of Lesions Producing Bladder-neck Obstruction

1. *Congenital*.—This consists of an annular diaphragmatic contracture mainly composed of the mucosal elements, and is morphologically similar to meatal atresia. The unfortunate owner of such a defect may pass into early adult life without appreciating the gravity of his state. The constant and progressive urinary frequency, being regarded as a personal idiosyncrasy, is tolerated till compensation finally breaks down, and medical aid is sought because of impaired health and early uraemic manifestations. On inspection a fully distended bladder is observed, and on further investigation the true cause of the trouble is found. It is probably in this type of case that the prostatic resectoscope achieves the most brilliant results.

There is another form of bladder-neck encroachment which should probably be placed under this category, since it has been observed in young boys—namely, the hypertrophic internal vesical sphincter. Its aetiology is obscure. The musculature of the internal sphincter, particularly that portion which is derived from the circular muscle and occupies the trigonal aspect of the neck, becomes progressively more accentuated, and with any undue stress may enter into acute spasm leading to urinary retention. A course of gradual dilatation with sounds may prove effective, but in marked cases it may be advisable to carry out a partial medial division of the sphincter at the trigonal aspect with a cutting diathermy electrode.

2. *Acquired*.—These comprise: (1) *muscular*, (2) *fibrous*, (3) *submucous adenoma*, and (4) *prostatic adenoma*. For simplicity only four types have been mentioned, and a pure form of each will be briefly discussed. Additional types are frequently cited, but these are usually an admixture of two or more of the above. Congestion, which is a common factor in most bladder-neck lesions, especially the prostatic, will be referred to later.

The muscular type is probably simply a perpetuation of the condition which has already been referred to under congenital. At the same time it can arise from some local irritation, as a ureteritis of the transmurular portion of one or both ureters, or a polyp situated on the verumontanum. The changes observed are similar in

character to that already given. The trigonal portion of the sphincter can be markedly accentuated and raised well above the trigonal level. When unduly stimulated, a degree of spasm may ensue which precludes the proper emptying of the bladder and leads to attacks of urinary retention. The condition is not infrequently met with in highly strung, somewhat neurotic young men. The same treatment is advocated as under the congenital form.

The fibrous type.—This type is secondary to a long-standing inflammatory condition in the posterior urethra, and is usually associated with chronic prostatitis. The interstitial fibrosis commencing in the prostate may extend, not only to the bladder neck, but, since seminal vesiculitis is a common associate, also to the bladder base, impairing the physiological activity of the trigone. The evolution of this type is naturally slow and insidious, and of all forms of bladder-neck obstruction is the one which probably produces the greatest damage to the upper urinary tract. The slowness of its onset permits a more gradual compensation to occur, and extensive renal damage may be present without the individual presenting any obvious indications. In consequence, these cases require far more careful management in preparation for any corrective measures than do the relatively rapidly growing prostatic adenomas.

In the fibrous type symptoms have been present for many years—ten, fifteen, twenty, or longer. They commence insidiously in early adult life, and only become sufficiently marked to bring the individual for medical advice in the fifth to sixth decades. Per rectum the prostate is relatively small, somewhat irregular in contour, and on palpation is firmly elastic with varying areas of density. Tenderness may or may not be increased. Some are definitely hypersensitive. Secretion obtained by massage will usually reveal the presence of pus. On attempting lateral movement the prostate is more fixed in its bed than normal. In a case of marked chronic infection, bands of adhesions may be present, rendering the lateral borders of the prostate less evident.

Cystoscopically, the bladder neck shows a generalized annular contracture; hence the term "sclerosis of the vesical outlet." The secondary changes induced are hypertrophy of the trigone and accentuation of the interureteric ridge, with approximation of this to the bladder neck. The bladder detrusor usually shows some degree of hypertrophy, which in certain instances may be marked, with cellulæ formation and the presence of diverticula. Probably the greatest incidence of diverticula is found in fibrous bladder-neck contractures.

Median bar formation.—The condition which is most commonly referred to as median bar formation appears to be an admixture of the muscular and the fibrous types. In its simplest form this vesical neck obstruction is not associated with any appreciable changes in the prostate. The symptomatology is similar to that of the purely fibrous prostate, but may become sufficiently marked to bring the patient for relief at a somewhat earlier age. The changes at the vesical outlet show, in addition to a general contracture, a definite thickening of the trigonal segment, raising it into a horizontal, well-marked ridge. Histologically this bar presents a fibromuscular stroma which varies as to the percentage of the components. The best form of corrective procedure for the above two types of obstructive lesions is endoscopic resection, whereby a gutter is made in the trigonal portion sufficient to allow proper emptying of the bladder.

Submucous adenoma.—As previously indicated we are indebted to Albarran for differentiating this type from ordinary prostatic lesions. Where rectally the prostate presents no enlargement or adenomatous changes, and cystoscopically an enlarged middle lobe is found, we may presume that the condition is due to the subcervical

group of glands. Alteration of the subtrigonal glands will produce an apparent convex raising up of the trigonal floor adjacent to the outlet, the other findings being the same. A combination of the two groups will lead to a marked, almost polypoidal, projection arising from the trigonal aspect of the outlet. The symptomatology in such cases is of relatively short duration, and occurs more often from the sixth decade onwards, in the usual prostatic period. The situation of the obstruction is such that it very rapidly gives rise to bladder difficulty.

Local inspection will reveal a convex projection arising from the trigonal aspect of the bladder neck, its lateral borders meeting the margin of the outlet at a more or less acute angle to form a "notch." Should any old-standing inflammatory changes be present the angles of incidence will be rounded off into curves. By noting these configurations clinically one can readily arrive at the histological character of the condition present, and be able, by subsequent study of the removed tissue, to confirm the impression gained.

Prostatic adenoma.—The exact aetiology of prostatic adenoma is not yet understood. The lobes chiefly involved are the middle and the two lateral. The anterior lobe, as previously stated, usually atrophies, but may at times persist, and even become the seat of an adenoma. The rate and degree of enlargement in each of the three lobes may be approximately equal, but inequalities occur. Both lateral lobes may hypertrophy in the absence of the middle, and vice versa. One lateral lobe only may show enlargement, but it is more usual to find both involved, though one may be of greater size than the other.

Diagnosis and Treatment

Pending cystoscopic proof of the form of prostatic enlargement present, rectal examination will provide certain indications. If the lateral lobes are equally enlarged and show a definite intervening median furrow, the inference is that there is practically no median lobe present. If both lateral lobes are equally enlarged and the median furrow obliterated and replaced by a continuous convex surface passing from one lateral border of the prostate over to the other, one would anticipate finding an annular type of prostatic enlargement in which all three lobes—middle and two lateral—are practically coalesced, and encircling the bladder neck, with little intravesical projection. Where the upper limits of a prostatic enlargement appear to be somewhat ill-defined, especially at the "notch" in the upper mid-line between the seminal vesicles, one would anticipate finding evidence of intravesical projection with all three lobes contributing their respective convexities.

Cystoscopic examination can be carried out in the majority of prostatites without producing trauma or upset. It should only be done, however, towards the end of the preoperative course of treatment, when the patient is practically ready for operation. The information gained is of the greatest value in determining the mode and type of operative procedure best suited to the local condition present. With a collar type of fused trilobar enlargement there is practically symmetrical encroachment interrupted at 12 o'clock, and also at 5 and 7 o'clock, by notches which indicate the boundaries of the respective lobes. With a trilobar hypertrophy in which the individual lobes are differentiated, the vesical outlet is modified by convex encroachments due to each lateral lobe and the middle, so that the bladder picture is seen, as it were, through a triangular opening.

There is one factor which is important in most prostatic enlargements, and that is *congestion*. It is evident that the presence of a residual urine within the bladder, and the frequent efforts to urinate, will create a state of

congestion. Excessive intake of alcohol, exposure to cold, etc., tends to increase the congestion already present. Prostatic symptomatology does not follow a gradual course of increasing difficulty, as one would expect of a purely mechanical, slowly progressing obstruction. On the other hand, it is notorious how variable the symptoms may be. There may be periods of weeks or days on end with comparative comfort interspersed with corresponding times of marked difficulty. Even during a twenty-four-hour period it is usual to find that the symptoms are more troublesome at night, and that an appreciable initial delay is associated with each urination, and the stream becomes definitely thinner and lacking in force. All these evidences, and more, are indicative of congestion. Indeed, it is the factor of congestion which as a rule ultimately drives a patient to seek relief because of acute retention.

With regard to the treatment of bladder-neck obstructions, I have already suggested endoscopic resection as the operation of choice for several of the lesions discussed. As this type of operative procedure is rapidly gaining ground and being applied to prostatic enlargements with success, I feel that it may be of interest to outline the development of the method. The method has undoubtedly come to stay, but whether it will ultimately displace the open methods of surgical approach to the prostate—suprapubic or perineal—time alone will show.

Transurethral Prostatic Resection

Long before the Christian era instruments had been devised to relieve obstruction to the outflow of the urine, but the actual nature of the obstruction remained obscure.

It was not till 1830 that George Guthrie recognized that, apart from the prostatic enlargement, an equally serious impediment at the neck of the bladder was an elastic bar. He devised a special instrument like a metal prostatic catheter, at the end of which a small knife could be actuated to cut through the bar. In 1874 Bottini introduced his galvanocautery, with which many cases of prostatic enlargement were successfully treated per urethram. Freudenberg improved on Bottini's instrument in 1897 by combining the galvanocautery blade with the irrigating cystoscope, which had now come into use. In 1900 the pathology of the bladder neck was further enhanced by Albarran, who showed that what had been known as the median lobe of the prostate was actually no part of the prostate, but a development at the expense of the glands lying beneath the mucous membrane of the bladder neck, since known as the subcervical glands of Albarran.

From this outstanding contribution investigation by various observers led to the impression that prostatic hypertrophy almost always has its beginning in the subcervical glands, and ultimately involves the vesical sphincter, elevating the floor of the vesical neck, and pushing down the prostate—thus constituting the middle lobe or the horseshoe collar of trilobar adenomatous hypertrophy. Apart from prostatic enlargement, the other main obstructing factor at the bladder neck has received much diverse terminology, and in consequence a corresponding amount of confusion has arisen in referring to this condition in the literature. Among the various names are: median bar formation, the valve at the bladder neck, contracture of the vesical neck, median lobe hypertrophy, atrophy of the prostate, submucous fibrosis of the bladder neck, "prostatisme sans prostate," sclerosis or atony of the vesical orifice, musculo-glandular hypertrophy, hypertrophy of Albarran's subcervical glands, hypertrophy of the subtrigonal glands, aberrant or isolated median lobe prostatic hypertrophy, "maladie du col vesical," etc. All these indicate the horizontal median bar of hyperplastic tissue which contains all the elements of the vesical neck.

Types of Instrument Used

The present development of transurethral methods undoubtedly owes its inception to Hugh Young of Baltimore, who in 1909 described a "punch operation" for removal of the median bar by means of a modified endoscope. The method became widely used, but had drawbacks in that the actual cut was made blindly, and serious haemorrhage was not infrequently to be contended with. In the same year Beer of New York applied the Oudin monopolar current for the destruction of villous growths in the bladder, by employing a heavily insulated copper electrode through an ordinary catheterizing cystoscope. The procedure was a complete innovation and came to be known as "fulguration." Three years later—that is, in 1913—Stevens and Bugbee, working independently, reported cases in which they had applied fulguration to certain bladder-neck lesions, including enlarged middle prostatic lobes, with eminently satisfactory results. Luys of Paris soon followed with a similar procedure, which he termed "forage de la prostate." In 1920, Caulk of St. Louis evolved a cautery punch with which obstructing fibrous bars or small middle lobes could be removed under vision and without haemorrhage. This instrument with modifications has for some time now been extended by Caulk for the resection of enlarged prostates. Caulk claims that, after all obstructing portions of tissue at the bladder neck have been removed, and an adequate fresh channel is established, the prostate shrinks considerably in size. Although immediate post-operative bleeding is obviated, this instrument is apt to produce late haemorrhage when the slough comes away one or two weeks after operation. Further, the procedure tends to be followed by a rather high incidence of secondary infection. Kenneth Walker of London introduced in 1925 an ingenious diathermy punch, which, though proving extremely efficacious in certain forms of median bar formation, was yet difficult of application to others.

A fresh impetus was given to transurethral surgery in 1926, when Maximilian Stern presented his "resectoscope." In describing this new instrument he said:

"It has become possible to reduce the problem to a mere cystoscopic procedure by the evolution of a cutting current capable of operating in a water medium, and a cystoscopic instrument for its application. This instrument is provided with a small movable ring or loop of tungsten wire which, when actuated by a suitable current, is capable of removing longitudinal spaghetti-like sections of tissue. The former of these instruments I have named the 'resectotherm' and the latter the 'resectoscope.'"

The principle of Stern's instrument has since been applied to a number of electrotomes, each of which has been specially modified according to the ideas of individual urologists both in America and in Europe. Probably that of McCarthy of New York is as widely used as any. The claims for McCarthy's instrument are:

- (a) Accurate visualization of the prostatic urethra.
- (b) Greatest possible flexibility of manipulation, under vision, of the cutting loop.
- (c) Ample electrical power to excise the obstructing prostate under water, with a coincidental minimum of haemorrhage and of tissue coagulation.
- (d) Ease of interchange of electrodes for the closure of bleeding points.
- (e) At the completion of the operation, a No. F24 whistle-tipped indwelling catheter can be introduced through the sheath, before the latter is withdrawn: a definite time-saving and trauma-reducing procedure.
- (f) Rapid epithelialization with a minimum of cicatrization. The cutting electrical current employed is from a vacuum tube generator which gives 2,000,000 oscillations per second.

Advantages of Transurethral Operation

The transurethral route has proved itself the method of choice in dealing with congenital and acquired contractures of the vesical outlet. It is only comparatively recently, with the introduction of more efficient apparatus, that enlargements of the prostate have been treated by this means. Criticism naturally attends every new departure, and time alone will allow a proper perspective. Transurethral prostatic resection aims at re-establishing an adequate outflow from the bladder, without attempting to remove as much prostatic tissue as possible. The so-called radical operation of "prostatectomy" shells out only the adenoma, leaving behind a displaced capsule of prostatic tissue—from which, not infrequently, and if the patient lives long enough, fresh adenomata will develop. The open operation in a non-infected adenomatous case is extremely simple and leaves behind a clean prostatic bed, which on resolution provides a smooth channel and an excellent result.

Where chronic inflammatory reaction has been present prior to the development of adenomata the shelling out of the prostate is far from simple. We are all too familiar with the laborious effort entailed in such cases, an effort which is rewarded by the removal of fragmentary portions of dense tissue at the expense of bleeding and trauma with consequent shock. The degree of manipulation necessary tends to traumatize the prostatic venous plexus and invite the subsequent formation of thrombi. The convalescence in this type of case is, more frequently than not, a stormy one, and the after-result as regards the condition of bladder neck and posterior urethra in many instances such that the patient continues to have dysuria and frequency. In dealing with this particular type of prostatic lesion, accordingly, one cannot but feel that the resectoscope offers in competent hands a safer procedure at the time, and a better after-result than can be accomplished by the open route.

Each prostate case should be subjected to a careful routine examination, both general and local, and the exact form of bladder-neck obstruction determined by cystoscopy where possible. Infection, when present, should be corrected, and the congestion which is almost an invariable associate allowed to settle by appropriate means before any operative measures are contemplated. The mortality of prostatectomy has been reduced during the last twenty years mainly through more careful pre-operative care. With the application of transurethral methods there was a tendency at first to pay less attention to preoperative management, but it was soon revealed that as much care is necessary as when contemplating the open operation.

The technicalities of prostatic resection need not be entered into here, but there are a few points which may be mentioned. The procedure is relatively simple. The field of operation is visualized throughout the entire period. The altered bladder neck is trimmed down step by step till a clear channel extends from the trigonal floor down to the upper aspect of the verumontanum. It is wiser, in the interests of an enfeebled patient, not to attempt to remove too much tissue at one sitting, but to conclude after the main obstructing portion has been dealt with. The more raw surface exposed, the more is absorption likely to take place. Further, as the cutting loop of the electrode enters deeper planes, some bleeding is apt to be induced which may take longer than anticipated to stop. It must be remembered also that the electrodes generate heat, and the more cuts made the greater will the tissue be heated up, thus encouraging ultimate slough formation, and possibly secondary haemorrhage. It is evident that if, instead of one operation which might endanger life, the process can be

conveniently subdivided into two or three, carried out without any undue risk, the latter course is to be preferred.

After-treatment

The procedure following transurethral resection is that a retention catheter is left in for two to three days. After its removal the patient can get up, and is able to void as required. At first, owing to reaction oedema, the voidings may not be complete, and it is as well in such cases to carry out intermittent catheterization morning and evening, instilling argyrol or silver nitrate solution after the bladder is empty and before removing the catheter. This may require to be done for four to five days, after which the patient can return home. As a rule a period of a week to ten days is sufficient for the post-operative course. For debilitated, senile patients, a longer period under supervision is advisable. In cases of fibrous prostate with long-standing contracture of the vesical outlet, the bladder tone is usually much impaired, and although a free outflow has been established, some time may elapse before the detrusor tone is sufficiently established to effect complete emptying of the bladder. In such cases silver nitrate irrigations have proved of the greatest value.

A repeat operation, if the primary procedure has not come up to expectations, should not be considered until all immediate local reaction has settled and the prostate has had some time to shrink. Reinspection of the operative field after three weeks will reveal complete epithelialization, and as a rule no trace of sloughs. Each case, however, should be individually judged as to the general as well as to the local condition, before further intervention is deemed advisable. A repeat operation is invariably easier to perform and necessitates a much shorter period of care, since no further course of preoperative preparation is called for. If the procedure is carried out as above outlined there is no operative shock, and no subsequent pain, nor is the patient confined to bed for longer than a period of three to four days throughout the entire course of corrective treatment.

Conclusion

The laity tends to think that any operation carried out after the age of 60 is a "do or die" performance, but it is the duty of the profession and of science to minimize risk and prolong life. It is because such a forlorn view of prostatectomy is taken by the majority of people—including some members of the medical profession—that victims of prostatism carry on with their complaint till finally an acute obstruction brings them suddenly face to face with the fact that at last something has to be done, and they are by this time reconciled to the worst. It is just this aspect of prostatic and bladder-neck trouble which one would like to emphasize. Why allow a patient to go on with obstructive urinary symptoms till the prostate is sufficiently ripened to permit of enucleation, when all the time progressive renal impairment is taking place, and the patient's general system is becoming more toxic and less able for surgical intervention?

Now that we have the means of determining and correcting such troubles, even in their incipient stages, is it not in the interests of common sense and the community at large, that these individuals be immediately attended to, and saved unnecessary years of suffering and impairment?

It has been said: "The surgery of the obstructing prostate of to-day involves an appreciation of the necessity of its early recognition as well as its prompt correction when the patient shows his greatest credit balance in resilient arteries and other physical assets, and before he has got well along the inevitable road to material depreciation of those assets. Moreover, he can and should have this journey made easier and the road longer."

HIGH CARBOHYDRATE DIETS AND INSULIN EFFICIENCY

BY

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During the last four years the use of diets containing a relatively large quantity of carbohydrate has become more and more common in the treatment of diabetes mellitus. When these diets were first introduced they were received with many theoretical objections, but their undeniable success rapidly compelled their serious consideration and encouraged their increasing acceptance. This divergence between theoretical objection and practical success is no minor discrepancy capable of easy adjustment after careful revision of the data, but a definite conflict between two diametrically opposed conclusions. On the one hand, a well-founded theory directs that the carbohydrates in the diabetic's diet must be curtailed if health is to be preserved; whilst, on the other, a brilliant piece of clinical empiricism produces irrefutable proof that a liberal allowance of carbohydrate acts favourably on the diabetic's health. At present it may be said that the theoretical objections are securely established, not only on a logical sequence of experimental results, but also on the accumulated clinical experience of diabetes mellitus before the introduction of insulin; whilst the beneficial effects attending the use of high carbohydrate diets are inexplicable either by any known physiological or pathological mechanism, or on the basis of previous clinical experience. A probable clue as to the nature of the discrepancy is suggested by a consideration of the chronological relation of the conflicting views.

The good results following the use of high carbohydrate diets were not discovered until after the introduction of insulin treatment. This suggests that there exists in the body a mechanism capable of stimulating the utilization of carbohydrate, but which cannot exert its action in the absence of an adequate supply of insulin. It was with the object of searching for this mechanism that the present work was undertaken, and the employment of healthy men as subjects for the search was dictated by the supposition that it would only be possible to detect the unknown mechanism in subjects possessing the normal supply of insulin.

Theoretical Objections to High Carbohydrate Diet

Before discussing the present research it is first necessary to glance at the work upon which the theoretical objections to the use of high carbohydrate diets in diabetes are based. For a long time it has been known that the excessive consumption of carbohydrate by the diabetic results in deterioration of his clinical condition. It was not, however, until a few years before the discovery of insulin that light was thrown, by the work of F. M. Allen and his collaborators, on the mechanism of this unfavourable clinical change. Allen studied the effect of diet upon the health of partially depancreatized dogs, and summed up his results by saying:

"Dogs which have lost a certain amount of pancreatic tissue will become diabetic irrespective of diet. Dogs which retain a sufficient amount of pancreatic tissue will never become diabetic irrespective of diet. But between these two groups is an intermediate group. On an Eskimo diet they may be found to live in health. On a Hindu diet they soon go down to fatal diabetes."

Thus if sufficient pancreas is removed from a dog so that it is on the borderline of pancreatic diabetes the animal lives, if it receives a low carbohydrate diet, and the blood sugar remains low and glycosuria does not occur. But if such an animal is given a diet rich in

carbohydrates the full clinical and chemical picture of pancreatic diabetes appears, and the animal rapidly dies. Allen further confirmed the work of other investigators, showing that, as a general rule, once pancreatic diabetes has been induced in these dogs by excessive intake of carbohydrates, then a return to the low carbohydrate diet will not cure the condition. It would appear that ingestion of excess of carbohydrate overstrained the remaining pancreatic tissue so as to produce a permanent degree of degeneration.

In the partially depancreatized dogs which died of the diabetes thus induced, histological examination of their pancreatic tissue revealed hydropic degeneration of the β cells of the islets of Langerhans, and Allen emphasized that this was also found in the pancreas of the patient dying in diabetic coma. As by this time the probability of the insular tissue's secreting an "anti-diabetic hormone" was generally accepted, conclusions from Allen's work were easily drawn. In the partially depancreatized dog excess of dietary carbohydrate, by producing a raised blood sugar, causes overstrain of the islets in the remaining pancreatic tissue; under this strain the cells break down and eventually are unable to secrete sufficient hormone to prevent the development of pancreatic diabetes. At death the β cells of the islets are in a state of hydropic degeneration; the pancreas from the diabetic dead of his disease shows similar lesions; therefore to preserve life in the diabetic the islet cells must be guarded against overstrain by maintaining the blood sugar at a low level by restriction of carbohydrates in the diet. The Allen diet—and the theoretical objections—are based on these conclusions.

Practical Experience

On its first introduction insulin was given merely as an adjunct to the Allen diet, but as its use became more widespread it began to be employed in conjunction with diets containing larger and larger quantities of carbohydrate, until the present high carbohydrate diet was evolved. It had been logically assumed that, in the diabetic needing insulin, increase of carbohydrate in the diet would necessitate an increase in the insulin dosage. But this assumption was speedily found to be false. Not only did the diabetic not require a proportionate increase of insulin for each extra gram of carbohydrate included in his diet, but his insulin requirement often remained unchanged. For example, if a patient is balanced on a diet containing carbohydrate 50 grams, protein 80 grams, and fat 115 grams and is then changed straight over to one containing carbohydrate 120 grams, protein 80 grams, and fat 76 grams, in the majority of cases no increase of insulin will be necessary. According to the current theory the excess of carbohydrate in the second over the first diet should produce the insulin requisite for its utilization by "flogging" the diabetic's already diseased islets, and the result should be rapid deterioration of the clinical condition. But the clinical condition does not deteriorate. On the contrary, the patient feels and continues to be much improved.

The only explanation so far offered of this striking paradox is on the basis of Allen's experiments on the glucose equivalent of insulin.⁴ Working with depancreatized dogs, an attempt was made to determine how many grams of carbohydrate each unit of insulin would cause to be retained in the body. It was speedily found that there was no direct linear relation between the carbohydrate eaten and the dose of insulin needed to prevent glycosuria, and Allen arrived at the conclusion that the more carbohydrate ingested the less is the insulin required to metabolize each gram. It will be seen that this work provides no real explanation of the clinical problem, but only restates it in a different form.

The Staub-Traugott Phenomenon

Up to the present the masterly work of Allen and his collaborators has dominated the conception of diabetes mellitus, but recently another line of research has begun to turn thought in a different direction. In 1919 Hamman and Hirschman⁵ described the phenomenon which is now usually referred to as the Staub-Traugott effect. They showed that if two consecutive doses of glucose are given to a healthy subject the hyperglycaemia resulting from the second dose is lower than that after the first. The current explanation of this phenomenon (Macleod)⁶ is that the first dose of glucose sensitizes the insulin-secreting mechanism, so that in response to the second dose the islet cells secrete insulin more readily and more abundantly at a lower level of hyperglycaemia. On the basis of this explanation Sweeney,⁷ in 1927, attempted to explain the variations in sugar tolerance found in normal subjects on different diets. Using the ordinary glucose tolerance test as a guide, he investigated the sugar tolerance of healthy individuals during starvation, on a fat diet, on a protein diet, and on a carbohydrate diet. He found that protein had little effect; that fat diets and starvation diminished sugar tolerance; and that carbohydrate diets improved sugar tolerance. Sweeney considered that the diminished sugar tolerance was due to the impaired sensitivity of the insulin-secreting apparatus, consequent upon the absence of the stimulus of carbohydrate ingestion, and that the improved tolerance was the result of the increased sensitivity of this mechanism, owing to greater stimulation.

Effect of Diet on Insulin Action

All the work we have considered so far has dealt with the influence of diet only upon either normal or abnormal carbohydrate tolerance. It is surprising that little attention has been paid to the effect of diet upon the action of insulin itself. A few papers, however, have appeared. Bainbridge⁸ and Hynd and Rotter⁹ showed that animals convulsed earlier after injection of insulin on a carbohydrate than on a fat diet. It appeared to me that a key to the problem of the influence of diet upon the healthy subject's sugar tolerance lay in a possible relation between the organism's tolerance for sugar and its sensitivity to insulin. If it were found that high carbohydrate diets, which improve sugar tolerance, sensitized the subject to insulin, then the effect of diet upon insulin action would have been established, and the observation that many diabetics need no more insulin on the high carbohydrate than on the low carbohydrate diet could be explained on these lines. It was accordingly determined to investigate the result of different dietetic conditions, both on sugar tolerance and on sensitivity to insulin, with a view to discovering whether a correlation existed between the two phenomena.

Methods Employed

For the purpose of this investigation healthy young men were used. They varied in age from 18 to 22 years, and as far as could be ascertained they had never suffered from any serious illness and were in perfect health during the experimental period. They were admitted to the ordinary ward of the hospital and underwent the usual routine of hospital patients, save that they were allowed up during the morning and afternoon. The special diet allotted to them was prepared and weighed in the diet kitchen of the hospital, and its consumption was checked by the ward sister. There was no reason to suspect that any of them surreptitiously supplemented his diet in any way. No experiment was carried out until the specified diet had been given for one week, and only one experiment was performed on the same day. On the day before an experiment the subject retired to bed at 6.30 p.m., and remained there (without breakfast) until 9.30.

a.m. the next day. He then went to the laboratory adjoining the ward and was allowed to rest for half an hour: the experiment commenced promptly at 10 o'clock. During the whole of the subsequent procedures the patient remained at rest in an easy-chair, and precautions were taken to keep him comfortably warm. Blood specimens were taken from the ear, and the blood sugar was estimated by the Hagedorn-Jensen method.

For the glucose-tolerance curves three blood samples were taken in the resting state; 50 grams of glucose in 300 c.cm. of cold water flavoured with citric acid and essence of lemon were given by mouth, and blood samples were then taken every ten minutes for three hours.

For the curves following injection of insulin—insulin depression curves—four blood samples were collected in the resting state; 5 units of a solution of crystalline insulin were injected intravenously, and blood samples were collected, first, every two minutes, and, later, every three minutes, for thirty-five minutes. The technique for obtaining satisfactory blood samples with this frequency necessitated the training of a team of assistants, and the test is for this reason impracticable outside an experimental laboratory. It was necessary to use a solution of crystalline insulin, as commercial insulin contains an impurity which, on intravenous injection, causes a transient but variable degree of hyperglycaemia.

Results

In Fig. 1 two glucose-tolerance curves in the same subject are represented—the one (high fat diet) on a low-carbohydrate-high-fat diet; the other (high carbohydrate diet) on a high-

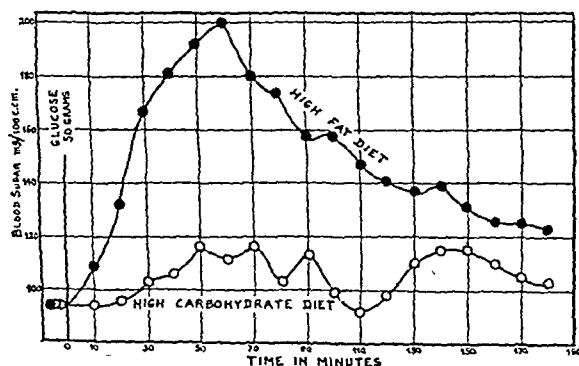


FIG. 1.—Two sugar-tolerance curves after 50 grams glucose; both obtained on the same healthy subject. The upper one was obtained when the subject was taking a high fat diet, the lower when he was taking an equicaloric high carbohydrate diet.

carbohydrate-low-fat diet. Both diets were of the same total calorie value. It will be seen that on the high fat diet the sugar tolerance was diminished, as indicated by a high degree of hyperglycaemia after glucose; whilst on the high carbohydrate diet the glucose tolerance was raised, as demonstrated by the low hyperglycaemia after oral glucose.

Fig. 2 shows two insulin depression curves, one being obtained on a high fat diet and the other on an equicaloric high carbohydrate diet. It is evident that on the high fat diet insulin takes longer to act, and then acts more slowly, on the blood sugar than when the subject is given a high carbohydrate diet.

These two results are examples of a wide range of experiments on healthy men⁸ and animals⁹ which I have presented elsewhere, and it may be stated as a general rule that those dietetic conditions which bring about improvement of sugar tolerance are always associated with an increased susceptibility of the organism to insulin, whilst those which cause impairment of sugar tolerance are invariably accompanied by a decreased susceptibility.

Another method for improving the sugar tolerance is that exemplified in the Staub-Traugott phenomenon. One dose of glucose will lessen the hyperglycaemia resulting from a second dose; the latter, in turn, will diminish the hyperglycaemia from a third dose. Subjects habituated to a specified diet were therefore selected, and the rate at which insulin depressed the blood sugar was determined. Some days later, to the

same subject, 50 grams of glucose were given, and one hour after the resulting hyperglycaemia had completely subsided the standard dose of insulin was injected and the rate of depression of the blood sugar again estimated. After glucose the blood sugar with insulin sank much more rapidly than in the fasting state; the administration of the preceding dose of

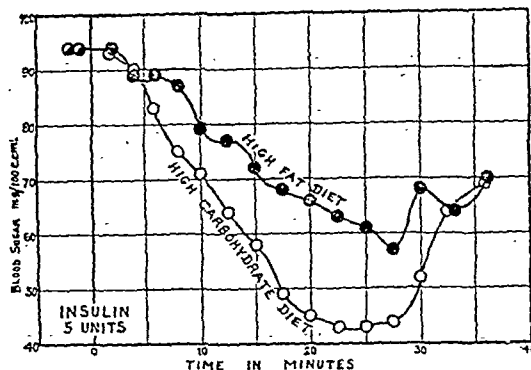


FIG. 2.—Two insulin depression curves after 5 units of crystalline insulin solution intravenously; both obtained on the same healthy subject. The upper one was taken during the high fat regime, the lower when he was taking an equicaloric high carbohydrate diet.

glucose had caused, in the subject, the development of a state of increased susceptibility to insulin. This experimental observation merits further consideration.

Discussion of Experimental Findings

Zunz and la Barre¹⁰ have demonstrated that a rise of blood sugar induces secretion of insulin by the pancreas. In the Staub-Traugott experiment the first dose of glucose brings about this secretion of insulin, but, as I have demonstrated, it also gives rise to a state of increased susceptibility to insulin. With the second dose the hyperglycaemia again calls forth the secretion of pancreatic insulin, but, the animal being now more susceptible, less insulin is required to reduce the hyperglycaemia to the normal level of blood sugar. Thus to explain the Staub-Traugott effect there is no necessity to postulate that glucose ingestion results in an increasing sensitivity of the insulin-secreting mechanism, for even if the same amount of insulin is secreted in response to each dose of glucose the consecutive improvements in tolerance can be adequately explained by the experimental observation of the progressively increasing susceptibility of the organism to insulin.

Now the maintenance of the blood sugar at normal levels is largely dependent upon the secretion of pancreatic insulin. This has recently been proved very beautifully by Gayet,¹¹ who has shown that when the pancreas is cut out of the circulation the blood sugar begins to rise; when its circulation is restored the blood sugar returns to, and remains constant at, the normal level. Consider the normal subject in the basal state. To maintain the blood sugar constant at the fasting value a certain output of insulin from the pancreas is necessary: 50 grams of glucose are now given, the hyperglycaemia is allowed to subside, and the blood sugar comes to rest within a few milligrams per 100 c.cm. of the fasting level. But we know by experiment that the subject is now more susceptible to insulin, and therefore the pancreas must be putting out less insulin than it did in the fasting state; otherwise the blood sugar would tend to hypoglycaemic levels. If the procedure is repeated we shall find that, after a further dose of glucose, when the blood sugar has returned to resting levels the animal is still more susceptible to insulin, and therefore the secretion of insulin from the pancreas must be still further reduced.

We thus arrive at the conclusion that the progressive diminution of hyperglycaemia in consecutive glucose-tolerance curves is due to the progressively increasing susceptibility of the subject to insulin, this increase being so marked that an actual decrease in the output of pancreatic insulin would appear to accompany the improving tolerance. From these considerations the explanation of the improved tolerance found in a normal subject on a high carbohydrate diet becomes clear. *The increased tolerance is due to the organism's increased susceptibility to its own insulin.* Similarly, the diminished tolerance seen in starvation and in subjects receiving a low-carbohydrate-high-fat diet is owing to their lessened susceptibility to their pancreatic insulin. Further, we have brought forward results⁹ which show that the ability of an animal to develop an increasing susceptibility to insulin after administration of carbohydrate is influenced by the diet which it is receiving. A carbohydrate diet facilitates the development; a fat diet retards it.

It must be remembered, however, that we have not demonstrated whether the heightened susceptibility seen on the carbohydrate diet is the result of the excess of carbohydrate or of the restriction of fat in the diet, and, similarly, whether the lowered susceptibility on the high fat diet is the outcome of the restriction of carbohydrate or the excess of fat in the diet. It is possible that in the removal of the blood sugar some factor other than insulin is concerned—an unknown factor which governs the susceptibility of the animal to insulin. As to the nature of the unknown factor we have no information. It seems to be intimately connected with insulin action. There are two simple possibilities. The factor may be an inhibitor of insulin and its production be inversely proportional to the carbohydrate content of the diet; or it may be an activator of insulin, whose production is directly proportional to this content. On evidence brought forward elsewhere^{8, 12} I incline to the activator hypothesis.

Clinical Significance of the Results

The results recorded in this paper carry us some way towards the explanation of Allen's glucose equivalent of insulin. The reason behind the observation that the more carbohydrate ingested the greater the amount retained in the body by each unit of insulin is that the more carbohydrate eaten the more sensitive the organism becomes to each unit. Hence the paradox of the glucose-insulin equivalent. It will be remembered that Allen's experiments were carried out on depancreatized dogs, and thus demonstrate that such a dog under the stimulus of the administration of carbohydrate is capable of developing an increasing sensitivity to insulin.

My results show that the giving of carbohydrate raises the efficiency of both injected and pancreatic insulin in the normal subject. It only remains to prove that carbohydrate has the same action in the diabetic and the explanation of the beneficial effect of high carbohydrate diets in these patients has been achieved. Ellis¹³ has recently supplied this proof. To diabetics needing large doses of insulin he gave glucose by mouth and small doses of insulin every hour. A remarkable increase in insulin efficiency resulted. Despite the ingestion of constant large amounts of glucose the dose of insulin required to restrain the blood sugar within normal limits decreased progressively. These results show that some diabetics, though possibly not all, are capable of developing a heightened sensitivity to insulin under the stimulus of carbohydrate ingestion. Thus the improvement of diabetic patients on a high carbohydrate diet is to be ascribed not to the greater stimulation, and consequent overstrain, of their insulin-secreting tissue by the excessive

intake of carbohydrate, but rather to the rendering of the diabetic more susceptible both to his pancreatic and the injected insulin. The result is that each unit of insulin available accounts for a greater amount of carbohydrate. This, necessarily, by allowing a more economical utilization of the insulin secreted, reduces the demand of the body for insulin, with a consequent easing of the strain on the diseased islet cells. By thus lightening the burden on the cells which remain capable of function it is possible that we aid their conservation as healthy tissue, and save rather than squander the patient's own pancreatic resources.

If the augmentation of a diabetic's sensitivity to insulin is of importance in the balanced state, it is of much greater importance in the state of coma. It is well known that hundreds of units of insulin may be given in this condition with little effect on the blood sugar, when in the same diabetic after recovery 20 or 30 units will produce hypoglycaemic symptoms. Many comatose and precomatose patients seem to be relatively insensitive to insulin, and any measure directed to raise their sensitivity would appear to be of benefit. To this end glucose should be administered in large doses. The success of treatment based on this principle I have recorded previously,¹⁴ and the method has since been strongly recommended by Lawrence.¹⁵

A growing number of cases of diabetes are being reported in which the patients for no ascertainable reason are found to be resistant to insulin. In one such case doses as large as 1,600 units of insulin a day had no effect on the blood sugar. It is possible that these cases may be explained by an almost complete absence of the factor making for susceptibility. In contradistinction to these insulin-resistant diabetics, cases of spontaneous hypoglycaemia in which no hypertrophy or tumour of the islet cells can be found are continually being recorded. In such patients it is theoretically possible that the hypoglycaemia may be the outcome not of hyperinsulinism; but of the development of a state of a greatly heightened susceptibility to insulin secreted by the pancreas.

Finally, I would suggest the possibility of the existence of a type of diabetes due not to diminished secretion of insulin by the pancreas, but to a greater or less impairment of the organism's susceptibility to insulin. In such a case, although the output of endogenous insulin may be normal in quantity, the diminution or absence of the factor which is concerned in rendering the patient susceptible to insulin would produce a result identical with that of impaired production of insulin—namely, the clinical picture of diabetes mellitus.

I should like to thank Dr. J. W. Trevan of the Wellcome Physiological Research Laboratories for supplying me with the solution of crystalline insulin and Miss E. M. Marshall for controlling the diets of the experimental subjects.

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A CASE OF AGRANULOCYTIC ANGINA

BY

A. DALY BRISCOE, M.A., M.B., B.CHIR.

Only five cases (all in females and four fatal) of agranulocytic angina have been reported in this country. In America and on the Continent, however, many cases have been investigated, and much has been written on the subject. By far the majority of patients have been females, and the mortality has been very high. Batten¹ was the first to record a case in England, and subsequent cases have been reported by Garrod and Williams,² Pilkington,³ Leys,⁴ and Abrahams.⁵ It appeared, therefore, that a case occurring in a man of 71, with subsequent recovery, was sufficiently unusual to be worth putting on record.

History of Case

The patient, a small, spare man, aged 71 years, had not felt well since June, 1933. He complained of feeling easily tired, of being irritable, and of having a poor appetite. The only previous history of any importance was an attack of renal colic six years before, which was followed by the passage per urethram of a small calculus.

He was first seen on August 31st, 1933. In addition to the symptoms mentioned above he had some difficulty and pain in swallowing, owing to an ulcer which was situated on the left side of his tongue in its posterior third. This was oval in shape and covered with a whitish slough. Its edge was not hard or indurated. There were no enlarged glands to be felt. All his teeth had been extracted some years before, and he was a non-smoker. He stated that his tongue had been sore for a few days. He continued at work for two days, but felt progressively poorly, and took to his bed on September 3rd, 1933. He was seen on the next day, when he had developed painful haemorrhoids, of which he had had previous attacks, and complained of pain on passing urine.

Digital examination of the rectum, which proved very painful, revealed a large, tender prostate. The urine was markedly acid, but no albumin or sugar was found; there was no deposit. The ulcer on the tongue was more painful, and there was considerable dysphagia, but the appearance of the ulcer was little altered. There was, however, some oedematous swelling around it, but not to any great extent. The painful micturition increased in intensity during the next two days, and the pain on defaecation was also aggravated. These symptoms now became the prominent features of the case, and proved more troublesome to the patient than the condition of his mouth.

On September 6th the temperature rose to 101.4° F. at 9 p.m., having been normal that morning. On September 8th there was some aphthous ulceration of the upper lip, and he was obviously feeling weaker, but his chief discomfort was that of frequent and painful micturition, and the haemorrhoids were still swollen and inflamed. The ulcer on the tongue did not appear to be any larger, but the slough appeared more "dirty." There was a slight icteric tinge of the sclerotics, but no enlargement of the liver was felt. The spleen was not palpable. There was no evidence clinically of any anaemia. The blood pressure was 116/70.

By September 10th the patient was much weaker, and with the continued fever it was felt there might be some obscure sepsis somewhere. A leucocyte count was done, but instead of a suspected leucocytosis a very marked leucopenia was found—370 per c.mm. It then became apparent that this might be a case of agranulocytic angina, and a blood film examined on the following day showed only 4 per cent. of polymorphs present, and the provisional diagnosis was confirmed. (The blood urea was 21 mg. per 100 c.cm.: this was done in view of the previous history of renal calculus.) Micturition continued to be painful, but no ulceration at the urethral meatus was discoverable, nor was there any anal ulceration, but the possibility of rectal ulceration could not be excluded. Insomnia was troublesome. At no time was the pulse raised above 100; more often it was 84 to 88, even when the temperature was in the region of 101°. The highest temperature recorded was 101.4°.

Blood Counts

The full pathological report on the blood film of September 11th was as follows: "The red cells appear normal, and there are platelets present. There are no abnormal white cells, but a differential count gives the following result, which shows a very marked polymorphonuclear leucopenia: polymorphonuclears, 4 per cent.; lymphocytes, 86 per cent.; monocytes, 10 per cent." A swab was taken of the ulcer, and on culture gave a moderate growth of haemolytic *Streptococcus longus*, with an occasional colony of *Staphylococcus albus*. On September 12th the tongue ulcer was definitely clearer, and the patient was certainly no worse.

On the next day a small quantity of dirty-looking material was discharged from the left nostril, and the patient then said that for two days his left nostril had been uncomfortable and slightly tender. On this date further blood films were examined, and the report was: "Red cells normal in size, shape, and colour; white cells similarly normal. A differential count, however, shows the condition to be very much the same as before: polymorphs, 5 per cent.; lymphocytes, 87 per cent.; monocytes, 8 per cent." From now onwards his condition slowly but steadily improved. The tongue showed signs of definite improvement each day. On September 14th the temperature was below 99° for the first time since September 6th.

On September 15th the differential count was: polymorphs, 17 per cent.; lymphocytes, 74 per cent.; mononuclears, 9 per cent.; no basophils or eosinophils. The next day the total white cell count was 1,800 per c.mm. The patient was now much better. The painful micturition was easier, and the haemorrhoids were subsiding. The tongue ulcer had cast its slough completely, leaving a clean base. From now on his progress was uninterrupted. The tongue ulcer healed rapidly. The slight superficial ulceration of the upper lip was quite healed by September 18th. A differential count three days later showed: polymorphs, 54.5 per cent.; lymphocytes, 33 per cent.; mononuclears, 7 per cent.; basophils, 0.5 per cent.; eosinophils, nil. He had now no complaints at all, and looked much better. He was able to get up on September 30th.

The blood was finally examined on October 7th and the following complete report made: red cells, 6,200,000 per c.mm.; haemoglobin, 86 per cent.; mean diameter, 7.4 μ ; colour index, 0.6; white cells, 5,700 per c.mm.—polymorphs 64 per cent., lymphocytes 31 per cent., mononuclears 4 per cent., eosinophils 1 per cent. This confirmed haematologically his complete recovery clinically.

During the succeeding six months this patient has kept well, and on April 6th, 1934, the following report on a blood film was received: "The red cells are of good colour, shape, and size. White cells are not seriously diminished. Differential count: polymorphs, 66.6 per cent.; lymphocytes, 28 per cent.; mononuclears, 4 per cent.; eosinophils, 1.2 per cent.; basophils, 0.2 per cent." There were no sequelae.

Comment

No specific therapy was employed. Blood transfusion was considered, but owing to its doubtful value was not carried out. Treatment by x rays has not been universally successful, and was not used, nor were injections of pentose nucleotide 96 or of sodium nucleinate given. There was never any ulceration of the pharynx or fauces. The ulcer on the tongue did not spread. The ulceration of the upper lip was quite superficial. There was evidently some ulceration of the nasal mucous membrane, and, although not certain, ulceration of the rectum and urethra was probable.

The points of special interest in the case are: (1) the fairly long prodromal period of slight ill-health; (2) that the patient was a male; (3) that his age was 71; (4) that the total leucocyte count fell to 370 per c.mm.; (5) that recovery was complete; (6) the high percentage of monocytes, which, according to Conner *et al.*,⁶ indicates a more favourable prognosis; (7) that the fever lasted seven days, which is the most usual time, according to Jackson *et al.*⁷

Conclusion

There was no apparent cause, and this case must be considered as primary or idiopathic agranulocytic angina.

It would appear that in any case of ulceration of the mouth, tongue, fauces, or any other mucous membrane without definite cause, yet with severe constitutional disturbance, an examination of the blood should be carried out to exclude the possibility of agranulocytic angina.

My thanks are due to Dr. W. F. Addey of Ipswich for his help in consultation; to Dr. E. Biddle, pathologist to the East Suffolk and Ipswich Hospital, for carrying out the pathological investigations; to my partner, Dr. E. F. K. Alford, for his assistance at various times; and to Mr. T. J. Shields, Librarian of the British Medical Association, for his help in looking up the references.

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FULL-TERM EXTRAUTERINE PREGNANCY WITH LIVING CHILD

BY

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The recent publication of a very interesting article with a case report of full-term ectopic gestation¹ prompts the record of a similar case which occurred in the practice of Redhill County Hospital. This simulated a normal pregnancy so closely that at no time was the possibility of an ectopic gestation considered, although in the light of later knowledge the latter diagnosis should have suggested itself at the time of the patient's first attendance at hospital. The patient attended on several occasions over a period of four months.

Clinical History of Case

M. C., primipara, aged 24 years, was admitted to Redhill County Hospital, Edgware, on April 5th, 1932. At the age of 14 years she was operated upon for appendicitis, and was afterwards troubled with a ventral hernia, which developed in the operation scar. Each menstrual period was preceded by pain and a slight vaginal discharge. Her last menstrual period commenced on October 23rd, 1932.

Three weeks prior to her admission to hospital she had an attack of severe pain in the abdomen. She was impressed by the suddenness of the onset of the pain, which, she stated, occurred in the lower part of the abdomen, being much more severe on the right than on the left side. This severe pain, which lasted for about a day and then gradually diminished in intensity, was associated with a slight pain in both shoulders; she herself described it as "sharp" and "like twisting knives." Following this attack there had been a vaginal discharge, which after a fortnight diminished in amount.

When admitted to hospital she described the pain as being much less severe and of a dragging nature, but added that the act of micturition was accompanied by pain. She was extremely nervous and apprehensive of examination. The temperature was 98° F., pulse 86, respirations 24. The bowels were regular. A centrally situated tumour reaching to the umbilicus was regarded as the uterus enlarged to the period of cystitis. Tenderness was present over the whole abdomen, but was most marked in the iliac fossae. The presence of this tumour was confirmed by vaginal examination. The cervix was soft and the external os closed. There was tenderness in

the right and left fornices. The fundus of the uterus could not be defined from the tumour, which filled the pelvis and reached into the abdomen. A catheter specimen of the urine showed no abnormality. She was discharged from hospital on April 14th, 1932, having been then for some days entirely free from symptoms.

The patient reported at the ante-natal clinic on May 9th, 1932, and thereafter attended on three occasions prior to her readmission to hospital on July 29th, 1932. A radiogram taken on July 16th showed the foetus had assumed the transverse position. The head was lying in the left iliac fossa. Attempts at external version failed to alter this, and the position was maintained until August 9th, when it was decided to attempt external version under anaesthesia.

In contrast to the difficulty experienced in previous attempts at version, the head was very readily moved and maintained in the vertex position. As the head commenced to turn it was noted that a definite "snap" was conveyed to the palpating hand. The head was floating well above the brim of the pelvis. A vaginal examination was carried out, and a large placenta was felt occupying the entire pelvis. It was seen at once that the patient's condition had become worse, and the anaesthetic was immediately discontinued. She became very blanched and extremely shocked. When conscious she complained of severe abdominal pain. It was thought that the uterus had been ruptured, and an operation was immediately carried out under chloroform and ether anaesthesia.

Operation

The abdomen was opened by a midline incision. The abdominal cavity was found to be full of blood. A living female child was extracted. The umbilical cord was cut between ligatures. A normal uterus was then palpated and seen lying anterior to the placenta, which swayed at the end of a strap-like pedicle. This pedicle was from 3 to 4 inches broad, and was attached to the posterior aspect of the right broad ligament. As large blood vessels were seen coursing through the pedicle, it was accordingly severed between clamps and the stump ligatured with catgut. A thick-walled, ruptured sac was adherent to the coils of the small bowel and also to the omentum. The sac was readily separated, and very little of it had to be left behind owing to its persistent adhesion. The patient's condition was extremely precarious. A pint of the blood which had been sucked out of the peritoneal cavity during the course of the operation was given to her intravenously. Thereafter her condition rapidly improved, and undoubtedly this case marks a further illustration of the life-saving value of auto-transfusion of blood. The convalescence was uneventful, and she was discharged on September 7th, 1933. She was examined again on May 7th, 1934—that is, twenty months after her operation, when she stated that menstruation was in every way normal. At no time since the operation had she experienced any pain or discomfort.

After the operation the child showed signs of shock but rallied with treatment. Her colour was then good, and she seemed apparently healthy. Unfortunately the child died suddenly twelve hours after birth.

Post-mortem Findings

A necropsy was carried out on the body of the child, and the following details were noted:

Length of child	...	17½ inches
Weight of child	...	6 lb. 11 oz.

Although a careful examination was made, no abnormality or deformity was found. Sections of different parts of the skeleton were reported on as follows:

"The sternum shows centres of ossification in the manubrium and three centres in the body. Ossification is commencing in the lower end of the femur in the lower epiphysis. The epiphysis at the upper end of the tibia shows no sign of ossification. The placenta weighs 3 lb., is fully formed, and measures 8 inches in diameter. It appears to be perfectly normal, except for the thickness of the membranes attached to it."

Commentary

The tarsal bones were also sent for examination, but unfortunately no report of these was obtained.

There seems to be little doubt from the details given above that this was a full-time child. It would appear that the "snap" which was noticed at the commencement of the version was due to the rupture of the sac, and this case must be the more remarkable from the fact that the child survived the interval of at least one hour which elapsed between the version and the time of operation.

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Clinical Memoranda

SPONTANEOUS RUPTURE OF THE UTERUS AT THE TWENTY-FOURTH WEEK OF PREGNANCY

Uterine rupture at any stage of pregnancy is becoming less frequent. This is to be accounted for by the greater knowledge of, and better attention paid to, the conditions which predispose to it, to the better prenatal care of patients, and to the more careful and gentle treatment of labour, especially when complicated.

A woman, aged 28, was admitted to Addenbrooke's Hospital as an emergency on June 18th, 1930. She had had two healthy children after normal pregnancies and confinements. Since the previous December she had had amenorrhoea, and was about twenty-four weeks pregnant. Up till and during the previous day she had been perfectly well, and had had a normal night's rest. At 6 a.m. she was up and moving about her house, starting her daily duties, when she suddenly had very acute abdominal pain and faintness. Her doctor was sent for, and when he arrived he found her in a state of collapse. He very rightly diagnosed some form of internal haemorrhage, probably intrauterine and of the concealed accidental type. It is important to note that there was no history of the slightest trauma, fall, or shock.

The patient was immediately sent into hospital, and I saw her shortly after her arrival. She was exceedingly pale, the pulse was uncountable (about 180 to 200), and she was only semi-conscious. In fact, her state was one of very profound collapse. On examination the abdomen was not particularly tender, and, when roused, she did not complain then of much pain. Foetal parts could be felt in the lower abdomen in a swelling corresponding in size with the period of amenorrhoea. A diagnosis of intrauterine haemorrhage was made, and the vagina was plugged pending some reaction on the part of the patient. She was infused both intravenously and subcutaneously, and kept under morphine. In the evening the pulse was 120 and fairly satisfactory. The patient was by this time quite conscious, but no uterine pains had developed. The abdomen had become more generally distended, and was tender all over. In addition, a mass about the size of a small coco-nut could be felt low down in the abdomen and rising out of the pelvis.

The diagnosis was still uncertain, except that it was now obvious that the internal haemorrhage, whatever the origin, was intraperitoneal. It was decided, therefore, to open the abdomen. Under nitrous oxide and oxygen the abdominal wall was thoroughly infiltrated with novocain. On opening the peritoneum the first things that presented were foetal membranes over foetal parts; the peritoneal cavity contained much dark blood and clot. On further investigation the ovum was found intact, the placenta seemingly being attached to the back of the uterus, which, before the abdomen was opened, had been felt as the mass low down and rising from the pelvis. A touch with the fingers at the back of the uterus completely separated the ovum containing its six-months foetus, and the whole was lifted out. On inspecting the back of the uterus a pouting laceration, about two inches

long, with irregular margins, was seen. Having removed as much blood as possible, a rapid supravaginal amputation of the uterus was performed, as being the best means of dealing with so desperate a condition. Saline in quantity was left in the abdomen, and the wound rapidly closed. For the next four days the patient seemed to be getting on well, and every hope was entertained of her recovery. Quite suddenly, however, in the afternoon of the fifth day, she took a turn for the worse and died. Necropsy was refused.

The upper part of the uterus removed at operation shows the rent in the centre of the back of the fundus. The specimen was sent up to the medical schools, and very careful microscopic examinations were made in the department of pathology. The following is the report.

"Sections have been made from the unaffected and affected portions of the uterus. In the unaffected portion there is normal uterine muscle, with perhaps, in places, a tendency to a very slight increase of fibrous tissue. In the affected portion the site of rupture shows a large collection of polymorphonuclear leucocytes, which may be an indication of infection or an expression of general leucocytosis of a post-haemorrhagic type. The muscle is degenerate and hyaline at the site of rupture, and is invaded by collections of large mononuclear cells and, here and there, giant cells of the foreign body type. These are not suggestive of any specific inflammation, but merely of a reaction of chronic type. Special staining for fatty degeneration gives negative results. A Gram stain for organisms shows numerous large Gram-positive spherical bodies, which were at first thought to be members of the yeast group. Further and more detailed study, however, disposes of this. They are probably aberrant collections of pigment, some of which are being digested by the polymorphonuclear leucocytes. The cause of the chronic infection of the uterine muscle must remain uncertain. An atypical syphilitic infection is an outside possibility, but this is mainly speculative."

Uterine rupture is roughly divided into two kinds: (1) complete, when the peritoneum is involved; (2) incomplete, when the tear enters the parametrium, having usually extended up from the cervix. Complete rupture, of which this case is an instance, can occur spontaneously, quite apart from powerful uterine contraction or operative delivery. Such would occur in a uterine wall weakened by myomectomy or Caesarean section, when the resulting scar tissue causes a weak spot in the wall. It can occur in a uterus congenitally weaker than the normal, such as the so-called "infantile type," or in a uterus bicornis. But if spontaneous rupture does occur it almost always does so at or near term. In this case spontaneous rupture occurred at the twenty-fourth week without trauma or uterine contraction, and there had been no operative intervention in the uterine wall previously. Some morbid change in the uterine muscle must have occurred locally, and the fact that the patient had had two previous normal pregnancies and labours shows that the change must have taken place since the last puerperium. The microscope has shown these changes in the wall. It was unfortunate that the ovum was destroyed after it had been carefully kept by me with the uterus from which it had come. An examination of the foetus might have thrown some light on this rather obscure condition. The refusal of necropsy also possibly robbed us of important information.

In conclusion, it should be mentioned that no drugs had been taken or administered, and the fact that the ovum escaped from the uterus intact disposes of any suspicion of an attempt having been made to procure abortion. Diagnosis was made difficult by the absence of trauma and the early stage of gestation at which rupture took place.

I am greatly indebted to Dr. R. A. Webb of the department of pathology for the trouble he has gone to in trying to elucidate the case for me.

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SPONTANEOUS RECOVERY IN SUPERIOR
MESENTERIC THROMBOSIS

An interesting case of acute abdominal disease was recently admitted to the Kimberley Hospital, and with a view to obtaining the comments and opinions of others I should like to recount its salient features.

A male, aged 74, complained of intense abdominal pain of sudden onset and of about four hours' duration; there was no history of similar attacks or of any symptoms pointing to abdominal disease. The patient gave a history of a long-standing morphine habit, and stated that just prior to the onset of the pain he had taken half a drachm of liq. morph. hydrochlor. Vomiting occurred once at the onset. Up to the time of the attack the bowels had acted regularly and micturition had been normal.

The pain was localized to the upper abdomen, and was most severe at a point just above and to the left of the umbilicus. The abdomen was extremely tender and slightly rigid on palpation over this area, but beyond this inspection, palpation, and auscultation revealed nothing abnormal. Both pupils were constricted, and reacted to light and accommodation. Both knee-jerks were present, the plantar response bilaterally flexor. No abnormal constituents were found in the urine. Shortly after admission a stool slightly suggestive of melaena was passed, and in view of this a tentative diagnosis of partial intestinal obstruction was made and a laparotomy performed.

At operation a loop of ileum, some four feet in length, was found to be dilated: the walls were congested, friable, and of a dark plum colour, and bled very easily on handling. The related mesentery was much thickened and in places gangrenous, while the blood vessels were felt in it as thickened cords. These vessels were traced up to the root of the mesentery, and in no part of their course could pulsation be detected. It was concluded that the condition was one of superior mesenteric thrombosis, and, in view of the patient's age, his poor general condition, and the length of gut involved no attempt at resection was made; the abdomen was closed with as little handling of its contents as possible.

The patient was placed on glucose and brandy, and morphine was given freely. For three days clear bile-stained fluid was repeatedly vomited, and for a further three days the patient hiccupped continuously. During this period the bowels were relieved with enemata; the stools were always slightly suggestive of melaena. A week after the operation, with dramatic suddenness, the pain, vomiting, and hiccupping ceased, and normal stools were passed. At the present time (a fortnight after operation) the patient is almost completely recovered, is on a steadily increasing diet, and daily exhibits an improvement in his condition.

The prognosis for superior mesenteric thrombosis, as given in the standard works on surgery, is gloomy in the extreme, yet here we seem to have encountered an undoubted example of this condition which has exhibited a spontaneous cure. I shall be glad to learn if any other case of superior mesenteric thrombosis has shown a spontaneous recovery of this nature, and also to receive any suggestions for an alternative diagnosis which will fit in with the observed facts. It has been suggested to me that the case may have been one of volvulus, which was "undone" spontaneously either immediately before the operation or during the induction of anaesthesia. The short history, the slight vomiting, the absence of symptoms of a complete strangulation of the gut, the thrombotic nature of the vessels (with absence of pulsation) in the gangrenous mesentery, and the slight possibility of a volvulus which could affect the gut to such a severe extent untwisting itself, make me disinclined to accept this diagnosis.

This patient was admitted to hospital under the care of one of the honorary surgeons, Dr. A. E. Hill, who has kindly given me permission to offer this case for comment.

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British Medical Association

CLINICAL AND SCIENTIFIC PROCEEDINGS

DERBYSHIRE BRANCH

DISEASES AND INJURIES OF THE LOWER SPINE

In his presidential address to the Derbyshire Branch of the British Medical Association at Matlock, on June 20th, Dr. C. W. BUCKLEY of Buxton discussed diseases and injuries of the lower spine, with special reference to compensation cases.

Dr. Buckley stressed the importance of accurate diagnosis in cases of pain and stiffness in the back, which were common in industrial practice and in compensation claims after injury sustained in the course of employment. Such claims would be fought by the insurance company, and the opinion of the patient's medical practitioner would be contested by the evidence of expert witnesses called by the company, and relying often on a single examination. The judge was generally sympathetic, provided that the medical practitioner restricted himself to witnessing to facts. It was well to remember the American dictum that exaggeration was as common as malingering was rare, being the natural defensive mechanism of one who feared that he presented inadequate external evidence of the pain he felt. An x-ray examination was essential if litigation was in prospect; it would reveal such grosser conditions as fractures and abnormalities, and a report by a radiographer should be obtained. This must be considered with the clinical findings.

SACRO-ILIAC AND LUMBO-SACRAL STRAIN

Dr. Buckley reviewed the anatomical factors in detail, commenting on the commoner abnormalities. Sacralization of the fifth lumbar vertebra tended to throw an abnormal strain on the ligaments, and predisposed to sacro-iliac strain. The position of the fifth lumbar nerve root rendered it especially liable to be affected by such strain, and it was desirable to investigate carefully the distribution of pain in the lower extremity in cases of strain, and, by means of Head's diagrams, to determine as far as possible the nerve roots affected. History-taking was of the first importance, and the exact nature of the employment should be noted. Not all miners worked at the coal face, and in the case of motor-driving there might be strain from a badly tilted seat or too long a reach to the driving controls. Lumbo-sacral strain was more common in heavily built men, and sacro-iliac strain in the slender type with poor muscles and posture. Occupational factors bulked largely in the production of lumbo-sacral strain, and trauma was more frequently the cause in the sacro-iliac variety. In the physical examination abnormalities should be noted, including any sign of muscle spasm or flat-foot. The degree of inability to touch the toes while standing should be compared with that when sitting. In sacro-iliac strain the former was prevented by hamstring spasm, but was easier in the sitting posture. In lumbo-sacral strain sitting did not help, and the degree of movement might be greater when standing. This test should always be made, and simultaneously the existence of any spasm of the hamstrings or lumbar muscles be detected. The lateral and rotation spinal movements should be tested next, and then the raising of the legs in the recumbent position, first with the knees flexed and then with them straight. In sacro-iliac strain straight leg raising was checked, as a rule, at about 140 degrees by spasm of the hamstring muscles, which rotated the ilium on the sacrum. The unilateral pain thus induced was almost diagnostic if in the region of the joint. If, however, the pain was felt in the middle of the thigh it was likely to be due to perineuritis of the sciatic trunk. With the patient lying face downwards hyperextension of the thighs was almost always painful in low back cases. In sacro-iliac strain the point of maximum tenderness was just internal to the posterior spine of the ilium; in lumbo-sacral strain it was over the lower lumbar spinous or transverse processes. Irritation of the sensory nerves in the articular ligaments might give

rise to more disability than fracture of minor bony structures. Sacro-iliac strain and subluxation commonly resulted from violent muscular effort, with or without the presence of developmental anomalies, and especially when the muscles were fatigued by prolonged effort, and failed to support the ligaments. They also might be due to blows to the lower part of the back in the stooping position. Other causes were long standing and stooping or lying in fixed and faulty positions; repeated slight strain of this kind set up chronic fibrositis and chronic relaxation of the joint. Lumbo-sacral strain might be static or traumatic, in the latter case being often associated with sacro-iliac strain. Stretching of the posterior ligaments due to weight-lifting might cause sudden pain shooting down the sciatic nerve. The extreme of lumbo-sacral strain was spondylolisthesis, the sliding forward of the fifth lumbar vertebra over the upper surface of the sacrum. It could only occur if the articular processes were in the sagittal plane, or had been fractured. In one case of back pain there had been well-marked, long-standing scoliosis, nuclear prolapse of several disks, and lipping of some of the vertebral bodies, but the cause was actually lumbo-sacral strain due to the plane between the mobile lumbar spine and the relatively immobile sacrum being little removed from the vertical, thus throwing great strain on the ligaments. Nuclear prolapse was of great importance, leading to penetration of the vertebral body and rendering it more prone to further injury. Claims for compensation which were supported by radiographical evidence were rarely contested, but some strains, which resulted in really serious disability, would not be admitted as genuine unless sound clinical proofs were forthcoming.

RADIOGRAPHIC EVIDENCE

Dr. Buckley said that careful examination on the lines he had indicated would generally serve to detect malingering and to demonstrate how far exaggeration was a factor. Radiographical examination was essential in all cases of injury to the back and in all cases of persistent pain in the absence of trauma. Lateral as well as antero-posterior views should be taken, and would reveal fractures of vertebral bodies and transverse and spinal processes, displacements of vertebrae, disalignment of the pubis, sacralization and spondylolisthesis, osteitis deformans, arthritis, neoplasms, and tuberculous and rarer conditions. A compression fracture of a lumbar body might thus be discovered which had occurred some years before the onset of symptoms. Kummell's disease, a slowly collapsing fracture of a vertebral body, only gave rise to symptoms when the patient had started work again after treatment for a bruised back. Secondary deposits in the lumbar spine and pelvic bones might be the first evidence of a primary growth in the prostate. Arthritis of the spine or spondylitis deformans might appear as ankylosing spondylitis in young adults in the lumbar region, but sometimes higher. Stiffness in the back progressed rapidly to complete ankylosis. In about 80 per cent. ankylosis of the sacro-iliac joints began early, and might be the first demonstrable radiographic sign. The spinal column ultimately became a rigid bar—straight if the patient had been kept at rest, but otherwise with varying degrees of kyphosis. Osteoarthritis of the spine was comparable to this condition in other joints. Slight lipping of the vertebral bodies was, however, of no importance, and might be regarded as one of the accompaniments of advancing years. Small osteophytes in the lumbar spine were also commonly seen, and might become very large without giving rise to symptoms. They might, nevertheless, be an important contributory factor in disablement from minor accidents. The largest osteophytes in the lumbar spine appeared on the left side if the man was right-handed, and on the right in the left-handed, indicating the part played in their causation by spinal movement and strain. In such back cases, without severe strain but with osteoarthritis present, the man could be passed for light work. It was most important that osteoarthritic patients should realize that they were not suffering from true rheumatoid arthritis, which always suggested to them progressive crippling. Continued activity within the limits of their ability was most desirable.

Reviews

PRINCIPLES OF GYNAECOLOGY

The fourth edition of Professor BLAIR-BELL's *Principles of Gynaecology*¹ comes with all the attractions of a new work owing to extensive revision and the long interval since its previous issue. A historical introduction, based on brief sketches of the lives of the chief figures in gynaecology's roll of honour, and a section on ethical and medico-legal problems have been added. Both are welcome. We are in full agreement with the author's remark in the preface that "the imprint of personality is a valuable asset to any textbook," and would add that there can be no question of his success in this regard. The outstanding characteristic of this book is the extent to which the author's attitude of mind and outlook are revealed, as if by an autobiography. He breaks away from traditional views and methods in a manner that stimulates thought and should make his book of value and interest to all engaged in the practice and teaching of gynaecology and to those preparing for the higher examinations in the subject.

From its first appearance this book influenced the change in the arrangement of gynaecological works from an anatomical to a pathological basis, and its general lay-out calls for no comment. The interposition of Part II on case-taking and examination of the patient between Part I on structure and Part III on function does, however, arouse curiosity as to the reasons therefor. The next two parts cover derangements, first of structure then of function. All the foregoing are written with the object of giving the student a broad biological view, and as a rule very successfully. Here and there, however, broad principles are lost in detail. Thus the meaning and implications of the reduction of chromosomes during maturation are lost in describing the manner of their reduction. Neither among the possible causes of abortion nor under "selective sterility" is there any reference to lethal gametic combinations, well recognized as cause of loss of zygotes in breeding experiments. Part VII, on infections, gives a sound and judicial view of their aetiology, prophylaxis, and treatment. The introduction of Part IX, on neoplasms, is possibly the most thought-stimulating portion of an account of the pathology and clinical features of new growths. The relative value of treatment by radium and surgical operation in uterine cancer, the selection of cases of ovarian cyst for removal by the abdominal or vaginal route, are considered in the same open-minded spirit as was the choice of time and method of operation for pelvic infections. Lead therapy for cancer receives fuller attention than would be expected from one who had not, as the author has, initiated and developed it. Operative procedures are clearly described and well illustrated.

This edition will undoubtedly add to the influence its predecessors have had on thought and practice in gynaecology. There is no question of its interest and value to those who have some basis of experience in the subject, but there may be some reservation regarding its appeal to the average unqualified student, owing to its highly individualistic character. His predilections and idiosyncrasies have led Professor Blair-Bell to use a terminology of his own devising, and a new series of uterine "ponations," added to the inevitable versions and flexions, is a source of further confusion. The beginner's

¹ *The Principles of Gynaecology: A Textbook for Students and Practitioners.* By William Blair-Bell, B.S., M.D., F.R.C.S., F.C.O.G. Fourth edition, revised and largely rewritten with the assistance of M. M. Darnow, M.D., B.Ch., F.R.C.S.E., M.C.O.G., and Arthur C. H. Bell, M.B., B.S., F.R.C.S., M.C.O.G. London: Baillière, Tindall and Cox, 1934. (Pp. xiv + 548; 507 figures, 16 coloured plates. 55s., postage 9d.)

sense of proportion may be distorted by the undue attention given to subjects that attract the author, such as hermaphroditism and others among the congenital atavisms and malformations. But even should the student fear direct study of the book, he is bound to benefit indirectly by the stimulus it will give his teachers; and, should he advance further into the subject, it will then have an irresistible appeal.

PHYSICAL MEDICINE

A Clinical Textbook on Physiotherapy for physicians and medical students² has been produced by Dr. Grober of Jena, with the assistance of six German and Austrian colleagues. Three chapters, on massage, pneumotherapy, and climates, with an introduction, are supplied by Dr. Grober, who is director of the Physico-Therapeutic Institute at the University of Jena. Each section deals with the physical and physiological aspects, the technique, and the indications of the special methods under consideration. It is claimed in the introduction that physical medicine is the oldest, and should be one of the chief branches, of medical study and practice. It is now based on scientific physics, not on any vague belief in the general healing power of Nature. No progress can be made in this branch of medicine without precise physical and physiological data. Dr. Grober defines the scope of physical medicine so as to include the whole range of the electro-magnetic energy spectrum, from electric rays, through infra-red, visible rays, ultra-violet rays, x rays, and radium to cosmic rays. This gives a corresponding range of physical methods—electro-, thermo-, photo-, x-ray, and radium applications—to which must be added at the beginning mechanical energy, in the form of massage and of general and respiratory remedial exercises, and at the end the all-inclusive influences of climate.

Large claims are made for physical medicine as rightly forming part of the training and practice of every physician, and not only a specialty. This will, if realized, prevent resort to quacks, but should also prove an effective means of bringing the practitioner into close contact with the patient and of observing his individual reactions. Physical medicine can thus serve a diagnostic end of wide general application. On the principle of not giving a *Amati* violin to a carpenter to mend, Dr. Grober considers that physical treatment ought to be administered by the medical man—but the attendant must be trained and experienced, working under close medical supervision. The large amount of elaborate apparatus here described certainly places many procedures outside the scope of the general practitioner. In every chapter the simplest methods of using the various forms of energy, including self-treatments by patients, are described, the more elaborate forms being regarded as an extension into a specialty, according to the familiar process in the relations between general and special practice.

Spa treatment is not discussed, and the chapter on hydrotherapy, by Professor Strasser, includes an up-to-date physiological section, the recent work of Hauffe on action at a distance being also critically considered. Hydrotherapy is here regarded broadly as a form of thermotherapy plus the mechanical action of water at rest and in motion. The indications cover the whole field of chronic disease, but very little space is devoted to the disorders of locomotion: indeed, chronic rheumatoid arthritis and osteo-arthritis are only casually mentioned, and rheumatic disorders are treated somewhat cavalierly throughout the book, being accorded merely three lines in the index, and then only under the general heading of

"Joint Disorders." The chapter on kinesotherapy includes both free movements and those with apparatus of many kinds, simple and complicated, and also the manipulation of joints, this chapter being divided into sections according to the kind of tissue acted upon. In his chapter on climate the editor deals with the usual three special climates—desert, seaside, and alpine—and also with gradations of inland climates, especially forest. Civilized man, he says, lives habitually in an artificial "room climate," produced by heated houses and clothing, so that any kind of exposure to open air is a climatic stimulus. He holds that climatic treatment requires long periods, a two to three weeks' holiday being quite inadequate to produce any but a temporary stimulus. Altogether Dr. Grober's work is a useful contribution to the serious study of modern physical medicine.

BACTERIAL CLASSIFICATION

In a recent monograph devoted to the question of bacterial types in microbiology Dr. MAX GUNDEL has assembled and reviewed critically all the available knowledge bearing on this subject.³ Increasing information on the pathogenic bacteria has hardly tended to simplify matters, for the bacteriologist of to-day has not merely to concern himself with bacterial species, but also with the many quite definite types into which many species may be divisible. One need look no further than the pneumococcus and the dysentery bacillus for examples of this. And this subdivision into types is not merely a matter of scientific interest; in many cases it is of the highest importance from the point of view of epidemiology and clinical medicine. Dr. Gundel speaks with authority on the subject, for he has devoted much time to a study of this aspect of bacteriology, more particularly as it applies to the pneumococcus and streptococcus, and his monograph is one of value. Of course the information is available to those who care to consult original papers and modern textbooks like the *System of Bacteriology*, but it is an advantage to have it all collected together, and for those who desire this, and read German, Dr. Gundel's monograph should prove eminently satisfactory.

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REALITY AND CONDUCT

Morality and Reality,⁴ by Dr. E. GRAHAM HOWE, is a useful but curious book. It sets forth a considered and consistent philosophy: it does more than this—it offers, as every philosophy should, a stimulus and a guide to conduct. Fundamentally it is wise; occasionally, in some of its diagrams, analogies, and applications, it seems to verge on the fantastic. The subtitle of the book declares it to be "an essay on the law of life," and this, indeed, it is, as the author sees the matter and as he assuredly will induce or help others to see it. He drives his main point home repeatedly and effectively, though all his reinforcements have not an equal value or validity. To discourse on the right, the good, and the true, with such interest and force and ingenuity is not a common gift; indeed, as the author says,

It has always been cheap but fashionable to gibe against the person who asks "What is Truth?" But the fact remains that the answer is never an easy one because the truth is living and moving; it is only relative and it is always hidden under some transient mask of material form.

It is impossible to summarize the argument and the successive lines of thought extending through the volume,

² *Die Typenlehre in der Mikrobiologie*. Von Professor Dr. med. et phil. Max Gundel. Jena. G. Fischer. 1934. (Pp. 192. R.M.8; geb. R.M.9.)

⁴ *Morality and Reality. An Essay on the Law of Life*. By E. Graham Howe, M.B., B.S., D.P.M. London: Gerald Howe Ltd. 1934. (Pp. 126. 6s. net.)

² *Physikalische Therapie. Klinisches Lehrbuch*. Edited by Professor J. Grober. Jena: Gustav Fischer. 1934. (Pp. 364; 172 figures. R.M.16; geb., R.M.18.)

and very difficult to indicate fairly its thesis. The latter task may be attempted thus. Reality means "that which is now, which is not, as a whole, what I want." Morality is "a matter of form; it is behaviour about reality, an attitude towards life, a code or system of rights and wrongs." The relations between the two are antagonistic. "Morality of any kind has always been and must always be the enemy of life as well as science, for it seeks to impose an artificial restriction for its own convenience. . . . The discipline imposed by a morality seems to have for its purpose an escape from the restrictions of reality, the discipline of which it finds irksome and does not approve, substituting another more suitable to its own convenience." The true conduct of life, and of teaching, should be based upon the acceptance of reality (things as they are though they are not what I want them to be), and not upon fighting it, ignoring it, or running from it. At the same time acceptance is not inertia, but ordered, gradual, continuous growth. The general progress of the author's thought may be imperfectly indicated by the titles of his chapters: "The Good and the True," "Law and the Child," "Law and the Family," "Law and the Social Group," "The Fulfilment of the Law." In these chapters Dr. Howe writes not from the strictly ethical, academic, or philosophic point of view, but from that of a physician experienced especially in dealing with the difficulties of childhood by psychotherapeutic methods. These can never be fully successful unless, as here, they are founded on considered beliefs, clearly held and sincerely followed and applied.

EARLY FORERUNNERS OF MAN

The publication of the book with this title by a foremost authority on evolution is to be welcomed as presenting a new departure in the method of approach to the problem of the evolutionary origin of the primates.¹ Professor LE GROS CLARK combines in this work the qualities of an anatomist with those of a field naturalist and a not inconsiderable artist. The result (strange for a book of this kind) is that the book, whilst primarily meant as a contribution to an academic subject, will be found of great attraction and interest by non-anatomists. The zoological names for animals are of necessity complicated, but need not deter the general reader from a perusal of this volume, for from it he will obtain a rapid insight into the methods used in tracing the evolutionary origins not only of the primates but of any other order.

Many attempts have been made to build up a scheme of the phylogenesis of the primates by selection of a particular anatomical system (for example, the teeth or the brain), but the author of this volume has set himself the task of taking into account all the anatomical characters, and thus avoiding the danger of having the classification based on evidence obtained from one system contradicted by that of another system. This constitutes, so far as we know, the first attempt to put together all the relevant morphological and palaeontological evidence bearing on the problem. The evidence is presented clearly, and is illustrated richly, many of the excellent line drawings being from the author's own pen. It is put forward, as a result of the analysis of all the available information, that the primates originated from the earliest of the placental mammals, and that already in Cretaceous times they had become separated into a distinct order. The classification of the evolutionary radiations of the primates into Lemuroidea, Tarsiodea, and Anthropeidea is supported, but the author considers that these were already distinct at the very base of the primate branch.

¹ *Early Forerunners of Man. A Morphological Study of the Evolutionary Origin of the Primates.* By W. E. Le Gros Clark, D.Sc., F.R.C.S. London: Baillière, Tindall and Cox, 1934. (Pp. vi + 394; 89 figures. 15s; postage 9d, abroad 1s. 3d.)

Whilst a positive answer is given as to the inclusion of the lemurs in the primates, it is carefully shown that they became differentiated from the basal primate stock independently of other primates, and that it is therefore unjustifiable to postulate a "lemuroid" phase in the ancestry of the higher primates.

The ever-tantalizing question of the origin of man is treated in an entirely detached and scientific manner according to the evidence. It appears that the human phylum became differentiated from the anthropoid ape phylum at an earlier age than is generally conceded—namely, when the hypothetical common ancestor (a type deduced from the study of the dynamics of variation) was not much bigger than the modern gibbon. Still the author considers that the evidence supports the conception that man has arisen from an ancestral stock which can be legitimately termed an "anthropoid ape." The author's own studies of tarsioidea have led him to the conclusion that this sub-order was separated from the anthropoids at the very beginning of the Eocene period, and that many of the "anthropoid" features of the modern Tarsius are the result of parallel development. But the evidence does not oppose the view that the Tarsiodea and Anthropeidea had a common origin from the primate stock; indeed, it seems that the common ancestor of these two sub-orders would come within the definition of the Tarsioids (*Prototarsioids*). The controversy as to the position of the Tupaiodea (tree-shrews) in the evolutionary scale is considered in detail, and the conclusion reached that these animals cannot be put in the order of insectivores, but must be included in the primates. The recent discovery in Mongolia of a fossil tree-shrew—*Anagale*—is adduced as evidence of a closer approximation of the tree-shrews to the lemurs than is seen by a study of the modern representatives of the Tupaiodea. The morphological and palaeontological evidence indicates that there has been a great deal of parallel evolution among the primates since their first differentiation as a separate order, and the bearing of this in modern conceptions of evolution is discussed.

Professor Le Gros Clark is to be congratulated on a most scholarly production, which is a fitting prelude to his assumption of the duties of the chair of anatomy at Oxford.

Notes on Books

Forensic Medicine,² by Professor SYDNEY SMITH, is now so well known as to need no recommendation. The fourth edition has just been published, and the author has wisely refrained from increasing its size by more than the few pages necessary to make minor alterations and improvements to keep the volume up to date. It will continue to enjoy wide popularity amongst students and practitioners.

The large and handsome textbook of operative obstetrics³ by Professor BRIQUET of São Paulo, with nearly 400 illustrations, affords readers of the Portuguese tongue a full and well-arranged account of the important subject with which it deals. It is up to date, well furnished with references to the European literature, and provided with an adequate index. The volume does equal credit to its author and its printer.

The eleventh volume of the *Archives of Neurology and Psychiatry*,⁴ from the Central Pathological Laboratory of the London County Mental Hospitals, edited by Dr. F. L. Golla, who is director of the laboratory, consists of forty reprints of articles published elsewhere during the last three years. Perusal of this volume will show the high

² *Forensic Medicine. A Textbook for Students and Practitioners.* By Sydney Smith, M.D., F.R.C.P., D.P.H. Fourth edition. London: J. and A. Churchill Ltd. 1934. (Pp. 644; 179 figures. 25s.)

³ *Obstetrics Operative.* By Raul Briquet, São Paulo: Companhia Editora Nacional. (Pp. 541; 373 figures.)

⁴ No. 344. London: P. S. King and Son, Ltd. 1934. (15s.)

level of excellence attained by the workers in the London County Council's Central Pathological Laboratory at the Maudsley Hospital, with its enormous available wealth of clinical and pathological material.

In a pamphlet on the Treatment of Bronchial Asthma⁹ Dr. DÉROT gives a straightforward account of the most important methods employed in treating this common complaint, concluding, as so many of us have concluded, that no two cases are either identical or in need of the same treatment. The pamphlet may be recommended as containing a great deal of information and advice useful to the general practitioner of medicine.

*Dental Pharmacology and Therapeutics*¹⁰ has been written as an aid to the dental student or practitioner in solving some of his daily problems, and its author, Professor BLAYNEY, expressly states, not as a book for detailed reference. Nevertheless, by a happy combination of clinical experience and professorial knowledge, he has produced a work which may well serve both purposes in the daily work of the dentist. The notes on phenol and alcohol are good examples of this happy combination.

⁹ *Le Traitement de l'Asthme Bronchique*. Par Dr. Maurice Dérot. Paris: J. B. Ballière et Fils. 1933. (Pp. 44. 6 fr.)

¹⁰ *Dental Pharmacology and Therapeutics*. By J. R. Blayney, B.S., D.D.S., M.S. (Pp. 311; 25 figures. 18s. net.)

New Preparations

TANNA-FLAVINE FOR BURNS

We have received from the British Drug Houses Ltd., Graham Street, City Road, N.1, a leaflet, which they have published recently, in reference to "tanna-flavine," a preparation of tannic acid with acriflavine for the treatment of burns and scalds. The manufacturers anticipate that industrial firms will include "tanna-flavine" as a part of their first-aid equipment; also that it will be used in hospitals, particularly in the casualty wards. It is issued in packages, the contents of each of which, when used in accordance with the directions, are sufficient for the preparation of 100 c.cm. ($\frac{3}{4}$ fluid ounces) of a solution containing 20 per cent. of tannic acid and 0.1 per cent. of acriflavine "B.D." The solution is painted over the raw surface with a sterilized brush, or applied with gauze soaked in the solution. Immediate coagulation takes place on the wound. The area is then dried, preferably by means of a current of hot air from an electric drier. A second application and subsequent drying may be undertaken immediately; indeed, this is often necessary when the surfaces have been cleansed with normal saline solution. The burned areas are exposed to the air from the beginning of the treatment until the coagulated layer has separated or has been removed; this usually takes from twelve to twenty-one days. During the treatment the bedclothes should be supported by a cage, and the patient kept warm.

SODIUM PENTOSE NUCLEOTIDES

"Pentide" is an 8 per cent. solution of sodium pentose nucleotides prepared by Allen and Hanburys Ltd. (London, E.2) for the treatment of agranulocytosis or malignant neutropenia, and other conditions in which increased production of polymorphonuclear leucocytes is desirable.

Two types of agranulocytosis—that is, absence or diminution in number of the granular (polymorphonuclear) leucocytes—are known: true agranulocytic angina, of unknown aetiology; and malignant neutropenia, secondary to an obvious acute infection. True agranulocytic angina, characterized by ulcerative lesions in the mouth or pharynx, is usually acute and fatal. Secondary granulopenia or malignant neutropenia may result from enteric fever and other exanthemata, local infection, poisoning by benzene or arspheamine, irradiation by x rays or radium, aplastic anaemia, splenic diseases, etc. Various workers have reported that the intramuscular and intravenous injection of pentose nucleotides transforms the prognosis in agranulocytosis from unfavourable to favourable.

The manufacturers state that "pentide" has been tested biologically and found not to produce any toxic reaction. Its dosage is 10 c.cm. intramuscularly every day until there is definite improvement. For intravenous injection, which is advised during the first four days, 10 c.cm. of the solution should be diluted with distilled water to the strength of 0.8 per cent., and the resulting 100 c.cm. of the dilute solution given daily in addition to the intramuscular doses. The price of "pentide" is 15s. per 25 c.cm. vial. A leaflet discussing this treatment more fully will be sent on application to the manufacturers.

THE EDUCATION OF PARTIALLY SIGHTED CHILDREN

The Board of Education has issued an important report of an inquiry into the problems relating to partially sighted children.¹ It is the report of a committee set up in 1931 by Sir George Newman, the chief medical officer of the Board. Of the eleven members constituting the committee no fewer than seven were non-medical, albeit men (and two women) of distinction; of the four doctors two are officers of the Board, one a medical officer of health, and only one an ophthalmic surgeon, Mr. Percy Flemming. In a problem so largely medical and ophthalmic there would seem to be some risk of lack of weight on the medical side. Nevertheless, the committee was a good jury, and has produced a report that is excellent, and one that will be of undoubted value both to educationists and to school medical officers.

HISTORY

Special provision for the training of children who are partially sighted is of recent origin. There were schools for the normal and schools for the blind. Occasional grumbles were heard at the difficulty of providing for the partially sighted, but nothing was done until the start of the London experimental "myope class" in 1908. As the report states: "The initiation and development of this system of special education for partially sighted children in London, which gave the lead to the whole country, was due to the enterprise and foresight of Mr. Bishop Harman, ophthalmologist to the London County Council, and to Dr. James Kerr, school medical officer for London." The success which attended this scheme of special education for the partially sighted led the London County Council to extend it to other districts, and in 1911 it received the sanction from the Board of Education to establish special classes for an additional hundred children. In authorizing this provision the Council made it clear that it had definitely adopted the policy of educating the partially sighted child as a sighted and not as a blind child.

The rapid spread of these special schools over the world during the past twenty-five years is evidence of their need, and the need for a committee that would sort out the experiences of those who have developed them. A new scheme of education of this sort must inevitably give rise to varieties of experiment, according to local conditions, which might be illuminating.

NOMENCLATURE AND STANDARDS

On the name of these schools the committee came to the definite conclusion that the early official term "partially blind" was bad. "Myope class," the common name in England, is considered too limited, since there are pupils who are not myopes. "Sight-saving classes," the usage of the U.S.A., is considered to claim too much. The preference of the committee is for schools for the "partially sighted."

Dealing with ophthalmic standards for the selection of children for these special schools it is recognized that myopia is by far the most important and frequent single condition which leads to admission. The reasons for the need of care in the education of myopes are considered in detail. Myopia is, for the most part, due to faulty growth of the eye, which manifests itself in school life. It is commonly considered that faulty posture in reading and writing, poor illumination, and excessive convergence of the eyes, such as may occur in reading small print or doing fine needlework, play an important part in increasing myopia. Such conditions are held to be only too common in schools. On the other hand, the committee had evidence from ophthalmic surgeons that rapid progress of myopia may be arrested if all close work is stopped, and at the same time attention is given to general health; though this finding was not without exceptions. There is

¹ Board of Education: Report of the Committee of Inquiry into Problems Relating to Partially Sighted Children. London: H.M. Stationery Office. 1934. (2s net, postage extra)

evidence that the regime of the school for the partially sighted, by the elimination or reduction of factors causing undue stress on the eyes, has some influence in decreasing or arresting the progress of myopia, but that this decrease or arrest is not always permanent.

Some witnesses held that the educational restrictions imposed by attendance at a special school for the partially sighted were not justified by the results attained. The committee sought to balance these opinions. The conclusions arrived at were these:

1. If the eyes show fundus change, indicative of a serious condition of myopia, the child should always be admitted to a special school.
2. In the absence of signs of such fundus changes the child should usually be admitted to a special school if (a) after repeated examinations it is found that the myopia has been increasing at a rate of more than one dioptre per annum; (b) after a period of slow rate of increase or apparent arrest it is found that there is a sudden rise in the rate of progress to more than two dioptres per annum.
3. The actual amount of myopia should not be the sole factor in determining whether a child should be sent to a special school.
4. The age of the child must be taken into account. The younger the child the more serious are factors such as degree of myopia present and the rate of progress of that myopia. In doubtful cases the existence of a history of myopia in the family may be a deciding factor.
5. Myopic children with a visual acuity after correction of 6/24 or worse should be admitted to a special school, though the majority of these will probably fall within Category 1 above.

Children suffering from damaged eyes due to the disease should not be admitted to these schools so long as there is any remaining inflammation. When the disease is quiescent and the vision is reduced by scarring it is considered that it will probably be found, as a rule, that children with a visual acuity after correction of 6/24 or worse, with a near vision of J8 or J10, should be sent to a special school. Cases of optic atrophy are peculiarly difficult to assess; the determination must be made on the expected rate of progress of the degenerative change and the risk of blindness.

SELECTION OF CHILDREN

The ascertainment of partially sighted children is one that concerns first the system of school medical inspection. Even if that be well arranged and carried out there is still risk of missing dangerous cases, owing to the fact that vision tests are not carried out until the child is 8 years of age. The committee suggests a test at an earlier age.

"The next problem is to divide these cases into those who, after treatment, can receive education without handicap or detriment in the ordinary school, and those whose visual defect renders it necessary for them to be educated in a special school for the partially sighted. The ophthalmic principles which should govern the selection of the latter have been fully discussed in the preceding section. The application of them calls for special knowledge and experience in ophthalmology. It is essential, therefore, that the selection of children for admission to a special school for the partially sighted should be made on the principles set out above and only by specialists in ophthalmology."

THE MAGNITUDE OF THE PROBLEM

A considerable effort was made to determine the magnitude of the problem. The variety of factors that influence the ascertainment of partially sighted children in different areas renders it very difficult to estimate, from the figures submitted by those areas, the total number of such children in the whole country. But it is held reasonable to suggest that the proportion of partially sighted children in England and Wales, if selected on the basis of the committee's standards, would be not less than 1 per 1,000 children on the school registers, representing approximately the figure of 6,000.

PERIODIC EXAMINATIONS

The committee comments on the tendency in certain areas to admit a child to a special school and there keep him for the remainder of school life. It is essential—more particularly in cases of myopia—that examination by an

ophthalmic surgeon should take place at periodic intervals of not less than six months, both of those in the special schools and of those who may have been transferred from the special school to the ordinary school. To effect this it is necessary to have some co-ordination between the work done by the ophthalmic branch of the school medical service and that in the special schools, a linking up which can be brought about if the same ophthalmic surgeon be appointed in charge of both.

There is an excellent chapter on the care of the children admitted to the special schools. The committee regards the establishment of schemes to secure continuous ophthalmic supervision of partially sighted children after they have left school as a matter of the highest importance, and is of the opinion that, given good will and co-operation between the various public and voluntary agencies involved, an effective and efficient system could be provided to cover the country.

EDUCATIONAL PROBLEMS

Next the committee sought to reach conclusions on much more difficult problems. First, the type of special school. The whole weight of the evidence was against any association with schools for the blind. Whether or no the special schools should be self-contained units or recognized as part of the normal school has been keenly contested. The committee concludes that the importance of educating partially sighted children in order to fit them to live their life among the sighted is a strong argument for the closest possible association with fully sighted children throughout their school life. After balancing the advantages of segregation and non-segregation systems, and recognizing fully the difficulties which must be overcome and the prejudices which must be broken down, the committee recommends that the education of partially sighted children should be conducted, where possible, in special classes attached to, and forming an integral part of, the ordinary school.

The curriculum presents its problems. On the one hand there are the risks to the sight, and on the other the loss to the child of the normal full curriculum. "One very influential school of thought holds that because of the inevitable danger to the eyesight of myopic children which the constant use of books entails—a danger none the less real because the full effects may not accrue until middle age or later—it is the duty of those who are responsible for the education of myopes to discourage by all means in their power the habit and the love of reading. Another school would allow the use of books under carefully guarded conditions, holding the view that the risk of impaired vision is not, as a rule, great enough to justify the loss of educational opportunities caused by deprivation of books. The protagonists of these conflicting views are irreconcilable. The committee recommends that under the age of 8 years books should be very sparingly used, and the main work be done on blackboards, and, in so far as it is advisable to supplement this with books, these should be printed in 24-point type. For older children this type or 18-point need not be prohibited entirely. Consideration is given to the use of handiwork and physical training, and to the most necessary training of the teachers for these classes.

A separate chapter is devoted to the finding of suitable employment for these children after school age, the methods of finding work, occupations, and supervision. It is disquieting to learn that the partly sighted are more likely than other young persons to fall into the ranks of the unemployed, becoming a section of the unemployed with a particular handicap. Young employees with good personal qualities can sometimes work their way into permanent posts, even from first employments which are intrinsically of a blind-alley character. The moral of the situation is that, without all-round ability and strong personal qualities, partially sighted children are likely to be among the first to suffer when young labour is being turned out of employment. The committee is averse to specific vocational training, such as is common for the blind; the aim should be to educate them, as far as possible, to compete on equal terms with other people.

British Medical Journal

SATURDAY, JULY 14th, 1934

BLADDER-NECK OBSTRUCTION

The question of bladder-neck obstructions, dealt with by Mr. Duncan Morison in our present issue (p. 53), is an important one. It also formed the subject of discussion at the fifth Congress of the International Society of Urology in London this year, the introductory papers being read by Professor Marion (Paris), Professor Weijtland (Amsterdam), and Mr. Kenneth Walker (London). The prominence given to the subject of late is explained by the fact that although the existence of bladder-neck obstructions apart from prostatic enlargement has long been recognized by urologists, the pathology and the relation of this disorder to other abnormalities in that region are imperfectly understood. Not only are different names attached to what is essentially the same pathological condition, but also separate pathological conditions are included under the same name. This has naturally resulted in much confusion of thought, and therefore the concise review given by Mr. Morison should prove a useful aid to those who have been bewildered by the copious and conflicting literature that has sprung up around the subject.

Reduced to its simplest terms, it may be said that the symptoms produced by lesions of the bladder neck are due to its inability to open at the moment of micturition. In order to emphasize this point, the French urologist, Professor Legueu, has coined the term "dysectasia" as a descriptive heading under which all cases of bladder-neck obstruction may be placed. This is a useful addition to our nomenclature, for the term "dysectasia" is comprehensive enough to include such varied conditions as sclerosis of the bladder neck, glandular hyperplasia, adenoma, muscular hypertrophy, and the type of case described by Marion as congenital "maladie du col." In all these conditions, the resulting disability is essentially the same—namely, an inability on the part of the bladder neck to open, with, as a consequence, failure of the detrusor to expel the contents of the bladder. It is not surprising that the condition of dysectasia should frequently have provided a puzzle for the clinician. Faced with a patient who displayed all the symptoms of prostatic obstruction and yet had no enlargement of that gland, a diagnosis could only be based on an elimination of any other condition, and on the cystoscopic appearance of the bladder neck. Can it be wondered at that the medical man whose experience of cystoscopy was limited failed more often than not to discover the thickening and raising of the posterior lip of the bladder outlet that is characteristic of bladder-neck obstruction, and regarded the case as one of bladder atony? The

treatment adopted in order to improve the tone of the bladder wall naturally failed to have any results in the presence of obstruction, and in the end the patient was condemned to catheter life or permanent suprapubic drainage.

The fate of a patient in whom the existence of obstruction was recognized but considered to be due to a small obstructing prostate, although better, was by no means to be envied, since he was generally subjected to a major operation instead of to a procedure of comparatively minor importance. Every surgeon must have had the experience of opening the bladder in the expectation of finding a prostate that could be enucleated, and discovering a fibrosed gland that defied all attempts to shell it out. In such cases, after much exertion, a small fragment of tissue has been torn out from the region of the bladder neck and the patient returned to bed labelled "fibrous prostate" or else "malignant disease." Many of these mistakes have arisen from a failure on the part of the profession to recognize the existence of a form of dysuria due to an altered condition of the bladder neck rather than to a lesion of the underlying prostate. The numerous papers and reports of discussions that have of late years appeared on this subject show that not only urologists, but general surgeons, are beginning to differentiate between micturition difficulties dependent on an obstructing prostate and those caused by a lesion of the bladder neck. Provided the correct diagnosis be made, the results of treatment are excellent, whether this lies in the direction of an open operation or of a perurethral resection. To the majority of urologists the latter method commends itself, because it avoids the necessity for opening the bladder in order to remove a small amount of tissue from its neck. Marion, almost alone among experts, shows a preference for the more extensive operation on the ground that open resection is in his opinion more likely to yield a complete and lasting cure. Although the verdict of such an expert must carry weight, it would seem reasonable to employ perurethral methods whenever they are possible. So many improvements have been made in this method of operating of late years that even prostates of considerable bulk can, if necessary, be resected by means of such an instrument as the McCarthy electrotome. Compared with such a feat the removal of a fibrous bar is a trifling matter; and it is only when the fibrosis is widespread, and involves not merely the whole circumference of the bladder outlet but also the tissues of the prostate, that an open operation becomes necessary.

Although in the hands of an expert perurethral resection of an obstruction at the bladder neck is an operation that entails very little discomfort to the patient and practically no danger, its performance demands considerable knowledge and experience on the part of the operator. Even when it is performed by a surgeon accustomed to the use of a cystoscope, serious mistakes may be made. A survey of the after-results obtained in different urological clinics in America will

reveal the fact that complications and accidents occurred far more frequently among the earlier cases. With greater skill in the use of the resectoscope, and greater knowledge of the amount of tissue that had to be removed in order to re-establish free micturition, these complications and accidents became rarer and rarer, and good results were obtained with less and less discomfort to the patient. What is true of perurethral resection of enlarged prostates is equally true of perurethral resection of bladder-neck obstruction. The electrotome in the hands of anyone inexperienced in its use is an instrument that is capable of inflicting much damage, and cases of recto-vesical fistula, incontinence of urine, and even of perforation of the peritoneum, are by no means unknown.

THE HEALING OF A WOUND

Sir Andrew Macphail, who is professor of the history of medicine in McGill University, has contributed a valuable and timely article to the *Quarterly Review* (January, 1934), which is reprinted in the *Canadian Medical Association Journal* for June. The article is entitled "The Healing of a Wound," and begins with the somewhat startling statement—which is nevertheless true—that until recently animals managed the business better than human beings. Animals have their own methods of dealing with a wound. Rest is their remedy. They are not led astray by wrong theories. If they are denied the use of instruments they are spared the abuse of them and the use of things that do more harm than good. The history of the healing of a wound, writes Sir Andrew, is the history of surgery. For the modern surgeon under 40 years of age a wound has no existence; the healing is inevitable, governed by a law of nature. Accustomed to wounds made by himself in ideal surroundings, with his chosen instruments, upon tissues prepared in advance, healing is to him a natural process. Failure to heal is now the miracle.

Lulled into false security the world war brought us a rude awakening, and surgeons quickly learned the truth of that saying of Heraclitus that "war is the father of everything." The civil surgeon was astonished at the vast dirty wounds of war, and we saw a feverish harking back to the free employment of antiseptics. Asepsis in the field was like a lost tradition. Sir Andrew Macphail recalls in vivid words how the drainage of septic joints, their irrigation through tubes, the application of short splints to long limbs, meant amputation at the Base. Operators who from their training must close every wound by sutures, and yet were prevented by their knowledge and conscience from closing them, employed an emulsion of bismuth, iodoform, and paraffin, and so evolved the delayed primary suture. But their scientific training had given them the flexible mind that adapts itself to a new experience. Soon they had discovered that the proper surgery of the front area was to clean the wound, ruthlessly cut away all dead and dying tissue,

check bleeding, and pack the cavity with some light material soaked in a harmless fluid. Speed in evacuation from the field to the base finally solved the problem. The long Thomas splint held its own to the end, and was carried by the regimental bearers. Blood transfusion was practised even in the trenches.

Nature has two ways of healing a wound: by first intention and by suppuration. The history of suppuration unfortunately is the history of surgery. A few great surgeons in all ages designedly healed the wounds of their patients by first intention; but the accepted teaching was that pus must be generated in every healing wound. It is hard now to believe that faith in the beneficence of suppuration prevailed almost to our own time, and that pus could be called laudable. But so it was, and a surgeon felt happy if his wound produced a thick matter with a slightly mawkish smell. He was not even perturbed if a slight blush, which would now be called erysipelatous, spread along the edges of the wound, for he looked upon it as a harbinger of more rapid healing. For him there was pus that was not laudable—thin, ichorous pus, which he knew was too often followed by fever, sleeplessness, and death. Sir Clifford Allbutt said thirty years ago: "In the third quarter of the nineteenth century the apothecary of a large hospital showed me a row of amputations with stumps pouring out pus in cataracts upon the cushions, and exclaimed: 'That, Sir, is what I like to see; nothing so wholesome in a wound as a good discharge of laudable pus!'"

The long history of the healing of a wound, so graphically outlined by Sir Andrew Macphail, falls into two periods, the dividing line between them drawn within the lifetime of some who are still with us. It is marked by Lister's work and teaching. Two other divisions may be made: one at the point where Ambroise Paré substituted the ligature for the red-hot knife and cautery; the other with the discovery of anaesthesia. But the work of Lister was not a casual and isolated discovery. It was the slow result of long experience based upon scientific principles. The pathology of the Hunterian school taught that every organ and tissue had its own way of repair, that the healing of the skin and muscles was easy, that the process in bone was slow and dangerous, and that the serous membranes and the veins were in a class by themselves, most sensitive to injury and difficult to repair. Lister was among the first to assert that the healing of all tissues was uniform and constant if germs were excluded; that repair was governed by a scientific formula. His method, elaborated in the most minute detail, was based upon the work of Pasteur in widely different but allied fields of research. Lister's discovery met first with neglect and then with opposition. Even in Scotland it was received with contemptuous criticism, and James Y. Simpson dismissed the germs as mythical fungi. The whole question of spontaneous generation was involved; it was only disproved by Tyndall after the labour of a lifetime, and of Tyndall we still await a satisfactory biography. The revolution

in the healing of wounds spread slowly; on the Continent sooner than in Great Britain. Volkmann in Germany, Bloch in Denmark, Lucas-Championnière in France, were quick to appreciate the value of the new work. It reached Billroth through Volkmann; but not until 1879, more than twelve years after the discovery, did the master surgeon in Austria send von Mikulicz-Radecki to King's College Hospital in London to verify the reports he had already received. The good news and the actual practice were taken to America by four Canadians, who had been Lister's house-surgeons, and of these John Stewart, who was for long dean of the medical school at Dalhousie University at Halifax, only died on December 23rd of last year.

MARIE CURIE

The death of Marie Curie has not only deprived science of one of its foremost original investigators, but the medical world of a great benefactor. To many of us it seems no long time since Roentgen's discovery of the x rays aroused widespread interest. It is doubtful if any scientific discovery has ever attracted so much popular attention; probably because it appealed to that most universal of human characteristics—curiosity. It was while the interest aroused by Roentgen's discovery was at its height that Becquerel reported the spontaneous emission from uranium and its compounds of radiations similar to those produced by the x -ray bulb; and to this discovery of radio-activity Professor and Madame Curie were indebted for the line of research which led to the discovery of radium. Shortly after the announcement of Becquerel's experiments with uranium, it was observed that naturally occurring uranium ores exhibited a higher degree of radio-activity than could be accounted for by the percentage of uranium present. Obviously some substance or substances must be present which exhibited radio-active properties in a more marked degree than uranium itself. It was to the isolation of these that Marie Skłodowska Curie and her husband devoted themselves, and, as is well known, their researches were crowned by the discovery of radium, at first in the form of its salts and finally as the element. This is not the place for an account of Madame Curie's scientific work; but the extent to which medicine is indebted to her discovery can hardly be overestimated. Radium—either alone, or, more generally, in conjunction with high-voltage x -ray therapy—is now universally recognized as the most appropriate treatment in many forms of malignant disease. Two forms of this especially which were formerly treated by extensive, mutilating, and but too often ineffectual surgical methods, have been found to respond well to radiation therapy. We refer, of course, to carcinoma of the tongue and of the cervix uteri. Even if the cases are too advanced to allow of any hope of a permanent "cure," the relief of symptoms which follows radiation treatment often appears little short of magical. It is perhaps only those who remember the "incurable" cancer wards of thirty years ago who can appreciate the change which has been wrought by radiation therapy in alleviating the distress of incurable cases. Equally, with early diagnosis—and this is essential—radiation treatment in

many cases holds out the best possible hope for the eradication of the disease; and this with an almost negligible operative mortality. Madame Curie has a worthy memorial in this country in the Marie Curie Hospital at Hampstead, in the work of which the late Sir Walter Fletcher was so deeply interested, and where results have been obtained at least equal to those of the foremost Continental clinics.

HEALTH WORK OF THE LEAGUE

On July 10th an international course in malariaology opened at the Institute of Malariaology in Rome under the auspices of the Health Organization of the League of Nations. This course is conducted under the direction of Professor Bastianelli, director of the Institute of Malariaology, with the assistance of the experimental antimalarial station (Professor Missiroli, director). Lectures are being given by experts in malaria from different countries. The course covers the period from July 10th to September 10th, and will be followed by students from nine countries (these students are holders of scholarships from the Health Organization or from their Governments)—Bulgaria, France, Italy, Peru, Persia, Rumania, Spain, Turkey, and Yugoslavia. The malariaological institute in Rome and the antimalaria experimental station possess large collections of valuable demonstration material. They have the further advantage of being situated in the neighbourhood of classic malaria-ridden districts. Under these conditions the teaching can be both theoretical and practical. The course will include visits to the various experimental stations and antimalaria stations, in different endemic and hyperendemic districts, as well as inspection of districts which have been rendered healthy or are in process of being rendered healthy. The Committee on the Radiology of Cancer will meet in Zurich from July 21st to 23rd. It will examine the progress made in the inquiry which the Health Organization undertook in 1930 with a view to rendering comparable the results of different methods employed by radiological institutes and gynaecological institutes in the treatment of cancer of the uterus by radium and x rays. The committee will draw up plans for continuing this inquiry. The method followed has been that the institutes taking part compile daily clinical reports for each case which they treat. Figures and observations are recorded according to certain agreed rules.

CENTENARY OF THE MANCHESTER MEDICAL SOCIETY

On October 1st of this year the Manchester Medical Society will have completed a century of activity, and arrangements are being made to celebrate the event. The president for the year is Dr. E. Bosdin Leech, whose uncle, the late Dr. D. J. Leech, was president in the society's jubilee year. The chief items in the programme which is being drawn up are the president's address, the publication of a history of the society, an exhibition of objects of general and medical historical interest, and a dinner. Dr. Leech's commemorative address will be given on Wednesday, October 3rd, Wednesday being the day of the week on which the ordinary meetings of the society have been invariably held for one hundred years. The history (written by

Dr. E. M. Brockbank) will, besides being a record of the society's activities, contain important biographies of John Hull, the first president, and of Caesarean section and phlegmasia dolens fame; and Thomas Windsor, prince of book collectors, who made the society's library what it was and who later transferred his energies to the surgeon-general's library in Washington. The exhibition will be of objects of general interest, chiefly in connexion with the medical history of the town during the society's lifetime; books from its old library, recently presented to the University of Manchester; portraits of prominent local medical men, and illustrations showing the growth of the older hospitals, etc. It will be arranged, through the courtesy of the Lord Mayor and the Libraries Committee, in the fine room designed for such a purpose in the new central library, and will be opened formally on October 1st. It will, in fact, be the first exhibition in this room. The dinner will be held on the evening of October 3rd, and many distinguished guests from near and far have accepted invitations to it. The secretary of the society (c/o the University, Manchester) will be glad to hear from any of its old members who may have objects of interest bearing upon its history for exhibition, or who would like to attend the celebration meeting.

THE L.C.C. AND THE STERILIZATION REPORT

The London County Council on July 3rd discussed the report of the Departmental Committee on Sterilization, which was issued in January last.¹ The Hospitals and Medical Services Committee had no observations to offer on the report, but the Mental Hospitals Committee had decided, by a majority (25 votes to 15), to approve the Departmental Committee's recommendation that, subject to safeguards, voluntary sterilization should be legalized in the case of any person who is mentally defective or has suffered from mental disorder, or is likely to transmit either incapacity, and any person who suffers from a grave physical liability or is likely to transmit it. The Mental Hospitals Committee stated that, since it was the view of the Departmental Committee that defectives in institutions should not be considered for sterilization unless they were capable of taking their places in community life, the number of defectives who might be sterilized would be strictly limited. The committee was advised that in London there were more defectives in institutions than under statutory supervision in their own homes, and that, of the defectives in institutions, only a small percentage became fit to "float" in the community. With regard to normal persons who were believed to be likely to transmit mental disorder or defect, it would presumably be necessary to establish, by means of pedigrees, that mental disorder or defect was inherent in the family. As the main point in the recommendation was that sterilization should be voluntary and not compulsory, it was clearly impossible to gauge the number of cases of mental disorder or defect, or carriers thereof, in London who might submit themselves for such an operation. The General Purposes Committee, whose responsibility it is to bring forward a recommendation, if any, decided that the knowledge and facts in possession of the Council were not sufficient to warrant

it expressing an opinion on the recommendations of the Departmental Committee. A motion calling for the support of the Council for the recommendations of the Departmental Committee was proposed in the Council by Mr. Eric Hall, a Municipal Reform member, and seconded by Mrs. Bolton, a Labour member. Mr. Hall pointed out that the Departmental Committee was a very strong one, and had come to a unanimous decision. The voluntary aspect was emphasized, and the position of those to be treated was hedged around with every possible safeguard. There was no suggestion of compulsion in the report, and there was no ground for regarding voluntary sterilization as the thin end of the wedge. From 1926 to 1929 the Council was inundated with recommendations from different county authorities in favour of sterilization. Mrs. Bolton, in seconding, said she did so on eugenic and humanitarian grounds. The percentage of mental defectives was rising, and there was high fecundity among the feeble-minded, while at the same time, among responsible and healthy people, the principle of family restriction was growing. At present, while sterilization was at the command of the wealthy, it was only with the greatest difficulty that a poor man with an inherited physical or mental disorder could find a hospital willing to sterilize him. Mr. L. Silkin, a Labour member, opposed the motion. The whole case for sterilization, he said, was based on the theory that mental deficiency was hereditary; if that could not be established the case fell to the ground. He was not satisfied as to that basis; it might very well be that environmental factors which had caused the parents to be defective had also produced mental defects in the children. Sir Oscar Warburg, a Municipal Reform member, said that the Council was not an appropriate body to balance the various factors, and the same view was put forward by Mr. Herbert Morrison, the Labour leader of the Council, who said that on the evidence before them they did not know enough to express an opinion one way or another, and unless they were absolutely sure they had no right to use public services for the purpose of tampering with human beings. Mr. J. H. Macdonnell feared that if sterilization were permitted the poor would be the subject of experiment. On a free vote in the Council, the party whips being taken off, it was agreed, by 63 votes to 44, to express no opinion on the recommendations of the Departmental Committee.

ICTERUS GRAVIS NEONATORUM

One of the results of the increased interest shown of late years in disorders of the blood and the blood-forming apparatus has been the closer study of diseases which at first sight have little to do with this system of the body, but which in fact are intimately related to it. In a recent article² Drs. J. C. Hawksley and R. Lightwood describe the clinical and pathological features of the disease known as icterus gravis neonatorum, which is apparently one form of acute haemolytic anaemia in the newborn, in close association as regards aetiology with hydrops foetalis and congenital anaemia. Occurring usually in families, often where the previous children have been stillborn or affected with jaundice, anaemia, or hydrops, this type

¹ See *British Medical Journal*, 1934, i, 156 and 161.

² *Quart. Journ. Med.*, April, 1934, p. 155.

of jaundice makes its appearance within the first two or three days, and, rapidly deepening, leads on to drowsiness, anaemia, dyspnoea, enlargement of liver and spleen, and death, often with convulsions, in a large number of untreated cases. The important point clinically is the severe anaemia present, often masked by the jaundice but demonstrable in the mucous membranes. Blood examination at this period shows the severity of such anaemia, counts lower than half a million red cells per cubic millimetre having been recorded. The large number of nucleated red cells seen, the presence of reticulocytosis, and the positive indirect van den Bergh reaction all indicate the similarity of this disorder to the group of "destructive" or haemolytic anaemias of later life. The striking pathological finding in these cases is the widespread blood-forming centres outside the bone marrow, indicating clearly the body's attempts to compensate for a blood-destructive process. That, at any rate, would appear to be the current view in this country, though authors elsewhere have postulated a primary upset in the blood-forming apparatus resulting in the appearance in the circulating blood of young and unstable cells which undergo rapid haemolysis. Whatever the exact causation of the malady, the main point to note at this stage is that treatment can be applied to bring the haemolytic process to a stop, and what was once a disease with an extremely high mortality can now be dealt with satisfactorily. The use of human serum, as suggested by Hampson, while effective in some instances in daily doses of 5 to 15 c.cm. until bilirubin begins to disappear from the blood, is not so certain a method as that advocated in the present paper—namely, the transfusion of citrated whole blood. Either parent may be the donor, and direct matching of donor's cells against the baby's serum is recommended. The size of the transfusion is on the basis of 10 to 15 c.cm. of blood per pound of body weight, and it has to be repeated at intervals of four to seven days until the red cell count is maintained at or about four million per cubic millimetre. The need for repeated transfusions is well illustrated in a case lately recorded¹ by Dr. W. R. F. Collis from Dublin. Here a baby, in a family where four previous children had died with deep progressive jaundice, became jaundiced forty-two hours after birth, and finally recovered after four transfusions, interspersed with, altogether, twenty-two injections of human serum over a period of about five weeks. The anaemia in this patient was not so marked as in some of the recorded cases, but the red cell count on occasions was below two million per cubic millimetre.

AN EXAMPLE OF MEDICAL CHARITY

In 1911 the medical men of Barnstaple, Devon, appealed to the profession on behalf of Dr. C. M. Cooke, whose career was cut short by blindness at the age of 47.² To that appeal the profession responded magnificently, for there was subscribed the sum of £2,378 3s. 5d., which, after deduction of the expenses and an immediate cash payment to Dr. Cooke, left some £2,000 for investment. Of this £1,000 was spent in the purchase of a life annuity for Dr. Cooke and the remaining £1,000 invested. The generosity of the pro-

fession enabled Dr. Cooke to enjoy this annuity for over twenty years, until his death in the early part of this year. There remains, after the payment of expenses, a sum of £920, and Dr. J. R. Harper of Barnstaple, who was the moving spirit in the original appeal, and, with his fellow trustee, Mr. Gerald Oerton, solicitor, has been responsible for the administration of the fund throughout the past twenty years, seeks to dispose of the balance in a way which he believes will give expression to the intentions of those who gave so generously in 1911. He has handed the sum of £925, an amount which is in itself a tribute to the careful organization and administration of the fund, to the Charities Fund of the B.M.A. for distribution to the Royal Medical Benevolent Fund, which carries the major burden of medical charity on its shoulders, and to the Sir Charles Hastings Fund, from which grants and loans are made to medical men in urgent and immediate need. Not only will this contribution be unusually welcome to medical charities at a time of considerable need, but it may prove a reminder that medical men and women are not unresponsive to an appeal on behalf of a fellow doctor when they are brought face to face with the facts.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Épitome* have been prepared and will be ready shortly; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

The British Pharmacological Society held its annual meeting at Oxford on June 29th and 30th, under the chairmanship of Professor J. A. Gunn. Three new honorary members were elected: Professor Tiffeneau (Paris), Professor W. Straub (Munich), and Professor Heubner (Berlin). Previously elected honorary members were Professor J. J. Abel (Baltimore) and Professor Hans Meyer (Vienna).

A preliminary conference on official and non-official co-operative action, as suggested by the League of Nations Inquiry in the East, has been organized by the Joint Standing Committee of the British Social Hygiene Council and the Conference of British Missionary Societies. It will be held on Wednesday, July 25th, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C.; with the Earl of Lytton in the chair. The objects of the meeting are: to consider reports on existing methods of co-operation between government and non-official organizations in combating traffic in women, in the rehabilitation of victims of the traffic, and in educating public opinion on the social value of the modern methods of combating commercialized prostitution and venereal disease; and to discuss what measures can be promoted by, and among, non-official organizations in the East to prepare for the suggested conference under the aegis of the League of Nations.

¹ *Irish Journ. Med. Sci.*, March, 1934, p. 106.

² *British Medical Journal*, April 21st and May 24th, 1911.

NOTIFICATION OF TUBERCULOSIS IN GREAT BRITAIN

A HISTORICAL NOTE

BY

SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P.

My attention has been drawn to a paragraph in Sir Robert Philip's "Musings in the Garden" (*British Medical Journal*, June 23rd), in which he quotes from my *Prevention of Tuberculosis* (Methuen, 1908) a statement against the adoption on a national scale of compulsory notification of phthisis, and goes on to remark that this procedure became the law of the land in 1912. It has been inferred from the quotation and statement that, although in 1908 I became the chief medical adviser of the Central Government in public health matters, the adoption of compulsory notification was carried through in 1912, notwithstanding, and not—as was the fact—in consequence of my official counsel and urgent action.

I assume that Sir Robert did not intend this inference to be drawn; but evidently it is important to place on record the correct history of the long-continued strenuous efforts made by a number of medical officers of health and other social workers, including myself, to secure first voluntary, and in due course compulsory, notification of every case of phthisis. This history is partially stated in the chapter in my *Prevention of Tuberculosis*, 1908, from which Sir Robert Philip's quotation—which apart from its context is misleading—was taken. The history will be given more completely in my *Recollections of Fifty Years in Public Health*, which is nearly ready for publication.

To understand the problem we must recall its setting. The history of the notification of the chief acute infectious diseases is one of slow conversion of public opinion and especially of medical opinion from opposition to favour or at least to acceptance of this intrusion, in the public interest, into the confidential relationship of the family doctor to his patient.

Prolonged agitation had gone on for many years before the late Dr. Sergeant secured the first local Act for the notification of acute infectious diseases in Bolton, Lancs. Other towns gradually secured the same powers; then in 1889 a more general Act was passed giving local option, and in 1899 an Act of Parliament made compulsion universal in all districts. A similar history attaches to the enforcement of compulsory notification of births within thirty-six hours. Huddersfield (Dr. Moore) led the way in 1905 by a local Act, other towns followed slowly. Then a more general permissive Act was passed in 1907, and compulsion became universal in 1915. A like history holds good for the notification of tuberculosis, though in this instance the difficulties involved in overcoming the opposition of the leaders of the medical profession and of its public health service were almost immeasurably great.

I could fill several pages with illustrations of the persistent opposition to even voluntary, much more to compulsory, notification of phthisis, but I must content myself with quoting the position taken at the meeting in Marlborough House on December 20th, 1898, H.R.H. the Prince of Wales (afterwards Edward VII) being in the chair, to inaugurate the recently constituted National Association for the Prevention of Tuberculosis. The chief resolution of the meeting was proposed by the Marquess of Salisbury, who made the following, among other remarks:

Nothing is more striking in the luminous statement of Sir William Broadbent or in the discussion following than the absence of all desire that the powers of the law should be brought into operation to carry out the objects of the Asso-

ciation. . . . This is a snare which they will carefully avoid. They must be content with preaching the salutary doctrine which they hold, and must not think of applying to the secular arm.

This statement appeared to embody the unanimous view of the conference, at which the chiefs of the medical and veterinarian professions spoke.

At this point I am compelled to mention my own share, as well as that of others, in overcoming the persistent opposition to the notification of tuberculosis. But first let me make it clear that the early and continuous efforts of Niven and others like myself to secure notification of tuberculosis were not made merely to enable social investigations of housing, etc., to be undertaken. For this purpose anonymous notifications would have sufficed. There was deliberate intention to institute additional precautionary measures against infection and all circumstances favouring it, to an extent which was not practicable (or would not be practised) in many instances if the confidential relation between the patient and his doctor remained undisturbed. It was this implication which naturally—and, I may add, properly—gave weight to the persistent objection to compulsory or even voluntary notification.

Dr. James Niven, then M.O.H. for Oldham, was the first, in 1894—note the year—successfully to persuade the doctors of that town to favour the voluntary notification of their cases of phthisis to him, but the town council declined to endorse the proposal. Dr. Hermann Biggs later in the same year succeeded in a similar proposal for the city of New York. In 1899 I was successful in establishing the first system of voluntary notification of phthisis in this country, in the town of Brighton. This was the culmination of prolonged advocacy. In the same year Dr. Niven, then M.O.H. for Manchester, persuaded the City Council to adopt the same course, thus succeeding after his earlier attempt in 1894. I contributed various papers on the subject, and prior to 1908 had obtained the passing of resolutions in favour of voluntary notification of phthisis, at meetings of the Society of Medical Officers of Health, of the Sanitary Institute, and at the 1901 International Congress on Tuberculosis. In proposing these resolutions I deprecated premature attempts at notification—that is, attempts when the local authority did not yet possess an organization for securing improved care of the notified patients.

In 1908 I was appointed Principal Medical Officer of the Local Government Board, and was confronted with the task of securing a complete reversal in this respect of the past policy of the Central Health Department of England. The arguments against compulsory notification have never been more forcefully stated than in Sir R. Thorne's Harben Lectures in 1899. He "felt certain that the compulsory notification of phthisis is calculated to retard the very object which they [its advocates] have in view." Sir William Power, in his introduction to Dr. Bulstrode's report on sanatoria in 1908, cautiously indicated the possibility of further local experimentation in notification. He referred to Sheffield, which, under the leadership of Dr. (now Sir John) Robertson, had already, at the end of 1903, secured the local enactment of compulsory notification of phthisis, associated with powers which "expressly dissociated administratively phthisis and everyday infectious disease." And Sir William mentioned the experience of Brighton "as indicating that where obvious personal advantages accrue to the patient—where he is not harassed in a social sense . . . a system of voluntary notification may yield useful results."

It was at this stage that I wrote the sentence in respect of compulsory notification on a nation-wide basis, which Sir Robert Philip has detached from its context, and thus done me less than justice.

I cannot detail here the almost insuperable difficulties encountered in overcoming central official opposition towards compulsory notification of tuberculosis for the entire country. The task to be undertaken was the gradual culmination of the continued and strenuous efforts of Niven of Manchester, Biggs of New York, and the rest of us during many years, and which in Sheffield had already succeeded, thus establishing the right of local experimentation on compulsory lines. Legal authority pronounced that the conditions of the Infectious Disease (Notification) Act could not be extended to tuberculosis. After much struggling this obstacle was circumvented by another procedure, on the strenuous intervention of Mr. John Burns. As a *bouleversement* of past official policy was contemplated, and as, furthermore, many sanitary authorities were still unready for complete systematic administration of notification, I decided that the best plan was to secure enactment of compulsion in successive stages. And in the first year (1908) regulations were framed making it obligatory on all medical officers of Poor Law institutions, and on all district medical officers throughout England and Wales, to notify each case of phthisis under their care. This was followed very soon by the enactment of a similar nation-wide obligation to notify all cases of phthisis attended at any hospital, whether voluntary or official.

The third stage was the issue of regulations enforcing also the notification of cases of phthisis occurring in private practice; and lastly, in 1912 this universal obligation to notify was extended to non-pulmonary as well as to pulmonary tuberculosis. In 1911 the passage of the National Insurance Act, and the gift by the Treasury of over a million sterling for sanatoria, and of half the cost of administration of tuberculosis schemes, made it easy for every local authority to carry out the preventive work which should follow notification; and one had the satisfaction of knowing that the gradual but rapid enforcement of obligatory notification to increasing groups, and at last to the entire population, was a real and not a "paper" reform; the preventive work following it being commensurate with the steadily increasing range of notification. In short, compulsory notification had become universal as soon as there was reasonable prospect that practical measures on a national scale would follow its adoption. But it is my conviction that this could not have been effected so promptly but for the hard work during two decades of medical officers of health, who had demonstrated what could be accomplished when the notification of cases of phthisis was voluntary.

RESEARCH FELLOWSHIPS IN TUBERCULOSIS

The Medical Research Council announces that it has made the following awards of Dorothy Temple Cross Fellowships for 1934-5, under the terms of the benefaction in that name for research fellowships in tuberculosis:

WILLIAM SAYLE CREER, M.B.Liverp., Lady Jones Orthopaedic Research Fellow, University of Liverpool.

ALFRED WHITE FRANKLIN, B.A., M.B.Cantab., M.R.C.P. Lond., Chief Assistant to Children's Department, St. Bartholomew's Hospital, London.

PHILIP D'ARCY HART, M.A., M.D.Cantab., M.R.C.P. Lond., Assistant Physician, University College Hospital, London.

ARTHUR LANDAU, M.B.Capetown, M.R.C.P.Lond., House Physician, Brompton Hospital, London.

ALASTAIR HAMISH TEARLOCH ROBB-SMITH, M.B.Lond., Senior Demonstrator of Morbid Anatomy, St. Bartholomew's Hospital, London.

Dr. Robb-Smith's fellowship is tenable in Germany: the others at centres in the United States.

In addition, the fellowship awarded last year to Dr. GEORGE GREGORY KAYNE for work at centres in Europe, has been renewed for a further period of six months.

BRITISH EMPIRE CANCER CAMPAIGN

ANNUAL MEETING

The annual general meeting of the British Empire Cancer Campaign was held at the House of Lords on July 9th, with the MARQUESS OF READING in the chair. A letter was received from the President of the Campaign, the Duke of York, stating that he had read the eleventh annual report with great interest, and the impression it had made on his mind was twofold: first, that the world of research within the Empire was a beehive of intense activity, and, secondly, that those who were well qualified to judge were satisfied that another swing-forward by the momentum of progress had taken place in no uncertain fashion. His Royal Highness added how gratified he was to hear that the Empire Day appeal had met with such spontaneous and whole-hearted support.

CO-ORDINATION OF RESEARCH

After the members of the Grand Council had been re-elected, on the motion of Mr. STANFORD CADE, the adoption of the annual report was proposed by Mr. CECIL ROWNTREE, who declared that the purposes for which the Campaign was founded were being fulfilled in all directions. One of those purposes was the co-ordination of research and research organizations, not only within Great Britain, but throughout the Empire. The recent step of setting up a panel of international correspondents, whereby there was an accredited representative in each of the great scientific capitals, had materially added to the accuracy and promptitude of their foreign information. The world had done the Campaign the honour of copying its organization, for it was now proposed that an International Cancer Union should be constituted, and a preliminary meeting had taken place in Paris. Dealing with some outstanding features in the scientific portion of the report, Mr. Rowntree said that investigations carried out at the Cancer Hospital and the Middlesex Hospital had suggested the possibility that the ultimate cause of cancer might be something of a chemical nature produced by disordered functions within the body itself. With regard to prevention, there had been a great increase in the knowledge of the pre-cancerous condition, and in particular it appeared likely that there would be a great diminution in the incidence of industrial cancer as a result of investigations into the occurrence of carcinogenic agents in lubricating oils and other industrial materials. On the curative side he mentioned the recent advances in radiation treatment. Partly as a result of the pioneer work done by the Radiology Committee of the Campaign, radium had won its way to safe and successful use and to widespread professional recognition. The radium "bomb" was coming to be regarded as a necessity for all well-equipped cancer centres. The radium position had been eased by the discovery of Canadian ores. Certain kinds of cancer, said Mr. Rowntree in conclusion, occupied hopeful salients, where advance had outstripped the general level, but the line as a whole was advancing. It was not to be expected that some sudden flash of genius could solve the cancer problem in a day.

Mr. RICHARD C. DAVIES, in seconding the report, said that there was a deficit on the year of £15,282. This was due to several causes, among them the fact that part of the normal income had been diverted to the Empire Day appeal. The result of that appeal during the months of May and June amounted to £40,246, apart from certain large donations which were pending. He hoped that the appeal would be a recurring feature of successive Empire Days.

THE GARTON PRIZE

The report having been duly adopted, LORD READING presented the Garton prize (£500) and medal to Dr. H. A. Colwell for what in the unanimous opinion of the judges was the best essay on the biological effects and mode of action of radiations on malignant and other cells; with a second prize (£100) and certificates to Dr.

F. G. Spear, of the Strangeways Research Laboratory, Cambridge, and his associates—Dr. R. G. Canti, Dr. W. H. Love, Dr. B. Holmes, Mr. L. G. Grimmer, and Miss S. F. Cox.

Afterwards the fifty-first quarterly meeting of the Grand Council was held, with Sir HOLBURN WARING in the chair, at which one of the references from the Executive Committee was that the 10 per cent. "cuts" in block grants to institutions be restored for the current year.

STANDARDIZATION OF VITAMINS

INTERNATIONAL CONFERENCE

The second international conference on the standardization of vitamins was held in London from June 12th to 14th, under the chairmanship of Professor E. Mellanby, Secretary of the Medical Research Council of Great Britain. Both first and second conferences were convened by the Health Organization of the League of Nations, and held under its auspices. Experts were present from the following countries: Denmark, France, Great Britain, Hungary, Italy, the Netherlands, Norway, Sweden, and the United States of America.

The report of the earlier conference, published in 1931, recommended for international adoption standards and units for four vitamins (A, B₁, C, and D), adding that these standards should be "provisional for two years": vitamin A, which is necessary for growth, and the absence of which seems to render the organism more liable to infection; vitamin B₁, sometimes known as the antineuritic vitamin, which seems to be necessary to prevent the disease called beri-beri; vitamin C, necessary for the prevention of scurvy; vitamin D, necessary for the prevention of rickets.

Since certain of the standard preparations recommended for adoption were not available for general use until 1932, the second conference was postponed until 1934, at which date two years' experience of the working in practice of the provisional standards was available. The report of the present conference should therefore be regarded as a revision of the report of the 1931 conference. In making its decisions the present conference had at its disposal the results of two years' experience with the provisional standards, and in the interval a number of new facts, of importance in connexion with vitamin standards, had come to light. The provisional standards are widely used throughout the world, but it was the general opinion that certain alterations were advisable.

STANDARDS AND UNITS FOR FOUR VITAMINS

As in the 1931 report, standards and units are recommended in the case of only four vitamins—namely, vitamins A, B₁, C, and D. Consideration was given to the possibility of adopting standards for vitamins B₂ and E (many hold that insufficiency of vitamin B₂ gives rise to pellagra; vitamin E is necessary for successful reproduction in both male and female), but it was felt that our knowledge of the nature of these vitamins, and of the pathological results to which their absence gives rise, is still insufficient to justify the adoption of standards and units.

The standards for vitamins A and C, provisionally adopted in 1931, have been altered. Those chosen in 1931 were found to have certain defects which impaired their usefulness; the substitution of more clearly defined and more easily reproducible chemical substances is a useful step in advance. As vitamin A, pure β -carotene has been chosen in the place of the standard preparation of carotene recommended by the previous conference. The vitamin C standard chosen is ascorbic acid, a substance which the work of Szent-Györgyi (Hungary) showed to be identical with vitamin C. No change has been recommended in the case of the vitamin B₁ and D standards. The former has proved highly convenient in practice—of all the standards chosen by the 1931 conference the vitamin B₁ standard has perhaps proved most satis-

factory—and a large stock, sufficient to last for many years, is available at the central institution from which the standards are distributed—the National Institute for Medical Research, London. The vitamin D standard remains unaltered, with the proviso that it may be replaced when exhausted (or should it become for any reason unsatisfactory) by crystalline vitamin D in suitable solution. Large quantities of the standard solution of irradiated ergosterol are available.

The units remain the same in all cases. Where a change has been made in the standard material the old units have been restated in terms of the newly adopted substance. The desirability of leaving the original units unaltered is emphasized by the fact that certain of the units recommended by the 1931 conference have been adopted into the pharmacopoeias of a number of countries.

England and Wales

Honorary Degrees at Bristol

At a congregation on Saturday, June 30th, at the University of Bristol, honorary degrees were conferred upon Sir Robert Muir, M.D., F.R.S., of Glasgow, who had been selected to receive this distinction at the centenary of the University in 1933, but was unable to attend; upon Dr. Patrick Watson-Williams, an old student of the Bristol Medical School, who has distinguished himself as a pioneer in laryngology and rhinology; and upon Dr. George Parker, a learned medical historian who, after serving his full time as physician to the Bristol General Hospital, became honorary medical librarian to the University of Bristol. Dr. Parker has contributed a great deal to our knowledge of the methods of licensing medical practitioners in Great Britain, and his admirable marshalling of the chronicles of medical practice in Bristol is appropriately recognized by this honorary degree. He graduated with honours in the Moral Sciences and History Triposes at Cambridge in 1877, and now, more than fifty years later, he is once more eminent in these studies. In 1924 he was president of the Association of Physicians when it met at Bristol.

West London Medico-Chirurgical Society

The fifty-second annual dinner of the West London Medico-Chirurgical Society took place at the Trocadero Restaurant on July 4th, under the presidency of Mr. H. Tyrrell Gray. During the evening Sir Alfred Rice-Oxley handed to the president, who received them on behalf of the society, the presidential collar and the silver cup which have been subscribed in memory of a very old member, the late Dr. Rickard Lloyd. Lord Macmillan, in proposing the health of the hosts, remarked on the fact that the society was associated with the West London Hospital, and this gave him an opportunity for an appreciation of the service which the medical profession rendered to the voluntary hospitals—a service which was one of the profession's greatest achievements and honours. It was exemplified conspicuously in the work of the president, Mr. Tyrrell Gray, at the Hospital for Sick Children, of which the speaker happened to have some close knowledge. Lord Macmillan went on to refer to the death, announced that morning, of Sir James Kingston Fowler, and said that one of the most striking things about Fowler's great career was his endeavour in the ranks of the medical students of London to create the university spirit. That was a difficult thing to do in the days when Fowler laboured, because at that time the University of London was little more than an examining body, which could hardly be expected to evoke the same pride and affection as a university in the complete sense of the word.

Things had now changed, however, and would change yet more in the near future, with the rising on that magnificent site in Bloomsbury of a new centre of learning. Associated with it would be the new Post-Graduate School of Medicine at Hammersmith, which was within the area of the West London Society. He begged his medical friends to look with benevolence upon the ambitions of the University of London and to give its projects all support. Mr. Tyrrell Gray replied to the toast in a few happy sentences, in which he expressed his own personal indebtedness to his fellow officers and to the general body of members. Dr. F. J. McCann proposed the health of the guests, to which there were two replies, one from Sir F. Stanley Jackson, who described humorously some of the tribulations to which the chairman of the Selection Committee of the English team in the test matches is subject, and the other from Mr. V. Warren Low, president of the Royal Society of Medicine. As president of a society which can date itself back, though under another name, for 129 years, Mr. Low expressed a fatherly interest in the West London Society, founded fifty-two years ago by a few practitioners in that locality, and now a very prosperous body of 300 members, with a distinguished list of past-presidents.

Provision for Cases of Infectious Disease

The Ministry of Health has issued to local authorities in England and Wales copies of the Public Health (Treatment of Infectious Disease) Regulations, 1934, which came into operation on July 1st. In an accompanying circular it is explained that hitherto there has been no legal obligation on a local authority which has provided a hospital for the treatment of infectious disease under Section 131 of the Public Health Act, 1875, to receive into that hospital a person suffering from infectious disease who is not an inhabitant of the district. Nor is there any obligation on the authority to provide treatment for infectious disease, or to meet the cost of treatment otherwise provided, for an inhabitant of its district who is temporarily outside the district. There was thus no general legal provision which definitely placed the responsibility for the treatment of a person who is found to be suffering from infectious disease while outside the district of which he is an inhabitant, either on the authority of the district in which the disease is discovered or on that of the district of which he is an inhabitant. The primary public purpose of the hospital treatment of infectious disease is to prevent the spread of the disease; and as the population exposed to risk is that of the district in which the disease is discovered, it is generally recognized that the proper course is for the authority of that district, as the body responsible for preventing the spread of disease therein, to provide the necessary treatment. The Minister's attention has, however, been drawn to certain cases in which an authority disclaimed responsibility for the treatment of persons temporarily living in its district and sent them back to their homes, although it was not denied that hospital treatment was required. Such a course is detrimental to the public health, inasmuch as it delays the provision of treatment and involves risk of the spread of the disease. The new regulations accordingly provide that an authority shall have the same powers and duties in relation to the provision of hospitals or temporary places for persons who are for the time being within its district, and are suffering from infectious disease, as it has in respect of the inhabitants of its district. The regulations will not affect the right of an authority to decide, on the advice of its medical officer, what cases of infectious disease should be treated in hospital and what cases can satisfactorily be treated otherwise. Their object is to secure that the authority's decision should be based on

medical considerations alone, with a view to the most effective control of disease and the best use of the available accommodation. The regulations will not apply to hospital committees established under the Isolation Hospital Acts, 1893 and 1901; since the powers conferred by those Acts make no distinction between inhabitants of the hospital district and those persons temporarily resident in the district.

Birmingham Medical Reunion

The Faculty of Medicine of the University of Birmingham proposes to inaugurate the winter session of 1934 by holding a more extended series of meetings than hitherto, in order to allow of former members of the school being present at the various functions. Besides the usual address and the annual dinner of the school, a series of post-graduate lectures will be given at the affiliated hospitals. The preliminary programme for Thursday, October 4th, and Friday, October 5th, has now been sent to past students by the dean. On the first day there will be lectures at the Queen's Hospital in the morning and afternoon; and at 5 p.m., in the medical theatre of the University, Dr. F. Brett Young will distribute the prizes to students and give an address. At 7.45 p.m. a reception by the dean at the Grand Hotel will be followed by dinner in the Grosvenor Room. On Friday there will be lectures at the General Hospital, and at the Children's Hospital, Ladywood Road. Those who send notice of their intention to be present will receive a further communication and detailed programme during September.

Eichholz Memorial Clinic, London

The Prince of Wales opened, on July 6th, the Alfred Eichholz Memorial Clinic and Institute of Massage and Physiotherapy by the Blind, describing it as one of the most important additions to the National Institute for the Blind, and one of its biggest activities. The whole cost of equipping this clinic has been borne by Mr. W. Eichholz as a memorial to his cousin, the late Dr. Alfred Eichholz, formerly chief medical inspector of the Board of Education, and at the time of his death last year a member of the council of the National Institute. It is proposed to conduct its activities in connexion with the Institute's school for blind masseurs, and to serve the class of patient able to pay the usual fees for private treatment. The existing evening clinic will continue its work for hospital and other patients. The new establishment is situated at 206, Great Portland Street, where the whole of one large floor has been converted into a suite of cubicles, bathrooms, rest-rooms, and consultation rooms. The balneological section comprises foam, sulphur, pine, wax, brine, and shower baths. The electrical section contains some of the most modern developments in this line of therapy. Treatment will be given under medical supervision by blind persons who have qualified as chartered masseurs. The Prince commented on the undaunted perseverance and courage which had enabled the blind to make a livelihood, contribute to the social and economic life of the nation, and to excel in certain lines of work such as massage. In a survey of the work of the National Institute, Sir Beachcroft Towse, V.C., its chairman, stated that in addition to its weekly newspaper there were issued annually half a million volumes in Braille and Moon type; financial assistance was rendered to many other institutions which were catering for the needs of the blind. He pointed out that the new clinic, as well as being a treatment centre, would also serve as a clearing-house for all blind masseurs and masseuses. Lord Moynihan, proposing a vote of thanks to the Prince of Wales, spoke of the humility which those

with vision must feel when brought to realize how magnificently the blind had triumphed over the handicaps inflicted by the loss of sight. He noted with pride that these great qualities were a national possession.

Scotland

Health of Edinburgh

The annual report of Dr. John Guy, medical officer of health for the city of Edinburgh, states that the estimated population for the city is 452,773, an increase of 4,973 over that for the previous year. The birth rate was 15.1 per 1,000, the same as in 1918, the total number of births being 6,835. During the year there were 5,964 deaths, giving a rate of 13.2 per 1,000. The infantile mortality was the lowest yet recorded, being 66 deaths per 1,000 births. There was a slight increase in deaths from tuberculosis, the number being 322 as compared with 313 in the previous year. An arrangement between the Corporation and the University, whereby the latter conducts bacteriological services for the city, was continued, and among these was an investigation of fifty samples of milk supplied to the city. It was observed that the bacterial content varied from 20,000 bacteria to 154,000,000 per cubic centimetre; twenty samples showed between 1,000,000 and 3,000,000. There was found to be no relation between the outward appearance of the shops and the character of milk, for good samples were often obtained from small shops in the slums, while thoroughly bad samples were procured from pretentious and apparently clean dairies in the suburbs. The investigation revealed a necessity for investigating and improving, where necessary, methods of milk distribution. The report comments on the training of probationer nurses in the municipal hospitals; it had been difficult to provide probationers with sufficient surgical training, although the general training in such hospitals was particularly full. In the school medical service a system of class-room inspection was introduced in which the teacher and the doctor collaborated. In this way 25,000 children were inspected instead of 4,000 at the nine-year period as formerly.

Hospital for Crippled Children

At the annual meeting of the Princess Margaret Rose Hospital for Crippled Children at Fairmilehead, Edinburgh, with the Earl of Home presiding, the report was presented by Lady Findlay, and an address on the work of the hospital during the past year was given by Mr. W. A. Cochrane, F.R.C.S.Ed. Mr. Cochrane said that during the year eighty-four new cases had been admitted, while seventy-two patients had been discharged cured or greatly benefited by the treatment. There had been nine cases of congenital club-foot and nine of congenital dislocation of the hip-joint, which had been successfully treated by repeated manipulations and reapplication of plaster cases. There had been sixty-one operations, mainly of a major character, which had all been carried through successfully without any post-operative infection. The general conclusion reached in regard to crippled children was that 75 per cent., if attention was given sufficiently early, could be converted into useful and active citizens. Patients requiring orthopaedic treatment could be divided into two clearly defined classes—those who could not walk at all and those who walked imperfectly. Certain fundamental activities were necessary for a child's independent life: that he should be able to stand on his feet; that he should be able to get up and down out of a chair; and that he should be able to go

up and down stairs. It was only when the crippled child was able to do these three things that he became independent. The chief benefit to be obtained from the hospital was from the fully organized system of care which the hospital and its clinics provided. This gave prompt admission, the prolonged stay necessary for the treatment of cripples, and after-care by a clinic near the patient's own home where remedial exercises and other measures prevented relapse. This out-patient work was of the utmost value. It provided that early treatment at the first signs of crippling conditions which often obviated the necessity for operation later. During the past year the county authorities through the active support of their public health committees had given increasing assistance to these out-patient clinics. He hoped that before long all the areas which the hospital was designed to serve would have associated clinics for collecting patients and for their after-care. Lord Provost W. J. Thomson moved the adoption of the annual report, which showed that the expenditure for the year had amounted to £7,405; against this £3,366 had been received in patients' fees, leaving a deficit of £4,038. Covering this deficit £3,855 had been received in legacies, donations, etc., and a further sum of £1,000 from the Scottish Branch of the British Red Cross Society towards running expenses. Sir Thomas Whitson, commenting on the accounts, said it was unsatisfactory that this young institution should have to use legacies to secure its deficit; he hoped that local authorities in Edinburgh and other places would send more paying patients to what was a wonderful institution. The time had come, he said, when the co-ordination of the hospital organizations in the city was necessary, and he hoped that, as the result of such co-ordination, a large number of patients would be sent to the Fairmilehead Hospital.

Royal (Dick) Veterinary College

Professor Sir Thomas Hudson Beare, presiding at the annual prize-giving of the Royal (Dick) Veterinary College, Edinburgh, on July 2nd, stated that the affiliation of the College with the University of Edinburgh had passed through most of the stages and was now only waiting the approval of the King. In speaking of the report of the Committee on Cattle Diseases, he said that the general public did not realize what a great industry was involved in the production of milk, for in the year 1931 the value of this industry at the farms was £64,000,000, and this value was doubled by the time the milk reached the consumer. The committee had recommended that the veterinary service should be entrusted with the duty of carrying out periodical clinical examination of dairy herds with a view to the elimination of certain diseases. The Board of Governors was anxious to give assistance to students desirous of taking the diploma in veterinary State medicine, but was at present somewhat limited by the size of the buildings and staff. Very soon additional accommodation would be necessary, and the funds for this would require to be sought from the community as a whole, especially the farming community. Principal O. Charnock Bradley said that in the past two years the number of students in the College had been a record. He believed that the College kept fully abreast of the changes in veterinary science, and this was particularly noticeable in the department which dealt with diseases of poultry.

Edinburgh Hospital for Sick Children

At the annual meeting of the Royal Edinburgh Hospital for Sick Children Mr. Colin M. Black, who presided, said that the number of cases treated in the past year, though slightly below that for 1932, was still above 3,000; while out-patient attendances had reached nearly 44,000. The

directors were proceeding with the equipment of a biochemical laboratory, which would be in working order by autumn of the present year. The ordinary expenditure of the hospital and its convalescent home exceeded the income by over £5,000, but the deficit was met by legacies and special donations, which had amounted to £9,579. Professor John Fraser said it would be a matter for regret if the voluntary system of hospital support were abandoned. A hospital which it was certainly a duty to maintain on its present basis was the Edinburgh Hospital for Sick Children, for it was managed and organized in an ideal way. The institution had the unique privilege of caring for those whose future was still untold; to care for a sick child was not only a primitive instinct in man's nature, but was an urgent and sacred duty. The report of the hospital indicates that there was a very high incidence of acute rheumatic infection during 1933, since sixty-two new cases were admitted during the year in addition to a large number of old cases readmitted. The infection was connected with an epidemic of scarlet fever in Edinburgh during 1933, which was one of the largest that the city had experienced; this fact appears to be of particular interest in the light of recent investigations into the causes of both rheumatic infection and scarlet fever.

Ireland

King's Professorship of Medicine, T.C.D.

Dr. V. M. Synge has been elected to the King's professorship of the practice of medicine in the medical school of Trinity College, Dublin, to fill the vacancy caused by the death of Dr. F. C. Purser. Dr. Synge received his medical degrees in 1918 at Dublin University, and proceeded M.D. in 1919. He was elected a Fellow of the Royal College of Physicians of Ireland in 1921.

Irish Medical Association

Dr. R. J. Rowlette presided at the annual meeting of the Irish Medical Association, held on June 26th in the Royal College of Surgeons, Dublin, at which, for the first time in the history of the association, there was a scientific session. Dr. E. T. Freeman opened a discussion on the modern treatment of pulmonary tuberculosis. He said that with the return of normal conditions at the end of the war there came a reawakening of interest in many medical problems and a rapid diffusion of knowledge. This was most striking in tuberculosis, where the main advance had been along lines that were partially surgical. It had fostered the physician with the surgical bent, and in some cases had produced the complete specialist, who was both physician and surgeon. Mr. A. B. Clery discussed the operative treatment of tuberculous disease of the lungs, and described the condition under which surgical operations could be carried out with ease and safety to the patient. The operations, he said, should be followed by efficient sanatorium treatment. Mr. C. MacAuley, vice-president of the association, gave a demonstration of the thoracoscope. Dr. J. A. Harbison, medical officer of health for County Dublin, in the course of an address on the relations of the medical officers of health and general practitioners, said that although public health authorities were concerned chiefly with the prevention of disease, it was impracticable to draw lines of demarcation between treatment and prevention. If success was to be complete whole-hearted collaboration between the official and private practitioners of medicine had to be secured. The co-ordination of the special services set up by the State had been entrusted to the medical officer of health, for their creation had, in the main, been prompted by the tendency in preventive medicine to devote consideration

more to the individual than to his surroundings, to seek in the man himself rather than in his environment the causes of disease. As a sanitarian the medical officer of health must continue persistently to scrutinize the causes and sources of disease which were traceable to man's surroundings, but it was in the field of individual hygiene that the future would find most work for him. Dr. T. J. R. Maguire, County Roscommon, said that all school children whose parents desired it obtained free medical examination. If the free examination was to be followed, as a matter of course, by free treatment, then the profession would have just cause for complaint. If the sifting of patients into those who could afford private treatment and those who could not were neglected, then there would be a loss to the private practitioner. If, however, the sifting were effectively done the result would be a gain to the profession. In County Roscommon no children obtained treatment until their parents submitted a certificate that they could not afford treatment privately. He said that the whole-hearted manner in which the profession co-operated in public health schemes was unique; no other guild or craft laboured so assiduously for its own extinction. Dr. T. P. MacDonnell considered that the present tendency was for new health schemes to encroach on the work of the general practitioner. While the latter was more than ever anxious to carry on the tradition, it had to be realized that the sources of remuneration which had existed heretofore had in many instances disappeared. Dr. T. F. Armstrong said that the health services of Ireland had been taken from countries where conditions were totally different, and were not yet on a sound foundation. He suggested that the county medical officers of health should standardize their methods. Dr. J. A. Musgrave, medical officer of health for County Louth, also read a very interesting paper on public health administration.

In the afternoon the business meeting was held. Dr. Rowlette thanked the members for his re-election, and said that by giving him a third year of office they had conferred on him an honour unique in the history of the Irish Medical Association. He was glad to say that the General Council of Medical Associations, recently formed, had been active, and that all representations to Government Departments were now made by this body, which could speak with unquestionable authority. Professor T. G. Moorhead, President of the British Medical Association, was elected an honorary member of the I.M.A.

Armagh Mental Hospital

The annual report of the Armagh Mental Hospital states that on December 31st, 1933, there were 562 patients—289 males and 273 females. The admissions throughout the year numbered seventy-four; the total cases being 638, or thirteen more than in 1932. Discharges numbered twenty-nine; twenty-five of these were patients who had recovered. There were thirty-four deaths. The daily average number of patients under care was 563. Thirty-seven males and thirty-two females were admitted under reception orders. One male voluntary patient was admitted, and four females were admitted under transfer. Among the admissions were children of 2, 8, and 13 years, and a patient of 23. These were imbeciles, and could be improved but not recover. Six patients were over 70, a fact which would also tend to lower the recovery list. The ratio of recoveries to admissions was: males, 40.5 per cent.; females, 27.7 per cent. There had been an unusual amount of sickness during the year; an epidemic of influenza attacked sixty-six patients and five of the staff. There was also typhoid fever among both staff and patients, the disease being fatal in the case of one attendant and two patients. There was a slight increase in the number of paying patients.

Reports of Societies

CLINICAL PATHOLOGY OF COMA

The summer meeting of the Association of Clinical Pathologists, held at the Royal Infirmary, Gloucester, on June 23rd, with Dr. E. N. DAVEY, pathologist to the hospital, in the chair, was devoted largely to a consideration of the clinical pathology of coma.

THE BARBITURATES

Dr. G. ROCHE LYNCH, speaking on the toxicology of the barbiturate drugs, said that all drugs of this group had the common basis of a combination of malonic acid with urea, the different proprietary preparations being produced by the substitution of various radicals at varying points. Some of these preparations, in addition to the malonylureide compound, also contained various proportions of amidopyrine or pyramidon. A single pharmacological dose produced sleep; repeated doses might, in sensitive persons, give rise to such symptoms as drowsiness, ataxic gait, ptosis, diplopia, and visual hallucinations. The barbiturates were not cumulative in the ordinary sense of the word, but after prolonged administration the effects might be slow in disappearing. The margin between the effective and the toxic dose was small. After a toxic dose symptoms might appear in a few minutes: these were headache, ataxia, vertigo, and drowsiness passing on to coma; there might be a preliminary period of excitement. On the establishment of coma the plantar reflex might become Babinski in type and the breathing periodic; the pupils were small but not pin-point, and the temperature became subnormal: bronchopneumonia tended to appear after the first twenty-four hours of coma. Dr. Lynch pointed out that many persons had an idiosyncrasy to the barbiturates, and said that these should be used with caution in toxic conditions of the liver, hyperthyroidism, chronic sepsis, renal disorders, and in all states of allergy. There was considerable variation between the minimum and the average fatal dose: for veronal the former was 15 grains and the latter 50; for luminal, 15 and 30 grains. Post-mortem findings were not characteristic: bronchopneumonia was almost constant, but of no special type; the liver and kidneys underwent fatty and parenchymatous change, but this might be evident only on microscopical examination. Dr. W. D. Newcombe had pointed out to him that the cerebellum frequently showed a pressure cone. Pemphigoid and bullous rashes might appear on the skin. Dr. Lynch questioned whether in all cases returned as suicide from barbiturate poisoning the drug had actually been taken with fatal intent. In one case ten tablets of a barbiturate preparation had been taken during one night: on recovering consciousness the patient recollected having taken two only; the remaining eight had apparently been taken in a state of somnambulism induced by the drug. When patients were given more than sufficient tablets for one night they should be instructed to take the night's dose and then to place the remainder in an inaccessible spot.

In the treatment of barbiturate poisoning the stomach should be washed out; for this purpose alkali should on no account be employed, as it rendered the poison more soluble; strong coffee and glucose should be left in the stomach, and the wash-out repeated two or three times, at intervals of four hours or so. Colonic lavage was useful, and should be repeated after twelve hours. Cardiac stimulants should be given in full doses. Lumbar or cisternal puncture was of the utmost importance, and should be repeated every twelve to fifteen hours, so long as the case seemed to demand it. This procedure served both to remove the poison, which was excreted in high percentage into the cerebro-spinal fluid, and to relieve cerebral pressure. Other methods of treatment included strychnine, picrotoxine, and alcohol. Great claims had been made for treatment with strychnine, and massive doses had been given. Although strychnine was valuable reasonable caution should be exercised in its use. In identifying a case of barbiturate poisoning the urine, stomach

contents, and cerebro-spinal fluid should be examined for the poison: examination of the cerebro-spinal fluid was of particular importance, as drainage should be persisted with until the drug had practically disappeared. Dr. Lynch described the methods of identification of barbiturates in the various body fluids, and pointed out that they fell into two groups, one of which was rapidly broken down, while the other was more stable. Dial belonged to the former, and the amount of this excreted in the urine might be very small. Dr. J. G. GREENFIELD said that he had found protein in the cerebro-spinal fluid. In view of the evidence that cerebral oedema, with increase of cerebral pressure, played some part in the production of symptoms he questioned the safety of cisternal puncture.

CEREBRAL CONDITIONS

Dr. J. G. GREENFIELD gave an account of several cases of subdural haematoma. This condition appeared to be becoming more frequent, probably on account of the increase in motor accidents. It was much commoner in males than in females. The cerebro-spinal fluid might be absolutely normal and not even under pressure; sometimes it showed slight discoloration of the supernatant fluid after centrifugalization and an increase of protein, but these features were not constant. Flakes of fibrin might be present in the fluid as withdrawn; their presence constituted an important diagnostic aid. It was difficult to account for the long latent period between injury and the onset of pressure symptoms on the assumption of actual continuance of the haemorrhage. The increased cerebral pressure might be brought about by imbibition of fluid into the haematoma, this being occasioned by increase in the osmotic tension of the haematoma contents, the result of breaking down of the blood.

Dr. A. G. SHERA (Eastbourne), describing several cases of coma due to subarachnoid haemorrhage, drew attention to the existence of a spinal as well as a cerebral type: the former never produced coma, and the main symptom was severe pain in the back, which was relieved by lumbar puncture. In both forms the cerebro-spinal fluid was almost invariably blood-stained, the blood being intimately and uniformly mixed with the fluid: on centrifugalization the supernatant fluid was coloured to a degree depending on the distance of the date of the haemorrhage. Besides giving relief to the headache lumbar puncture was an important diagnostic measure; the condition was usually accompanied by some degree of fever, and, short of examination of the cerebro-spinal fluid, the diagnosis between it and meningitis might be impossible. Massive albuminuria might occur, and papilloedema and retinal haemorrhages were common. Dr. Greenfield demonstrated microphotographs illustrating that deficiency of the media of the cerebral vessels was common at points of bifurcation; it was at these deficient sites that the aneurysms formed, whose rupture gave rise to subarachnoid bleeding.

Dr. S. C. DYKE reported seven cases illustrating the occurrence of coma, and in some cases convulsions and other grave cerebral manifestations, in association with raised blood pressure. He used the term "hypertensive encephalopathy," first employed by Oppenheimer and Fishberg, to describe the condition. Five of the patients were children or young adults; in addition to coma they all had convulsions, and some of them amaurosis. In the two elderly patients convulsions were absent. The younger patients were suffering from acute glomerulonephritis; there was no evidence of renal damage in the two older subjects. The feature common to all was a raised blood pressure. Dr. Dyke pointed out that when associated with renal damage hypertensive encephalopathy was usually described as uraemia; in none of his cases, however, was the blood urea significantly raised, and the term was therefore not applicable. Treatment was by venesection, lumbar puncture, and magnesium sulphate rectally and by mouth: all the patients made a good recovery. Dr. CUTHBERT DUKES considered that in all the cases described the manifestations might properly be called uraemic. Dr. A. F. S. SLADDEN (Swansea) suggested that in the light of present knowledge some examination into the meaning of the term "uraemia" was advisable.

SEX: ITS NATURE AND ABNORMALITIES

The Section of Obstetrics and Gynaecology of the Royal Society of Medicine joined with the Medico-Legal Society, on July 6th, for a discussion on "Sex: its Nature and Abnormalities, considered from Biological and Legal Points of View." Professor W. BLAIR-BELL, president of the Section, was in the chair.

BIOLOGICAL ASPECTS OF SEX

Professor F. A. E. CREW, of the department of animal genetics, University of Edinburgh, said that when an understanding was sought of the attributes of man and the complexities of society it was customary to begin with a comparative survey of similar phenomena in other forms of life. The politician, the cleric, the devotee, commonly asked for the biologist's endorsement that what he held was right or more than right, even natural. But human society was quite a unique biological phenomenon; it was doubtful whether there was anything like it among the experimental material of the biologist. In that material there were social groups, but no morals; crime, no doubt, but not sin. The reference to the lily or the ant might be useful to the philosopher, but the student of human behaviour could hardly hope to find an explanation of many things that puzzled him by turning to the rabbit or the bird. The biologist was no longer concerned with the search for an understanding of the nature of sex itself; he contented himself in this stage of the development of his science with a discussion and analysis of those differences which prompted him to regard one individual with one particular kind of organization as a male and another of a contrasted kind as a female. The more one knew of sexual differences the less one knew of sex itself. Sex would seem to imply differences of structure and behaviour of two dissimilar individuals and of two reproductive cells—sperm and ovum—in the mating of the individuals. Because the mating of two dissimilar individuals of the species commonly resulted in conception, nothing was easier than to conclude that the nature and meaning of sex could only be considered and recognized by bringing it into essential relation with reproduction. Thus the notion of a purpose in sex was revealed, the service of the race; but that was not a contribution of biology, it was an imposition on that science.

The biologist knew that sexuality and reproduction, though commonly related, were, in certain forms of life, not only separately distinguishable but even completely dissociated. Reproduction without sex was just as common as reproduction with sex, and sexual reproduction, though very different from asexual, could claim no marked advantage from the biologist's point of view. It was, however, a fact that in an ever-increasing number of species the existence of sex chromosomes was being demonstrated, and it was shown that in a considerable number of cases there was dissimilarity between the sexes in sex-chromosome constitution. Abnormalities in the distribution of sex chromosomes were always associated with the sex characterization of the individual. In the fruit-fly, *Drosophila melanogaster*, it was by no means uncommon (occurring in 1 in 200 cases) to find all the characters on one side of the body male and all those on the other female. In this insect it was possible to get a graded series of abnormal sex types, from the super-female, in which the female characters were greatly exaggerated, to the super-male; and associated with each type there was a constant abnormality in the relative number of X-chromosomes and autosomes. He instanced also the gipsy moth, *Lymantria dispar*, where the male and female determining influences were such that, crossing Japanese males with European females, half the resulting males, though looking and behaving like males, were, with reference to their sex-chromosome constitution, females. What, therefore, was a male, and what a female, when it was possible to produce any desired grade of intersexuality? Again, there was the marine worm, *Bonellia*, whose sexual destiny was determined by the place where the larva, sinking in the sea, touched bottom. If it alighted on or near the proboscis of a female it became a male; if well away from the female, then it became a

female. What was male and what was female? The biologist, if honest, would say that he had no opinion. He could identify a male and a female, but in the presence of the intersexual form he had nothing to say.

MECHANISMS WHICH DETERMINE SEX BEHAVIOUR

Dr. B. P. WIESNER, continuing the biological argument, said that in the male rat sex activity was comparatively simple. It would attempt to mate with any other animal of its kind of similar appearance, whether male or female. The distinction between the sexes which resulted in normal or heterosexuality appeared to be definitely a secondary phenomenon in evolution. Mating was actually restricted to union between male and female, not, however, because the first male selected, but because the second male did not permit. The testes could be removed from the rat after puberty without interfering for a considerable time with the sex life of the animal, whereas complete removal of the anterior lobe of the pituitary resulted in immediate disappearance of all sex activity. Such activity was determined by some as yet unknown substance such as was extracted from the anterior lobe. Sex activity in animals varied, first, with regard to its intensity—it could be prolonged and vigorous, or intermittent and sluggish—and secondly, with regard to its structure and the integration of the various movements which constituted in their totality the sex act. Intensity and structure were independent of each other, or had very slight correlation. After hypophysectomy it was possible to restore completely spontaneous activity without restoring sex activity. Therefore it was assumed that there was a group of substances which canalized energy into sexual channels, and a second factor, or perhaps many factors, which produced the energy itself. It was also worth noting that associated with the factors which determined sex behaviour were factors which determined certain specific, but not easily described or measured, activities of the animal. For example, rats which were wild or brutal would lose those traits in a few days after complete removal of the anterior lobe. Many of the factors responsible for highly dynamic motivation were associated, if not identical, with the factors responsible for sex behaviour. Maternal behaviour in the rat and other animals was a complex thing, but again it was, to some extent, activated by chemical factors belonging to the hypophyseal ovarian mechanism. Homosexuality in rats could be artificially produced by keeping males together for a certain length of time.

INTERSEXUALITY IN MAN

Dr. H. GARDINER-HILL said that intersexuality was only occasionally met with in medical practice. The study of the subject included various types of hermaphroditism and sex reversal. The underlying pathology was very little understood. As a physician his thoughts naturally turned to the endocrine aspects of these problems. Professor Crew, in his biological survey, had pointed out that there were other and probably more important aspects. The initial bias in sex differentiation seemed to begin with the hereditary and chromosomal factor, presumably modified afterwards by other influences, endocrine and environmental. With regard to the endocrines, it was now generally accepted that the hormonal stimulus which led to the growth of the accessory sexual organs and the secondary sex characters came from the gonads themselves. The pituitary was also concerned in sex development, but did not seem to play any part in sex differentiation. In clinical work destructive lesions of the pituitary in children were associated with infantilism. The renal cortex provided another endocrine influence. Precise information as to the function of this gland in this connexion was lacking, but cortical tumours were found associated with varying degrees of virilism in the female, and so it was assumed that a hormone was produced which had a masculinizing influence. Such was a brief outline of the main endocrine influences which played a part in the development of sex. With regard to clinical aspects, the grades of intersexuality found in man included true hermaphroditism, combining in one individual the bodily characters and generative cells of both sexes—a rare condition, though the president of that meeting,

Professor Blair-Bell, had reported on one very interesting case of a girl of 17, who had commenced life and passed puberty as a normal girl, and menstruation had ceased after eighteen months and masculine characters appeared. Pseudo-hermaphroditism was more common where genital ducts were found in contrast with the gonads. A third group of abnormal conditions must be referred to under the heading of the adrenogenital syndrome. The pathological lesion might be either diffuse cortical hyperplasia or a neoplasm, which might be either benign or malignant. The influence of such a lesion might manifest itself in different ways, depending on the age of the individual at onset and also the type of lesion. Successful operative removal of cortical tumours had been reported in several instances. The gross condition was rare in comparison with the very large number of individuals who showed signs of minor disturbances in the sexual sphere, such as, in the female, slight hypertrichosis of the male type, poor development of the breasts, and so forth. In these individuals the condition did not seem to be serious or progressive, and there was seldom any evidence of an endocrine lesion, but, of course, the opportunities for pathological investigation were few and far between. One suspected that the abnormality was largely due to inherited influences, and other members of the family would usually be found to show the same tendencies.

MEDICO-LEGAL IMPLICATIONS OF MASOCHISM

Sir BERNARD SPILSBURY dealt with the problem presented by cases of masochism which had led to the accidental death of the individual during the act. Masochism was a condition in which a person subjected himself to severe physical restraint, discomfort, or even pain, with the object of obtaining sexual gratification. One of the difficulties from the medico-legal point of view was that the rite was usually practised in secret, and in fatal cases there might be no clue in the history of the individual to explain the conditions under which death came about, so that there was a risk of the fatalities being interpreted as suicide or even murder. His own experience concerned three individuals—two of them lads, and the other a man of 34—who had tied themselves up so completely that the binding might have been thought the work of another person, and only by careful analysis was it shown to have been the act of the individual himself. The cause of death in each case was asphyxial suffocation, hanging, or strangulation. Whether an attempted asphyxia was the chief danger in this practice could not be stated. He believed that many of the cases found in coroners' courts as suicide, otherwise inexplicable and occurring in young individuals, should properly have been interpreted as accidental deaths due to masochistic practices. Possibly some cases of suspected murder might come into the same category. It was an interesting and important legal problem in connexion with sex abnormality.

THE ENDOCRINES IN SEX CONSTITUTION

Professor W. BLAIR-BELL said that it was well known that in the human embryo it was impossible, until about the eighth week, to say whether the genital organ was going to be a male or female gonad. About the eighth or ninth week determination in one direction or another occurred, but subsequently to that period there must be a large extent bisexuality. He thought a mistake had been made in describing the primary sex factors as being merely those of the constitution of the gonad itself. Quite clearly, if the development of the gonad was doubtful for a space of time it might be converted into either the ovary or testicle, or, in very rare cases, both might develop. He had always thought that the endocrine organs ought to be considered in this connexion, especially the supra-renal cortex, the anterior pituitary, and, possibly, the thyroid gland and the pineal gland. In connexion with hermaphroditism, he believed it was Bond of Leicester who reported a pheasant which was cock on one side and hen on the other. How was it such a thing happened? He laid down three aphorisms with regard to pseudo-hermaphroditism: (1) the secondary sex characteristics were opposite in nature to the anatomical structure of the gonad; (2) in pseudo-hermaphrodites it was always found

that secondary sex characteristics of the female were more perfect than those of the male—that is to say, a woman with testes might have most perfect secondary female characteristics; (3) in pseudo-hermaphrodites the ovaries were always much more fully developed than were the testes in pseudo-hermaphrodites of the opposite character. In a pseudo-hermaphrodite with testes, but with perfect female secondary characteristics the mind was that of a woman—indeed, generally very much of a woman. Therefore he thought the law was wrong in cases of nullity when it said that a person was male or female in accordance with the nature of the gonad. The gonads were not the only arbiters of sex.

Dr. LEONARD F. BROWNE said that Sir Bernard Spilsbury's cases of masochism were of special interest to those concerned with the treatment, on psychological lines, of sexual perversion and aberration. The condition of masochism had a very large variety of expressions, most of them, fortunately, not entailing fatal risks. There was also the opposite condition of sadism, where the individual desired, instead of suffering pain, to inflict it on others. Dr. MARGARET LOWENFELD said that among neurotic children the desire to tie themselves up was relatively common in prepuberal life. From a study of these children the habit did not appear necessarily to have reference to a post-puberal sexual impulse, although very possibly it was the oncoming of the post-puberal impulse which so exaggerated an already existing trait that it became dangerous to the individual.

Mr. L. R. BROSTER said that the appearance of secondary male sexual characters in the female had been associated with changes in the adrenal cortex. At operation on some sixteen cases it had been found in them all that the cells of the adrenal cortex were a bright pink—a stain which was not present in the normal individual. In these cases of virilism there was therefore a change in the cells of the adrenal cortex, and the change had also been found in the anterior lobe of the cortex. From the tenth to the seventeenth week of foetal life every female should pass through a male phase. There seemed to be a male hormone in the adrenal cortex which gave rise to male characters, and one could argue that with a very prolonged male phase in the female foetus that hormone might become converted and explain some of the occurrences of pseudo-hermaphroditism.

Professor CREW, who described the male as "nothing more than an 'improved' female," remarked that there was a chemical affinity between the male and female sex hormones; therefore might it not be that in the cases of virilism, whatever the factor was, it operated upon that chemical mechanism, transforming in some way or other the female sex hormone into the male?

Sir BERNARD SPILSBURY said that he could recall making a post-mortem examination on the case of a young man who had died in his bath from congenital heart disease. He was known to be abnormally developed, although he had all the secondary sexual characteristics of a man. The external sex organs, however, were found to be much more like those of a woman, but showed some intermediate characters, and internally there were male and female sex organs, both poorly developed. Asked whether he had discovered any cases of masochism in the female, he said that his experience had been only of fatalities, and these had all been in males. He thought it very unlikely that it was met with in the female sex. The practice might well originate in the prepuberal period, for amusement or by chance, becoming of greater significance on the individual's reaching sexual life.

The Far Eastern Association of Tropical Medicine will hold its ninth congress at Nanking, from October 1st to 7th, under the patronage of the National Government of China, and the presidency of Dr. J. Heng Liu, director of the National Health Administration and Central Field Health Station at Nanking. Scientific sections will meet on four mornings and two evenings. At the end of the conference there will be a choice of three tours—namely, to Peiping by railway, to Hankow by river, and to Hangchow by road. Inquiries should be sent to Dr. P. Z. King, National Health Administration, Nanking, China.

CORRESPONDENCE

Thyroid Addiction

SIR,—I read with much interest Dr. S. W. Patterson's article on thyroid addiction in your issue of July 7th (p. 6), and hope that it will once again call the attention of medical men to the dangers arising from the prolonged use of thyroid extracts.

In the *Journal* of March 14th, 1931, I published a short paper entitled "Unilateral Exophthalmos following Administration of Thyroid Extract," and at the end of the article I suggested that some restriction should be placed on the sale of thyroid products. I added that

"any physician of experience must have met with many cases in which long-standing ill-health with hyperthyroid symptoms has been caused by excess of this drug, and also certain acute cases in which sudden palpitation, giddiness, dyspnoea, and nervous terror have been brought about by prolonged overdosage."

Further, I stated that "in most cases the fault lies not with the physician but with the patient." In writing this I had in my mind two cases of thyroid addiction, one of whom is still under my care.

In my opinion thyroid extract should only be obtainable on a doctor's prescription, and the prescription should only be repeated for a limited period unless re-initialled by the prescriber. Möller, writing on the same subject in the *Acta Medica Scandinavica*, goes so far as to suggest that thyroid extract should be placed on the list of dangerous drugs.—I am, etc.,

Dublin, July 7th.

T. GILLMAN MOORHEAD.

Preliminary Ligature in Toxic Goitre

SIR,—The statement referring to ligature of arteries in toxic goitre, in the letter by Dr. L. Cunningham and Mr. Philip Hawe, published in your issue of June 30th, is contrary to my experience. Owing to the importance of the increase in the death rate recorded in the last report of the Registrar-General—namely, from 587 in 1921 to 1,404 in 1932—I had proposed, in the near future, to discuss the complications arising in the course of toxic goitre as well as the management of severe cases without complications, and the question of ligature of arteries would have arisen naturally. But, because of the position occupied by the two signatories to the letter referred to, and the importance that will be attached to their views, I feel that I should state now that I differ emphatically from the opinion they express. There are some who will remember that I expressed this view myself many years ago, but my experience in the intervening years has induced me to change this opinion.

My opinion in the earlier years was held because I had seen ligation carried out in a manner that was certainly liable to upset the patient. Many patients are seen who are extremely ill, and the number who are so ill does not decrease. In dealing with them every factor that makes for safety must be employed. Certainly many of these patients, even with the most capable preparation, would not stand the removal of a lobe with safety. Ligation of arteries has repeatedly changed an unsafe risk into a reasonably safe operative risk. I have seen it result in a gain of 14 lb. in weight in a few weeks, in a patient who had lost weight continuously while in hospital over a period of two months. Her weight at the time of ligation was 4 st. 1 lb., her normal weight being 8 st. 7 lb.

The technique of ligature must be carried out accurately and carefully, the artery being displayed without unnecessary trauma. It has been written that if the artery is not easily found the upper pole should be encircled with a ligature. A description such as this does not belong to the present period of thyroid surgery.—I am, etc.,

London, W.1, July 9th.

T. P. DUNHILL.

SIR,—I am grateful to Dr. L. Cunningham and Mr. Philip Hawe for expressing in your issue of June 30th (p. 1187) their concurrence with my views as to the use of avertin for toxic goitre operations. They make, however, a statement with regard to preliminary ligature of the thyroid arteries which I think calls for comment—namely, "In our experience in bad cases it is not helpful and in mild cases it is unnecessary, and we consider it too liable to upset the patient to justify its use."

The fact that preliminary ligature is unnecessary in mild cases seems to me to be so obvious as not to need stating. That it is not helpful in bad cases is entirely contrary to my experience, and I am not alone in believing the operation to be of value. I cited more than one instance in my article on the use of avertin, and actually preliminary ligature was done for eight of the 220 patients, on almost every occasion with obvious benefit. In most cases the operation was performed under avertin, in one under local analgesia. In some the disturbance to the patients was severe because they were so extremely ill, and one actually died; any other operation would have resulted in several more deaths. In others the disturbance was very slight, and in all (except the one mentioned) the operation served to convert a very bad "surgical risk" into a reasonable one. That the effect of artery ligature is only temporary I fully recognize, but I am convinced by experience that it is a measure of the greatest value in a few selected patients.—I am, etc.,

London, July 6th.

GEOFFREY KEYNES.

Operation for Toxic Goitre

SIR,—In a letter published in the *Journal* of June 30th (p. 1187) Dr. L. Cunningham and Mr. P. Hawe write of operating for toxic goitre after obtaining permission from the relatives while the patient herself is unaware that an operation "in the immediate future is contemplated." It is not clear from this whether or not their patients' consent is also given.

I believe it is illegal to operate without permission from the patient (unless she be under 21 years of age, or certified insane) though she need not know when it will take place nor when she is being anaesthetized. Some very nervous patients with toxic goitre repeatedly refuse operation until they are too ill to stand it and die in a thyrotoxic crisis. In such cases the fatal result could be avoided, I think, if the consent of the relatives only were necessary before performing thyroidectomy.—I am, etc.,

Bournemouth, July 3rd.

HAROLD COOKSON.

Pyloric Stenosis

SIR,—I have read with great surprise that in the pyloric stenosis of infancy the finding or not of the tumour is not of any particular importance. In July, 1930, in a special number of the *Practitioner* on diseases of children, I contributed an article on pyloric stenosis, a subject to which I had given ten years of special study in order to determine the value of the pyloric tumour, as a sign of the condition. My experience was then based on 100 consecutive cases, and I can say now that it is based on something nearer 200 cases. I found the tumour in practically 100 per cent. of the hospital cases; but what was of more importance, I not only found it myself but was able to demonstrate and convince skilled doctors not only at the Hospital for Sick Children, Great Ormond Street, but from all over the world, of its presence, and, further, all the 100 cases were operated upon and the presence of the tumour proved by the surgeon.

I don't deny that it may require both patience and care, but to hold that it is not the most important sign of the developed condition I venture to maintain would be a dangerous error.—I am, etc.,

London, W.1, July 7th.

F. JOHN POYNTON.

Sunbathing and Tuberculosis

SIR,—The article on sunbathing and tuberculosis by Drs. A. H. Gosse and G. S. Erwin, in your issue of July 7th (p. 15), raises a point of very great importance, for, although one would expect these facts to be realized by all medical practitioners, strangely this does not appear to be so; while among the general public the fallacy of the good effect of the direct action of the sun's rays is almost an obsession. It cannot be too much stressed that the proportion of cases infected with tuberculosis is very much larger than those known, or who know themselves, to have the disease; especially this so among "contact" cases, who may indeed especially endeavour to avoid the fell disease of which they have first-hand knowledge by a good dose of the sun. These evil results are found not only in tuberculosis but after any infection, and it is not uncommon to see a fresh attack of pneumonia occurring from too much sun in a patient convalescent of this disease.

It is well recognized at all sanatoria that not only an acute flare-up of the parenchymal disease, but even military tuberculosis, may occur after indiscriminate exposure, and the patients are cautioned of this. All those in touch with hospital, and especially dispensary, work will agree as to the large number of cases of acute activation of disease in both known and "new" cases as a result of the summer of last year, and the same state of things is occurring this summer. It should be a matter of routine with every doctor who is in charge of cases of tuberculosis repeatedly to warn the patient and also his contacts of the necessity of care in this respect. The intelligent interest taken by the public in living healthily has had its effect in decreased illness, especially among the young people; popular health journals have advertised the benefit accruing from Alpine sunlight treatment, but the technique and care which is necessary to its advantageous use is little stressed. The same applies to artificial sunlight treatment by the indiscriminate use of these lamps without supervision—I have seen several quiescent cases badly activated.

One has assumed that the effect of the sunlight is to liberate a flood of toxins which diminishes the resistance of the patient to the specific organisms with which he is infected, and that the effect of graduated light is much the same as graduated exercise in cases of chronic infection.—I am, etc.,

London, W.1, July 6th.

A. J. SCOTT PINCHIN.

Tuberculin

SIR,—I think I must be voicing the opinions of a good many general practitioners who, like myself, have used tuberculin over a period of twenty years in the treatment of pulmonary tuberculosis when I say that the expressed opinion of Dr. N. D. Bardswell (*British Medical Journal*, June 30th, p. 1136) on tuberculin fills us with amazement. That other methods of cure are preferred by the experts is perhaps true, but there is among general practitioners a vast amount of clinical evidence, more than sufficient to justify a direct contradiction to the statement that tuberculin is not seriously considered as a "cure."—I am, etc.,

Tonbridge, July 5th.

G. L. BUNTING.

SIR,—More than twenty years ago Dr. Noel Bardswell, after a perfunctory investigation upon the value of tuberculin AF (which is merely one of many forms of tuberculin, containing as it does chiefly exotoxins), condemned tuberculin as a whole, upon evidence which I knew to be quite worthless and misleading (see *Practitioner*, 1913). Somewhat later Dr. Halliday Sutherland, in ignorance which he now honestly deplores, attacked me for my views upon the value of tuberculin in diagnosis and treatment; but more knowledge and personal experience converted him to the views I have consistently held, practised, and preached for more than forty years. Dr. Sutherland candidly admitted so much at the Centenary Meeting of the British Medical Association.

It is sad that Dr. Bardswell, who can influence the L.C.C. in its policy concerning the greatest and most difficult medical problem affecting the life and health of the poorest sections of humanity forced to live in the greatest city in the world—London—dares to tell the lay public that tuberculin, as a means of diagnosis, as a remedy, and as an invaluable agent even in prognosis, is merely bunkum. As a pupil, friend, and faithful disciple of Robert Koch, I challenge the views of Dr. Bardswell. Statistics, based not upon post-mortem examinations but upon casual death certificates signed mostly by general practitioners, are certainly not above criticism in the elaboration of mortality statistics.

As the problem of tuberculosis is the greatest and most difficult problem in medical science, may I earnestly ask that a Royal Commission be appointed by the Government to collect evidence and call witnesses, so that the whole truth may be revealed upon the nature of tuberculosis and the best method of attacking the disease, so as to reduce the high mortality and morbidity constantly occurring in our midst, especially in our great cities?—I am, etc.,

W. CAMAC WILKINSON, M.D., F.R.C.P.
London, W.1, July 1st.

Bile Salts for Empyema

SIR,—Dr. H. R. Donald, in his letter in the *Journal* of June 30th (p. 1189), stated that it is possible to inject 10 c.cm. of 10 per cent. desoxycholate into the ear vein of a rabbit without harmful complications, though he qualifies his statement by adding that it is quoted from memory. I myself, however, know that less than one-third of this dose, dissolved in normal saline and administered in a similar manner, kills a rabbit within thirty seconds. I think, therefore, that the caution expressed in the article by Mr. B. R. Sworn and myself regarding the toxicity of this substance is justified.—I am, etc.,

Stafford, July 4th.

T. V. COOPER.

The Cancer Problem

SIR,—The review by Dr. J. A. Murray, in the *Journal* of June 16th, of Dr. A. T. Todd's recent paper on the selenide treatment of cancer is of very great interest, as, after explaining some of the many difficulties which have to be surmounted before we can solve the problem of malignant growths, it indicates one line of attack which has been to some extent successful.

After briefly reviewing the method of treatment by sulphur selenium colloid, radio-active selenium colloid, and deep x rays, Dr. Murray gives it as his opinion that the improvement brought about in a substantial percentage

of the cases treated was probably due, not to a direct attack on the cancer cells, but to gradual and systematic stimulation of the connective tissue stroma, leading to an encapsulation of the parenchyma cells, and eventual squeezing out of them in the manner which is found to have taken place in old scirrhous carcinomata. He states that "this encapsulation is essentially a non-specific overgrowth of the stroma, and it may be brought about in a variety of ways."

From the general trend of his review I infer that up to now no satisfactory method has been discovered for the eradication of malignant growths by way of a direct attack on the actual cancer cells themselves, and in inoperable cases we can only hope for success (a) if the degree of malignancy is comparatively slight, and (b) if we can succeed in stimulating the surrounding stroma to increased proliferation.

Dr. Murray gives us an idea of some of the great difficulties which have to be surmounted when he mentions that "even in the filterable tumours of the fowl, in which the evidence for the participation of a causative virus is strongest, the virus is so firmly combined with the cell structures that even the strongest viricidal antisera (active against filtrates) are incapable of rupturing the combination and of robbing living cell-suspensions of their property of giving rise to new growths." This, I take it, means that once the complex organic radical or group of radicals which constitutes the virus in question becomes joined up with a corresponding group in the living cell, it is almost impossible to dis sever them, and it would also seem that this virus remains henceforth as a permanent constituent, not only of that cell, but of all cells arising from it afterwards.

If this view is correct we must presume that once a cell becomes malignant the complex cell entity constituted of virus radical in combination with cell radical is capable of indefinite growth within the cell in the same manner as are all the other cell constituents, such as chromosomes, genes, etc., otherwise it would soon be eliminated by dilution.

Sir Frederick Gowland Hopkins, in his presidential address at the Leicester meeting of the British Association, stated that "a molecule within the system of a cell may remain in an inactive state and enter into no reactions until at one such surface it comes in contact with an enzymic structure which displays certain adjustments to its own structure. While in such association, the inactive molecule becomes (to use a current term) 'activated,' and then enters on some definite path of change." Sir Frederick, further on in the same address, when dealing with cancers which have arisen as the result of the prolonged action of certain tar constituents, mentions: "This structure, like that of the sterols, is one of condensed rings, the essential difference being that (in chemical language) the sterol rings are hydrogenated, whereas those in the cancer-producing molecule are not. *Hydrogenation indeed destroys the activity of the latter.*" The italics are mine.

Now, Sir, although I do not for a moment desire to minimize the great importance of the flanking encircling attack on cancer in the shape of stimulating the stroma tissue to increased growth, yet I cannot help thinking that in inoperable cases at least no satisfactory method of treatment will be discovered which will suit every class of case until we find some means of directly attacking the cancer cells. I fully understand that it will prove a colossal undertaking to discover some way by which the cancer cells may be penetrated and their cancer-producing molecules dehydrogenated; still, one can but try. In conclusion, I beg strongly to suggest that the various groups of

scientific men who are now studying the cancer problem, and who have up to this been working largely in watertight compartments, be brought together into one coherent organized body under one head directing staff; that every class of scientific worker should be incorporated into this body, which should consist of cytologists, pathologists, biochemists, and geneticists, as well as a number of scientifically minded practical medical men.—I am, etc.,

Kirk Michael, Isle of Man,
June 29th.

E. G. FENTON.

The Ante-natal Use of Quinine

SIR,—In my original paper on "The Use of Quinine in Normal Labour" (*British Medical Journal*, 1930, i, 144) I made a special appeal to those who controlled large numbers of maternity cases to give the method a serious trial, and I was naturally pleased to see that such a trial had been made at Queen Charlotte's Hospital. On the whole, I am not displeased with the findings summarized by Dr. F. W. Buddee in his paper in the *Journal* of June 30th (p. 1159) upon this subject. It is possible, however, that the findings might have been even more satisfactory and more in accordance with those described in my own paper if the method followed by Dr. Buddee had not been "modified" from the original one. It was stipulated in my paper: (1) that there must be an optimum dose (probably $4\frac{1}{2}$ to 5 grains daily); and (2) that this amount should be given in divided doses ($1\frac{1}{2}$ grains three times daily before meals was suggested).

Such a dose as 5 grains of an absorbable salt like the acid hydrochloride can even bring on a "storm of contractions," as shown by Conitzer in 1907, and may be even responsible for some of the premature labours which occurred in Dr. Buddee's series. With regard to the duration of labour, no comparison between his series and mine can be made because he refuses to draw any distinction—even arbitrary—between "true" and "niggling" (or "false") pains, and it seems to me that we can never make any progress in the comparison of labour cases until some such distinction is generally accepted. Further, the Queen Charlotte's series was vitiated by the inclusion of seven cases of occipito-posterior positions requiring manual rotation, and although it would be interesting to test a large series of such cases both with and without ante-natal quinine, their inclusion in this series only confuses the real point at issue. It would be interesting to know whether any of the "several bad cases of inertia" quoted by Dr. Buddee were associated with these occipito-posterior positions, or with other complications, such as "large child," hydramnios (even relative), or other primary causes of inertia.

In spite of these few points of criticism I welcome Dr. Buddee's paper as a genuine attempt to get at the real scientific truth.—I am, etc.

Bath, July 4th.

DOUGLAS A. MITCHELL.

Psychological Effect of Hysterectomy

SIR,—Dr. Winifred Coppard, whose letter appeared on June 9th (p. 1048) may be interested in the following case.

Three years ago I saw a patient (aged 30) whose main symptom was bleeding during coitus. Examination revealed a severe type of cervical erosion. A piece was removed and submitted to a competent pathologist, who reported the condition as malignant. I performed a pan-hysterectomy, and recently the patient presented herself for her six-monthly examination. In view of Dr. Coppard's letter I questioned the patient concerning her

sexual habits and found that both she and her husband experienced pleasure during coitus.

One would probably misapply Terence's meaning in writing "Quot homines, tot sententiae," but the case of the impotent husband, mentioned by Dr. Coppard, carries one's mind towards the writings of Krafft-Ebing and the necessity, under certain circumstances, of wearing high-heeled buttoned boots.—I am, etc.,

NOEL BRAHAM.

Gosport, July 7th.

Occupational Dermatitis

SIR,—A few days ago I had referred to me a case of alleged "dermatitis produced by dust or liquids," and that reminded me of the article by Dr. P. B. Mumford in the *Journal* of May 12th, and of the letter from Dr. MacKenna in the issue of May 26th. My perspective in viewing the subject is probably different from theirs, and what I write now is not a matter of criticism, but simply musings on some facts from my own experience as medical referee and assessor for a number of years.

The subject of skin diseases is difficult, and perhaps not least so in regard to aetiology: nomenclature, too, is fluid. I have always thought that, as Dr. Mumford says, "the exact interpretation of the word 'dermatitis' is not clear even to dermatologists," and also "that 'dermatitis' is an extremely loose word, of no watertight definition."

Looking up my records since the beginning of 1932 I find I have thirteen cases of "dermatitis produced by dust or liquids" referred to me. One may be disposed of in a class by itself, my decision being that the workman had the scheduled disease when examined by the factory surgeon but not when examined by me, and that the disability had ceased on a certain date. Of the remaining twelve cases six were decided in favour of the workman and six against. It may well be that, as no professed dermatologist, I made decisions which were equally wrong in both series of cases. In the series decided in favour of the workmen no medical evidence was submitted in one case, in three cases evidence tending against was submitted, and in two cases evidence both for and against. In the other series there was no evidence in three cases, in two cases evidence nominally against, but really of no value, and in one case evidence for and against.

I do not think it is quite recognized by all readers, nor by some writers, what, as Dr. MacKenna says, is "the power which is at present given under the Workmen's Compensation Act to the medical referee." It may be news to them to be told that he has not to decide whether the disease was acquired in, or is due to, his occupation; he has not even to decide whether it is an occupational disease; all he has to do is to give his opinion as to whether the workman is suffering from "dermatitis produced by dust or liquids," and "whether he is thereby disabled from earning full wages at the work at which he was employed." If he decides affirmatively the onus is put upon the workman of proving that the disease arose from his occupation. Thus Dr. MacKenna is wrong when he says "the ultimate responsibility for adjudication devolves upon a referee." He is right technically when he says that "a referee without reference to other medical men can [my italics] adjudicate in cases of occupational dermatitis"—right technically, but wrong in essence, because the medical referee is required to notify both workman and employer of time and place of the examination, and the notification in each case bears these words: "Any statement made or submitted by you shall be considered." Thus, from the very beginning, the medical referee has to place himself in the position "to hear medical evidence in support of their case."

Dr. Mumford's "Interpretation in Certain Cases" has paragraphs of the greatest interest scientifically, but he reduces the problem of the medical referee to almost nothing when he follows up with "the law reads that acceleration or aggravation by work of a disease entitles the workman to compensation." Dr. Mumford concludes that he "has yet to be concerned in a case where there was real divergence of dermatological opinion, however wide the breach may appear to become after skilled examination and cross-examination by experienced barristers." Over many years as medical assessor (and not in skin cases only) I have been interested, amused, and sometimes pained to see how barristers will lead a medical witness up the path, and how often he has simply to leave a gate ajar for the witness to make a path for himself. During the same years as referee, where the "big bad wolf" of a barrister has not yet intruded, it is wonderful to find how one medical report cancels another, and, indeed, sometimes how one part cancels another of the same report.—I am, etc.,

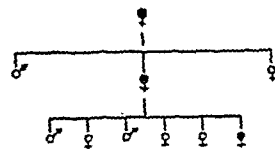
Hull, July 2nd.

JOHN DIVINE.

Hereditary Scoliosis

SIR,—The possibility of the hereditary nature of scoliosis, as suggested by Dr. Hugh Garland in the *Journal* of February 24th (p. 328), was discounted in subsequent correspondence. It is, no doubt, wise to receive fresh suggestions with a degree of judicious scepticism, but the appended pedigree, from a collection of unpublished materials that has been accumulating for over twenty-eight years, may help to confirm Dr. Garland's conclusion and to dispel scepticism.

This chart shows three cases of scoliosis in direct descent in three generations—mother, daughter, and



granddaughter. The person affected in the first generation died at an advanced age (84 years) from tabes dorsalis and blind from double optic atrophy. She had three children: the eldest died in infancy; the third died when six months old; the survivor is still alive and is deformed with a very definite degree of scoliosis. The patient affected in the second generation had six children. The first was premature and died when 9 months old. The second died at the age of 14 years. The third was killed in the European War, and would probably have been rejected for military service and stayed safely at home if he had been deformed. The fourth is in Australia, and is said to be normal, but this cannot be verified. The fifth is normal. The sixth (a woman aged 28 in 1934) has scoliosis, as have her mother and her grandmother.

A surgeon to whom I have shown this pedigree asserts that he sees in it no heredity but only rickets, going on to comment on the influence of three generations of city life and a slum environment. The first two generations in this family were country born and bred; the third generation was city born, but has not lived in the slums. None of the surviving members of this stock who reside in England show obvious stigmata of rickets, which would be acting in a strange manner if it occurred selectively in the dorsal spine in three successive generations.—I am, etc.,

Manchester, July 2nd.

W. J. RUTHERFORD.

Advertisements of Sex Literature

SIR,—The present year has been marked by an inundation of advertisements of a peculiarly obscene type, directed, we presume, particularly towards the medical profession. We are glad to see that the law has recently marked its disapproval of such methods by the infliction of a penalty under the laws which control the dissemination of obscene literature through the post.

The need for this type of literature, which deals with sex and the *ars amoris*, does not at once seem apparent to those whose practice lies along different lines, among relatively normal people. What useful function it fulfils we are at a loss to understand; but we would be interested to know whether some of our colleagues who sponsor such work consider it to be a serious contribution to science. It seems to us that the reading of such erotic nonsense by many young people would be more likely to lead to the creation than to the correction of those sexual neuroses which form the main excuse for offering it to the public.—We are, etc.,

HECTOR M. WALKER.

A. MORRIS JOHNS.

London, W.1, July 9th.

Rasputin's Death

SIR,—I have been interested for a considerable time, in common, I imagine, with many other medical men, in the incidents described relating to the death of the celebrated figure Rasputin.

It is recorded that on December 29th, 1916, an attempt was made to poison him, and after this had proved unsuccessful he was shot with a revolver, his body later being thrown into the River Neva. We are given to understand that the poison used was cyanide of potassium, and the problem of particular medical interest arises when we consider how it can have happened in this case that the attempt was ineffective, as it is a well-known fact that potassium cyanide is one of the deadliest of poisons, and is stated to have been administered to Rasputin in doses many times exceeding the fatal dose, both through the medium of chocolate cakes and in wine. In Prince Youssoupoff's book it is described how

"Dr. Lazovert put on rubber gloves and took out the crystals of cyanide of potassium. He crushed them, and, having removed the upper layers from the chocolate cakes, sprinkled each of them with a strong dose of poison, afterwards replacing the tops."

Three of these cakes were consumed by Rasputin and three glasses of poisoned wine.

Cases are recorded in books on toxicology of recovery from cyanide poisoning after amounts have been taken considerably greater than the fatal dose, but this, I believe, has occurred only after vomiting has ensued, or when prompt treatment has been administered. Rasputin apparently showed no sign of sickness after partaking of the cakes and wine, seemed, in fact, to suffer little or no ill effects of any kind, and although the usual fatal period for this poison is under five minutes, he was alive and in vigorous health over two hours later. Even allowing generously for individual variation, this is an astonishing fact, which obviously demands further elucidation. Leaving speculations of a supernatural character aside, it is interesting to consider whether, as has been suggested, Rasputin may have had an immunity to the cyanides similar, we may suppose, to the immunity of rabbits to belladonna. One cannot altogether dismiss the possibility, but it is extremely unlikely, although for obvious reasons difficult of proof.

It is known that fats may delay the action of drugs, but it is incredible that even if Rasputin had partaken of a fatty meal beforehand this would have proved suffi-

cient to counteract the effect of so powerful a poison. Probably, however, the real explanation is that Rasputin never received the poison at all. There seems to be no doubt that he swallowed some substance assumed to be cyanide of potassium, but by far the most likely solution of the mystery is that the powder, whatever its nature, was not what it purported to be. If this is established as the most credible view it will go far to dispel the atmosphere of awe and mystery with which, in the minds of the superstitious, this historical figure is surrounded, and also afford an explanation of an outstanding medical enigma. Perhaps a toxicologist may be able to shed further light on the problem.—I am, etc.,

London, N.4, June 28th.

FREDERICK DILLON.

* * The suggestion is made in a recent book, *Clinical Toxicology*, by Professor Erich Leschke of the University of Berlin, that the reason why Rasputin was immune from the effects of such a large dose of potassium cyanide was that he suffered from alcoholic gastritis. This, by absence of gastric hydrochloric acid, would inhibit the liberation of hydrocyanic acid, while absorption would be hindered by the thickening of the stomach mucous membrane.

British Health Resorts

SIR,—We have been much encouraged of late by the increasing interest shown in the work of the British Health Resorts Association by the medical profession. Our association is largely medical, not only in personnel but in its objects, which are to awaken and sustain interest in the health side of our British resorts. At our recent conferences at Harrogate and Cromer we were supported by leaders of the profession, and I venture to think that the quality of the discussions was something of which we may be proud.

Though we look in the main for financial support to the local authorities of the places we are trying to help, we are very anxious to secure more of it from the medical profession, particularly from those members practising in the health resorts or who take a special interest in climatology, balneology, and physical medicine. The recent action of the Harrogate Medical Society and the Torquay Division of the B.M.A. has therefore given our council great pleasure. These bodies have circularized their members with a view to enlisting their interest in our work, and by this means we have secured a considerable number of new members. Our Medical Advisory Committee would be glad to have an opportunity in your columns of bringing these examples to the notice of similar bodies, in the hope that they may do likewise.

Our subscription is £1 1s. a year, though we would welcome any donations, small or large. We cannot offer any direct material advantage to subscribers, but we believe there are many who would be willing to show a practical interest in a movement which has a distinctly medical as well as a patriotic aim. I shall be glad to answer any inquiries.—I am, etc.,

ALFRED COX,

General Secretary, British Health
Resorts Association.
199, Piccadilly, W.1, July 2nd.

The Medical Directory

SIR,—To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.—We are, etc.,

J. AND A. CHURCHILL, LTD.

Publishers of *The Medical Directory*.

40, Gloucester Place, Portman
Square, W.1, July 2nd.

The Services

HONORARY PHYSICIAN AND SURGEON TO THE KING

Surgeon Vice-Admiral R. W. B. Hall, C.B., O.B.E., has been appointed Honorary Physician to the King.

Surgeon Rear-Admiral W. W. Keir, C.M.G., has been appointed Honorary Surgeon to the King.

CENTRAL COUNCIL OF SICK BERTH STAFF ASSOCIATIONS

Recently a meeting was held at the Medical Department, Admiralty, under the presidency of Surgeon Vice-Admiral Sir Reginald Bond, when a Central Council of the Royal Naval Sick Berth Staff Associations at Portsmouth, Plymouth, and Chatham was formed under the patronage of Admiral of the Fleet Sir Roger Keyes.

The main object of the Central Council is to assist the sick berth staff to find employment on retiring from the Service. This year there will be 110 of them, owing to the large number who were recruited in 1912. These associations have up to date managed their own affairs, mainly to provide death and invaliding benefits, as well as assisting in obtaining employment on discharge from the Service. Each will still manage its own financial affairs, but with the Central Council's assistance it is considered that the employment question will be more forcibly brought to the notice of the medical and general public.

The Royal Naval Sick Berth Staff are trained men who act as nurses in Royal Naval Hospitals and ships in the Navy. They have to pass examinations for promotion, and are discharged to pension after twenty-two years' service. They have considerable experience in responsible positions. Many have qualified as masseurs, radiographic, laboratory, electrotherapeutic, and operating theatre assistants. All have experience in dispensing and store-keeping, as well as surgical, medical, and mental nursing, and so are qualified to fill various situations in hospitals, clinics, institutions, etc., as surgical assistants, or as assistants to medical men.

Surgeon Vice-Admiral R. W. B. Hall, Medical Director-General, is a vice-patron, while Sir Reginald Bond is the president, and Surgeon Captain Montague Knapp, C.O. Medical Department, Admiralty, London, S.W.1, is the representative president, who will be glad to furnish any further information.

MENTIONED IN DISPATCHES

The names of the following have been brought to notice by His Excellency Field-Marshal Sir Philip W. Chetwode, Commander-in-Chief in India, for distinguished services rendered in connexion with military operations against the Upper Mohmands, period July 25th to October 3rd, 1933: Colonel E. W. C. Bradfield, C.I.E., O.B.E., I.M.S., Assistant Director of Medical Services, Peshawar District; Majors F. R. H. Mollan and A. E. Richmond, O.B.E., R.A.M.C.; Major D. V. O'Malley, O.B.E., I.M.S.; Captain S. D. Dahl, I.M.S.; Lieutenant J. O'Neill, I.M.S.

DEATHS IN THE SERVICES

Colonel Ernest William Bliss, C.M.G., D.S.O., late R.A.M.C. (ret.), died at Portsmouth on May 14th, aged 64. He was born at Leamington on September 19th, 1869, the son of the late Rev. William Bernard Bliss, was educated at Dudley Grammar School and at Mason and Queen's Colleges, Birmingham, took the M.R.C.S., L.R.C.P. Lond. in 1892 and entered the R.A.M.C. as lieutenant on January 28th, 1897. He was specially promoted to captain for services at the Battle of Khartum, from November 16th, 1898, for a brief lieutenant-colonelcy on February 18th, 1915, and became substantive lieutenant-colonel eleven days later, in the long war promotion list of March 1st, 1915. He became colonel on December 26th, 1917, and retired on December 26th, 1923. He served in the Nile campaigns of 1897-8, was present at the battles of the Atbara River and Khartum, was mentioned in dispatches in the *London Gazette* of May 24th and September 30th, 1898, specially promoted to captain, and received the medal, with two clasps, and the Egyptian medal. In the war of 1914-18 he served in France and

Flanders, as A.D.M.S., and later as D.D.M.S., of the Second Army Corps, was five times mentioned in dispatches, in the *London Gazette* of February 17th, 1915, January 4th, 1917, May 29th, 1917, December 24th, 1917, and December 30th, 1918, and received the D.S.O. in 1917 and the C.M.G. in 1918, also the Legion of Honour and the Croix de Guerre. After the armistice he served as D.D.M.S. of the British Army on the Rhine. He married Florence Ruth, daughter of the late Thomas Graves, solicitor.

Major George Raymond, R.A.M.C. (ret.), died at Devonport on May 12th, aged 75. He was born at Tralee on April 8th, 1859, was educated at Trinity College, Dublin, where he graduated B.A. in 1884, M.B., Ch.B. in 1885, and took the D.P.H. in 1903, and entered the R.A.M.C. as surgeon on February 5th, 1887. He became major after twelve years' service, and retired on June 27th, 1908. He served in the Sierra Leone campaign of 1898-9, in the Mendiland expedition, receiving the medal with clasp; and in the South African War in 1899-1901, when he took part in operations in the Orange River Colony and in the Transvaal, and received the Queen's medal with three clasps.

Universities and Colleges

UNIVERSITY OF OXFORD

The Theodore Williams Scholarship in Pathology, 1934, has been awarded to D. F. G. Moir (Magdalen).

UNIVERSITY OF LONDON

A meeting of the Court was held on July 4th, with the chairman (Lord Macmillan) presiding. The Court considered the tenders from seven selected firms for the superstructure of the first of the buildings to be erected on the University's site in Bloomsbury. The lowest tender received—namely, that of £362,579, from Messrs. Holland and Hannen and Cubitts—was accepted. A condition of the contract will be the use throughout of materials obtained from sources within the British Empire. The contract now to be entered into will provide for the building of the Senate House and administrative offices, a portion of the University Library, and certain works connected with the University Hall; but the University will have the option to extend the contract to cover additional works. The date for completion is March 25th, 1936.

The Senate has nominated Lieut.-Colonel J. R. Forrest, R.A.M.C. (ret.), for appointment as governor of the Purley County Secondary School for Boys.

The following have been recognized as teachers of the subjects indicated in parentheses, and have been assigned to the Faculty of Medicine: Dr. W. M. Goldblatt (Physiology), St. Thomas's Hospital Medical School; Mr. W. D. Doherty, Mr. N. L. Eckhoff, and Mr. G. Massie (Surgery), Dr. L. Forman (Dermatology), Mr. G. F. Gibbard (Obstetrics and Gynaecology), Dr. A. C. Hampson (Medicine), Mr. V. E. Lloyd (Venereal Diseases), Guy's Hospital Medical School; Mr. M. F. Nicholls (Surgery), St. George's Hospital Medical School; Dr. A. Burnas (Dermatology), Mr. A. M. A. Moore (Surgery), London Hospital Medical College; Dr. Alan Moncrieff (Diseases of Children), Middlesex Hospital Medical School; Mr. C. W. Flemming and Mr. A. J. Gardham (Surgery), Mr. M. L. Forbny, Mr. H. A. Kisch, and Mr. F. W. Wathyn-Thomas (Oto-rhino-laryngology), Dr. W. N. Goldsmith (Dermatology), Dr. M. Mairéls (Pathology), Mr. C. D. Shapland (Ophthalmology), Mr. N. L. White (Obstetrics and Gynaecology), University College Hospital Medical School; Sir Norman G. Bennett, M.B., B.Ch. (Dental Surgery), London School of Dental Surgery.

The Senate on June 20th resolved to institute a University Chair of Chemical Pathology, tenable at London Hospital Medical College.

A resolution was passed by the Senate conveying to Professor Karl Pearson its cordial thanks for his gift of £440 to establish a fund for statistical and allied topics.

Professor C. Lewitt Evans, F.R.S., was appointed a member of the University College Committee, as from October 1st, for the remainder of the year ending February 28th, 1935, vice Professor E. B. Vincent, who has resigned as from September 30th, the date of his appointment to the School of Botany in Pharmacology in the University of Cambridge.

Graham Legacy

The Senate received the annual report of the Graham Legacy Committee for the year ending August, 1934, from which the following are extracts:

1. The general purpose for which the Graham Fund was founded is to aid research in the school of advanced medical studies connected with University College Hospital, and the Fund has for its object the prevention, cure, and alleviation of human disease and suffering.

2. The Graham Scholarship has been held by Dr. C. L. Oakley, and, since April 1st, by Dr. E. S. Duthie.

3. The activities of the laboratories continue along the usual lines. Apart from the gentlemen who receive definite grants for the expense of their investigations, most of those engaged in research in University College Hospital Medical School are substantially assisted by the facilities and equipment provided by the Fund. Grants amounting to £90 were made by the committee to seven workers, who have been engaged in the following inquiries: C. Bolton, (a) absorption from the intestine, (b) acidity of the stomach; A. E. Boycott and C. L. Oakley, transfusion; G. R. Cameron, inflammation in lower animals; G. R. Cameron and C. L. Oakley, tissue reaction to grafts; E. S. Duthie, antimucic sera; J. W. McNee, the pathology of the spleen and liver; F. H. Teale, humoral and cellular immunity.

Professor A. E. Boycott, F.R.S., was reappointed director of research under the Charles Graham Medical Research Scheme for a period of one year from September 1st. Dr. A. M. H. Gray has been elected chairman of the Graham Legacy Committee for 1934-5.

LONDON HOSPITAL MEDICAL COLLEGE

The "Price" Entrance Scholarship in Anatomy and Physiology, value £100, open to students of the Universities of Oxford and Cambridge, has been awarded to C. B. Willey of Balliol College, Oxford.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—N. L. Corkill, V. C. Cornwall, J. M. Erskine-Young, L. Findlay, H. G. Hanley, E. Hughes, E. R. Jones, D. H. Mills, G. W. Phillips, E. R. Smith.

M.B., Ch.B.—¹ Margaret F. Procter, ² E. W. Jones. *Part B (1924 Regulations):* A. B. Concanon, T. H. Pierce. *Part III (1929 Regulations):* Bessie Dodd, Jannett C. Evans, Kathleen M. Kavanagh, J. L. Lancelley, Annie A. Merrick, W. J. D. Scott. *Part I:* L. V. Arundel, D. Barton, C. H. H. Bryson, P. S. Byrne, H. Cantor, Eunice M. Clapham, J. B. David, T. M. Doran, Mabel M. Drummond, Beryl Edgcombe, G. H. Elledge, A. Fairbairn, H. Gewater, ³ J. Gill, ⁴ F. Harwood, ⁵ L. Henry, G. E. Hesketh, A. B. Higginson, Clarice Hughes, Gwendolien M. Hughes, T. Laithwaite, J. Leiper, ⁶ H. R. W. Lunt, K. S. E. MacRae, J. V. Manning, N. E. Mawby, G. D. Owen, Kathleen M. Pearson, M. N. Phillips, G. Platt, B. Polonsky, D. M. Rosenfeld, A. Simpkin, ⁷ A. Singer, W. S. Sutton, A. C. T. Vaughan, Joan Watts, R. E. D. Wheeler. *Passed in Individual Subject:* R. P. Harbord, F. Lancelley, T. E. Whitby (Pharmacology and General Therapeutics). *Part II:* Agnes Y. Bowie, ⁸ A. C. Brewer, J. L. Brown, ⁹ A. Cohen, G. V. Craine, C. F. Crampton, H. W. F. Croft, H. R. G. Davies, Phillis Dingle, ¹⁰ V. K. Drennan, B. J. Green, S. G. Griffin, R. L. Hartley, Clarice Hughes, ¹¹ J. E. E. Hughes, Mary M. Hurst, G. E. Jones, Joan G. Jones, E. W. Knowles, H. S. Lancelley, Ethna W. Little, Sheelah Little, G. B. Marsden, A. G. H. Menzies, F. R. Neubert, ¹² W. Parke, Margaret I. Roberts, ¹³ J. G. Rogers, A. R. Sibbald, Henrietta Sloan, E. G. Watson.

D.P.H.—Part I: G. McLoughlin. *Part II:* G. Clark, ¹⁴ T. L. Hughes, E. R. Jones, J. A. Jones, F. Langford, E. R. Smith, ¹⁵ V. J. Woodward.

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—Part B: T. N. Fogarty, J. W. H. Foy, S. K. Sahay.

DIPLOMA IN TROPICAL HYGIENE.—A. R. Arulpragasam, I. H. B. Ghosh, C. C. Ling, J. S. McMillan, T. A. Malone.

¹ Second-class honours. ² Distinction in Surgery. ³ Distinction in Obstetrics and Gynaecology. ⁴ Distinction in Pathology. ⁵ Distinction in Pharmacology and General Therapeutics. ⁶ Distinction in Forensic Medicine and Toxicology. ⁷ Distinction in Public Health. ⁸ With distinction.

VICTORIA UNIVERSITY OF MANCHESTER

In the Faculty of Medicine the status of Dr. C. Paget Lapage, F.R.C.P., has been changed from Lecturer to Reader in Diseases of Children, dating from September, 1934.

Dr. J. F. Heslop and Dr. E. Vernon have been appointed Demonstrators in Anatomy and Mr. J. Devine Demonstrator in Physiological Chemistry.

The following candidates have been approved at the examinations indicated:

M.D.—*By Thesis:* C. N. Aldred, Marguerite E. Cliffe, ¹ E. A. Gerrard, E. R. W. Gilmore, J. M. Greenwood, E. F. Hill (gold medal), G. Lapage, ² W. H. Newton, G. Ramage, B. R. Sandford. *By Examination:* B. Dunkerley.

Ch.M.—Branch IV: W. B. McKelvie.

*FR.M.S., Ch.B.—*³ D. H. Mackay, ⁴ H. Baker, Monica D. Boyle, A. S. Bullough, W. P. Carrill, N. Copeland, J. D. H. Cran, D. D. Cranna, Annie M. Dawson, I. H. Flack, N. Goldstone, H. Harris, Eileen M. Hughes, F. Janus, N. F. Kirkman, Amy B. de V. Mather, G. H. Moore, ⁵ E. L. Patterson, R. Spencer,

⁶ J. A. A. L. Woodhead. *Part I (Forensic Medicine and Hygiene and Preventive Medicine):* Monica D. Boyle, J. Charnley, Eleanor B. Clarke, Mary A. C. Cowell, T. F. Davey, F. P. Ellis, W. Fielding, F. I. Firth, S. Franks, E. Greenhalgh, G. D. Harthan, E. H. Heilpern, H. K. Higson, A. D. Hoffmann, L. L. Hudson, J. I. A. Jamieson, W. E. Kershaw, A. F. Mackay, R. Mallinson, J. L. Morgan, Annie Nelstrop, R. L. Parish, C. S. Parker, J. N. Parker, G. R. Rhodes, L. Margaret Ross, C. Royle, H. L. Settle, J. N. Shepherd, D. Shute, R. Thornley, H. J. Wade, J. R. Wardley, Margaret I. Williams.

* With commendation.

† With second-class honours.

‡ Distinction in Medicine.

§ Distinction in Forensic Medicine.

UNIVERSITY OF LEEDS

At a congregation held on July 2nd the honorary degree of D.Sc. was conferred upon J. Shaw Bolton, M.D., F.R.C.P., medical director of the West Riding Mental Hospital, and until recently professor of mental diseases in the University of Leeds; and upon Sir Robert Muir, M.D., F.R.S., professor of pathology in the University of Glasgow.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.B., B.Ch., B.A.O.—V. J. Dillon (second-class honours), R. T. Ahern, R. G. Cross, G. A. P. Hurley, B. Hutch, H. L. Lentin, M. J. McCarthy, C. P. O'Flynn, M. J. O'Sullivan. *Part I:* J. Cogan, J. J. Hurley, T. P. O'Brien, T. P. O'Connor, D. G. O'Driscoll, Catherine M. Sullivan, T. Sutton. *Part II:* B. Buckley, D. J. Burgess, M. D. Hegarty, J. F. McCarthy, T. J. Mullins. M.D.—J. Magner, J. H. Stritch. M.Ch.—M. McSwiney.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Election to the Council

On July 5th four Fellows were elected into the Council to fill the vacancies occasioned by the retirement in rotation of Mr. Ernest W. Hey Groves, Mr. G. Grey Turner, and Mr. Hugh Lett, and by the death of Mr. R. P. Rowlands. The result of the poll was as follows:

	Votes	Plumbers
GEORGE GREY TURNER (Newcastle-on-Tyne)	803	6
ERNEST WILLIAM HEY GROVES (Bristol)	841	3
HUGH LETT (London Hospital)	734	43
WILLIAM GIRLING BALL (St. Bartholomew's)	584	61
Ernest Cranmer Hughes	445	27
Alfred William Sheen	298	6
Duncan Campbell Lloyd Fitzwilliams	240	10
Gwynne Evan Owen Williams	210	13

In all 1,995 Fellows voted, including 210 resident out of Great Britain and Ireland; in addition nine votes were found to be invalid, and two were received too late.

Mr. Girling Ball becomes substitute member of Council for the late Mr. Rowlands until 1938.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Prophit Scholarship for Research in Tuberculosis

The Royal College of Physicians invites applications for the above scholarship, which will be appointed as from October next. The scholar will be responsible for the conduct of a survey into the incidence and progress of tuberculosis in selected sections of the community, by clinical examination and tuberculin testing, over a period of years. Radiological examinations will also be carried out, but not necessarily by the scholar. A medical qualification and some experience of tuberculosis are required. The scholarship will be renewable from year to year, and is worth £500 per annum, with an allowance for expenses. Applications, which must be received before September 1st, should be addressed to the Assistant Registrar, Royal College of Physicians, Pall Mall East, S.W., from whom further particulars may be obtained.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly business meeting of the College, held on July 6th, the following candidates, who had passed the Final Professional Examination under the conjoint scheme with the Royal College of Surgeons in Ireland, were duly admitted licentiates in medicine and midwifery of the College:

C. K. Byrnes, J. F. Cotter, G. J. Kelly, Phyllis I. Kelly, Margaret McCarthy, D. D. O'Brien, R. V. Phillipson, Muriel M. Smiddy, M. L. Zlotover

Obituary

SIR JAMES K. FOWLER, K.C.V.O., C.M.G.,

M.D., D.Sc., F.R.C.P.

Consulting Physician to the Middlesex Hospital, King Edward VII Sanatorium, and the Brompton Hospital

James Kingston Fowler, who died on July 3rd, was born at Woburn, Bedfordshire, on March 11th, 1852. He was educated at King's College, London, where he held the Warneford Scholarship and Fellowship, and later became a member of Gonville and Caius College, Cambridge. His first qualification was the M.R.C.S. in 1874, the L.R.C.P. following in 1876. His university degree came in 1879. He was house-surgeon and house-physician at King's College Hospital in 1874-6, and house-physician at Addenbrooke's Hospital, Cambridge, 1877-9. After a brief period on the staff of the Westminster Hospital he was appointed pathologist and curator of the museum at the Middlesex Hospital, and in 1885 lecturer on pathological anatomy. In 1880 he was appointed assistant physician to the Middlesex Hospital, and physician in 1891, and he held the post of joint lecturer in the practice of medicine from 1899 until his election as consulting physician and emeritus lecturer in 1913. His connexion with Brompton Hospital for Diseases of the Chest began in 1880, and after some years as assistant physician he was promoted full physician.

In 1898 appeared his work on *Diseases of the Lungs*, written in conjunction with Sir Rickman Godlee. The idea of such a conjunction of physician and surgeon in writing a book on diseases of the lungs was to endeavour to present a continuous picture of medical and surgical aspects of pulmonary disease. In order to obviate any doubt that might arise as to which of the two was expressing an opinion or recommending a particular method of treatment, each chapter bore the initials of the author responsible for it. No subsequent edition of this jointly written book appeared. In 1921 Fowler published his monograph on *Pulmonary Tuberculosis*. This contained some matter already published by him, but much of it was new, and was presented in a novel and attractive way for students and young practitioners. It did not pretend to be an exhaustive treatise—more a guide to safe diagnosis and treatment. He used the title of the book with satisfaction because he had warred, he said, at first alone, for thirty years against the use of the terms "phthisis" and "consumption." He wanted to systematize the use of the term "tuberculosis," applying it to this disease with various locating adjectives—laryngeal, meningeal—to describe the exact nature of the lesion. The style of the book was based on Sir Thomas Watson's classical work, *The Practice of Physic*, on which Fowler was brought up. The book certainly gives a most readable and useful account of pulmonary tuberculosis. It is all the more attractive to

those for whom it was written because the reader is not bothered with a wealth of authorities—mostly at that date German. He wrote the articles on emphysema and syphilis of the lungs in Allbutt's *System of Medicine* in 1898 and 1909.

At the Annual Meeting of the British Medical Association in 1891 Fowler was vice-president of the Section of Pathology, and in 1903 vice-president of the Section of Medicine. In 1908 he delivered the Address in Medicine at the Sheffield meeting of the Association. This was the period when so much was being done with the opsonic index by Sir Almroth Wright and his followers, and, not unnaturally, the address, which was on vaccine therapy, dealt exhaustively with the subject. In that year he held office as president of the Medical Society of London, and he had been elected honorary physician to the King Edward VII Sanatorium. For some time he served on the Colonial Advisory Medical and Sanitary Committee and on the Committee on Colonial Medical Appointments. In 1913 he was appointed a member of the West African Yellow Fever Commission, having as colleagues Sir William Leishman, Sir Ronald Ross, and Sir William Simpson. The Commission was not to proceed to Africa, but to study and report on evidence collected by the various men working there. The reports were published in the following year.

Fowler was one of the senior members of the Senate of the University of London, and had served for a period as dean of the Faculty of Medicine. He was also a member of the Governing Body of the Lister Institute, and had been examiner in medicine for the English Conjoint Board and for the University of Cambridge.

He was created K.C.V.O. in 1910, after having been in attendance on the late Prince Francis of Teck, who had done very fine work for the Middlesex Hospital. There

had been some misconception about the illness of the Prince, in the treatment of which Sir Alfred Pearce Gould had been associated with Fowler, so the facts were published in the medical journals. Fowler was one of those who gave strong support to Marcus Paterson in starting graduated work in the routine treatment of pulmonary tuberculosis at Frimley Sanatorium, and he was much interested in the work of King Edward VII Sanatorium at Midhurst and the Papworth Tuberculosis Colony. In his earlier days he was consulted by Cecil Rhodes, who originally went to South Africa because he was thought to be threatened with tuberculosis.

On the outbreak of war in 1914 Sir James Fowler was on the *à la suite* staff of the 3rd London Territorial General Hospital, and he served for a time in France as consulting physician for the Rouen base with the rank of Colonel A.M.S. On returning to London he was attached to the Queen Alexandra Military Hospital, Millbank. He was awarded the C.M.G. for his services during the war.

Sir James Fowler was unmarried. At the Beefsteak Club, where he often dined in former years, he met



many prominent men. Before he was knighted he always insisted on being called "Mr.," his idea being that he might thus discourage conversation from drifting to medical subjects. One of his close friends was the late Sir Otto Beit, in whose benefactions for medical research he took a deep interest, and he was for many years one of the Beit Memorial Trustees and honorary secretary of that body. An intimate friendship with the second Lord Montagu of Beaulieu led Fowler to promise in an "incautious moment" to write a short guide to Beaulieu Abbey in the New Forest. He had had placed at his disposal unpublished manuscripts bearing on the history of the Abbey, and this led to a short guide becoming a monograph of 226 pages. *A History of Beaulieu Abbey, A.D. 1204-1539* (published in 1911) is a very fine and handsomely illustrated account of the Abbey of Bellus Locus Regis, as it was called in the original charter. Besides telling the story of the Abbey through the centuries, with pictures of what remains of it now and restorations of what it was in all its glory, the book gives an account of the Cistercian monks, who had founded this and seventy-four other abbeys and twenty-six nunneries in Great Britain by the time Wolsey and Henry VIII laid their heavy hands on the monasteries. The proceeds of the sale of the book were devoted to the care and maintenance of the building of the Abbey. Fowler lived in his later years of life when out of town at the Warden's Lodge, Beaulieu, and published in 1923 a much smaller work—*Hayles and Beaulieu: A Brief History and Guide to Hayles Abbey, a Daughter House of Beaulieu*. In his youth he was much interested in falconry, and used to go down to hawking meetings on Salisbury Plain.

[The photograph reproduced is by Elliott and Fry Ltd.]

ARTHUR BERNARD CRIDLAND, F.R.C.S.Ed.

Vice-President, Ophthalmological Society of the United Kingdom

The death of Mr. A. B. Cridland of Wolverhampton at the age of 61 years, on June 29th, came as a shock to a wide circle of friends and colleagues. The son of Mr. Arthur Cridland of Clifton, Bristol, he was educated at Clifton College, Bristol Medical School, and St. Mary's Hospital, London. He qualified M.R.C.S.Eng., L.R.C.P. Lond. in 1898, and later took the F.R.C.S.Ed. and the D.O.Oxon.

Cridland's appointment to the Bristol Eye Hospital as house-surgeon in the early 'nineties, when he came under the influence of Mr. Richardson Cross, determined his future career. In 1903 he was appointed house-surgeon at the Wolverhampton and Midland Counties Eye Infirmary, and shortly afterwards began to practise in Wolverhampton and Stafford. In 1904 he became honorary assistant surgeon to the Wolverhampton Eye Infirmary, and seven years later honorary surgeon, a post he held at the time of his death. A presentation of silver from the Managing Committee and Ladies' Committee was made to him and his wife in March, 1933, on the occasion of their silver wedding. In 1921 he was made consulting ophthalmic surgeon to the Royal Hospital, Wolverhampton, and when the ophthalmic department of the Staffordshire General Infirmary was inaugurated in 1905 he became its first honorary ophthalmic surgeon. During the past year he accepted a similar appointment to the Bridgnorth and South Shropshire Infirmary.

Mr. Cridland joined the British Medical Association in 1900, and was chairman of the South Staffordshire Division in 1927-8. He was vice-president of the Ophthalmological Society of the United Kingdom, and owing to the illness of the president presided at its last session in April of this year. He was also a vice-president of the Ophthalmic Section of the Royal Society of Medicine, and

a member of the French Ophthalmological Society. His past offices were numerous, notably Master of the Oxford Ophthalmological Congress for three years, president of the Midland Ophthalmological Society, and vice-chairman of the Council of British Ophthalmologists. He delivered the Middlemore Lecture at Birmingham in 1917, and the Doyné Memorial Lecture at Oxford in 1933. Special mention must be made of his most valuable services for fifteen years as honorary secretary of the Oxford Ophthalmological Congress. In this he was seen at his best, and was universally popular. When he retired the members, in an enthusiastic gathering, presented him with a gold watch and a canteen of silver. This well-deserved mark of appreciation of his work gave him the keenest pleasure, but it was characteristic of his modesty that he remarked to the writer that he did not think he deserved such a valuable present, as he had always enjoyed the work. When the International Association for the Prevention of Blindness was founded at The Hague in 1929, Cridland was appointed to represent Great Britain on the Executive Committee. He was also a member of the Union of Counties Association for the Blind and a medical referee on the Midland Circuit. During the South African War he was a civil surgeon to the Princess Christian Hospital of the Natal Field Force.

Truly this list of public activities is one of which any man might well be proud, and there is little doubt that the unsparring devotion he gave to them and to a large and successful private practice taxed his strength, and was a factor in bringing to an untimely end a most useful life and a very successful career. Practising as he did in a large industrial area, it was natural that he should be especially interested in injuries of the eye, and his Doyné Memorial Lecture dealt with "The Aftermath of Cases of Intra-ocular Foreign Body." Based on his own experience, it is the type of paper which is of lasting value. Cridland made other contributions to ophthalmic literature, a detailed mention of which space forbids, but one may just mention his interest in the use of the tonometer in its early days, and his advocacy of Lagrange's sclerectomy operation for glaucoma.

Bernard Cridland leaves a widow, two sons, and two daughters. It is pleasing to recall that he was very happy in his married life and devoted to his children. His wife usually accompanied him, when possible, to Oxford, where she was extremely popular with the members of the congress and their wives, and much sympathy will be felt for her in her sad loss by a wide circle of friends.

Lieut.-Colonel A. E. J. LISTER, F.R.C.S., I.M.S. (ret.), late professor of ophthalmology, King George's Medical College, Lucknow, writes:

On behalf of myself and many ophthalmologists practising or who have practised over-seas, may I be allowed to pay a brief tribute to the memory of my friend Bernard Cridland. Many of us looked forward to the Oxford Ophthalmological Congress on our next leave home, and not the least pleasant part of it was the genial welcome we always received from Cridland. He seemed to delight in making everyone happy. Nothing was too much trouble for him, yet he was never in the least fussy or obtrusive. What his work for so many years, as honorary secretary, meant to the Oxford Congress is now a matter of history, and was fittingly crowned by his being made Master of it in due course. We overseas members, after a first visit, all looked upon him as a friend, and if we wrote to him, as many did, we were sure of a prompt and helpful reply. Others will deal with other aspects of Cridland's career, but I am sure that these few words, however inadequate, will be endorsed by many ophthalmologists.

logists throughout the world. His wife was always his equal in friendliness and geniality, and it may be some slight consolation to her to know that many others will mourn with her when the news reaches them over-seas, and that their sympathy, though in many cases perhaps unexpressed, will be none the less real.

NEWMAN NEILD, M.B., F.R.C.P.

Physician, Bristol General Hospital

Dr. Newman Neild, senior physician to the Bristol General Hospital, died suddenly on July 4th, at the age of 62 years, deeply regretted in Bristol and the neighbourhood, where he was widely known.

Newman Neild was born in Manchester in 1872, where his father was principal of Dalton Hall. He was educated at Bootham School, York, and later entered, as a medical student, Owens College, Manchester, taking the degrees of M.B., Ch.B.Vict., with honours, in 1896. He held resident appointments at the Manchester Royal Infirmary, the Brompton Hospital for Consumption, and the Great Ormond Street Hospital for Sick Children. He settled to practise in Bristol, and in 1901 was appointed assistant physician at the General Hospital, where he laboured for nearly eighteen years as an out-patient physician without beds. In October, 1918, he was promoted to be full physician. He was for many years lecturer in charge of the department of pharmacology and therapeutics. In 1907 he became M.R.C.P.Lond., and in 1928 was elected a Fellow. He was an examiner for the Conjoint Board in materia medica and pharmacology from 1928 to 1932, and also in the University of Birmingham and Bristol. For many years he was honorary physician to the Clergy Daughters' School, Bristol.

He had rendered long and magnificent service to the British Medical Association as honorary secretary of the Bath and Bristol Branch (junior, 1905-13; senior, 1914-23); secretary and treasurer, Bristol Division, 1905-14; secretary only, 1915-22; president, Bath and Bristol Branch, 1923-4; representative, 1916-18 (London). His consideration for, and devotion to, his hospital patients bore witness to an inspiring zeal, which remained undiminished in spite of impaired health and a period of sanatorium residence.

Although immensely interested both in the practice and in the teaching of medicine, Neild was a man of many-sided interests. He was a clever, accurate pencil draughtsman, a connoisseur of paintings and engravings, a knowledgeable collector of china, and the proud possessor of a rare collection of old herbals and botanical books. He was of a cheerful disposition, and dearly loved a good story, whilst a satirical vein sometimes made his wit cut more deeply than he intended. Yet he always had a kindness of heart that showed in many ready acts of generosity and sympathy. Newman Neild was a sturdy fighter with a streak of obstinacy, which was occasionally of the greatest value in fighting the battles of the British Medical Association. He leaves a widow and two daughters, with whom deep sympathy is felt.

DAVID ROSS, M.D.

Past-Chairman, City Division

We have to record with regret the death on July 4th, at his home in Kingsland Road, London, E., of Dr. David Ross, who was well known to many members as a strong supporter of the British Medical Association and an active worker in the City Division. David Ross was born in 1872, and studied medicine in Aberdeen and at St. Bartholomew's Hospital. He graduated M.B., C.M. (Aberd.) with honours in 1894, and proceeded M.D. in 1898 with the highest honours. In addition to carrying on a large practice in the Kingsland Road, he maintained his con-

nexion with his university, being an interim examiner in materia medica. His capacity for organization found an outlet in work for the Hackney School Treatment Centre, of which he was honorary secretary and treasurer, and also in the proceedings of medical societies. He was a vice-president of the Hunterian Society, and honorary secretary (late president) of the Aesculapian Society. During the war he held a temporary commission in the R.A.M.C., and was later vice-chairman of the National Service Medical Board for the City of London. He was also closely connected with the Metropolitan Hospital, of which he had been honorary medical officer. He had published various papers on clinical topics. Dr. Ross joined the British Medical Association in 1909, and was a member of the Representative Body at the Annual Meetings at Cambridge, Glasgow, Portsmouth, Bradford, Bath, and the two London meetings. He had been chairman of the City Division, and was a member of the Council of the Association in 1920-1.

Dr. ERNEST WORLEY writes: By the not unexpected death of Dr. David Ross the City Division has lost one of its oldest and certainly its most active and respected member. Ross held every official position at one time or another—chairman, secretary, representative—and each with the greatest possible success. Known by those of us who knew him intimately as a man of wide and deep learning, he had travelled extensively—an extremely able and interesting debater at all our meetings, and one whose views were always worth listening to. His advice and help has always been one of our greatest assets during the last twenty years—a most loyal supporter of the Association, even though he would never have anything to do with the panel service. He never missed an Annual Meeting to my knowledge except through ill-health. The loss to the Division is incalculable. Ross was my oldest and most esteemed friend.

ALEXANDER THEODORE BRAND, M.D.

Driffeld

We regret to record the death, on June 23rd, of Dr. A. T. Brand; his passing removes one of the outstanding personalities of East Yorkshire. Born in Chicago in 1852, of Scottish parentage, he graduated M.B., C.M. with honours at Aberdeen in 1881, and subsequently studied in Vienna and in London. He obtained the degree of M.D. (Aberd.) in 1884, after starting practice at Driffeld in 1882, where he succeeded the late Dr. Eames. He retired in 1927, after forty-five years of busy and successful life in general practice, during which time he won the love and esteem not only of his patients but of the whole district, in the affairs of which he played a prominent part. Among his public appointments he held the post of medical officer to the Driffeld and District Poor Law Infirmary for many years, and his devoted work there will long be remembered. In 1901 he was made a justice of the peace for the Bainton Beacon Division, and continued to sit on the Bench until a few weeks from his death, at which time he was the oldest magistrate, both in age and in years of service, and filled the office of vice-president.

Dr. Brand was a member of the British Medical Association for nearly fifty-two years, being president of the East Yorks and North Lincolnshire Branch in 1902-3. During the war he held the rank of major in the R.A.M.C., and commanded the No. 2 East Yorks Field Ambulance; he had previously been awarded the Volunteer Decoration. His chief medical interest concerned the origin of cancer, upon which subject he had both read and written widely. He held firmly to the opinion that malignant disease was due to a micro-organism, and was always eager, even to the time of his death, to discuss this subject with a

colleague, and to set forth sound arguments in favour of the theory. His book on *Cancer: Its Cause, Treatment, and Prevention*, published in 1922, gives a clear exposition of his views on this subject. He was also joint author with his partner, Dr. J. R. Keith, of a valuable book—*Clinical Memoranda*—which contains most useful and original information, culled from his vast clinical experience in general practice. Apart from his professional work he was an enthusiastic Freemason, and an authority on the subject. He had held every office open to him, and was three times Worshipful Master of the 'Sykes Lodge'. He is survived by his second wife, four daughters, and a son, who is also in the medical profession, as a major in the R.A.M.C.

On June 21st the death occurred, in St. Thomas's Hospital, London, whither he had gone for treatment several weeks before, of Dr. ALAN DEED BRUNWIN, a senior consultant tuberculosis officer of the Lancashire County Council. He was 55 years of age, and resided at Lancaster. Dr. Brunwin graduated at Cambridge as M.A. in 1903, B.Ch. in 1906, and M.D. in 1909. He received his medical and surgical training at St. Thomas's Hospital. In 1910 he took the D.P.H. at Aberdeen. His early appointments were resident medical officer of the Denbighshire Infirmary, and then Government medical officer in Fiji. From experience in this island he contributed two papers to the *Journal of Tropical Medicine*: "Observations on Santonin Treatment of Dysentery," and "Some Aspects of Filariasis in Fiji." After a period as assistant medical officer of the Westmorland Sanatorium at Meathop he joined, in 1913, the medical staff of the Lancashire County Council as consultant tuberculosis officer. His appointment for several years was joint with Blackpool Corporation. From November, 1914, until February, 1919, he held a temporary commission in the R.A.M.C., and was heart specialist on the staff of the hospital at Etaples in France, provided and organized by the Order of St. John of Jerusalem, and of which Colonel C. J. Trimble, the present chairman of the Lancashire County Tuberculosis Committee, was in command. Brunwin published in the *Practitioner* in 1921 an article on "Electrocardiography on Active Service." On his return from war service he took control of one of the five large dispensary areas in Lancashire, containing a population of 267,000, and an acreage of 303,000, with a pulmonary hospital at Lancaster and dispensaries at Lancaster, Preston, and Chorley. His relations with the medical practitioners, medical officers of health, and medical officers of institutions were ever of the most friendly nature; his clinical abilities ensured the complete confidence of all his medical colleagues. With the late Dr. Logan Stewart he did the pioneer work in regard to the treatment of tuberculosis by artificial light at centres established in tuberculosis dispensaries, and the results were published jointly in *Tubercle*, 1928, under the title "Artificial Light Treatment at Tuberculosis Dispensaries in Lancashire." Dr. G. Lissant Cox, the central tuberculosis officer, writes: Brunwin came of a family long connected with the county of Essex. Urbane and kind, possessed of attractive social qualities and a sure knowledge of all aspects of his chosen specialty, tuberculosis, he will be greatly missed by all his colleagues, his patients, and his many friends.

We regret to record the death on June 27th of Dr. HENRY DARVILLE BROOK of Fareham, Hampshire. Born in 1862, he received his medical education at St. Thomas's Hospital, obtaining the diplomas M.R.C.S., L.R.C.P. in 1887. Public health attracted him early in his career, and he became D.P.H. in 1890. He was a well-known and popular resident in Fareham, where he was medical officer of health and public vaccinator. As lecturer and examiner for the St. John Ambulance Association he rendered exceptional service, and was appointed an honorary associate of the Order of St. John of Jerusalem. During the war he held the commission of lieutenant-

colonel in the R.A.M.C. T.A., as officer in command of the 2nd/3rd Wessex Field Ambulance, and was later A.D.M.S., 55th Division, B.E.F., in France, with the temporary rank of colonel. He held the Volunteer Decoration, and was a deputy lieutenant for Hampshire. One of Dr. Brook's outstanding hobbies was marksmanship, and he was a member of the Hampshire Rifle Association and the Portsmouth and District Rifle Club. He was also medical officer to the fire brigade, the Post Office, and the local industrial home. He was a member of the British Medical Association. The remains were cremated, and the ashes were scattered on the Bisley ranges in accordance with his special desire.

Dr. OCTAVIUS AUGUSTUS GLASIER COLLINS, formerly acting medical officer of health for Bath, died recently in that city at an advanced age. He received his medical education at St. Bartholomew's Hospital, where he qualified M.R.C.S. Eng. in 1882. In the following year he obtained the diplomas L.R.C.P. Lond. and L.M. of the Rotunda Hospital, Dublin, graduating B.C. Cantab in 1887. For many years Dr. Collins had been connected with the Bath Isolation Hospital, and up to the time of his death was consulting medical officer to the Eastern Dispensary. He had on various occasions assisted Dr. W. H. Symons, medical officer of health for Bath, and from 1917 to 1919 was acting medical officer of health. He retired from general practice in the early 'twenties.

Medico-Legal

AN "ENCYCLOPAEDIA OF SEXUAL KNOWLEDGE"

Summons by Director of Public Prosecutions

At Bow Street police court on June 28th, before Mr. Dummeth, the Amalgamated Publicity Services, Ltd., of Bucknall Street, W.C., appeared to answer a summons taken out by the Director of Public Prosecutions, charging them with having sent a postal packet enclosing indecent prints, contrary to Section 63 of the Post Office Act, 1908.

Mr. C. R. V. Wallace, who appeared for the Director, stated that on May 23rd a Mr. Murray, a solicitor, received through the post a pamphlet advertising a publication called "Encyclopaedia of Sexual Knowledge," and it appeared that a very large number of these had been dispatched. The attention of the magistrate was drawn to certain passages, and counsel submitted that the whole pamphlet was indecent.

Mr. Malcolm Hilbery, K.C., for the defendants, said that the case was not as simple as it might appear. The Act laid it down that indecent or obscene matter must not be sent through the post. He submitted that it was not the subject-matter of a publication which would make it indecent, but the manner in which it was treated. What was intended to be a plain statement, giving information, was not capable of being held to be indecent or obscene, but it must be something intended to affect the mind salaciously. The present pamphlet was no more than an absolutely plain statement on sexual topics. There had always been great differences of opinion as to how far sexual subjects should be frankly discussed, but to-day a considerable body of public opinion was in favour of the plainest talk. The same plain statements as appeared in the pamphlet were to be found in standard dictionaries under words connected with sex subjects, but it would not be suggested that the publishers of such dictionaries were circulating indecent matter. The only test, he could suggest was as to what the man of ordinary intelligence expected on reading something of this sort. The book, a bulky volume of fairly high price, was not intended for the prurient, but simply for the reasonable information of the public on a subject of high concern. It was impossible, of course, to approach such a topic without plain speaking, but while such approach was distasteful it need not be indecent.

Mr. A. Chadwick, chairman and manager of the defendant company, which had been in the publishing business for twenty-two years, said that his firm made careful inquiries beforehand as to the contents of the encyclopaedia and those responsible for its publication. The pamphlet was sent to

various classes of official and professional persons whose names were selected from directories. It was revised and extensively altered by the editor, Dr. Haire, before being sent out. The witness said he was chairman of the Public Library Committee of the Bromley Borough Council, and he produced a list of books available for borrowers in that library which dealt with sex education. The Library Committee took account of suggestions from readers, if satisfied that the desired books were proper ones. There was nothing in the encyclopaedia different from books in this public library. He added that rather more than a quarter of a million copies of the pamphlet had been circulated, but distribution ceased immediately the summons was received.

The magistrate said that he did not think this was a matter which should be decided hastily. He had not read the pamphlet, and he intended to keep a quite open mind until he had done so, and he would also try to get a little more light on the Section of the Post Office Act. He would give his decision in a week's time.

The magistrate gave his reserved decision on July 6th. He said that he had now had the opportunity of reading the pamphlet which advertised the "Encyclopaedia of Sexual Knowledge." So far as he knew, the book itself might be a scientific work, but the pamphlet stood on an altogether different footing. He was told that it had been circulated only to certain classes of people, educated people, who would not misunderstand what was intended to be conveyed. But the offence was that of sending indecent matter through the post, to whomsoever it was sent, and when it was put forward as a plea that it was only sent to certain classes of the community the implication was rather adverse to the defendants. The book might be a reputable work, but the pamphlet selected certain headings of chapters, and gave a preliminary account of certain subjects, emphasized by capital letters. The object of the pamphlet was evidently to increase the sale of the book by attracting the attention of members of the public whose interest in the subject was very far from being scientific. Accordingly he fined the defendants, the Amalgamated Publicity Services, Ltd., £10, and £3 3s. costs.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week debated agriculture, shipping, and colonial administration. The Shops Bill was down for report and third reading. A Standing Committee of the House began to examine the Betting and Lotteries Bill.

The South Middlesex and Richmond Joint Hospital District Bill, which has passed the House of Lords, was read a second time by the House of Commons on July 6th.

In the House of Lords, on July 10th, the Earl of Plymouth moved the second reading of the Road Traffic Bill. He said the Government had accepted an amendment in the House of Commons providing for the payment of fees to doctors in cases of emergency treatment. This was to be provided, irrespective of whether or not there was negligence on the part of the driver. It had been suggested that that was injustice, but, on the whole, the Government did not think it was comparable with the injustice which would be done to the medical profession if they were deprived of their fees in such cases. The Bill was read a second time.

General Medical Service

Mr. LEWELLYN-JONES, on July 5th, asked Sir Hilton Young if he was aware of a movement both in the medical profession and also among friendly societies and national health insurance organisations in support of the setting up of a complete medical service for the whole of the population of the country. Sir HURRY answered that proposals on this subject had been brought to his notice and were being examined. He could not indicate what action, if any, the Government might decide to take.

Expenditure on Medical Research

On July 9th Mr. DUFF COOPER, replying to Sir Robert Gower, said that the annual grant-in-aid of the Medical Research Council was £135,000 from 1925 to 1927 inclusive; £140,000 from 1928 to 1931 inclusive, and £139,000 in 1932 and 1933. Provision for a grant of £139,000 was included in the estimates for the current financial year. There were other contributions made by the State to medical research, but, apart from a grant of £100,000 in 1929 for the purchase of radium, it was not possible to give figures. Inclusive grants were paid to a number of universities, and considerable sums out of these grants were allocated by the university authorities to their medical schools, which included medical research among their activities. It was not possible to distinguish the amounts applied to this purpose. Medical researches were undertaken from time to time by the Ministry of Health and other Government Departments.

Research on Cattle Diseases

On July 9th, during the debate on the estimates for the Ministry of Agriculture, Dr. ELLIOT said that the estimates for the current financial year were for a net sum of £2,234,134. Of this £612,000 was for education and research and £180,000 for prevention of disease. The Department was expanding its staff to deal with what was recognized as an urgent necessity—namely, the saving of the great losses in the live-stock industry due to preventable disease. Mr. PERKINS asked the Minister what progress had been made in research into the cause and possible cure of foot-and-mouth disease. He suggested that instead of giving £16,500 every year to the various Government chemists and chemists in his Department, the Minister should offer a large bribe in the shape of a present of £250,000 or £500,000 to any individual chemist or biologist who could find out the cause of foot-and-mouth disease, and bring forward a definite cure. Sir W. WAYLAND asked if the Minister had any information to impart about John's disease, which was spreading through the country as it was throughout Europe. It meant the loss every year of an enormous number of cattle. There had been attempts at making various antitoxins, but they had not been successful. If more money were spent on research into the diseases of cattle and sheep we should not suffer the severe losses which we now did every year. Dr. Elliot said he could not give Mr. Perkins any definite information whether the Foot-and-Mouth Disease Committee had found out anything. It might be that the line which would give us a key to the problem was in some obscure research by a physicist who had no idea that he was working on anything that would be a key to a disease problem. He was a little dubious of the project of offering £250,000 or £500,000 as a gigantic prize. He had taken a note of what Sir W. Wayland had said about the necessity for continuing research, and particularly of the necessity for work about John's disease. Sir Merrik Burrell, who had given the Department a great deal of assistance, was working with his committee on all these questions of animal disease, and they had in him as capable an advocate of research as Sir W. Wayland would desire.

District Nursing Services

On July 10th Sir GERALD HURST obtained leave to introduce the Domiciliary Nursing Services Bill. He said that the Bill was intended to fill a gap in the existing laws which provided nursing facilities for the poor. Local authorities were not entitled at present to contribute to voluntary associations which provided district nurses for the care of the poor who could not pay for those services. In districts where there were no nursing associations the work of nursing unpaying patients went unfulfilled. Many cases of tuberculosis, cancer, and ulcer were, as a result, left without nursing. Owing to this disability imposed on the local authorities there was a shortage of district nurses. The Bill would enable local and county authorities to provide domiciliary nursing services for the inhabitants of their districts, to combine and pay nurses, to provide accommodation for them, and to make reasonable subscriptions and donations to voluntary associations.

Summoning a Doctor in Road Accidents

Mr. TEMPLE MORRIS, on July 9th, asked the Minister of Transport whether, in view of the proposed mulcting of a motorist of 12s. 6d. for the fee of a doctor when his car had been in collision with anyone, the doctor in each case would be summoned by the parties to the accident or by the police, and whether it was intended that any individual should have the right to communicate with a medical man. Captain AUSTEN HUDSON, who replied, said that the circumstances of accidents varied greatly, and a hard-and-fast rule on who had the right to summon medical assistance would involve dangerous delays.

Disease Carriers in Air Warfare

Mr. BALDWIN told Sir Nicholas Gratian-Doyle that the German Government had officially denied allegations that experiments were being made and plans perfected by the Luft-gas-angriff department for the destruction of human beings in war by aircraft carrying deadly disease germs, or that experiments had been made on the vulnerability of underground railways in London and Paris. The question of the vulnerability of underground railways in London was kept under constant observation as part of the general question of air raid precautions.

Safety Glass in Motor Vehicles.—Mr. HORE-BELISHA told Mr. Knight on July 4th that since January 1st, 1932, regulations had required, as regarded new vehicles, that all glass fitted to windcreens or windows facing to the front on the outside of any motor vehicle, except glass fitted to the upper deck of a double-decked vehicle, should be safety glass. He did not think it necessary to make use of such glass throughout public service vehicles compulsorily.

Pedal Cyclists in Road Accidents.—Replying to Viscountess Astor on July 4th, Mr. HORE-BELISHA said that the report on fatal accidents during the year 1933 showed that in that year 874 pedal cyclists were involved in fatal accidents which occurred in built-up areas. In 485 cases of fatal accidents in built-up areas the sole or main cause of the accident was the pedal cyclist.

Ambulance Services.—Sir HILTON YOUNG told Sir R. Gower, on July 5th, that a circular had been issued to local authorities last November on the general question of ambulance service. This was being followed by local investigations into the adequacy of the service in certain parts of the country. When he received the report on these investigations he would consider Sir Robert Gower's proposal to advise local authorities that applications from branches of the St. John Ambulance Brigade for the use of sites for casualty stations should receive favourable consideration from them.

Maternity Benefit and Poor Relief in Scotland.—On July 5th the House of Commons recommitted the Poor Law (Scotland) Bill. An amendment was moved to disregard maternity benefit in the assessment of Poor Law relief. Mr. SKELTON said he would accept the amendment, but its wording would have to be reconsidered in the House of Lords. The form of words as he suggested it at the moment ran:

"A local authority in affording outdoor relief to or in respect of any woman shall disregard the whole of any maternity benefit, exclusive of any increase of such benefit by way of additional benefit, or of any second maternity benefit to which she may be entitled under the last-mentioned Act, and the corresponding need shall also be so disregarded in the assessment of need."

The amendment thus worded was accepted, and the Bill passed through committee, report, and third reading.

Silicosis Disablement in South Wales.—Mr. ERNEST BROWN told Dr. John Williams on July 10th that between June 1st, 1931, when the Medical Board under the compensation scheme was appointed, and May 31st, 1934, 105 miners were certified by the Board as disabled from silicosis in the county of Carmarthen, and 279 in the remainder of the South Wales coalfield. The numbers of deaths certified by the Board were 26 and 37 respectively.

Medical News

The sixteenth annual meeting of the Mental Hospitals Association will be held in the Council Chamber of the Guildhall, London, on Wednesday, July 18th, at 11 a.m. A discussion on the working of the Mental Treatment Act, 1930, will be opened by Dr. J. Bain and Dr. F. J. Stuart; and a discussion on the Board of Control memorandum on occupation therapy for mental patients by Dr. R. Eager and Dr. J. I. Russell.

The annual meeting of the Society of Chemical Industry will be held in Cardiff from July 16th to 20th. The title of the presidential address of Dr. J. T. Dunn on the morning of Tuesday, July 17th, is "Science and Industry—the Fertility of Ideas," and that of Sir Harry McGowan's Messel Medal Lecture "The Uneven Front of Research."

The annual meeting of supporters of the Papworth Village Settlement, Cambridge, was held on Wednesday, July 11th, at 4 p.m., at the Park Lane Hotel, London, with the president, Sir Humphry Rolleston, in the chair. H.R.H. the Duke of Gloucester will visit the Settlement on Thursday, July 26th, at 12.15 p.m., to inaugurate the Bernhard Baron Memorial Hospital, afterwards laying the foundation stone of the surgical block.

The Fellowship of Medicine (1, Wimpole Street, W.) has arranged lecture-demonstrations at 11, Chandos Street, W., on July 17th and 24th, at 2.30 p.m.; and, with the exception of August 7th, they will be continued throughout August. Demonstrations for M.R.C.P. candidates, at 11, Chandos Street, on July 18th and 19th, at 4.30 p.m. and from August 13th to 17th, at 2.30 p.m. Particulars are given week by week in our *Supplement*, in the *Diary of Post-Graduate Courses*.

The Medical Society of Bad Nauheim will hold a post-graduate course from September 20th to 23rd on myocardial diseases. Further information can be obtained from the secretary of the society, Adolf Hitlerstrasse 16 Bad Nauheim.

The twenty-third Congress of Russian Surgery will be held at Leningrad from August 29th to September 6th when the following subjects, among others, will be discussed: shock; non-tuberculous affections of the lungs thrombosis and embolism; lesions of the hand and finger and their treatment; and extra-articular arthrodiesis. Further information can be obtained from the secretary of the congress, Bolchaia Pirogovskaia 6, Moscow.

The first International Congress of Electro-radio-biology will be held at the Ducal Palace at Venice from September 10th to 15th, under the presidency of Count Volpe de Misurata. Further information can be obtained from Dr. Giscondo Protti, Canal Grande S. Gregorio 173 Venice.

A meeting of the court of directors of the Society for Relief of Widows and Orphans of Medical Men was held at 11, Chandos Street, W., on July 4th, when Dr. W. Culver James, senior vice-president, was in the chair. The death of a member was reported, and two new members were elected. The sum of £2,285 13s. was voted for the payment of the half-yearly grants to the fifty-four widows and eight orphans in receipt of relief, including £105 13s. as special grants to assist orphans in their studies for professional or business careers. A letter from a widow was read expressing her great gratitude to the society for the help she had received to enable her son to qualify as a doctor. She had received twenty-five guineas a year for this purpose for the past five years. The directors again wished to bring the advantages of membership before the junior members of the profession. Relief is granted only to the widows or orphans of deceased members who are left in indigent circumstances. Membership is open to registered medical men who, at the time of their election, are residing within a twenty-mile radius of Charing Cross. Full particulars may be obtained from the secretary, 11, Chandos Street, W.1.

In our advertisement columns this week the Association of Surgeons of Great Britain and Ireland invites applications for a surgical scholarship of the value of £350 to be held for one year. The election will be made in November, and applications must reach the honorary secretary of the association, Mr. Julian Taylor, 65, Portland Place, W., by September 30th.

The seventh annual general meeting of the British Paediatric Association was held at Windermere on April 27th and 28th, under the presidency of Dr. Eric Pritchard, and a report of the proceedings appears in the current issue of the *Archives of Disease in Childhood*.

At a garden fête held at Morland Hall, Alton, on Saturday, July 7th, in aid of the Morland Hall Cot Fund at the Treloar Cripples' Hospital, the Countess of Radnor opened the new west wing of the clinics, which embodies several novel features in hospital construction. Among these is a method of giving natural sun treatment in the seclusion of the patient's own room, and without the necessity of wheeling the patient on to the adjacent balcony. The Morland Hall Cot at the Treloar Hospital is maintained by contributions of patients at the clinics and their friends, and as a result of the fête a sum of over £50 has been sent to the Treloar Hospital.

The issue of the *Revue de Médecine* for May, which is devoted to rheumatism, contains articles by F. Bezancou and M. P. Weil on degenerative hypertrophic osteoarthritis, rheumatism and climate by M. P. Weil, and chronic rheumatism in 1933 by F. Françon.

A supplement to the June issue of *La Pediatria* is dedicated to Professor Rocca Jemma, who occupies the chair of children's disease at Naples, on the occasion of his thirty years' professional activity. It contains a biographical note, a bibliography of his 137 contributions to literature, congratulations from paediatricists of all countries, abstracts from his *Festschrift*, and an account of a ceremony held in his honour.

Dr. James Somerville McLester, professor of medicine in the University of Alabama School of Medicine and an authority on diseases of nutrition, has been elected president of the American Medical Association.

The Italian Central Council of the Campaign against Cancer has offered ten prizes of 500 lire each to practitioners who have reported the largest number of cancers still in the curable stage between July 1st, 1933, and June 30th, 1934.

On June 13th the honorary degree of Doctor of Science was conferred upon Sir Henry Wellcome, LL.D., F.R.S., by the University of Marquette, Wisconsin, U.S.A.

Mr. Ingleby Oddie, the Central London coroner, has appointed Dr. Hervey Wyatt as his deputy in place of the late Dr. Idris Evans, and Dr. Reginald Hearn as assistant deputy.

The widow of the late Professor Recasens, the eminent gynaecologist and dean of the Medical Faculty of Madrid, who died of cancer, has recently founded a prize for the best essay on the disease.

The Belgian State School for Tropical Medicine has been transferred from Brussels to Antwerp, and has changed its title to the Prince Leopold Institute for Tropical Medicine.

A severe epidemic of rabies has broken out in the southern and western districts of Estonia. Three hundred persons who have been bitten by mad dogs or cats have been sent to the Pasteur Institute at Dorpat for treatment. The authorities have ordered that all the mad dogs and cats—700 in number—should be shot.

From January 1st to May 1st 1,020 cases of typhus were notified in Rumania, with 112 deaths; in Yugoslavia 882 cases, with sixty-four deaths; in Bulgaria 121 cases, with eleven deaths; and in Czechoslovakia twenty-four cases, with one death.

The Council of the University of Paris has conferred the title of doctor *honoris causa* on Dr. A. Eiselsberg, eminent professor of surgery in the Vienna faculty of medicine.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumshugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Home for Child with Eczema

"M.R.C.P." writes: Could anyone recommend a convalescent home or suchlike (preferably near Birmingham) suitable for a boy, aged 4, who has eczema but is otherwise healthy?

Drug Rash

"J. D." writes: I would be very glad of any suggestions from your readers for the treatment of the following case. The patient is a man, aged 60, who, for the past thirty years, has broken out into a generalized, intensely irritant, scarlatiniform rash on the administration of any kind of medicine whatsoever. The rash is followed by desquamation in three or four days. He is now suffering from inoperable carcinoma of the colon, and prefers the pain of his condition to the agony involved by the administration of an opiate.

Results of Operation for Elephantiasis

Dr. J. F. Knox (Rochdale) writes in reply to "I. S. Q." (June 30th, p. 1195): As to end-results of the Kondoleon operation for elephantoid condition of the lower extremities, I can report good results in a case operated on in 1929 by Dr. W. H. Bateman and myself. The leg still fluctuates slightly in size, but is substantially the same. The greatest circumference was just above the ankle, and was 34 inches. Since the series of operations it has remained at 14 inches. There has been no further diminution in the size of the leg from drainage of lymph through the windows in the deep fascia. The principal mass in our case was below the knee, and the reduction in bulk was obtained by carefully planning the incisions and the removal of huge masses of fibrous tissue. The case was of long standing. A useful account of the operation will be found in *Keen's Surgery* (vol. viii, p. 643), and an instructive report of cases in the *British Journal of Surgery* (vol. ix, p. 112).

House Flies

Dr. ROBERT A. WELSH (Felton, Northumberland) writes in reply to "G. L." (July 7th, p. 47): I have a sun-room that every now and then swarms with flies and wasps, and my wife sprays Keating's insect powder along the window frames, etc., and within an hour there is not a living fly or insect in the place—they are lying dead everywhere, and there is peace until another swarm comes along; this, however, gives us a long interval of freedom. It is a new structure—there are no old wooden frames or joints to harbour breeding places.

Income Tax

Cash Basis—In-coming Partner

"CURIOUS" took over as from July 1st, 1930, the half share of a retiring partner, including his share of outstanding book debts. As from the same date he took another

practitioner into partnership on a half-share basis. The practice has continued to be assessed on the basis of cash receipts, and, of course, all receipts have had to be brought in, including those purchased by "Curious." How should the tax assessed be divided as between the two present partners?

* On the basis that as from July 1st, 1930, they have an equal share in the gross assessments. It has to be borne in mind that the bringing in of the whole of the cash received is done merely to ensure that the tax assessed in respect of the income of the year to April 5th, 1932, shall reflect a full year's income—which it would not do if some of the cash received in the year to December 31st, 1930, were excluded. Of course, if "Curious" and his partner agree on some other basis of division that is a matter for themselves, but if the former pays a special share of the tax because he is taking the result of the old bookings, then the latter should ultimately pay to "Curious" tax on the amount of his share of the outstanding debts when the partnership terminates.

Rates of Depreciation

"X Y Z" inquires what are the rates applicable to various items.

* (1) Light therapy apparatus—no clearly recognized rate; probably 10 per cent. will be given, and the net loss on replacement should be claimed by way of "obsolescence." (2) Motor car—20 per cent., of which apparently one-quarter will be regarded as applicable to private use. (3) Microscope and consulting room furniture—probably the depreciation allowance will be refused, in which case the expense of replacement should be claimed as and when incurred.

Car Transactions—Hire Purchase

"T. F." entered into a partnership in October, 1932, and the first accounts will be prepared up to December 31st, 1933. During that period he bought one car for £95 and sold it for £95; a second car for £185 and sold it for £245; and a third car for £325. Since January 1st, 1934, he has sold that car for £215, bought a fourth car for £285, sold it for the same amount, and bought a fifth car for £435. What should he claim?

* Wear and tear (or depreciation) claims are made as for the various years of assessment. In the rather unusual circumstances we advise "T. F." to claim:

(a) For the period October, 1932, to April 5th, 1933, £95 at 20 per cent. for five months	8
(b) For the year to April 5th, 1934:	
(1) (£95 - £8) = £87 at 20 per cent. for three months	4
(2) £185 at 20 per cent. for one month	3
(3) £325 at 20 per cent. for eight months	43
	£50
(c) For the year to April 5th, 1935:	
(1) (£325 - £43) = £282 at 20 per cent. for two months	9
(2) £435 at 20 per cent. for ten months	72
	£81

The difference between the cash prices of the various cars and the aggregate of the hire-purchase payments can be treated as expenses of the periods in which they were made.

Payment of Annuity under Agreement

"J. F. B." signed an agreement in 1929 to pay £25 a year to a relative "in consideration of natural love and affection," and has since paid the annuity under deduction of tax. The relative claimed repayment of the tax after the document had been exhibited to the local inspector of taxes. The claim is dealt with now by another office, and the other inspector states that the undertaking should have been by deed under seal, and is requesting the tax repaid to be refunded. What is the legal position?

* In all the circumstances we doubt whether the second inspector has the right to reopen the past years, even if he is right on the merits; and this is by no means clear, seeing that there was "good consideration" (though not "valuable consideration") for the agreement. We advise our correspondent to write to the Secretary, Board of Inland Revenue, Somerset House, quoting the facts and asking for an official ruling in the matter. If that should be favourable the necessity for considering further steps will not arise.

LETTERS, NOTES, ETC.

Hypochondriasis

Dr. SYDNEY PERN (Melbourne, Australia) writes: It is with a good deal of astonishment that I read Dr. Robert Hutchison's article on hypochondriasis, in the *Journal* of March 3rd (p. 365). He states: "I am convinced that the amount of early disease which could be detected by periodic examination is negligible, and that it would be more than offset by the amount of nosophobia that would be created by it. And as regards prevention, surely every doctor worth his salt has always been doing all he can to prevent disease. . . . Of course, if the practitioner had a larger share in the public health services he could do more in the way of prevention, but that line of approach is often closed to him." Whilst agreeing with a good deal that Dr. Hutchison has to say about hypochondriasis, I do not in any way agree that periodic examination is going to aggravate the condition, as often as not it is the result of pathological conditions undiagnosed by the medical man. At the present time we are aware that a big proportion of the diseases we are called upon to treat to-day are the result of oral and nasal infections, and long before these diseases are severe enough to warrant calling in a medical man damage has been done to various tissues and organs of the body. Because a man has a positive Wassermann reaction does not debar him from treatment, even if he has no symptoms whatever. The average man is totally unaware of pathological changes taking place in his kidneys or his arteries until they are well advanced. Periodic examination is going to prevent all these types of diseases developing, because when we find pyorrhoea or infected tonsils we must know that it is impossible to have them without detriment to the tissues, and that although there is apparently no suggestion of disease it must be there in its incipient stages. Medical men worth their salt will always help their patients to the best of their knowledge, but to many the facts as stated here are not so patent as to the writer. The amount of prevention of disease within the hands of the general practitioner is greatly in excess of that in the hands of the health officers. We are now living in an age when it is our duty to give as much publicity as possible to the causation of disease, as by doing so we shall prevent gross damage being done to organs and be able to tackle it in an early stage or prevent its occurrence all together. If, by any chance, a few hypochondriacs are created the gain to the majority will far outweigh the harm to the few.

Weil's Disease among Sewer Workers

Dr. F. WILLIAM COCK (Appledore, Kent) writes with reference to the leading article in last week's issue (p. 27): In the *British Medical Journal* for July 31st, 1897, you quoted from a report on the overcrowded burial places in Liverpool. It was mentioned that one of the men employed in repairing a sewer died apparently from the effects of his occupation. It was suggested that a very foul jelly-like substance attached to the wall of the sewer where that lay alongside the burial ground might have had something to do with this. ? Spirochaeta.

Disclaimer

Dr. HENRY YELLOWEES (London, W.1) writes: My attention has to-day been drawn to an article in the *Empire News*, which refers to me by name and prints my photograph. I was entirely ignorant of the whole matter till to-day (July 10th), nor have I the slightest knowledge as to how the material for the article, or the photograph, were obtained.

From July 14th the telephone number of the head office of Burroughs Wellcome and Co. in London will be Central 4,000.

Ilford Limited (London) have sent us a pamphlet entitled *Photography as an Aid to Scientific Work*. Copies may be obtained post free on application. Information contained therein should prove useful to those wishing to know what type of plate, etc., is required for any particular scientific purpose.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 49, 50, 51, 52, 53, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 56 and 57.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 36.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, JULY 21st, 1934

SYPHILIS IN PRACTICE*

BY

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Is syphilis uncommon in general practice? I have often asked this question, and have as often been assured that syphilis only accounts for a very small part of the practitioner's miscellaneous occupation. This does not seem to agree with hospital experience, or at least with the experience gained in a venereal clinic. Thus in 1,000 consecutive cases taken from the department for syphilis at the Middlesex Hospital I find the distribution of the disease as follows:

Primary ...	133	Syphilis of the eye ...	55
Secondary ...	172	Syphilis of the throat ...	112
Neurosyphilis ...	130	Miscellaneous ...	342
Cardiovascular syphilis ...	42		
Visceral ...	14		1,000

Out of these 1,000 patients, who may be considered a representative sample of the syphilized population, only 305, or 30.5 per cent., belong to the early or communicable stage. This may provide the explanation to a common, but I believe an erroneous, impression, for when I have further questioned my informants I find that by syphilis they usually mean and think of the early stages of the disease, whereas the term has, of course, a very much wider significance. This is partly because the early period has been given special prominence in the propaganda against the disease, and partly because the later developments are observed in special departments, and thus come to be related to diseases of the bone, eye, ear, or nervous system rather than to syphilis as a whole.

There are thus grounds for believing that the syphilitic taint is far more prevalent than is usually supposed. Nor is the disease decreasing, in spite of the efforts of the public clinics. Further, we have still to feel the effects of the syphilization of the war and the period that immediately followed.

To be prepared to recognize every form of syphilis, and to attempt to forestall or remedy all the possible consequences of infection, demands a comprehensive knowledge which is outside the scope of everyday work. The following short formula reasonably covers all the necessary ground, and provides a simple key to most of the problems likely to arise:

1. Early syphilis is communicable and curable.
2. Late syphilis is not communicable, and only cured with difficulty and in exceptional cases.

Early Syphilis is Communicable

A statement so obvious seems to need no comment. Syphilis is readily transmitted through the mucous membrane during sexual intercourse and in kissing, but apart from this the risk of infection is apparently inconsiderable. This has an important bearing on many domestic problems—for example, a recently infected individual living

in a household. Provided ordinary precautions are taken the danger to others would seem to be slight, and this is constantly confirmed by experience. While each case must be considered on its merits, the domestic servant requires special consideration, and the practitioner may have to decide whether he should disclose to the head or the household facts which have come to his knowledge in the exercise of his profession. The obligation to secrecy allows of exceptions: the circumstances related below would seem to justify extreme measures. A children's nurse was found to be suffering from a highly infective form of syphilis. Her lips and mouth presented numerous mucous patches. Although the nature of the disease and its possible consequences to her charges were clearly explained to her, she refused to leave her situation voluntarily. Such an occasion would no doubt be regarded in law as privileged. According to Dixon Mann and Brend[†] a privileged communication is one which is prevented from being defamatory and actionable by circumstances rebutting the existence of malice: there must be an interest to protect or a duty to perform. Fortunately, the circumstances calling for such measures can only rarely arise: further, it is to be remembered that special privileges in this respect are conferred by law upon patients attending the public venereal clinics.

Early Syphilis is Curable

When we speak of cure it is necessary to define the sense in which we use the word. Here it is taken in its literal meaning. There are some authorities who believe it is still too early to judge of the results of modern treatment. On the other hand, it is to be remembered that in the case of syphilis we are in possession of specific remedies—the arsenicals, mercury, and bismuth—and a delicate specific test, the Wassermann reaction, which permit of a precision in treatment and in testing the results of treatment that is unique in medicine. We have therefore substantial grounds for presuming cure, provided that the patient has completed a standard form of treatment, and provided also a sequence of negative blood tests have been observed over a sufficient period.

In the early stages of the disease our object is to cure the patient: that is a personal service to the individual. Incidentally a contribution is made to the public health by excluding a potential source of infection. With such objects in view the most vigorous intensive treatment is justified. On the introduction of the arsenical remedies it was thought that no more than a short course was required: this opinion has long been abandoned.

In 1913 the late Sir Malcolm Morris and I[‡] advocated salvarsan followed by mercury, continued with intermissions for two years, and I would further add that a full two years is desirable in all forms of the early disease, whether primary or secondary, because in both

* Based on a lecture given to the Fellowship Division of the British Medical Association.

cases we are dealing with a generalized infection which merits similar intensive treatment pushed to the limit of tolerance of the patient. A distinction is sometimes made between primary syphilis with negative Wassermann reaction and primary syphilis with positive Wassermann reaction. This is demonstrably unsound, for if the blood is tested at regular intervals while treatment is in progress it becomes evident that both conform to the same pattern, as Kennaway and I² have shown. The intensive treatment should begin with an arsenical compound, preferably of the 914 type because of its convenience.

In the scheme originally adopted at Middlesex Hospital and continued for some years, a first intravenous injection of 0.6 gram N.A.B. was followed by nine further injections each of 0.9 gram at weekly intervals, for both men and women. This vigorous policy proved completely satisfactory. There were no calamities; even the minor inconveniences of arsenical medication were rare, and jaundice was almost unknown. Later, when the first dose was reduced to 0.3 gram, followed by nine injections of 0.6 gram, jaundice became much more common, which may indicate that so-called arsenical jaundice is, in some cases at least, syphilitic. After the preliminary arsenic, mercury in series of twelve intramuscular injections, one each week, with a rest of one month between each course, completed the two-year treatment. For some time past bismuth used in the same way has replaced mercury. An additional arsenical course following the first mercury or bismuth series may be considered necessary where the Wassermann response lags, or for other reasons.

What results can be expected from intensive treatment? To test this some 1,800 consecutive cases have been reviewed. Out of this number only 121 proved suitable for analysis; the remainder were examples of nerve, ocular, congenital, or cardiovascular syphilis, etc., or, if in the early stages, had defaulted. These 121 cases—thirty-five primary and eighty-six secondary—have been brought together in tables in which only those with at least two years' observation have been included. In every case the diagnosis has been verified either by a preliminary Wassermann reaction or by the presence of *S. pallida* in the primary sore. A word may be said concerning the subsequent blood examinations: the figures given in the column headed "subsequent W.R.: blood" summarize the form of the reaction throughout the whole period of observation, representing, in most cases, a large number of separate tests.

The investigation of the cerebro-spinal fluid, shown in the adjoining column, was invariably carried out shortly after the conclusion of treatment. An earlier examination may be misleading, because, as is now well known, in all forms of recent syphilitic infection involvement of the central nervous system as shown by the changes in the cerebro-spinal fluid is relatively common, the central nervous system participating in the general infection. This accepted fact, taken with the findings shown in the tables (examination of the cerebro-spinal fluid), permits of two conclusions: first, that the spirochaetes in the central nervous system can be, and are, reached and destroyed by intramuscular and intravenous treatment, and secondly, as one is entitled to infer from the above, that the specialized technique which claims to influence syphilis of the central nervous system by introducing therapeutic substances directly into the cerebro-spinal fluid is unnecessary and presumably much less efficacious than the intramuscular and intravenous routes. Further, in early syphilis the blood reactions in themselves afford a very reliable indication of the condition of, and result of treatment in, the central nervous system. If they have followed a favourable course during standard treatment it will then

be found that the cerebro-spinal fluid is negative to all tests if examined at the proper time—that is, three months after the full course has been completed.

Taking the primary cases first (Table I), twenty-one out of the total thirty-five may be considered as cured—that is, 60 per cent. In contrast to this, out of eighty-six secondary cases approximately 81 per cent. have been cured (Table II). These figures imply, contrary to the generally accepted view, that the chance of cure is greater in secondary than in primary disease. The evolution of an arsenic-resistant type of spirochaete, as suggested by Drake and Thomson,⁴ may explain this paradox. This postulates a type of spirochaete which has learned to accommodate itself to the arsenicals but not to the natural antibodies formed in the secondary stage. If the arsenicals are used very early these natural antistances may be prevented from developing. In this connexion it is interesting to recall the investigations of Bruusgaard⁵ into the after-history of Caesar Boeck's patients. Boeck held and

TABLE I.—Primary Syphilis (35 Cases)

No.	Age	Sex	Form of Treatment	Duration of Treatment	Period of Observation	Spirochaetes	W.R.: Blood		W.R. in Cerebro-spinal Fluid	Result
							1st	Subsequent		
738	41	F	++ + 0	18 mos.	2½ yrs.		+	— — — +		Uncured: treatment irregular
813	32	M	++ + 0	18 mos.	2 yrs.		+	— — — —		Cured
908	25	M	++ + 0	5 mos.	4 yrs.	P	—	— — — —	Negative	Cured
1,006	19	M	++ + 0	12 mos.	3½ yrs.		+	— — — —		Cured
1,044	33	M	++ + 0	10 mos.	8 yrs.	P	—	— — — —		Cured
1,145	34	F	++ + 0	2½ yrs.	2½ yrs.		+	+ — +		Uncured
1,152	25	M	++ + 0	1 year	2 yrs.		+	— — — —		Cured
1,168	29	M	++ + 0	4 yrs.	5 yrs.	P	—	+ + + —		? Cured
1,222	22	F	++ + 0	1 year	4 yrs.		+	— — + +		Uncured: treatment irregular
1,323	21	M	++ + 0	2 yrs.	4 yrs.		—	— — +		Uncured: character redus
1,339	25	F	++ + 0	1 year	2½ yrs.	P	—	— — — —		Cured
1,413	28	M	++ + 0	4 wks.	8 yrs.	P	—	— — — —		Cured
1,466	24	M	++ + 0	7 wks.	2½ yrs.		+	— — — —		Cured
1,509	25	M	++ + 0	2 yrs.	3 yrs.		+	+ + + +		Uncured
1,543	34	M	++ + 0	3 mos.	6 yrs.		+	— — — —		Cured
1,656	28	F	++ + +	2 yrs.	2½ yrs.		—	+ + + —		? Cured
1,657	35	F	++ + 0	18 mos.	5 yrs.		+	— — — —		Cured
1,682	20	F	++ + +	2 yrs.	5 yrs.		+	— — + +		Uncured
1,688	23	M	++ + 0	18 mos.	2½ yrs.	P	—	— — — —		Cured
1,685	20	M	++ + 0	18 mos.	3 yrs.		+	— — — —		Cured
1,754	30	M	++ + +	2½ yrs.	5 yrs.		+	+ + + +		Uncured
1,766	22	F	++ + +	2 yrs.	4 yrs.		+	+ + + —		Uncured
1,776	15	F	++ + 0	18 mos.	3 yrs.		+	— — — —		Cured
1,792	31	M	++ + 0	1 year	2 yrs.		+	— — — —	Negative	Cured
1,885	35	M	++ + +	2 yrs.	3 yrs.		+	+ + + +		? Cured
1,920	29	F	++ + +	1 year	2½ yrs.		+	— — — —		Cured
1,942	23	M	++ + +	3 yrs.	4 yrs.		+	+ + + —		? Cured
1,955	30	F	++ + 0	1 year	3 yrs.		+	— — — —		Cured
1,983	44	M	++ + +	2 yrs.	4 yrs.	P	—	— — — —		Cured
2,045	41	M	++ + +	2 yrs.	2 yrs.		+	— — — —		Cured
2,048	29	M	++ + 0	3 mos.	2 yrs.		+	— — +		Uncured
2,302	24	M	++ + +	2 yrs.	4 yrs.		+	— — — —		Cured
2,314	24	F	++ + 0	2 yrs.	2 yrs.		+	— — — —		Cured
2,325	32	M	++ + 0	2 yrs.	3 yrs.	P	—	— — — —		Cured
2,350	40	M	++ + 0	2 yrs.	2 yrs.		+	— + +		Uncured

P = Present

TABLE II.—Secondary Syphilis (86 Cases)

No.	Age	Sex	Form of Treatment	Duration of Treatment	Period of Observation	W.R.: Blood		W.R. in Cerebro-spinal fluid	Result
						1st	Subsequent		
556	24	F	+	0	15 mos.	3 yrs.	+	—	Negative Cured
553	19	F	+	0	2 yrs.	3 yrs.	+	—	Cured
551	27	M	+	0	1 year	6 yrs.	+	—	Cured
573	39	F	+	0	15 mos.	2 yrs.	+	—	Cured
578	25	F	+	0	1 year	2 yrs.	+	—	Cured
582	23	M	+	0	1 1/2 yrs.	7 yrs.	+	—	Cured
603	30	F	+	0	2 yrs.	3 yrs.	+	—	Cured
621	38	F	+	0	18 mos.	5 yrs.	+	—	Cured
623	23	M	+	0	2 yrs.	5 yrs.	+	—	Negative Cured
625	24	F	+	0	1 year	10 yrs.	+	—	Negative Cured
636	40	F	+	0	2 yrs.	2 yrs.	+	+	Uncured
662	23	F	+	0	18 mos.	3 yrs.	+	—	Cured
678	26	M	+	0	1 year	2 yrs.	+	—	Cured
690		F	+	0	2 yrs.	6 yrs.	+	—	Negative Cured
739	7	M	+	0	2 yrs.	2 yrs.	+	—	Cured
735	23	M	+	0	1 year	4 yrs.	+	—	Negative Cured
803	35	F	+	0	1 year	4 yrs.	+	—	Negative Cured
810	21	F	+	0	18 mos.	2 yrs.	+	—	Cured
811	21	F	+	0	4 yrs.	4 yrs.	+	+	? Cured
821	27	M	+	0	4 m.	2 yrs.	+	—	? Cured
825	33	F	+	0	3 yrs.	9 yrs.	+	+	? Cured
831	25	M	+	0	2 yrs.	5 yrs.	+	—	Cured
837	19	M	+	0	2 yrs.	4 yrs.	+	—	Negative Cured
842	27	M	+	0	1 year	3 yrs.	+	—	Cured
854	25	M	+	0	1 year	10 yrs.	+	—	Cured
877	21	F	+	0	18 mos.	9 yrs.	+	—	Negative Cured
891	25	M	+	0	1 year	4 yrs.	+	—	Cured
895	22	F	+	0	15 mos.	3 yrs.	+	—	Cured
903	36	F	+	0	1 year	8 yrs.	+	—	Negative Cured
910	26	F	+	0	15 mos.	7 yrs.	+	—	Negative Cured
944	25	F	+	0	15 mos.	3 yrs.	+	—	Cured
939	35	M	+	0	1 year	2 yrs.	+	—	Cured
970	40	M	+	0	2 yrs.	4 yrs.	+	—	Negative Cured
1,024	24	M	+	0	2 yrs.	6 yrs.	+	+	? Cured
1,033	20	F	+	0	1 year	10 yrs.	+	—	Negative Cured
1,062	30	F	+	0	1 year	9 yrs.	+	—	Cured
1,071	27	M	+	0	1 year	9 yrs.	+	—	Cured
1,076	25	F	+	0	15 mos.	3 yrs.	+	—	Negative Cured
1,095	27	F	+	0	3 mos.	14 yrs.	+	—	Cured
1,101	26	F	+	0	18 mos.	8 yrs.	+	—	Cured
1,143	40	M	+	0	2 yrs.	2 yrs.	+	+	Uncured
1,175	19	F	+	0	18 mos.	6 yrs.	+	—	Negative Cured
1,187	25	F	+	0	20 mos.	7 yrs.	+	—	Negative Cured
1,189	21	M	+	0	2 yrs.	2 yrs.	+	+	Uncured
1,193	28	M	+	0	18 mos.	2 yrs.	+	—	Cured
1,215	25	F	+	0	2 yrs.	6 yrs.	+	+	Cured
1,241	30	F	+	0	18 mos.	5 yrs.	+	—	Negative Cured
1,255	26	F	+	0	1 year	8 yrs.	+	+	? Cured
1,289	20	F	+	0	2 yrs.	5 yrs.	+	—	Cured
1,294	22	F	+	0	2 yrs.	4 yrs.	+	+	? Cured
1,314	23	M	+	0	2 yrs.	4 yrs.	+	—	Cured
1,316	24	M	+	0	1 year	7 yrs.	+	—	Negative Cured

TABLE II.—Secondary Syphilis (continued)

No.	Age	Sex	Form of Treatment	Duration of Treatment	Period of Observation	W.R.: Blood		W.R. in Cerebro-spinal Fluid	Result
						1st	Subsequent		
1,325	24	F	+	0	15 mos.	2 yrs.	+	—	Cured
1,333	24	F	+	0	2 yrs.	2 yrs.	+	—	Negative Cured
1,372	18	F	+	0	3 yrs.	6 yrs.	+	—	Uncured
1,371	42	M	+	0	7 mos.	5 yrs.	+	—	Negative Cured
1,395	21	F	+	0	2 yrs.	6 yrs.	+	—	Negative Cured
1,533	34	F	+	0	18 mos.	2 yrs.	+	—	Cured
1,614	31	F	+	0	2 yrs.	3 yrs.	+	+	Positive Uncured
1,629	22	F	+	0	3 mos.	13 yrs.	+	—	Cured
1,649	27	F	+	0	2 yrs.	6 yrs.	+	+	Cured
1,694	32	F	+	0	2 yrs.	3 yrs.	+	+	? Cured
1,619	43	F	+	0	2 yrs.	5 yrs.	+	—	Negative Cured
1,553	21	M	+	0	2 yrs.	3 yrs.	+	—	Negative Cured
1,511	25	F	+	0	18 mos.	4 yrs.	+	—	Negative Cured
1,512	33	M	+	0	20 mos.	2 yrs.	+	—	Negative Cured
1,515	20	M	+	0	3 yrs.	3 yrs.	+	—	Cured
1,533	25	F	+	0	3 yrs.	4 yrs.	+	+	Cured
1,539	20	F	+	0	2 yrs.	6 yrs.	+	—	Cured
1,545	27	F	+	0	2 yrs.	2 yrs.	+	—	Cured
1,557	29	F	+	0	2 yrs.	4 yrs.	+	—	Negative Cured
1,573	24	F	+	0	1 year	2 yrs.	+	—	Negative Cured
1,591	47	F	+	0	20 mos.	2 yrs.	+	+	? Cured
1,611	21	M	+	0	2 yrs.	3 yrs.	+	+	Uncured
1,651	42	M	+	0	3 yrs.	7 yrs.	+	+	Cured
1,661	25	F	+	0	2 yrs.	3 yrs.	+	—	Negative Cured
1,679	27	F	+	0	18 mos.	6 yrs.	+	—	Cured
1,686	32	F	+	0	2 yrs.	4 yrs.	+	—	Cured
1,523	20	F	+	0	18 mos.	2 yrs.	+	—	Negative Cured
1,813	28	F	+	0	3 yrs.	3 yrs.	+	+	? Cured
1,820	25	M	+	0	2 yrs.	6 yrs.	+	—	Cured
1,867	22	M	+	0	1 year	6 yrs.	+	—	Cured
1,953	31	M	+	0	2 yrs.	5 yrs.	+	—	Cured
1,993	35	F	+	0	2 yrs.	3 yrs.	+	—	Cured
2,052	21	M	+	0	2 yrs.	5 yrs.	+	—	Cured
2,318	23	F	+	0	2 yrs.	2 yrs.	+	—	Cured

taught that mercury and iodides interfered with nature's efforts to eradicate syphilis, and he only used drugs where he considered the body had failed to react. Bruusgaard has been able to trace the after-history and condition of many of these untreated patients, and has shown that a considerable proportion of them recovered completely. It is clear from this that the natural antisyphilitic substances are not negligible, and if they are allowed to develop, as in the secondary stage, have then an important therapeutic action, which may explain the better results obtained in secondary syphilis. The idea of an interference with the natural protective substances by specific arsenicals is today represented in the alleged increase in neurosyphilis attributed to arsenical treatment. Certain observations of the late Professor George M. Robertson* bear upon this question. In the seventh Maudsley Lectures he called attention to the sudden fall, in 1919, in the number of deaths from general paralysis of the insane, a decrease which he said was maintained. He reasoned as follows: "The symptoms of general paralysis do not occur with any frequency until seven years after infection, and the patient

usually lives two years after the disease has declared itself. Therefore nine years before 1919 something had happened to account for the observed fall in the accurately recorded death rate of this disease. In 1910, the year in question, Ehrlich introduced "606." This does not accord with the theory that early intensive treatment increases the vulnerability of the central nervous system, nor does the routine examination of the cerebro-spinal fluid in adequately treated early cases favour this hypothesis.

Cure may be presumed where the blood Wassermann reaction has become negative after the first course of treatment and has remained negative subsequently for two years. This has at least the merit of a working proposition. Discrepancies are, of course, met with, as in the following exceptional case:

In 1920 a woman, aged 28, attended the clinic with a primary sore on the lip and a secondary rash (No. 1163). Blood Wassermann reaction and spirochaete test both positive. She was treated for two years and attended regularly for observation up to July, 1926. The blood reactions followed a favourable course and remained constantly negative in the succeeding years up to July, 1926. The cerebro-spinal fluid was also negative. In November, 1926, she contemplated marriage, and her blood was again tested; this and a confirmatory Wassermann taken a week later both proved strongly positive. For six years she had satisfied every criterion: then when it seemed she was entitled to be considered cured, a serum relapse developed suddenly and unexpectedly.

Some of the cases referred to in the tables merit additional details. While primary syphilis sometimes provides the most resistant and most disappointing forms of the early disease (see 1,145, 1,168, 1,509, 1,656, 1,682, 1,766, 1,885, 1,942, 2,350) it is, on the other hand, generally recognized that cure, or apparent cure, may follow courses of treatment so short as to seem on theoretical grounds at least totally inadequate. In a similar way in secondary syphilis cure, or apparent cure, can sometimes be obtained by forms of treatment which fall far short of the two-year standard. Thus a proportion of those recorded as cured received no more than one year of treatment and in exceptional cases even less. This raises the question whether the two-year standard is not unduly severe. The experience gained from the defaulters from my own and from other clinics goes to show how unsatisfactory inadequate treatment usually is and how often it fails, for serum or clinical relapse may develop in the inadequately treated even after a latent period of so many years that cure has been reasonably assumed, as in the following instance:

No. 805 attended with secondary syphilis from November, 1919, to June, 1920. He was given ten intravenous injections of N.A.B. (total 8.7 grams) and twenty-six intramuscular injections of mercury. His blood Wassermann reaction was negative at the end of this course of treatment, and further negative tests are recorded in November, 1920, June, 1921, November, 1921, May, 1922, July, 1923, and October, 1927. His circumstances precluded an examination of the cerebro-spinal fluid. This patient was seen again in 1934, and it was found that he had developed *tabes dorsalis*. This goes to show that a long series of negative blood tests is only reliable evidence of cure when a full standard treatment has been completed.

To follow up patients is never easy, and although every encouragement is held out to the patient with syphilis to report at regular intervals and keep under observation, sooner or later he or she disappears. Nevertheless, it has been possible to trace and review the present state of two, both early defaulters, whose treatment was meagre, who returned at intervals for observation.

Thus 1,096 was only treated for three months (8.7 grams N.A.B. and seven mercury injections) in 1920; blood Wassermann reaction negative in 1923 and 1927. Recently (January, 1934) a careful general examination failed to reveal any

organic disease, and the blood Wassermann reaction was negative.

No. 1,459, treated in 1921 (sore on lip and rash), received seven injections N.A.B. (total 6 grams) with concurrent mercury. She then developed severe arsenical dermatitis, afterwards refusing further antisyphilitic treatment. She was seen again in 1923, 1927, and in January, 1934. On all these occasions the blood Wassermann reaction was negative. Her general health has remained excellent. She declines lumbar puncture: so far, however, as can be ascertained her nervous system is normal.

These two patients have been classified as cured with some misgivings. If this happy end has been achieved they may be counted among the fortunate exceptions who have done very little to merit the result.

Late Syphilis is Not Communicable

A positive Wassermann reaction does not always mean potential or actual infectivity. It should be interpreted in relation to the duration of the disease and the sex of the individual. Thus a man who marries ten or fifteen years after infection need not necessarily fear that his children will be tainted, even where his Wassermann reaction remains positive. Congenital syphilis is transmitted through an infected mother. In such circumstances the man's disease, owing to its duration, is usually no longer communicable: his wife escapes contamination, and therefore the link required to transmit his disease to his offspring is wanting. An exception may be given:

A young man received twenty injections of arsenical compound for secondary syphilis and subsequently an intermittent and incomplete treatment with mercury. Four years later he developed pityriasis rosea, and in view of his history a blood test was made at his own request, which proved positive. Subsequently further interrupted treatment was carried out, but again in intermittent form, and he remained uncured. Six years after the original infection he married, and eighteen months later his wife developed syphilis. This case has many exceptional features, and is unique in my experience.

The sex of the individual with old-standing syphilis has an important aspect. The woman with late syphilis, although her Wassermann reaction is positive, may not be able to infect her husband; nevertheless, during the child-bearing period she remains capable of transmitting the disease to her children. All the risks of congenital syphilis continue to be present; miscarriage may occur, or the child may survive to develop in infancy or later one of the many manifestations of the congenital taint. Fortunately there is a remedy for this state of affairs; if the latent syphilis is detected, and if the expectant mother is adequately treated during her pregnancy, the child escapes contamination. Preventive measures of this kind constitute the best, and indeed the only, satisfactory method of frustrating congenital disease, and this applies to early as well as latent syphilis in the mother. To this there would appear to be one exception: if the cerebro-spinal fluid of the mother is positive, intensive treatment may fail to secure the desired object, as pointed out by Miss Gladys Sandes.⁷ As *tabes* and general paralysis are, however, comparatively rare in syphilized women, only 0.5 per cent. developing such conditions as contrasted with 3 to 5 per cent. in men, this disturbing factor is not considerable.

Those who are historically minded will observe the bearing of these facts upon the medical history of Henry VIII. Mr. Frederick Chamberlin,⁸ Dr. MacLaurin,⁹ and Mr. Macleod Yearsley¹⁰ have all found it difficult to reconcile Henry's presumed syphilis with the condition of his later children. This is not surprising if we examine the facts in the light of the statement above.

In 1509, at the age of 19 years, Henry was called to the throne, and in the same year married Catherine of Aragon.

At this period he must have been infected and have infected his wife, for from 1510 to 1518 there are a series of stillborn children or children who only survived birth. In the middle of this series, in 1516, Mary was born. She suffered from ozaena, severe headaches, and defective vision, possibly from interstitial keratitis (Macleod Yearsley). The obstetric record of Catherine of Aragon is typical of an untreated syphilitized woman infected at marriage. The condition of the other children present no bar to the hypothesis of syphilis in the King, their father. Ten years after infection Henry had a child by Elizabeth Blunt, called the Duke of Richmond. Queen Elizabeth, born still later, was the daughter of Anne Boleyn; and Henry's last child, Edward VI, born in 1537, was the son of his third wife, Jane Seymour.

Old-standing syphilis is not communicable; therefore all the mothers of the later children, and consequently their children, escaped contamination. Queen Mary alone can be considered to have suffered from congenital disease.

Late Syphilis is only Cured with Difficulty and in Exceptional Cases

Some years ago I should have been inclined to regard the prospect of cure in late syphilis as uncertain, or at least improbable. Since the introduction of bismuth therapy there has been reason to modify this opinion. Bismuth is used in early syphilis for its convenience, and especially for its painlessness; it is then as good as mercury. But it is in late syphilis that bismuth has its special application, and since its general employment the chance of curing or arresting nearly all forms of long-standing disease has been notably improved. In passing, it may be pointed out that the results of the arsenic-mercury combination in early disease, as seen in the tables, surpass those obtained where bismuth has been given. This is, however, a matter of a chance sample, and does not therefore represent the actual facts.

Late or chronic syphilis may be conveniently considered in three groups: (a) cardiovascular, nerve and visceral; (b) cutaneous; and (c) serum-positive cases without other definite signs. While the form and duration of treatment is or may be very different in each group, it cannot be too strongly insisted upon that each case merits that individual consideration which the state of the patient and the nature of the symptoms demand.

In the first group the intention of treatment is to arrest the progress of disease and to prevent further damage to an organ or tissue already impaired. A greater or lesser degree of organic disease is present, and it is therefore neither desirable, nor as a rule safe, to impose upon such a patient the kind of intensive treatment which is readily tolerated by a young, robust adult with early disease. Nevertheless some form of prolonged treatment is, as a rule, necessary: the difficulty can be overcome by lengthening the intervals of rest between each course up to three or even six months. As has been indicated above, intramuscular bismuth constitutes the principal agent of attack, and its action can be supplemented by a course of five to ten intravenous arsenicals, either at the beginning of treatment, or at a later stage, if there should seem to be a risk of a focal reaction in a vital organ before protection from such a reaction has been obtained by a preliminary series of the more moderate bismuth or mercury. This applies especially to cardiovascular disease, where, indeed, the administration of any form of the arsenical substance may be considered undesirable. In intracranial gummata, bismuth should precede neosalvarsan for the same reason. The progress of the patient can be judged by the improvement in symptoms or by the diminishing strength of the Wassermann reaction in units, and for this purpose a series of tests must be made; the "strength" of a single test has, of course, no clinical significance in any form of syphilis, as it bears no relationship to the severity of the infection

or the degree of the disease. In *tabes dorsalis* an indication of this kind may not be available, for it is well known that the Wassermann reaction may die out in the blood and in the cerebro-spinal fluid even in progressive forms of *tabes*. With this exception a sustained fall in the Wassermann reaction units holds out a prospect of cure under continued treatment—that is, a prospect of the elimination of the infective agent which has caused the pathological changes, but not, of course, a return to a normal condition of the diseased organ or system, the functioning of which, however, can be, and usually is, improved, as shown by the favourable modification of the symptoms which its dysfunction has brought about. While meningo-vascular syphilis is directly influenced through the blood stream by the remedies injected into the muscle or vein, it is held that the choroid plexus, acting as a barrier between the blood stream and cerebro-spinal fluid, prevents the arsenical and presumably the other blood-borne therapeutic substances from entering the cerebro-spinal fluid and influencing the parenchyma, and this criticism applies in particular to the treatment of *tabes*. Since we know little of the nature of the specific antisubstances which are formed when arsenic or mercury or bismuth is introduced into the body, we have no means of testing whether they do or do not pass from the blood stream into the cerebro-spinal fluid following intramuscular or intravenous injections. We have, however, as has already been pointed out, the clinical and serological evidence of their curative action, when so administered, on the infection of the central nervous system in early syphilis, which implies that in *tabes* they may be similarly effective when similarly used.

Late Cutaneous Syphilis

The development of a late cutaneous lesion, or a gumma arising in the subcutaneous area, is the most fortunate event that can happen to the individual with latent syphilis, because the appearance of a lesion or lesions of this kind is an almost certain guarantee that the central nervous system is, and will remain, unaffected. The recognition of the indemnity of the central nervous system in these circumstances has even suggested that two strains of spirochaete exist, one with a special affinity for the skin, the other for the nervous elements. Clinical experience is destructive to this theory. Thus on a number of occasions I have observed a man with *tabes* and his wife with cutaneous gummata, or the circumstances reversed. The reaction to the pathogenic agent thus dwells in the individual, since the same strain of spirochaete can be presumed to have infected both parties. Even more convincing are those very rare cases where *tabes* and skin gummata coexist, as in the following (No. 968).

This patient, a man aged 51 years, when first seen in 1920 had acquired syphilis twenty years earlier, when he was treated with mercury pills for eighteen months. In addition to *tabes dorsalis*, severe lightning pains, and a perforating ulcer, he presented over the left leg extensive superficial scarring, marking the site of a late cutaneous syphilide.

Skin gummata, superficial or deep, provide the most convincing example of the efficacy of the arsenicals in the rapidity and completeness with which even extensive areas heal and cicatrize, and this satisfactory result can be obtained by relatively few injections. In consideration of this, and in consideration of the prospect of a similarly responsive reaction should a relapse take place, it would seem that any form of prolonged treatment may be unnecessary, especially as we can rely upon the integrity of the central nervous system in such cases. The possibility of disease in other regions should not be forgotten, the buccal mucous membrane in particular. In long-

standing syphilis in men who smoke, syphilitic leucoplakia of the tongue is far from uncommon. Since this is so often the precursor of cancer of the tongue it provides a factor which must be taken into account should it be discovered.

Serum-positive Cases without Other Signs

The accidental discovery of a positive blood Wassermann reaction in an individual apparently healthy is met with from time to time. The test may have been made from caprice or as a part of a routine examination or for some other reason, and stands in quite a different category from those cases where an examination has been carried out to confirm the diagnosis of some suspected syphilitic lesion. There are undoubtedly individuals who enjoy good health and live to an advanced age, notwithstanding a positive blood Wassermann reaction: in itself, therefore, this is not an unconditional demand for treatment. A complete general examination should, of course, be carried out, including the cerebro-spinal fluid. If, apart from the blood reaction, nothing abnormal is discovered, should the patient be treated or should nothing be done? The decision turns upon the patient's age: in a young individual it would seem prudent to endeavour to bring about a cure, a procedure which will probably be lengthy and tedious, and may end in complete failure. In an elderly man or woman a negative policy will generally be decided upon; assuming an infection in early life the individual in question has passed safely through the period of greatest risk, and it is now unlikely that any of the late manifestations will develop.

Syphilis has been called the great imitator: it might equally be called the great deceiver. Its effects extend into every domain and every branch of medicine and surgery in so many different patterns and degrees as to be outside the competence of any one individual to recognize and discriminate in all its forms. In a different case stand the general principles which co-ordinate syphilis as a single disease, of which the various clinical manifestations are not isolated phenomena, but rather separate links in a complete chain.

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At a meeting, in May in Paris, of the executive committee of the International Organization for the Campaign against Trachoma, it was decided to provide financial assistance for an investigator to study the aetiology of trachoma in a laboratory in a country where this disease was prevalent. A conference will be held in Budapest next spring on prophylaxis; the opening speakers will be Mr. A. F. MacCallan, F.R.C.S., and Drs. Myashita of Japan, Zachert of Poland, Tewfik of Egypt, and Jitta of Holland. The joint conference last May of this organization and the International Association for the Prevention of Blindness gave careful consideration to the question of trachoma in colonial settlements and in Southern Europe. M. Morax opened a discussion on the part played by the gonococcus in tropical countries.

RHEUMATISM AND ITS RELATION TO ARTERIAL DISEASE AND PERIARTERITIS NODOSA

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(With Special Plate)

It will be seen that in the above title there is a linking together of a manifestly common disease with a clinically rare disorder. The principal purpose of this paper is, however, to bring forward observations on some of the recognized manifestations of rheumatic disease as affecting the arterial system, with special regard to recorded instances and a presently observed case of affection of the visceral arteries in rheumatism.

Extent of Body Lesions in Rheumatic Disease

In 1904 Aschoff established the now well-known microscopical tissue changes in rheumatic disease, and since that time it has been common parlance to refer to the Aschoff tissue or nodes in affected areas, more especially in the ventricular myocardium. Later investigators have recorded their findings of Aschoff tissue reaction in other parts of the circulatory system. Klotz noted such effects in the aorta, and MacCallum reported his researches into rheumatic lesions in the auricular musculature. Pappenheimer also carefully investigated the subject, and noted manifestations of the Aschoff type in the cardiac muscle and various parts of the arterial system. Perry, Davis, and Schlesinger, in a recent paper entitled "Thrombophlebitis in Acute Rheumatism," review the literature on the subject of rheumatism attacking the veins, and report three cases of venous thrombosis occurring during acute rheumatism. They consider that though congestive cardiac failure may play a part in some of these cases, there is such a condition as rheumatic thrombophlebitis, and in one of their cases demonstrated Aschoff tissue in the wall of a thrombosed vein. Certainly cases are recorded of thrombophlebitis occurring during chorea in the absence of any clinical cardiac lesion.

It is thus evident that since Aschoff's original discovery much attention has been directed, both in the pathological and in the clinical aspects, towards the extent of the lesions in the body of a person who is suffering from rheumatism. Clinicians who are in close contact with large numbers of cases of the disease continually recognize the wide variety of clinical symptoms and signs that may be presented, and the diversity in duration, type, extent, and prognostic features of the affection. That rheumatic disease is a general infection (or perhaps to meet the views of some authorities, an infection having bacterial, toxic, or allergic generalized effects), possessing actual or potential capacity to damage a wide variety of structures in the body, cannot be doubted. Since Aschoff's publication it is correct to say that cardiac lesions (frequently the most important, however) are but local manifestations of a general disease.

Arterial Disease in Acute Rheumatism

In an article by A. F. Bernard Shaw some interesting general observations are made concerning arterial disease in acute rheumatism. Rheumatic valvular disease is considered by him to arise as an intrinsic valvulitis in accordance with a vascular arrangement in the particular

valves of the heart. He further considers that valvulitis precedes endocarditis, and that probably the latter cannot develop until the inflammatory process has permeated the valve leaflet as far as the line of closure. In other words, the rheumatic lesion extends in the valve tissue via the local vascular mechanisms. This view of the origin of valvular lesions in rheumatism has gained many supporters. The same author outlines the extent of vascular lesions present in a girl, aged 15, who suffered from severe rheumatic fever. The tissue changes of the disease were found in the pulmonary artery, ascending and descending aorta (medial and adventitial coats), coeliac axis, visceral pericardium, both auricular walls, pulmonary valve, tricuspid valve, diaphragm (perivascular and musculo-tendinous portion), and perivascular areas in the tonsils.

Fraser discusses and illustrates the occurrence of lesions in the lymphoid tissues of the pharynx and tonsil in acute rheumatic disease. Aschoff tissue was readily detected by him in the perivascular tissue, and although the small arterioles were not involved, definite intimal proliferative reactions were seen in the medium-sized vessels. The extent to which arterial disease may occur unsuspectedly is well illustrated in a case recorded by McMichael. A young child suffered from a toxic erythema with a pyrexial illness, and a gradual progression to extreme prostration occurred. A subacute infective process of unknown nature was present (luetic disease being definitely excluded). Pathological examination revealed thickening of the coronary arteries, which appeared prominent and opaquely white, and felt like dense fibrous cords, and which, on section, showed narrowed lumen with associated fibrotic myocardial changes; microscopically, obliterative end-arterial disease was seen in the heart wall, kidney, and spleen.

That rheumatic disease of the aorta may be of very serious import is exemplified by personal observation of two instances of rupture of the ascending portion of this great vessel during active rheumatic disease in the heart and elsewhere.

In one case a youth, aged 18, while walking briskly across a field, suddenly collapsed. On examination of his medical record it was found that he had recently been recognized to be suffering from rheumatic fever, and had been advised to rest. The necropsy revealed active valvular and myocardial rheumatism, and a remarkable transverse irregular fissure in the ascending aorta one inch above the valves; also blood had escaped into the pericardium. Close examination of the local aortic tissue showed recent softening; microscopically a diffuse Aschoff reaction was seen. In the other case, almost exactly similar clinical and pathological changes were observed; in fact, the youth was admitted to hospital because of severe rheumatic fever, and collapse occurred quite suddenly, while he was under ward observation, from rupture of an aortic fissure.

It is with special reference, however, to rheumatism and periarteritis nodosa that attention is drawn in this paper. The relation of such to bacterial infection has long been suspected, and modern views hold strongly to the streptococcal agency in rheumatic disease. That infection and toxæmia from a similar organism may, on occasion, produce in the same patient extensive cardiac and visceral arterial disease will be indicated later.

Herlitz, in a recent review of several cases of periarteritis nodosa, notes its possible occurrence in association with a variety of infective processes, more especially, however, in streptococcal infection. This author considers that the same organism may cause rheumatism and periarteritis in the same patient, but that such peculiar association is a variable one, and is possibly connected with some special modification in the recipient soil (arterial system) or in the infective micro-organism.

Age and Sex Incidence of Periarteritis Nodosa

As a matter of special interest it would be advisable to make herein some observations on the more recently recorded facts concerning periarteritis nodosa. Rothstein and Welt, in their recent paper, have extensively surveyed the problem, and much valuable information is given by them. The disease is first of great interest because of its bizarre symptomatology, which adds to the diagnostic difficulties. Periarteritis nodosa was first described by Kussmaul and Marie (1866), although instances of "innumerable aneurysms in the walls of small arteries" had previously been noted. Its incidence is higher in males, and the youngest recorded patient was 3 months and the oldest 78 years. The third decade shows the highest incidence, but twenty-one cases under 15 are reported by Rothstein and Welt.

Clinical Manifestations

The characteristics of the disease are clinically revealed as a fairly acute infection, the more usual symptoms being irregular fever, increasing weakness and loss of flesh, prostration, anaemia, tachycardia, splenomegaly, and leucocytosis. Associated with the general symptoms are certain special phenomena due to widely scattered vascular changes in the body; "rheumatic" pains due to affected arteries in the muscles; albuminuria and haematuria as an effect of closure of renal vessels and kidney infarctions; and intestinal haemorrhages or symptoms simulating colitis when the mesenteric vessels are involved. There may also be various cerebral symptoms through the disease involving the cerebral arterial system. Occasionally erythematous or even petéchiial rashes appear, and oedema (of renal type). Subcutaneous nodules have been found, representing either thickening in the wall of the blood vessels or actual small sacculated aneurysms (in which thrombosis occurs) in the arterial coats. Such nodules are described as small, firm, pea-sized masses, feeling shot-like, and lying along the course of an artery. These nodules, however, have only been detected in 20 per cent. of cases. Pain in the voluntary muscles may be a very pronounced symptom (some cases, on this account, have been suspected of trichinosis). Arthralgia may simulate rheumatism, and many cases have accompanied or followed sore throat or tonsillitis.

Variations in Clinical Syndrome

Periarteritis nodosa may, for convenience, be grouped into six general clinical types: gastro-intestinal, renal, muscular, cardiac, cerebral, and cutaneous. Any one case, however, may be a combination of the several types, since the clinical variations merely depend upon the same disease process involving arteries supplying the nerves, muscles, or particular organs affected, and the clinical syndrome will vary accordingly. Renal involvement would seem to be a special feature, since in 74 per cent. of cases haematuria has occurred. One very remarkable case reported by Bennett and Levine clinically simulated meningitis, the cerebro-spinal fluid having a high leucocyte count but no demonstrable bacteria, while pathological examination later revealed typical lesions of periarteritis nodosa widely distributed. Acute abdominal symptoms may arise and so simulate a surgical emergency; several cases are reported in the literature in which laparotomy was performed for such suspected diseases as acute appendicitis, perirenal abscess, cholecystitis, etc. In some cases in the later stages sudden collapse has occurred due to intra-abdominal haemorrhage from arterial rupture. The more serious symptoms arise as a result of thrombotic occlusions or rupture of arteries in vital areas; fatal cases due to rupture of acute arterial aneurysms in the brain, lung, intestine, liver, kidney, and pericardium have all been recorded.

Associated Aetiology of Periarteritis and Rheumatism

On considering the true aetiology of periarteritis nodosa most authors regard it as a special response to an infection, but no specific micro-organism has been recognized. The most interesting suggestion is that of its relation to the aetiology of rheumatic infection, an association which is strengthened by the frequency with which periarteritis has been accompanied by tonsillitis, arthritis, myalgia, and cutaneous rashes, etc., and also by the current views that rheumatic disease is directly associated with infection by streptococci. Rothstein and Welt have recorded a case in which lesions due to rheumatic fever and to periarteritis nodosa were both present.

ROTHSTEIN AND WELT'S CASE (Abstracted)

Boy, aged 7, no important previous disease and no previous rheumatism. Mild attack of scarlet fever followed by usual desquamation; three weeks later pyrexia and cervical adenitis. Attacks of severe cramp-like epigastric pain lasting ten to fifteen minutes; fever, enlarged cervical glands, and the pains lasted five days. Pain occurred in the foot, thumb, and groin, these pains being transient, migratory, and aching, but insufficient to limit movements. Five weeks after initial illness dyspnoea, weakness, and pallor became evident, and diagnosis of rheumatic heart disease was recorded. The temperature then noted to be 106° F., and evidence of mitral lesions present. Leucocytes 16,000 per c.mm.; blood cultures negative. Congestive cardiac failure. Pathological examination revealed rheumatic valvular disease with typical verrucose vegetations on the mitral, and to a lesser extent on the aortic, valves; Aschoff bodies in the myocardium on microscopical examination. Gross periarteritis nodosa was revealed involving the pulmonary, coronary, and renal arteries, while microscopically the arterial changes were seen also in the liver, stomach, diaphragm, suprarenal capsules, pancreas, spleen, and a branch of the external iliac artery. The authors consider this case to be an example of the "cardiovascular type of periarteritis nodosa" which "clinically seemed one of rheumatic cardiovascular disease with rapid decompensation and subsequent cardiac failure."

A personally observed case of combined rheumatic disease and extensive visceral arterial disease was carefully investigated by us, and the following descriptive data are given for consideration.

Authors' Case of Combined Rheumatic and Arterial Disease

The patient, a boy of 15, gave no history of rheumatism or of any other illness until seven weeks before admission, when he complained of pain in the back and in several of his joints; he was noticeably drowsy, on one occasion falling asleep at work. Later his speech became slurred and indistinct; he grew more and more fidgety and restless, and his gait became bad. On admission his temperature was 102.5° F., but apart from this he presented the typical picture of a severe case of rheumatic chorea. He could not keep still for a moment: his face was constantly twitching and grimacing, he had the characteristic choreic glossal movements, and his lips were bleeding where he had bitten them. His hands, when extended, showed the flexion of the wrists and the hyperextension of the metacarpo-phalangeal joints which is so invariably seen, and when gripping one's hand he writhed about in the bed as though to increase the strength of his grip, which varied in the usual manner. When he put his hands above his head he could not keep the palms facing one another, and the alteration in respiratory rhythm was very obvious. The left knee-jerk was choreic, and the skin on his elbows, heels, and shoulders was red from the rubbing brought about by his unceasing movements. The fundi were normal, and apart from the left knee-jerk the reflexes were normal. Clinically the heart was not enlarged, and the sounds were closed. The pulse was 118 and regular. There was a faint haze of albumin in the urine, but microscopically no cellular elements were seen. There were no rheumatic nodules, and the skin was dry.

DIAGNOSIS AND TREATMENT

A confident diagnosis of chorea was made, and 30 grains of sodium salicylate every four hours was prescribed. At first the patient's pyrexia seemed to respond to this therapy, but during the whole period in hospital his temperature was never normal for twenty-four hours together. The choreic movements remained as violent as ever, and he frequently complained of severe precordial pains, headaches, and limb pains, especially in the hands, for which no cause was apparent. The albuminuria persisted, but no blood was found even with the microscope. The heart remained quite normal clinically and the spleen was never palpable, but he was rapidly losing flesh and obviously going downhill. Throughout the illness the skin remained remarkably dry. Liquor arsenicalis was tried, but this, like the salicylates, did not cause any clinical improvement. A lumbar puncture ten days after admission showed a normal fluid, apart from a slight chloride diminution—673 mg. per 100 c.cm.

After seven weeks the patient became very drowsy, and complained a great deal of headache, but there was no vomiting. Neck rigidity and a Kernig's sign developed, but the fundi were still normal and the reflexes unaltered. A second lumbar puncture was done; this showed clear, colourless cerebro-spinal fluid under slightly increased pressure, with a protein of 100 mg. per 100 c.cm., chlorides 637 mg. per 100 c.cm., sugar 48 mg. per 100 c.cm., excessive globulin, and a positive permanganate test, but no cells and no organisms. The blood urea was 44 mg. per 100 c.cm. Epileptiform seizures occurred; a few days later he had four, and died the following day with a temperature of 102° .

POST-MORTEM FINDINGS

Necropsy revealed remarkable pathological changes in various organs. In the heart there was a striking series of nodular thickenings disposed along all the branches of the coronary arterial system, even in direct relation to the smaller intramyocardial branches. Careful examination showed this to be periarteritis nodosa, and examination of the left coronary artery from within its lumen disclosed similar periarterial nodular thickenings and narrowing of the lumen. No intravascular damage or thrombosis was seen. The aorta and pulmonary arteries were normal. The heart muscle showed pallor and evidence of rheumatic carditis, and the mitral valve typical rheumatic verrucose vegetations of very recent origin, this being apparently superimposed upon a more chronic valvular cicatrization. There was no evidence whatever of any malignant endocarditis. The peripheral arteries (radial, tibial, etc.) and cerebral vessels appeared, macroscopically, to be unaffected. The brain was visibly normal. The respiratory tract was clear, and no sinus disease was present. There was diffuse pallor of each kidney, and several small recent infarcted cortical areas. This was associated with diffuse nodular thickenings of the renal arterial system and extreme narrowing of many of the vessels. In the liver, macroscopic nodular arterial thickenings were remarkably widespread. The portal venous system and the biliary tract were normal. Close examination demonstrated that the acute nodular arterial disease had involved the visceral arteries extensively, and this was specially evident in the hepatic, renal, suprarenal, and pancreatic vessels.

The photomicrographic illustrations show the character of the arterial disease. The extensive cellular reaction and narrowing of the vascular lumen is quite remarkable. The presence of inflammatory cells of the type seen in Aschoff tissue reaction is seen, this being especially evident in the section of the vessel in the myocardium.

Comment

The presence of periarteritis nodosa was not clinically suspected in this case, and its detection later was regarded with surprise. The severe precordial pain which could not be explained during the patient's life must have been directly related to coronary arterial disease and consequent myocardial ischaemia. The absence of arrhythmia and bradycardia or any other direct clinical evidence of affection of the conducting mechanism (bundle of His) is

particularly interesting in view of the extensive nature of the coronary and intramyocardial arterial disease.

The epileptiform seizures in the advanced stage of the illness could not be associated with any detectable cerebral, arterial, or other primary intracranial disease. It is surprising, in view of the considerable renal arterial disease, that no further indication than a mild albuminuria was present, and that the blood urea was only 44 mg. per 100 c.cm. The absence of pain in relation to the abdominal viscera is notable; possibly the absence of any arterial haemorrhages or extensive thrombosis explains this latter phenomenon.

Summary

It is evident from a study of the literature and the cases outlined in this paper that the clinical disorder known as rheumatic fever is essentially a disease affecting numerous structures in the body, but with special affinity for damaging the cardiac and arterial structures. The association suggested regarding a common aetiological

agent in these cases is evident, and in the light of recent records it would appear that whereas streptococcal infection or toxæmia in rheumatic fever may confine the tissue damage to certain individual structures—for example, heart valve or nervous system—in other cases a variable degree of severe arterial disease may occur and render itself apparent by any of the symptoms by which periarteritis nodosa is recognized. The possible grave prognostic importance of these latter phenomena is indicated in the cases here discussed.

We are grateful to our senior physician, Dr. Mackey, for his permission to use the case records.

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INFLAMMATORY DISLOCATION OF THE ATLAS

BY

DUNCAN C. L. FITZWILLIAMS, M.D., F.R.C.S.

(With Special Plate)

We are all familiar with the curious sequences of cases which sometimes occur in practice, but few people, I imagine, have had two boys walk into their consulting room one after the other with dislocated cervical vertebrae. Yet such happened to me. One was sent by a doctor in Peterborough, and the other by a doctor in Ilford. The cases were as follows.

Case I

A boy, aged 15, whom I saw on February 19th, 1932, was brought to me complaining of stiffness of the neck and pain on certain movements. He was a twin; his sister had died at birth. In July, 1931, he suffered from rheumatic pains in the neck, and in August the neck became stiff, bent to one side, and movements were limited in all directions. Since then movements had gradually improved, but were still limited, especially rotation. During July he had rheumatoid pains in ankles, knees, back, and shoulders, but these gradually decreased and were now rarely felt. About fourteen days previously, when sitting on the ground, his small brother, aged 6, fell against him and bent his neck forwards. The head, however, was in its present position before this accident. An x-ray photograph taken at Peterborough showed displacement of the atlas on the axis. Another taken at St. Mary's Hospital showed anterior dislocation of the left side of the atlas on the axis, with some downward displacement on that side.

EXAMINATION

So identical were the two cases that one description will do for them both. The head was inclined to the left shoulder and the chin directed to the right. The former seemed to be displaced slightly to the left side. It was held stiffly, and voluntary movements were very limited in extent; it could be rotated more to the right than to the left. Flexion was limited after a short excursion, and was painful. The pharynx seemed full, and a prominence could be felt on the posterior pharyngeal wall, especially on the left side slightly above the level of the soft palate, so that it was masked and had to be felt for.

TREATMENT

The condition was explained to the father, who refused to allow any active attempts at reduction. The head was immobilized and an extension apparatus applied with a weight and pulley. The patient was kept lying down in this

apparatus for ten weeks. At the end of this time the pain had disappeared, but the movements of the head, though freer, were still limited. In February, 1933, in a letter stating that the boy had begun to fail about a month after leaving the hospital, Dr. Clapham wrote: "He is gradually losing the use of his arms and legs, and has begun to stagger. He is now very thin, gets up from a chair like a pseudo-hypertrophic muscular paralytic, but can bend to his toes and rise up without climbing up his thighs. His deltoids are wasted, his grip feeble, and his interossei wasted. He has wrist-drop on the right side. My opportunity to overhaul him was limited. There is a swelling below his occiput." Unfortunately Dr. Clapham died, and his successor has not been able to trace the case.

Case II

A boy, aged 10, was brought to see me for stiffness of the neck and pain on moving the head. About four and a half months previously, enlarged glands had appeared in the neck, chiefly on the left side, after a feverish cold, which lasted a week. Hot fomentations were applied for three weeks. Then the patient had quinsy. Five weeks previously he suddenly developed a stiff neck, and held his head stiffly and would not move it. His tonsils were removed in King George's Hospital, as they were thought to be the cause of the trouble. This, however, did no good. The patient constantly supported his head in his hands, except when lying down. Examination proved that the case was exactly similar to the last one.

The x-ray report showed the atlas displaced forward on the axis on the left side—a subluxation. It was thought it might be a developmental error; there was no evidence of caries. His doctor, after I wrote to him, was still doubtful of dislocation, and took him to St. Bartholomew's Hospital, where my diagnosis was confirmed.

I thought that perhaps an injury had been done him while under the anaesthetic for the removal of his tonsils, but the history showed that the wry-neck was established before the operation, which had, in fact, been performed to cure the condition.

SUBSEQUENT PROGRESS

His father refused all treatment, and I did not see him again. I heard a year later that there was considerable improvement in the condition, but the wry-neck still persisted. On January 1st, 1933, Dr. Thomson Brown wrote to say that the patient was in excellent health, but the neck was still obviously dislocated. He had been taken to a bone-setter, who had wrenched his neck about and told him he would be well in six months. He did not improve, however. In January, 1934, Dr. Thomson Brown reported that in the preceding autumn the boy developed tuberculous glands on the left side of the neck. These were curetted in September, and the wry-neck completely disappeared while he was in hospital. The x-ray photograph now shows no signs of displacement.

The dislocation of the atlas vertebrae is very rare, and previously I had never seen a case apart from severe injury. Here, however, were two boys brought by their parents, who had no knowledge of the nature of the trouble.

Cases in the Literature

The condition was familiar from the writings of Grieg and from the excellent paper on the subject by Watson Jones in the *Proceedings of the Royal Society of Medicine*, (February, 1932). He could only find records of eighteen cases. Since that time, however, I have found other cases reported. In most of them the essentials of the history are absent, as the true pathology was not recognized.

Age Incidence and Aetiology

The condition so far, with few exceptions, has been confined to youth, all but two cases occurring under the age of 20. The ages were: at 12 and under, twenty-one cases; at 13 and under, one case; at 15 and under, one case; at 17 and under, one case; at 22 and under, one case; over this age, two cases. In none of the cases was there a history of sufficient violence to cause the condition apart from other factors. Some of them have been dramatic in their suddenness. In one case a nurse was dressing tuberculous sinuses in connexion with the glands of the neck; to see better she gently turned the child's cheek with the back of her hand; the child choked, became cyanosed, and died. Post-mortem examination revealed pressure on the spinal cord by the odontoid process (Reid).

In my first case operation had been performed upon the tonsils, and it was suggested that manipulations of the head, when the child was under the anaesthetic and when the muscles were relaxed, might have accounted for the dislocation. I carefully questioned the father, and he assured me that the stiffness had been noted before the operation, and that in fact it was the stiffness, which was then thought to be due to tonsillar inflammation, that decided him to have the operation performed. In Swanberg's cases the condition was noted after a tonsillar operation, which may have determined it. Fitzsimmons's second case was that of a girl of 8, who, in jumping, fell upon her head, and then had a marked infection of her throat, after which the condition was noted. The patients in Cases 3 and 4 of the same author were also said to have fallen on their heads; in Case 3 there is no mention of any inflammatory trouble, but in Case 4 large glands were noted in front of the sterno-mastoid. In each case the condition was attributed to the accident.

So far there have been thirteen females, sixteen males, and two cases in which the sex is not mentioned.

The Associated Inflammation

This seems to be the dominating factor in all the histories. The inflammation has been in the nasopharynx, upper part of the neck, or near the base of the skull. In youthful patients the inflammation has obviously been of the acute type, situated in the region of the nasopharynx—namely, "sore throat," tonsillitis from various causes, or adenitis of the upper cervical glands; in one case there was periostitis of the mandible (Wittek), and in two cases acute mastoiditis. In older patients both tubercle and syphilis have accounted for the condition. Stammers's case was an excellent example of tuberculous caries in a man of 30.

Pathology

This condition has no well-recognized name. Défossez called it the "maladie de Grisel," while others have invented many methods of describing it. Perhaps in-

flammatory dislocation of the atlas from axis describes it as closely as possible. Concerning the pathology there have been fewer suggestions. Wittek's suggestion that it was due to an inflammation of the tissue round the odontoid process is perhaps the most ingenious. Increased blood supply to a bone has always been associated with a certain amount of absorption of calcium from the bone. This is best seen in the caries which results from tubercle, where the bone is worm-eaten and loses weight to a marked degree; it is a common sight to see candidates in examination weighing a bone in their hands to decide whether it has suffered from tubercle or syphilis. But it was Grieg's observations which brought to our notice that increased blood supply meant decalcification and softening of the bone. With this in mind the true pathological interpretation of the condition became easy.

The accident occurs in young children at a time when the bones have not reached maturity, when they are still growing, are more vascular than adult bones, and, therefore, when they participate more readily in the increased vascularity which accompanies inflammatory processes in their neighbourhood.

We have seen that though this form of dislocation occurs in association with inflammatory processes in the neighbourhood of the base of the skull, a certain period of time is necessary for the decalcification to take place after the inflammatory process has started. This is shown in nearly all cases where a detailed description of the disease is given. These facts are confirmed by x-ray photographs, which reveal that decalcification has taken place in the anterior part of the ring of the atlas. This might be thought to be congenital if it were not for the excellent photographs published by Mr. Watson Jones, which show the ring of the atlas again fully calcified four months later.

The anterior and lateral part of the ring of the atlas is softened by decalcification, and so the attachment of the transverse ligament becomes insecure, and the odontoid process is no longer held in position. All the other ligaments attaching the odontoid to the atlas vertebrae partake in the softening. When this has happened the scene is set for some slight but sudden movement to cause displacement between the two bones, which now have little to hold them together, and the atlas passes forward upon the odontoid vertebra.

It all depends upon the degree of excursion of the bone as to what occurs. If the excursion is bilateral and extreme the odontoid process will immediately press upon the spinal cord and sudden death will result as in Reid's case, quoted above. If the excursion is unilateral and slight only one side will be subluxated, and the spasm of the muscles will fix the subluxation and make up in some degree for the lack of ligamental restraint.

With the passing away of the inflammatory process recalcification will take place, and it may be that the subluxation will be reduced of itself, but the edges of the articular processes are sharp and well defined, and tend to hitch the one on to the other; this makes spontaneous reduction difficult. Nevertheless, it has occurred quite unexpectedly in several cases, early in one of Fitzsimmons's cases, and after two years in one of mine, where it may have been helped by manipulation of the neck during the curetting of the tuberculous glands.

Clinical History

The histories are mostly similar, and seem to register a very clear picture of the condition. The child has an inflammatory condition of the nasopharynx or upper part of the neck. One to two weeks later stiffness of the neck is complained of, and the head is held in a wry-neck position. In most cases there is no history of violence,

and the matter is treated as part of the inflammatory process, which indeed it is. In one or two cases where there has been a fall it is not quite clear if the condition was due to it, though in some cases violence was adjudged the cause.

The child assumes the ordinary position of wry-neck, and there is a certain amount of rigidity and fixity of all the muscles of the neck; and movements or attempts at movements are resented as painful. At first little is thought of the condition; in few cases is it considered necessary to have an x-ray photograph taken at this time. In those cases, however, where a photograph has been taken several things are noted. There is a distinct subluxation of the atlas upon the odontoid and a marked lessening of the shadow of the anterior part of the atlantoid ring compared with the bones lower down the neck; indeed, this may be so marked that a congenital defect may at first be suspected.

In the commoner unilateral subluxation there is no pressure on the spinal cord, owing to the ample space provided in this region, though this must be encroached upon. Pressure symptoms have been noted to come on almost at once, as in Ogilvy's case, where they appeared on the fourth day and disappeared again on the eleventh; or they may come on late, as in my first case. On examining the pharynx with the finger a distinct irregularity and protrusion of bone can be felt at the level of the soft palate. This is more evident on one than the other.

Treatment

A correct recognition of the factors of the condition will dictate the line of treatment to be advised. Whether control of the neighbouring inflammatory process is the first essential step, or the old rule of reducing a dislocation at the earliest possible moment is the most important, is difficult to decide. In most cases, however, considerable time has elapsed before the diagnosis is made and the case comes to the surgeon, so that the question does not arise, and then replacement at any early date is to be desired. This method was adopted in Mr. Watson Jones's two cases with complete success. The head was fixed in plaster for ten weeks; this was followed by exercises and a return to normal. No surgeon with any imagination, however, will contemplate this form of treatment lightly. The anaesthetic, by relaxing the muscles, removes the last barrier to the free movements between the two bones, and with free movements sudden death is likely to ensue. After reduction the application of a bandage round the neck cannot be altogether free from danger. In most cases it would be necessary, frankly, to explain the risks to the parents. In my two cases the parents at once vetoed any active treatment; although in one the parent had no objection later to a bone-setter wrenching the boy's neck.

One is therefore reduced to fixing the head in the wry-neck position with weight and pulleys to see if reduction will occur as the deformity and disability become less. I have no doubt also that at the tender age of most of these patients the gradual development of the parts will render less and less apparent any deformity which might ensue. Some of the patients have been kept in the recumbent position for months with excellent results.

My own belief is that these cases are more common in a slight degree than is generally supposed, and that many of the temporary wry-necks associated with inflammation of the upper part of the neck are in reality such cases in a mild form, which rectify themselves and leave no trace. It is certainly curious that if one case has been recognized and impressed upon the memory, other obvious ones seem to be encountered shortly afterwards.

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GUMMA OF THE BRAIN

WITH A REPORT OF A CASE TREATED SURGICALLY

BY

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(With Special Plate)

There is a very prevalent belief that gumma of the brain is rather a common form of intracranial new growth, but this view is not borne out by statistics. Thus Cushing,¹ whose figures cover a period of thirty years and go back well into the pre-Wassermann and pre-salvarsan era, had only twelve cases of gumma among his two thousand patients with verified intracranial neoplasms; Sachs,² again, had but four cases in eight hundred intracranial operations—that is, 0.5 per cent. of the whole. Gumma cerebri is thus to be regarded as decidedly among the rarer types of space-occupying lesions of the intracranial cavity, and it is felt that operations for the condition are of sufficient rarity to justify the publication of the case reported below, while the unusual features of the lesion, and the resultant difficulty in the differential diagnosis, make it one of special interest.

Case Record

A. A.; 37 years, a hammerman, was transferred to the Victoria Infirmary from Kilmarnock Infirmary on February 21st, 1934, suffering from headaches, mental deterioration, Jacksonian epilepsy, and gradually increasing right-sided paresis, of eight months' duration.

There was a definite history of syphilitic infection, diagnosis of which was made in 1919; energetic treatment followed, after which his Wassermann reaction, previously positive, had become negative.

In July, 1933, he came home from work complaining of very severe pains in the head. These persisted, and two weeks later he had his first Jacksonian seizure. Further fits followed at varying intervals; occasionally he would have two or three in twenty-four hours, at other times periods of freedom of several days would occur. Gradually it was noticed that he was losing power in his right hand, and later the right leg became involved also. This was his state when he was admitted to Kilmarnock Infirmary on October 13th, under the care of Dr. Hamilton and Dr. Currie, and thereafter, in spite of energetic anti-syphilitic treatment, his condition gradually deteriorated, and by the end of October he was bed-ridden. The fits continued, as did the severe headaches, and latterly these had been associated with periods

of drowsiness, while his mental state had deteriorated very noticeably.

The fits were typically Jacksonian; starting in the right thumb and forefinger, the clonic spasms spread gradually up the limb to elbow and shoulder, finally involving the right side of the face. Except on one doubtful occasion, consciousness was never lost, while the fits were invariably followed by a temporary aggravation of the paresis.

Examination.—On admission to the Victoria Infirmary he presented the following appearances: a tall, thin, pale, and obviously ill man, he was noticeably drowsy and incooperative, and answered questions with difficulty and with marked inaccuracy; so much so that his story, when checked with that from other sources, was found to be false in almost every detail. X-ray examination of the skull was negative; the Wassermann reaction of the blood was positive. The following signs were found on neurological examination. The fundi were normal, as was the visual acuity, while the visual fields, as far as could be ascertained, were full. There was a right-sided facial paresis of the upper neurone type, moderate in degree; the tongue deviated to the right when protruded. It was impossible, because of his mental state, to test his sensory functions, while the extreme hemiparesis made an examination of gait and station impossible; the right arm and leg showed a very marked palsy of upper motor neurone type, more pronounced in the upper limb, with marked spasticity and some contracture of fingers, wrist, and elbow. The right arm reflexes were exaggerated, as was the right knee-jerk, while the right plantar reflex was extensor, with ankle-clonus.

Operation.—This was done on March 7th, 1934. Under local infiltration with novocain, supplemented with morphine and scopolamine, a large bone-flap was turned down over the lateral aspect of the left hemisphere. The bone was rather thicker and more vascular than normally. The dura, whose surface appeared normal, was under moderately increased tension. When a dural flap had been turned down the exposed convolutions were found to be everywhere yellow, oedematous, and flattened, especially in the upper part of the field.

In this region, in the upper portion of the post-central gyrus, was a rather depressed, sharply defined area, about a centimetre in diameter, the surface of which presented a firm, purplish-grey appearance. In order to obtain a piece of tissue for examination an incision was made in this area, when at once a quantity of thick material like pus poured out. The possibility that we were dealing with a chronic brain abscess occurred at once, and the incision was hastily plugged with a pledget of cotton, while a report on the characters of the purulent fluid was awaited. It proved to be composed largely of mononuclears, while no organisms could be seen in smears, and on the strength of these findings a diagnosis of a breaking-down gumma was made, and it was decided to try extirpation of the lesion.

Complete evacuation with the sucker was followed by occlusion with silver clips of a few small cortical vessels running into it, and thereafter it was possible to seize the thick fibrous wall and gradually remove it from its bed by traction, combined with gentle wiping away of the adherent brain with cotton pledgets wet with Ringer's solution. Ultimately the capsule was removed intact, but in a rather torn state, so that measurements were difficult, but it was estimated that the lesion, before evacuation of its contents, was probably about the size of a small hen's egg. The dura was closed completely, the cavity left by the removal of the gumma being drained by a small strip of rubber dam. The bone-flap was replaced and the scalp sutured in the usual way.

Pathological Report.—The tissue, which was examined microscopically, was definitely gummatous, and no difficulty was experienced in recognizing it. In sections taken from different portions of tissue the different areas which compose a gumma could be identified. In the periphery there was an area of dense character, encapsulating the more cellular and the softened tissue, and forming a wall of demarcation from the surrounding congested brain tissue. This area showed connective tissue cells of new-formed character, mixed with cells of lymphocytic and polymorphonuclear type. An area which was more cellular and highly vascular was situated internal to this. The features of this part of the section were the numerous dilated and well-filled blood vessels, and groups of

cells of epithelioid and plasma type. The central area was necrotic, and showed softening and caseous change. In this area cells of inflammatory character, polymorphonuclear and mononuclear in type, were present with occasional giant cells of irregular outline, and with no attempt at tubercle formation. Both in the new formation and in the adjacent brain tissues groups of mononuclear cells almost resembling septic foci were seen; but the softened contents from the cyst-like cavity showed no evidence of pathogenic or tuberculous organisms.

The vascular changes were quite definitely those of a syphilitic lesion. A large number of the blood vessels showed thickening of their intima with swelling of the endothelial cells, and a few revealed an obliterative endarteritis. Other vessels showed a periarthritis with a distinct appearance of cuffing of the vessel wall.

Progress.—Recovery was uneventful, and the patient was discharged to a convalescent home on March 22nd, when he could already walk across the ward with some assistance. A mild degree of aphasia, present since the operation, was showing some signs of improvement. He reported again on May 3rd, when his condition had greatly improved. He walked with a barely noticeable limp, his former aphasia being shown only by some hesitancy in speaking and an occasional difficulty in finding a word. There was still some spasticity and weakness in the right hand and arm. Mentally he was a transformed individual, alert in manner, and displaying a pronounced sense of humour when he related his recollections of his pre-operative state.

Discussion

Forty years ago the treatment of brain tumours, despite a few brilliant successes by Horsley and Macewen, was in an early stage of evolution, while the discovery of the Wassermann reaction was still ten years distant. The customary treatment of a case of suspected cerebral tumour was a lengthy course of mercury and potassium iodide, on the principle that if antispecific treatment failed but little remained to be done. In 1893 Sir Victor Horsley³ read his classical paper in which he pleaded with the profession to shorten this period of antispecific treatment to six weeks, and urged that they should hand over to the surgeon any brain tumour patient whose condition had not very definitely improved by then.

In 1934, however, thanks to the great advances in the technique of intracranial surgery and to the development of the Wassermann reaction, Horsley's plea has become of historic interest only, and in the vast majority of cerebral tumour cases the finding of a negative Wassermann reaction is now followed by speedy recourse to operation. Cases of true brain tumour do, however, occur in which the blood or cerebro-spinal fluid shows a positive reaction, a fact perhaps sometimes not sufficiently appreciated by the physician. Moersch⁵ has said: "None of the serological data, the condition of the fundus, nor any one cardinal symptom are pathognomonic of either brain tumour or syphilis"; while Martin⁶ describes two cases of brain tumour with positive Wassermann reaction which were treated for lengthy periods by antispecific measures, and points out that the presence of a positive reaction does not necessarily mean that the symptoms of involvement of the nervous system are of syphilitic origin. Bagdasar,⁷ again, in a paper from Cushing's clinic, states that the neurologist is still too much inclined to see specific lesions whenever the Wassermann reaction is positive in the blood or cerebro-spinal fluid, and maintains that what he terms this "abuse of the diagnosis of nervous syphilis" is very widespread to-day among neurologists.

Even granted that a lesion is of syphilitic origin, it should, however, be emphasized that antispecific treatment may be quite ineffective. This can be readily seen to apply in such a case as ours, in which a thick, fibrous wall isolated the interior of the lesion from its surround-

ings. Horsley pointed this out many years ago, and demanded concrete proof of the healing of a cerebral gumma by medicinal treatment. In this view he was supported by Puusepp,⁶ who holds also that certain cases of chronic syphilitic meningitis should be submitted to surgical treatment when uninfluenced by iodides, and claims good results. Martin,¹ again, points out that there are cases of syphilis of the nervous system in which operation may favour the activity of medical treatment, when this was previously of no avail.

Altogether, there is much to be said for Bagdasar's view when he writes:⁶ "Ainsi donc, nous conseillons d'opérer toujours les malades suspect d'être atteints de gommages cérébrales, l'opération montrera d'ailleurs le plus souvent qu'il s'agit d'une tumeur cérébrale et très rarement d'une gomme."

We may sum up the position by saying that our attitude towards gumma of the brain should be that of Horsley towards cerebral tumour forty years ago—if no improvement results after a short course of medical treatment the case should be handed over to the surgeon for removal of the lesion, or, failing this, for decompression.

A very unusual feature in our case is the extraordinary resemblance the lesion presented to a chronic encapsulated intracerebral abscess. In the literature available we have failed to discover any note of a syphilitic focus with such appearances in this situation, although one is familiar with the occurrence of pronounced central liquefaction in gummata in other organs, notably in the liver. Again, Garland and Armitage⁷ have stated in a recent paper that gumma of the brain is to be distinguished from tuberculoma in that it is probably always attached to the dura mater, and in this our case provides the exception to the rule, the dura being neither adherent nor otherwise involved. The point to be noted is, however, that in the differential diagnosis of gumma the fact of its rare simulation of chronic brain abscess should be borne in mind.

We must express our indebtedness to Dr. Currie, Dr. Hamilton, and their house-physician, Dr. Gemmill, for very careful notes of the patient's condition during his stay in Kilmarnock Infirmary, while to Dr. John Anderson, director of the clinical laboratory, we wish to tender our thanks for his examination and confirmation of our slides, and for a great deal of valued help.

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The following international medical post-graduate courses will be held in Berlin this autumn. From October 1st to 13th there will be a course in internal medicine with special regard to tuberculosis, followed by a course in tuberculosis from October 15th to 20th. Throughout this last-named week there will also be a course in obstetrics and gynaecology. A post-graduate course in diseases of the ear, nose, and throat will extend from October 1st to 13th; another in paediatrics from the 22nd to 27th; and a third in surgical intrathoracic disease, with special reference to pulmonary tuberculosis, from October 29th to November 2nd. Individual training classes in all branches of medicine are held each month, including bedside and laboratory practice, and concentrating on practical work rather than on theoretical studies. Programmes and further particulars are obtainable from the Berlin Academy for Medical Post-Graduate Training, Robert Koch Platz 7, Berlin, N.W.7.

CAESAREAN SECTION

DELIVERY OF 254-DAY EXTRAUTERINE FOETUS

BY

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MASTERTON, NEW ZEALAND

(With Special Plate)

Modern textbooks give good descriptions of the methods of escape and survival of the ectopic foetus. I find them especially lucid in *Diseases of Women*, by "Ten Teachers." Whitridge Williams includes a long bibliography, while Gould and Pyle (*Anomalies and Curiosities of Medicine*, 1898) give a summary of recorded cases to that date.

It would appear that operation has generally been very much more difficult than in the case recorded below. This happy state of affairs followed on the complete retention of the placenta within the tube, no part escaping to form general adhesions. A factor in the non-recognition of the condition was the position of the sac above the

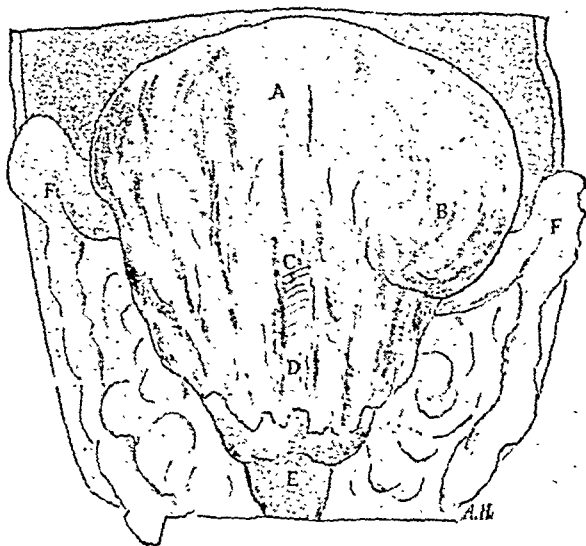


FIG. 1.

- A, Omental sac containing foetus.
- B, Foetal head.
- C, Omentum in front of placenta.
- D, Position of omental adhesions to abdominal wall.
- E, Uterus below placenta.
- F F, Colonic flexures.

uterus, and its growth upwards as if in continuity. It is consoling, however, to find it stated, on the authority of the "Ten Teachers," that these cases of erosion "may show no symptoms to suggest that pregnancy is in any way abnormal."

I am not able to state just when complete erosion of the gestation sac took place. Probably the extrusion of the foetus in its unruptured amnion was slowly progressive. The fixation of the lower omentum to the old scar evidently held it in such position that upward growth pushed the foetus between this and the transverse colon, enabling a wrapping of omentum to form a protecting nest. I think Fig. 3 explains this. Of the other illustrations in the text, Fig. 1 shows the position as first observed on opening the abdominal cavity. Fig. 2 shows the position of the parts with omentum removed. The foetus is above the enclosed placenta, while the cord and tubal isthmus diverge from the tubal rent. It also shows the amniotic cap on the foetal head, and the position of the adherent transverse colon.

Case Record

The patient was a woman, aged 35, who had been married for eight years, and who gave the following history. Beyond slight indigestion and constipation she had always been healthy, the menstruation being regular and free from pain. Five years ago, three years after her marriage, I had operated on her for right-sided ectopic gestation at about the seventh week. The left tube and ovaries were normal, and recovery was uneventful. There had been no other pregnancy. Menstruation had continued normally.

PRESENT ILLNESS

First consultation, August 15th, 1932. The patient complained of weight in the pelvis and constipation, and was ten days over her menstrual time, the last period dating July 5th, 1932. Menstruation did not recur, and vaginal examination during the second and fourth months showed apparent enlargement of the uterus in keeping with corresponding stage

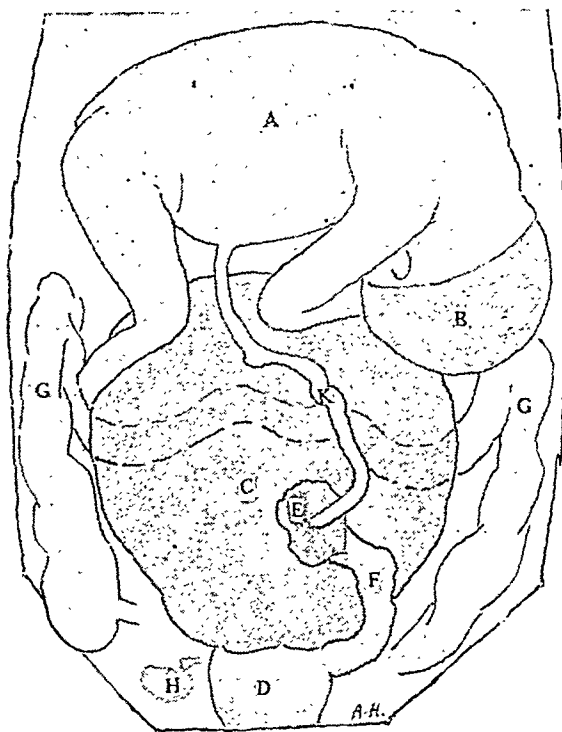


FIG. 2.

- A, Foetus.
B, Foetal head with amniotic cap.
C, Placenta in tube.
D, Uterus.

- E, Rent in tube.
F, Left tubal isthmus.
G, G, Colon.
H, Right ovary.
K, Umbilical cord.

of pregnancy. The position was good, and the parts were freely movable. There was nothing abnormal to note in connexion with the adnexa. The urine was normal. Constipation continued, accompanied by pain across the abdomen below the umbilicus. Evacuation of the bowel was difficult, but relief was afforded for twenty-four hours or more by the use of enemata. This condition persisted all through the pregnancy, becoming steadily worse, and constituting a source of much anxiety: it was attributed to adhesions from the previous operation. Apart from the constipation and associated pain there was no other abnormal symptom.

The uterus was not examined per vaginam between the sixteenth and twenty-sixth weeks, but frequent observation was made by palpation through the abdominal wall. The increase in size was still in keeping with the duration of the pregnancy. During the seventh month it was noted that the foetus lay persistently transverse, with the head to the left,

the body of the child being high. Examination revealed no parts of a second foetus, but a resistant mass above the pelvic brim and below the foetus raised the question of cystic tumour or foetal abnormality. This mass increased noticeably during the eighth month, at which time the foetus was also developing well.

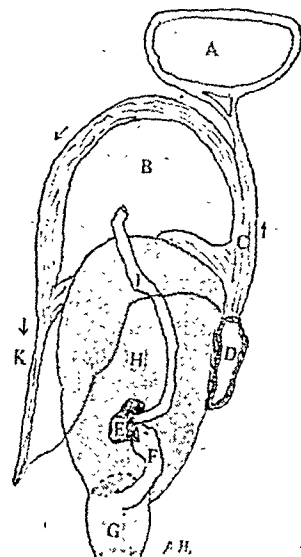
On the 250th day of pregnancy I took an x-ray picture of the abdomen (see Special Plate). After consultation, arrangements were made for Caesarean section, but as the patient was fairly comfortable, and as it was desired to give the child all the time possible, operation was delayed until the 254th day. The foetal heart had ranged at 140, but during the last day before operation it rose to 174. During this last, twenty-four hours the mother had intermittent severe pains, as if in labour.

OPERATION

On March 16th, 1933, using avertin and subsequent ether, I made a lower mid-line incision, and found easy access. The condition can best be understood from the accompanying drawings, which are from rough sketches made at the time. The foetus lay outside the uterus in transverse position, head to the left. It was close up under the liver and stomach. Below was a rounded tumour comparable in size to a six

FIG. 3

- A, Stomach.
B, Omental sac containing foetus.
C, Posterior omental sac.
D, Transverse colon.
E, Rent in base of ampulla.
F, Left tubal isthmus.
G, Uterus.
H, Tubal ampulla enclosing placenta.
I, Umbilical cord.
K, Great omentum adherent to abdominal wall.



months pregnant uterus. The omentum was adherent along the old abdominal scar, and covered the greater part of the lower mass. The foetus was covered behind, above, and in front by a thickened and fibrosed omental sac. The transverse colon lay at the back, below the foetus, being firmly adherent to the tumour, which formed the lower part of the sac in which the foetus lay. Apart from these adhesions the colon was free at each side, and the small intestines were wholly free.

The child was delivered through the anterior layer of the omentum. The sac contained an amount of meconium-stained fluid estimated at about 16 ounces. There were ill-defined foetal membranes lining the sac. The top of the child's head was enveloped in a close-fitting cap stronger than the rest. Exploration of the tumour mass below was easy, as there was not much in the way of adhesions. It consisted of a normal-sized placenta within the distended tubal ampulla, which was tough and firm. It lay free, except for adhesions to the transverse colon and light omental adhesions at its upper pole. It was not adherent to the anterior apron of omentum behind the old scar. At its base there was an opening, through which the cord emerged to ascend to its foetal connexion, and through which the foetus had escaped from the tube. The cord was well developed, and of medium length and thickness. Below the opening the tubal isthmus, much thickened (1 in.) and elongated (6 in.), led to the left uterine cornu.

The uterus had reached the size of a two months pregnancy. It was fitted into the base of the tubal mass in such a manner as to give, on first examination, the impression of a continuous whole. The stump of the right tube, remaining after the former ectopic operation, and a small right ovary, were attached and free from adhesions. The overgrown tube containing the placenta was detached at the uterine cornu. The only difficulty in completing its removal was the separation of the transverse colon. Omental tissue covered these defects. A large rubber tube was inserted to carry off oozing products, the upper omental cavity being left to drain into the lower area. There was no trouble with bleeding.

CONDITION OF THE INFANT

The child, a female weighing 5 lb. 12 oz., was born alive, and there was little difficulty in establishing breathing. It was a normal pink baby, with hair and nails in keeping with its development. It only survived nine hours; for most of that time it breathed well and was of good colour, but did not cry. In spite of the attention of a capable nurse life could not be maintained.

CONDITION OF THE MOTHER

The patient suffered much nervous reaction following the operation. On the second day she had five epileptiform convulsions. These came on suddenly, as if she had had a smack in the face, and were followed by spasm and convulsion of the whole body. Within fifteen minutes they passed off, and she was quiet and conversing again. They did not recur. She complained of dullness of vision with flashes before her eyes, and at times was forgetful and irrational. The urine was normal, the bowels acted well, there was no distension, and she took nourishment well. Her blood pressure was 144 systolic, reduced to 115 at the end of a fortnight. The temperature did not go above 100° F., though the pulse was 110 to 120 during the first week. There was not much discharge from the wound; the drainage tube was removed on the third day, the stitches on the tenth day, and the wound healed without trouble. There was slight bleeding per vaginam on the third, fourth, and fifth days, followed by a uterine cast on the sixth day. This was complete, and measured about 3 by 2½ inches when spread flat.

Unfortunately, convalescence was interrupted at the end of the third week by a venous thrombosis of the left leg. The patient was, however, discharged at the end of seven weeks from the date of operation. She is now (after twelve months) in good health, and can drive a motor car and engage in the usual activities of life. Her menstrual periods returned at the end of the third month after operation, and have remained normal. There is very little trouble from constipation.

A CUTANEOUS MANIFESTATION OF VITAMIN A DEFICIENCY

BY

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(With Special Plate)

The published records show that vitamin A deficiency is common in other parts of the world at the present time, but until about a year ago the occurrence of this condition in man had only been diagnosed with certainty when eye changes such as night-blindness, xerophthalmia, and keratomalacia had been found.

The case reported below suggests that minor forms of vitamin A deficiency in this country are commoner than supposed, and may at the same time show signs distinct from those already mentioned.

SYMPTOMATOLOGY OF SKIN LESIONS

Writing of cases of vitamin A deficiency seen in China, Pillat¹ describes certain skin lesions. He says that in severe cases of vitamin A deficiency the skin feels dry and becomes scaly; a marked reduction of sweating is noticeable and comedones may form. The nails become dry and brittle. Nicholls,² working in Ceylon amongst prisoners living on a diet inadequate in vitamin A and other constituents, also describes the dry skin. Minute, hard, dark-coloured papules appeared in these cases, their distribution being on the legs, abdomen, shoulders, and elbows. On examination, the papules were found to consist of enlarged sebaceous glands plugged with altered sebum. They did not tend to suppurate, but hard, dry, thin scabs formed over and around the papule. A similar papular eruption is described by Loewenthal.³ It was first observed by him during a quarterly inspection of the Uganda central prisons. The prisoners had been fed on diets low in vitamin A content, and it was found that every sufferer with other signs of vitamin A deficiency—namely, xerophthalmia and night-blindness—showed cutaneous changes in addition. Clinically, the skin was dry, this dryness affecting the whole body with the exception of the face and scalp. A papular itching eruption was present with a limited distribution. It was found chiefly on the extensor aspects of the arms, and on the front and outer surfaces of the thighs. From eighteen patients papules were excised and examined microscopically. The papule arose from a pilosebaceous follicle; the mouth of the follicle was sealed with a plug of horny tissue, among which polymorphonuclear leucocytes and lymphocytes were demonstrated. Eighty-one prisoners were segregated for observation, and of these seventy-one suffered from night-blindness, forty-five with xerophthalmia, and seventy-four with the skin lesion. For these cases no local treatment was given for the skin. The diets remained unchanged except that 1 oz. of cod-liver oil was given daily to each man. After nine weeks' treatment all cases with night-blindness and xerophthalmia were cured, while 98 per cent. of the dermatoses were also cured. From Nyassaland, twenty-three years ago, there came a report of similar skin lesions. Stannus,⁴ working amongst cases of pellagra, found that a few patients manifested a skin condition quite distinct from that associated with pellagra. It consisted of a folliculitis with retention of secretion; the enlarged follicles were prickly to the touch, and had a black areola.

Dr. Stannus and Dr. Loewenthal have kindly seen the case described below and have stated that the skin presents the same features as shown in their own cases.

CASE RECORD

History.—T. H., a male aged 10 years, was admitted to the Queen's Hospital for Children on April 16th, 1934. One week previously he had attended the casualty department for sore throat, vomiting, and abdominal pain, for which he had been ordered a milk diet. On the 15th his mother noticed a rash on his body, though it is certain from the

The ninth conference of the International Union against Tuberculosis will meet in Warsaw on September 4th, 5th, and 6th under the patronage of His Excellency the President of the Republic of Poland and under the chairmanship of Professor Pietrzynski. The discussion will be limited to three main subjects. Biological subject: "Biological Variations of the Tubercle Virus," opening report by Professor Karwacki (Poland). Clinical subject: "Tuberculosis of the Bones and Joints: Treatment, medical and surgical," opening report by Professor Putti (Italy). Social subject: "The Use and Organization of Tuberculosis Dispensaries," opening report by Professor Léon Bernard (France). The organization committee has prepared an attractive programme of receptions and excursions; the latter will enable members of the congress to visit the chief anti-tuberculosis institutions as well as the most picturesque scenery in various parts of Poland. Members of the International Union are invited to take part in the conference without fee. Persons who are not members of the Union and who wish to take part as members of the conference must forward their application, together with a contribution fee of 50 zlotys, exclusively through the medium of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1. Reductions on hotel prices and railway fares will be granted to members of the congress.

character of the eruption that it had been present for much longer. In answer to a direct question, the mother said that she thought the skin had been dry for several years. The general health of the boy had been good, although he had never been a vigorous type of child. On questioning it was learnt that his diet previous to April 8th had consisted of the following:

Breakfast.—Bread, jam, tea, with skimmed condensed milk; occasionally butter.

Dinner.—Generally fish with potato. The fish consisted of either dried boiled haddock, or of dogfish, the latter bought fried at a fish shop. Sometimes a sausage or the yolk of an egg was given, the yolks totalling three per week or less.

Tea.—Bread and jam; tea.

Supper.—Bread and jam.

His mother stated that the child disliked meat and green vegetables, cow's milk, milk puddings, and white of egg, and that he had not touched meat for years. According to the mother there had been no important previous illnesses and no previous skin eruptions, but the accuracy of these statements cannot be relied upon. There was one other child in the family, who was having a better diet, and who, on examination, manifested no abnormalities. The diet of the patient presents a low content of vitamin A—the breakfast, tea, and supper provided practically none of it, while on certain days of the week the vitamin content of the dinner was also low in vitamin A value.

State on Admission.—The boy was pale, and appeared to be too ill to stand up for any length of time. He was not thin, and was fairly well grown. His height was 4 ft. 6 in., and weight 4 st. 3 lb. He was apathetic, and wanted to lie down, but answered questions intelligently. The temperature was 100.4° F. His skin was dry, except on the face, the dryness being particularly noticeable over the legs and feet. An eruption was present, and consisted of hard, dry papules, one to two millimetres in diameter, many of them red in colour. Thin scales were present over and around each papule, while in the centre of the papule was a pin-point of dry material, looking silvery under a lens, plugging the sebaceous gland around which the papule had formed. The papules were reddish in colour, largest, and most numerous on the extensor surfaces of the lower limbs. Other areas affected were the extensor aspect of the elbows, both shoulder regions, the buttocks and sacral region, and a small patch in the right pre-auricular region. There were numerous horny-looking comedones on each knee; the nails of hands and feet looked drier than normal; the hair and scalp appeared normal. A small area of moist eczema was present at the left angle of the mouth.

The eyes showed no xerosis, but there was injection of the vessels of the conjunctiva running from the inner and outer canthi of the eye to the cornea. A distinct yellowing of the scleral conjunctiva was also present. Examination for evidence of night-blindness proved negative. There was no hoarseness; the tongue was red and smooth, being denuded of its superficial papillae, while the gums of the upper jaw were swollen, retracted over the carious upper incisors, and presented the appearance of pyorrhoea. The heart, lungs, and alimentary and central nervous systems showed no abnormalities. The stools were normal and there was no abdominal pain or distension. There was no excess of epithelial cells in the urine. A blood count showed little abnormality. Red blood cells, 4,020,000 per c.mm., haemoglobin, 88 per cent.; colour index, 1.0; white blood cells, 13,700 per c.mm. (polymorphonuclears 80 per cent., lymphocytes 14 per cent., hyalines 4 per cent., basophils 2 per cent.).

Treatment and Course of Illness.—No local treatment was applied to the skin, and the diet given included meat, eggs, fish, green vegetables, milk, and butter. For the first few days in hospital the boy refused meat, but has since taken it readily. Four drachms of cod-liver oil were given daily by mouth, and at the end of a week there was a marked improvement in his general condition. There was slight pyrexia at first, but in four days the temperature reached 98.5° F., and at the end of his first week in hospital the child appeared more vigorous and started voluntarily to sit up in bed. The skin became less dry and scaly, and at the end of a fortnight the papular rash commenced to subside. In about six weeks the skin looked and felt almost normal, although tiny horny plugs could still be seen and felt, plugging the sebaceous glands of the skin; this was particularly noticeable over

the legs. When these plugs were extruded a small crater-like orifice, as described by Loewenthal, could sometimes be seen with a lens. Eye pigmentation disappeared, and the injected conjunctival vessels subsided. The gums looked healthier at the end of the third week; the tongue papillae had also regenerated by this time.

At the present time children attending the medical outpatient department at the Queen's Hospital for Children are examined for evidence of similar cutaneous lesions. Already several cases have been found with apparently similar lesions of much slighter grade, and in each of these cases there is a history of a diet which by ordinary clinical standards is inadequate. Each child has been given a preparation of vitamin A, and the results which have so far been obtained are encouraging.

SUMMARY AND CONCLUSION

A case is described in which the diagnosis of vitamin A deficiency is based: (1) on the presence of a dry, harsh "goose-skin," with a papular eruption most marked on the extensor surfaces; this eruption being similar to that described by Loewenthal and his associates and by Nicholls and others; (2) on the history of a diet almost certainly deficient in vitamin A; (3) on the complete disappearance of the cutaneous abnormalities when the boy was given a good mixed diet with the addition of cod-liver oil.

I would like to thank Dr. Helen Mackay for her kindness in allowing me to publish this case, and for her helpful criticisms.

Note by Helen M. M. Mackay, M.D., F.R.C.P.

In a recent article in the *Archives of Disease in Childhood* I have suggested that the eye symptoms of vitamin A deficiency are not necessarily the earliest symptoms of this condition. Since writing that article I have had the privilege of discussing the question with Dr. L. J. A. Loewenthal and Dr. W. H. Kauntze, both of the Uganda Medical Service, and have read the valuable article by Dr. L. Nicholls, who is working in Ceylon. From their observations it is, I think, established that it is often possible to diagnose vitamin A deficiency from the cutaneous changes alone. That the skin changes which they describe are due to vitamin A deficiency seems certain. Keratinization of epithelial tissues is generally regarded as the characteristic pathological change resulting from vitamin A deficiency, so that the skin lesions they describe fit perfectly into the picture. Moreover, the administration of cod-liver oil alone, or, in two cases, of a concentrate of vitamin A alone, regularly brought about cure of the skin changes in Dr. Loewenthal's cases. The case here described by Dr. Goodwin is without doubt of the same type. Since seeing this child we have been on the look out for other such cases in the outpatient department of the Queen's Hospital for Children, and have already found several children with a slight grade of an apparently similar condition of the skin. In each of these patients there is a history of a poor and ill-balanced diet. If by the therapeutic test of giving vitamin A a number of such cases can be shown to be due to a deficiency of this vitamin, it will be established that this deficiency is far from rare in this country.

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The vacancy caused by the death of Dr. H. Watson Smith, medical director of the Lebanon Hospital for Mental Diseases, at Beirut, in Syria, has now been filled. The London General Committee of the hospital has secured the services of Dr. R. Stewart Miller, late medical director of the Khanka Mental Hospital, near Cairo, who retired from that post a year ago under the agreement whereby Egyptians replaced British civil servants. Dr. Miller brings to his new work great experience of mental diseases and administration, as well as the knowledge of Arabic and French which is so necessary in Syria.

Clinical Memoranda

LATE RECURRENCE OF CARCINOMA

(With Special Plate)

The following case is, I believe, worth recording.

A woman aged 61, a matron's assistant, came to me on March 24th, 1933, complaining of shortness of breath, loss of weight, and insomnia; the latter she attributed to having retired from her employment. I saw her again on July 17th, when she complained of lumps on her head and pains in the arms and back. She had lost 2 st. in weight, and was very sallow. There was a swelling the size of half a walnut on the left eyebrow, soft in the middle, and fading into the frontal bone; several small lumps were scattered over the scalp, much concealed by hair. She then stated that she had had an operation on the vulva in 1921, and this was confirmed by Dr. E. F. Page of Solihull, who wrote saying she had had the vulva excised for epithelioma.

X-ray photographs, taken on July 24th, showed many areas of rarefaction, of all shapes and sizes. The Wassermann reaction on July 21st was negative. The right ilium was swollen to the size of a large orange, with areas of egg-shell crackling, but there was no sign of recurrence in the vulva. The cancer cells appear to have remained dormant for twelve years in the ilium before becoming disseminated. I had permission to take a section from the scalp and ilium, and Dr. S. C. Dyke kindly reported on them.

Report on Nodule from Scalp

Such parts of the edge of the tumour mass as are available for examination show a well-formed fibrous tissue capsule limiting the periphery of the tumour. The tumour itself consists of spheroidal and polygonal cells; it is almost without stroma, the cells lying irregularly packed against each other. In one or two places a fibrous tissue stroma is present, and here the tumour cells appear to be growing from the fibrous tissue core after the manner seen in papillomata. The cells are large, with somewhat reticular nuclei and bulky cytoplasm staining densely with eosine. They are highly anaplastic and dedifferentiated, and it is impossible to state their type with certainty. They suggest an origin in squamous epithelium, but none of them show prickle cells, and there is no evidence of either eleidin or keratin formation. Free haemorrhage has occurred in certain parts of the tumour mass.

I am much indebted to Mr. Patrick for his help in this case, and to Dr. Dyas and the Royal Hospital for the x-ray photographs and report.

Wolverhampton. C. L. SPACKMAN, M.B., Ch.B., D.P.H.

A CASE OF ABDOMINAL PREGNANCY

The following case seems sufficiently unusual to merit record.

E. B., a married woman 32 years of age, was admitted to the Glendon Hospital on February 14th suffering from pain in the lower abdomen. She gave a history of amenorrhoea extending over a period of seven and a half months. She had had three children, the last being about 5 years old. On palpation of the abdomen the fundus uteri was found to be just below the level of the umbilicus; the external os was not dilated, and there was no sign of bleeding. Sedatives were prescribed for pain, and she was kept in bed. Her symptoms subsided within a week, but she was not allowed up until the twelfth day. Two days later she was discharged from hospital feeling much improved. On March 13th she was readmitted to hospital, again suffering from severe abdominal pain. The fundus uteri was just above the level of the umbilicus, and as no foetal or maternal sounds were audible on auscultation of the abdomen, a diagnosis of dead foetus was made. On March 23rd an attempt was made to induce labour by the insertion of bougies into the uterus, and it was then found that the bougies could not be inserted beyond half their length. On the following day the patient had slight labour pains, and the bougies were expelled along with a small amount of blood. Following this the pains subsided and all bleeding stopped. On the morning of April 6th the patient was again seized with severe pain in the abdomen, which was now markedly distended and rigid.

She had a temperature of 102° F., and a pulse of 110. Laparotomy was advised, but the patient refused to agree to any surgical intervention. Next day her condition was worse and she at last gave consent to operation.

The abdomen was opened by a right paramedian incision, and the parietal peritoneum was found to be much thickened—in some places a quarter of an inch thick. The peritoneal cavity was filled with blood, and a dead female foetus of about eight months' development was found lying in a "false uterus" made up of parietal peritoneum, transverse colon, and great omentum, coils of small intestine, and the pelvic peritoneal pouches. The placenta was implanted upon the great omentum and transverse colon, and coils of small intestine. By ligating the omentum in several places the placenta was cut away from it, but it was quite impossible to remove all placental tissue from the coils of small intestine for fear of causing grave injury to the bowel. After removing all that could be removed of placenta, the uterus and tubes came into view, the former being somewhat enlarged, and neither uterus nor tubes showing signs of previous rupture. The uterus was retroverted and had been pressed against the posterior abdominal wall by the developing foetus. Both ovaries were slightly enlarged. The peritoneal cavity was swabbed dry, all bleeding controlled, and the abdomen closed without a drain.

The temperature gradually dropped following the operation, and on the tenth day, when the stitches were removed, the temperature and pulse were normal. On the twelfth day after the operation the temperature rose to 100°, and there was a slight serous discharge from the lower end of the wound. On the fourteenth day the lower end of the wound had opened up somewhat, and small bits of placenta came away, following which the temperature again dropped to normal. Similar bits of placental tissue continued to be discharged at irregular intervals for a further period of two weeks, following which the sinus steadily reduced in size, and eventually healed. The patient was discharged well on June 5th. Since the date of discharge E. B. has reported herself on many occasions, and at the present time she is engaged in her usual domestic and agricultural pursuits, and feels quite well.

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C.M. Q.U. Canada.

Medical Officer, District No. 1.

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MULTIPLE PERIPHERAL NEURITIS AS A COMPLICATION OF MEASLES

Despite the fact that the complications of measles, and more particularly those affecting the nervous system, are notoriously polymorphic, I have been unable to find in a fairly exhaustive literature any but a passing reference to the occurrence of multiple peripheral neuritis as a complication of this fever.

Three months ago I was called in to attend an adult male who, fifteen days previously, had been in contact with a case of measles. The patient was of good physique, a total abstainer, and had never had measles before. His temperature, catarrhal symptoms, and rash left no doubt that I was dealing with a case of measles of moderate severity on the fourth or fifth day of the disease. On the seventh evening of the disease the patient was restless, complained of pain in his feet and legs, and, on attempting to get out of bed, discovered that his knees would not support him. His temperature was 99.6°, round which level it remained during the rest of his illness. Loss of power in the legs and feet was marked, and neither the ankle- nor the knee-jerks could be elicited. Search was then made for any concomitant diphtheritic infection, but no clinical or bacteriological evidence of this infection was forthcoming.

On the ninth day of the disease the paresis had spread to the arms, and pain of a tingling "pins-and-needles" character became a marked feature in all the limbs, and eventually necessitated the administration of morphine for its control. Tactile sensibility and sense of heat and cold were both slightly impaired in the affected parts. On the tenth day of the disease weakness of the facial muscles was evident, and in twenty-four hours the rare clinical picture of a double

facial paralysis of the peripheral type was fully developed. About this time it was also noted that liquids were being regurgitated through the nose, and a paresis of the soft palate was revealed. On the twelfth day a right-sided external oblique paralysis was detected, and it was also noted that the respirations were hurried and grunting in type, although both the diaphragm and the intercostal muscles appeared to be acting fairly well. There was no sign of any pulmonary complication.

The patient's full consciousness was maintained throughout, and there was no sign of any paralysis of the sphincters. Pain became even more difficult to control in the affected parts, as the choice of drugs had to be limited to those which would not further embarrass the man's vital centres. In view of this parlous state it was decided to administer 30 c.cm. of serum obtained from a convalescent measles patient. This was accordingly done. On the day following the injection the temperature fell to normal and the general condition of the patient was perceptibly better. On this day also it may be noted that the patient's son developed measles, which ran its usual course. On the fifteenth day the facial paralysis had definitely improved, and during the following week the various paralyses began to clear up from above downward at a remarkable rate, till at the end of ten weeks all signs, with the exception of slight diminution of both knee-jerks, had vanished. By the end of the twelfth week no abnormal signs could be detected, and freedom from pain and tingling was complete.

The question, of course, arises as to whether the administration of the serum produced the consequent benefit in this case. While I hesitate to detract from the value of Nature's wonderful store-cupboard of remedies, I, from a purely clinical standpoint, cannot but feel that some of the benefit produced in this case—in particular the fall in temperature—must be attributed to the serum.

Shrewsbury.

D. A. URQUHART, M.B., CH.B.

A CASE OF GASTRIC NEOPLASM: GASTRECTOMY

Among points of rather special interest in the case reported below perhaps the most unusual is the fact that the patient presented himself to his doctor after discovering a "lump" in his abdomen and, when seen later, himself suggested the diagnosis of a cancer of the stomach.

The patient, aged 38, a man of rather unusual intellectual attainments, was referred by his doctor for an abdominal tumour. The history given was that he had suffered from a weak stomach since a child, but latterly the disturbance of flatulence had become accentuated and more persistent than formerly. His appetite was impaired, and he complained of periods of mild upper abdominal discomfort. He had not at any time suffered pain, and consulted his doctor on discovering a lump. Examination disclosed the presence of a movable, irregular mass, descending from under the left costal margin. There was a history of war-period dysentery: other examinations were negative. X-ray examination showed a filling defect of the stomach, with delay in emptying.

Laparotomy, with a right paramedian incision, revealed a growth of the pyloric end extending on to the body of the stomach. The subpyloric glands were palpable and enlarged. Resection was proceeded with, the duodenum closed, and the jejunum anastomosed to the proximal stomach, as in Moynihan's modification of the Polya-Balfour operation. Recovery ensued.

Of particular interest is the insidious progress, and the fact that a correct diagnosis was made by the patient himself. The case well illustrates the dominant and, indeed, often the only, feature of early gastric carcinoma—the disturbances associated with flatulence. Sections of removed stomach showed a glandular carcinoma, with extensive invasion of the muscle coats. The pyloric glands, on section, were found to be infiltrated with new growth.

A. B. DAVIES, F.R.C.S.ED.,
Honorary Surgeon, Pembroke County
Hospital.

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is of the

Reviews

FRACTURES AND DISLOCATIONS

Textbooks on these subjects are too apt to follow a stereotyped form in which all the best-known and typical lesions are described, and the best-known methods of treatment indicated, including, of course, those introduced or favoured by the authors. The practitioner confronted with one of the rarer injuries will probably not consult in vain a recent work on *The Management of Fractures, Dislocations and Sprains*.¹ The authors have flung their net wide, but have not retained the whole catch. Recognizing that fractures of the skull must often involve injuries to the encephalon, they enlisted the services of the late Dr. Charles E. Dowman, a specialist in the discussion of those injuries. Likewise Dr. James Barrett Brown of St. Louis is responsible for the chapter on fractures of the bones of the face and jaws, the treatment of which requires so much familiarity with special measures.

In their preface the authors, Dr. J. A. KEY of St. Louis and Dr. H. E. CONWELL of Birmingham, Alabama, point out that all cases cannot be treated at once by specialists, and that therefore the general practitioner should at least know what is the appropriate emergency treatment for every fracture, and be prepared to improvise and apply it. The necessary equipment for fracture treatment in a hospital of 100 to 200 beds is described, and considerable stress is laid on the advisability of making one officer responsible for the care of the splint room and its contents. This room should be kept under lock and key. For emergency treatment the authors appreciate the value of the Thomas splints, but make the rather surprising statement that these are seldom available, and therefore they recommend preferably extempore board splints, consisting of two longitudinal and three transverse strips of wood nailed and screwed together. Among the complications of fracture and fracture treatment fat embolism is discussed, but only as a rare complication, under which most British surgeons will be prepared to place it. Another more rare complication is the acute traumatic bone atrophy of Sudeck, a case of which is here recorded.

The frequency of road accidents, both in America and in Britain, has made such complications as gas gangrene and tetanus commonplaces of emergency surgery, which before the war were comparatively rare. In the description of the first-named we find a statement that "the patient appears unusually sick." One feature of the disease which has struck surgeons during and since the war has been the state of euphoria, for which, unfortunately, there is no physical justification in such cases. The passing in late years in most States of the Union of Employers' Liability and Workmen's Compensation Acts has made it necessary to include a consideration of medical problems relating thereto in a comprehensive work such as is now under notice. Students of the international aspects of this matter will find on page 169 a useful table of rates of compensation for various mutilations in various States. Fractures of the spine, with and without accompanying trauma of the medulla or nerve roots or trunks, necessarily occupy a large space in this book. It is noteworthy that, in the authors' experience, some half of the cases of fracture are unaccompanied by paralysis. Compression fractures of the spine have lately been attracting much notice, both in Europe and in America. The authors will not be found lacking in attention to this branch of the subject. Its treatment is

¹ *The Management of Fractures, Dislocations and Sprains*. By John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. London: H. Kimpton. 1934. (Pp. 1,164; 1,165 figures. 63s. net.)

well set forth. In reference to Kümmell's disease the view is taken that some cases so called are really cases of undetected-compression fracture. When symptoms persist fusion operation after the manner of Hibbs is indicated.

A great deal has been written about low back sprains and backache in the United States of late years, and perhaps more importance has been given to the subject in America than in England. The analysis of 2,050 cases quoted by the authors from the *Journal of Bone and Joint Surgery* is of interest. More than half the cases were attributed to osteo-arthritis and 30 per cent. to atrophic arthritis. In only a small number of cases was fracture implicated. The methods of examination and the manipulations in treatment are very carefully gone into by the authors, who are duly cautious in their conclusions, and do not lose sight of the possibility, or even probability, of malingering and of the important part played by psychological causes in the development of painful back. Part II deals in sixteen chapters with the diagnosis and treatment of specific injuries. Its comprehensive character may be inferred from the inclusion of sprains, overpronated strained foot not being omitted. The authors frankly own up to a difference of opinion in the choice of methods of treatment of extensive compound fractures. It is agreed, however, that "the results are about the same."

We think that the fact that Dr. Key is professor of orthopaedic surgery in Washington University, and that Dr. Conwell is much concerned with the treatment of accidents on a great railway, has broadened their views in several directions, and as a result we have a very comprehensive work to which practitioners will not refer in vain. We only wish that, instead of the one volume weighing six pounds, it were bound up in two volumes.

RELIEF OF PAIN IN CHILDBIRTH

Eighty years ago the question of anaesthesia during childbirth was confused by archaic theological disputations; to-day it has assumed political proportions, to the no small disadvantage of the patient. Dr. F. NEON REYNOLDS has written a clear, concise, and eminently sane account of the present position in a small book entitled *The Relief of Pain in Childbirth*.² The first chapter is introductory, and the second, dealing with the treatment of morning sickness and other minor ailments of pregnancy, is sketchy and out of place. The remainder of the book has to do with the various forms of anaesthesia and analgesia used during the first and second stages of labour. Dr. Reynolds concludes that paraldehyde given per rectum, preceded in the case of a primigravida by a preliminary injection of morphine and scopolamine (spelt "scopolamine" throughout the book), is the best method of relieving pain during the first stage of labour which is available for general use. He believes that there is no risk of proctitis if the paraldehyde is mixed with olive oil, but fails to draw particular attention to the fact that the paraldehyde must be fresh. At least one case of sloughing of the rectum necessitating a colostomy has been reported following the use of "decomposing" paraldehyde. For the second stage of labour Dr. Reynolds recommends either chloroform given through a Junker inhaler or gas and oxygen, if a skilled anaesthetist is present. He disapproves of the use of chloroform capsules (used during the late war and reintroduced for use in obstetrics) by midwives, but suggests that they should be permitted to give paraldehyde during the first stage of labour.

Dr. Neon Reynolds's book can be recommended to all

² *The Relief of Pain in Childbirth*. By F. Neon Reynolds, M.C.O.G., F.R.C.S. Ed. London: Medical Publications, Ltd. 1934. (Pp. 114. 10s. 6d. net.)

who practise midwifery. Many readers will probably concur in the opinion that the use of scopolamine and paraldehyde by midwives would guarantee the maximum alleviation of suffering that can at present be effected with safety.

CLINICAL CARDIOLOGY

Any book which is obviously the result of a prolonged and careful study of a group of facts as these are observed at the bedside has a claim to notice in the columns of a medical journal. Dr. BRUCE WILLIAMSON's volume entitled *Vital Cardiology*³ falls within this description. The author has enjoyed large clinical opportunities; he has applied his mind to the academic problems of cardiac disorders; he has studied critically methods of treatment; and in some directions he has come to conclusions which differ from current teaching, and even bring this under direct challenge. It would therefore be disappointing were the outcome of all this industry to prove unworthy of attention and consideration. Such a negative result has certainly not happened. On the contrary, the student of cardiac disease, and particularly, perhaps, the experienced practitioner, will find interest in Dr. Williamson's pages, even though the interest is not at all points accompanied by unqualified conviction.

In the choice of his title Dr. Williamson has a double aim. The first is to advocate the interpretation of the evidences of cardiac disease on the basis of physiological and clinical observation, while the second is to reduce to insignificance the value of the instrumental and graphic methods which have become prominent in recent years; these, it is suggested, are not infrequently misleading, make prominent what is essentially secondary and subordinate, and, at the best, have largely had their day. Further, it is urged that the problems of cardiac disorder are not to be solved by isolation of cardiovascular disturbances from the general examination of the patient; and to save cardiology from the "status of a specialty" the intervention of Heaven is prayed in aid.

It is, however, in its positive propositions that Dr. Williamson's book mainly professes its value. Its central doctrine is that only in two directions can the function of the myocardial cells vary—namely, in the rate and in the force of their contraction; that, excluding psychic and other extrinsic causes of excessive cardiac rate, such excess is the first evidence of myocardial failure; and that as rapidity shortens the diastolic interval during which an active coronary circulation is secured, any degree of sustained tachycardia means inevitably progressive deterioration of the value of the cardiac force. From all this it follows that a quickened pulse rate must be an object of earnest inquiry, and that when an obvious explanation cannot be discovered such an event means impending cardiac failure. Particularly is this true when from the clinical history or the physical signs there are reasons for believing that the heart muscle has suffered damage, with an inevitable limitation of the measure of its reserve force; while treatment demands agencies which will reduce a pulse rate that necessarily carries the certainty of increasing disability. A third conclusion is that the recognition of such pulse disturbance before symptoms appear is a therapeutic opportunity which, if properly seized, will avoid or postpone further mischiefs. This central thesis, here stated only in general terms, is applied over the whole field of circulatory disturbances and cardiac disease—irregularities of rhythm, valvular murmurs, paroxysmal tachycardia, bradycardia, heart-block, angina pectoris, blood pressure, dyspnoea, cyanosis,

³ *Vital Cardiology. A New Outlook on the Prevention of Heart Failure*. By Bruce Williamson, M.D., M.R.C.P. Edinburgh: E. and S. Livingstone. 1934. (Pp. 344. 15s., postage 9d.)

and the rest; and in each section, as well as in a special chapter, treatment is discussed in some detail. On one practical measure there will certainly be disagreement—namely, the value of prolonged rest in early evidences of mitral disease; here Dr. Williamson maintains that the customary practice favours the establishment of mitral stenosis and the early development of auricular fibrillation, as shown by the more frequent appearance of these conditions in women rather than in men; and in accordance with the proposition, "Stasis and stenosis are inseparables."

It may fairly be said that there is much repetition in the book, but against this comment it must be recognized that Dr. Williamson is proposing and defending a thesis, and is applying a general principle to a wide and varied field of observation; if he often preaches from the same text it is to emphasize the far-reaching value of his doctrines. Again, it may seem that at times he professes little respect for those whose talk is of murmurs and machines, and who have failed, he suggests, to recognize the truth which he himself has discovered, while upon this discovery he takes to himself no small measure of content. In these directions he may excite some sharp opposition. His capacity for denunciation is illustrated by his description of a particular method of prescribing digitalis as both a "vandalism" and an "anachronism." None the less he has written, not hastily, and out of a large and considered experience, and even if his academic argument is put aside there is much in his book of practical value.

ANATOMY OF OUR FOREFATHERS

Professor JOHN CAMERON's work, *The Skeleton of British Neolithic Man*,⁴ brochures, and partly answers, a number of exceedingly interesting orthopaedic problems. For example, why should the osseous anatomy of the lower limbs possessed by the modern inhabitants of Britain differ so decidedly from that of former inhabitants? The author finds that the change from the older to the newer anatomy took place at, or soon after, Norman times. Down to, and including, Saxon times, Englishmen had platymeric femora, and platynemic tibiae and astragali, which, although unmodern in their markings, have not, so far, received a special name. The Neolithic and Bronze Age inhabitants of Mediterranean lands, Professor Cameron finds, had the same markings in the bones of their lower limbs as had the early inhabitants of Britain. He presumes that these characters of the limb bones are of a functional nature, and that they have disappeared from the limbs of the modern inhabitants of Britain because nowadays we walk, run, and hold ourselves differently from our forebears. Professor Cameron is inclined to seek for an explanation of platymeria, etc., in the rapidity rather than in the degree or kind of muscular action in the prehistoric British. It is to be hoped that orthopaedic surgeons may take up these problems of prehistoric anatomy which our author has expounded so ably.

Some years ago Professor Cameron gave up his chair in Dalhousie University in order that he might complete his investigations into the craniology of human races. Since his return to England he has made full use of the rich collections of human material stored in the Museum of the Royal College of Surgeons of England. The book now published is the first harvest of his leisure. It is one which will be welcomed by all who are interested in the early history (or prehistory) of the British people.

⁴ *The Skeleton of British Neolithic Man. Including a Comparison with that of other Prehistoric Periods and More Modern Times.* By John Cameron, M.D., D.Sc. London: Williams and Norgate, Ltd., 1934. (Pp. 272; 51 figures. 15s. net.)

PSYCHOPATHOLOGY

Dr. WILLIAM BROWN has taken the opportunity afforded by the call for a third edition of his book on *Psychopathology and Psychotherapy*⁵ to submit it to a thorough revision and amplification. The book is not intended to give the reader a systematic survey of the dynamic psychologies; it consists of a number of personal contributions, revealing in a considerable measure the writer's own personal views and methods of treatment. Great stress is laid upon the social possibilities of psychology. The author considers, indeed, that the extent to which psychology develops and admits of practical applications during the next few decades may well decide the fate of civilization, whether intellectual and spiritual progress will continue or mankind will rush down through world war to ruin. He suggests that psychology, working in close alliance with philosophy and true religion, can certainly prevent this. Since this book is intended to appeal to the medical man and the educated layman, it is doubtful if the highly technical and mathematical appendices are very suitably incorporated within its pages.

The second edition of Dr. ERNEST NICOLE's book on *Psychopathology: A Survey of Modern Approaches*⁶ includes numerous additions throughout the text and four new chapters dealing with ethnology, schools of psychology, and applied psychology. The bibliography has been enlarged and brought up to date. The student of psychiatry will find this book most useful, and the call for a new edition shows that it has met a definite need.

Notes on Books

Practical contributions to the art of treatment as this is demanded in daily practice are always welcome, and this particularly when they are based upon the personal experience of the contributors. Such is the character of *Modern Treatment in General Practice*,⁷ issued under the editorship of Mr. CECIL P. G. WAKELEY. Each of the fifty-three chapters is devoted to a particular topic, and each carries the endorsement of a writer who has special experience in the subject to which he has directed his pen. The result is a volume very serviceable and particularly useful as a presentation of modern methods and the application of these to general practice. An interesting feature is the judgement which has directed the choice of contributors; these represent most of the medical schools of the country, and the teaching has thus a catholic quality. As an example of the scope of the book may be mentioned the chapter on head injuries in children, written by the editor.

The importance of physical chemistry in immunity reactions is obvious, and writings which assist in the formation of a conception of the mechanism of these reactions must be valuable. The recent book of Dr. R. DUJARRIC DE LA RIVIERE, *L'Immunité par Mécanisme Physico-Chimique*,⁸ consists, however, only of a series of papers on disconnected aspects of the subject, none of which have been thoroughly studied, and contains little mention of physical chemistry. The most interesting sections are that dealing with the flocculation of antineurococcocal sera in the presence of a mixture of

⁵ *Psychology and Psychotherapy.* By William Brown, D.M., D.Sc., F.R.C.P. Third edition. London: E. Arnold and Co. 1931. (Pp. 252. 12s. 6d. net.)

⁶ *Psychopathology: A Survey of Modern Approaches.* By J. Ernest Nicole, L.M.S.S.A., D.P.M. Second edition, revised and enlarged. London: Baillière, Tindall and Cox. 1934. Pp. 283. 12s. 6d.)

⁷ *Modern Treatment in General Practice.* Edited by Cecil P. G. Wakeley, D.Sc., F.R.C.S. London: Baillière, Tindall and Cox. 1934. (Pp. 426; 16 plates. 10s. 6d.)

⁸ *L'Immunité par Mécanisme Physico-Chimique.* By R. Dujarric de la Rivière. Paris: Masson et Cie. 1934. (Pp. 73; 2 plates. 18 fr.)

tincture of benzoin and an alcoholic extract of meningococci, and that on the adsorption of toxins by red blood corpuscles.

In his pamphlet on *Treatment by Training* Dr. GEBHARDT goes deeply into the physiological theory of physical exercises of all sorts as they affect the different tissues of the human body, and gives an account of the courses of training found useful in treating both invalid and normal subjects at Munich. His pages are designed for the instruction of medical men, trainers, masseurs, and indeed all who may find themselves responsible for physical jerks, so-called, of any description.

Professor HINTZE's *Geography and History of Nutrition*¹⁰ sets out to give the reader an account of the countless foods and diets favoured by members of the human race throughout the world and throughout the ages. The first five chapters summarize what is known to us about the tables kept by the Egyptians, Babylonians, Israelites, Greeks, and Romans in days long gone by; there is

⁹ *Übungsbehandlung*. Von Dr. K. Gebhardt. Jena: Gustav Fischer. 1924. (Pp. 60. RM.2.80.)

¹⁰ *Geographie und Geschichte der Ernährung*. Von Professor K. Hintze. Leipzig: G. Thieme. 1934. (Pp. x + 330. M.21.)

reason to believe that the manufacture of beer from cereal grains was practised in Mesopotamia so long ago as 5000 or even 7000 B.C. Later chapters deal with the history of nutrition in Europe, the North, Asia, Africa, America, and Australasia; it appears that the number of plant species ordinarily used as food is about four thousand, all the world over. The book is, naturally enough, a compilation; Professor Hintze writes clearly, and has made a skilful selection from the very extensive literature of the subject with which he deals. The book should be of interest to all specialists in dietetics.

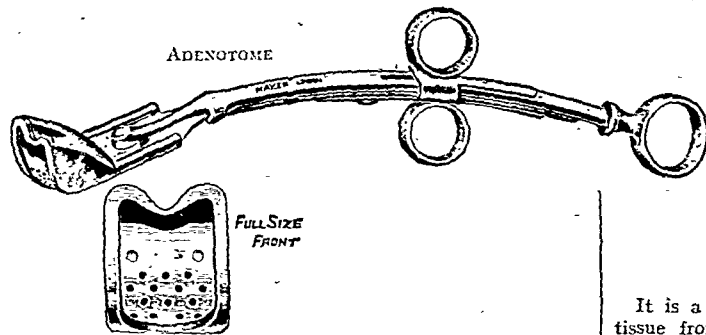
The French edition of the work on the *Mechanics of the Lungs*,¹¹ by Dr. PARODI of Milan, adapted by Dr. Lefèvre, gives the author's account of this obscure and complicated subject; Parodi argues that the lung is an organ with essentially mechanical functions, and concludes that these functions (which are capable of expression in physical terms) must be taken into account in its treatment when diseased. The practical applications of his views are given in a chapter at the end of the book, which should be in the hands of all interested in the subject with which it deals.

¹¹ *La Mécanique Pulmonaire*. Par F. Parodi. Paris: Masson et Cie. 1933. (Pp. 224; 53 figures. 36 fr.)

Preparations and Appliances

MODIFIED LA FORCE ADENOTOMIE

Mr. ARTHUR MILLER, F.R.C.S.Ed. (London, W.1), writes: The La Force adenotome is considered by many otologists as a definite advance in adenoidectomy. This instrument engages the adenoid tissue from below upwards without interfering with the mucous membrane of the nasopharynx; the blade is kept away from the mucosa by the difference in the



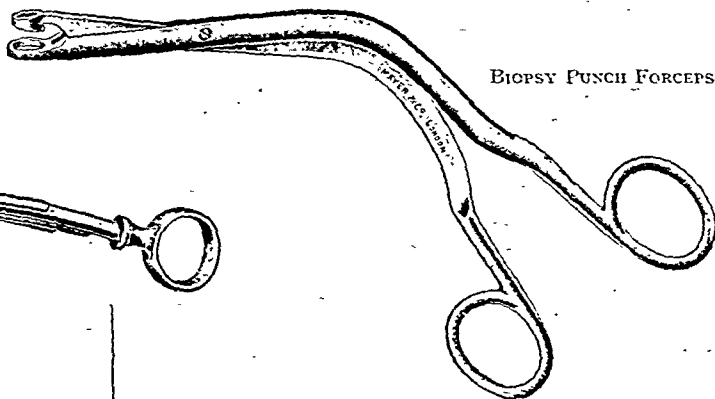
level of the blade and the sides of the box. The adenotome does not leave any bleeding tags behind and fragments cannot find their way into the larynx. It has, however, one drawback in common with adenoid curettes—namely, that a part of the adenoid tissue may be left in the roof of the nasopharynx; this is largely due to the instrument impinging against the posterior edge of the septum, which prevents the blade from reaching the uppermost portion of the adenoids. To rectify this defect I have had a modification of the adenotome made. As the illustration indicates, there is a recess in the box and blade in this modified adenotome which permits the instrument, when introduced, to lie snugly against the posterior edge of the septum; when closed the blade just protrudes through the recess of the box.

I have used this instrument for some considerable time and claim the following advantages for it: (1) The recess permits the surgeon to be certain that the adenotome, when lying against the septum, is also strictly in the middle line of the nasopharynx, thus avoiding the risk of injuring the Eustachian cushions. (2) The uppermost portion of the adenoid tissue is not left behind, as the recess allows the blade to sever the "root" of the adenoids.

The instrument was made for me by Messrs. Mayer and Phelps of New Cavendish Street, W.1.

CERVICAL BIOPSY PUNCH FORCEPS

Dr. ROLAND H. NATTRASS (resident surgical officer, St. Mary's Hospitals, Manchester), writes: The instrument shown in the accompanying illustration is a cervical biopsy punch forceps, which Messrs. Mayer and Co., London, have made for me.



It is a most useful instrument for removal for biopsy of tissue from cervix of uterus. By means of the male and female blades a piece of cervix large enough for microscopy is completely excised, with clean-cut edge and very little haemorrhage.

A DEVICE FOR THE DEAF

Dr. J. MILLER VINE (Grimsby) writes: To overcome the isolation of a deaf person when alone in a dwelling a device has recently been produced which connects the bell system with the electric light and causes the one to operate the other. This is a small metal box 2½ by 3 by 6 inches, which is attached by flex in ten minutes to both systems, and which, when switched into action, causes, in the daytime, any or all the lights to flash on when any bell push is pressed. By night, when they are on, it makes them flicker in a most noticeable fashion. The apparatus can be used with either alternating current or direct current, and incorporates a small transformer activating the bell system from the general electric system, thus eliminating the still common though old-fashioned wet cells. There is no alteration to the existing lights or bells, and the whole thing can be cut out by another switch. After several months' trial it appears foolproof, and there has been no breakdown. The "gadget," named "sordoviso," is not on the market, but those interested should get into touch with the inventor—A. L. Cianchi, 72, Greencroft Gardens, London, N.W.6—who has had a small number made, and may be able to supply them.

British Medical Journal

SATURDAY, JULY 21st, 1934

CANCER RESEARCH

It is difficult for the onlooker to be patient about cancer research. The disease cancer is so much feared, and the results of treatment are often so disappointing, that it is natural to turn eagerly to look for new knowledge. How much more do we know now than a decade ago? Are the chances for a patient better than they were in the days when we were students? These are the questions that often rise in the doctor's mind, and not infrequently find expression in the correspondence column of medical journals. Perhaps our methods of cancer research are all wrong and we are hunting the thimble in the wrong corner of the room. A salutary corrective for this impatient mood will be found in the eleventh annual report of the British Empire Cancer Campaign.¹ Certainly this does not offer us any news of a cure for cancer or even a simple and universal explanation of its cause, but it furnishes a glimpse of many of our fellow creatures who are giving the best of their brains, and often the best of their lives, to study the cancer problem. After reading of the work in progress, not only in this country, but in all parts of the Empire, no one could say that cancer research was barren. It has not yet produced the rich harvest of our anticipations, but there are many promising shoots springing up, sometimes in unexpected quarters. Not many of these have reached beyond what is encouragingly referred to as the "promising stage," but others are now further advanced and begin to have contact with medical practice.

Of particular interest is the work in progress at the Research Institute of the Cancer Hospital, which has found scope for development along three new lines during the last year. The most interesting of these is the inquiry into the biological effects of the female hormone oestrin. This substance, as is well known, is a product of the ovary, and controls the development of the female characters of other parts of the body. It is closely related to cholesterol and to a less extent to the synthetic cancer-producing compounds isolated by Dr. Kennaway and his assistants. It was natural, therefore, to try the effect of painting solutions of oestrin on to the skin of mice in the same way as is done with carcinogenic hydrocarbons. When this experiment was carried out it resulted in a great enlargement of the prostate with obstruction to the flow of urine and hydronephrosis of the kidney. The changes produced in the prostate gland were very suggestive of the early growth of a tumour, though no claim is made as yet

that anything of the nature of a tumour has been produced. Mr. Burrows has begun an inquiry into the possibility that enlargement of the prostate in man might be due to the action of abnormal amounts of oestrin. It has been known for some time that a small amount of oestrin is present in normal male urine, and the experiments now in progress should decide whether there is any abnormal excretion of oestrin in cases of prostatic disease.

It has often been pointed out that chemicals such as tar, which in the past were the only agents available for the experimental production of cancer, seemed far removed from any agent likely to be acting in human disease. The artificial cancer-producing compounds recently isolated, however, have a somewhat similar molecular structure to substances normally present in the body, and the question is raised whether it may be possible for natural compounds to be converted into cancer-producing compounds by some perversion of a normal chemical process. The natural compounds in question are the sterols, the bile acids, and (as mentioned above) the ovarian hormone: the essential molecular structure of these may now be regarded as established, though details remain to be filled in. All these substances contain a peculiar type of tetracyclic ring system which has not until recently been obtained synthetically. The simplest compound containing this type of ring system has now been synthesized by Cook and Hewitt, and it is hoped that before long it will be possible to produce some of the more complex substances resembling the actual compounds which are present in the body. A third line of development which seems to hold out a very promising prospect is the study of the intermediate products of the transformation of cholesterol into oestrin, and the search for enzymes present in the body which might be able to induce such changes. Here is another example of an inquiry into phenomena which might actually occur in the body. As the report points out, the discovery of the surprising biological effects of oestrin comes most opportunely now that the constitution of this compound is understood.

One has only to turn over the pages of the British Empire Cancer Campaign report to see how many different aspects of the cancer problem are being investigated by workers assisted by the funds of the Campaign. A branch of cancer research work of special interest to practising doctors is that which Dr. Lumsden has been carrying out at the London Hospital. In last year's report it was stated that a number of inoperable cases of human cancer had been treated by inoculation of concentrated antiserum. The results actually obtained by this form of treatment were that in every case except one the tumours lessened in size after inoculation of the concentrated antiserum, but this improvement varied in degree and in duration. Complete disappearance of the malignant growth did not follow in any case. Usually after a month or two the tumour resumed its progress to the inevitable fatal termination. In all cases, however, there was temporary diminution of

¹ British Empire Cancer Campaign, 12, Grosvenor Crescent, S.W.1.

pain, due to lessened pressure upon surrounding nerves. In view of these results it was decided that before treating further cases an intensive attempt should be made to refine and concentrate the antiserum still more effectively. If such improvements can be achieved, and can be shown to be effective in lower animals, a further series of human cases will be treated, but not till then.

During the past year the Garton prize of £500 has been awarded to Dr. H. A. Colwell for his essay on the method of action of radiations on normal and malignant cells, and a précis of Dr. Colwell's essay is published in the report. On the recommendation of the judges an additional prize of £100 was awarded to Dr. F. G. Spear and his associates of the Strangeways Research Laboratory, Cambridge, and a précis of this essay also is included in the report. In his introduction to the report Lord Reading, chairman of the Grand Council of the Campaign, remarks that it has been pointed out by a very great soldier that every battle is divided into three parts—namely, the period of preparation when openings are being sought for and positions secured, the period of struggle when each side tries to break down the other's resistance, and the final period in which the morale of the vanquished breaks down. Lord Reading considers that in the battle against cancer to-day we have entered the second of these stages. It is certainly the case that the resources and support of the British Empire Cancer Campaign have permitted a degree of preparation for the attack which otherwise would not have been possible.

PELLAGRA IN ENGLAND

Some of us look on pellagra as a disease of the Far East, and will be surprised to see that Stannus and Gibson¹ have collected 131 cases of this disease which have been reported in this country. It is of interest that 111 were females and twenty were males, and about fifteen of the cases were recorded in children ranging from infancy upwards. The vast majority came under observation in asylums, because of the mental symptoms present. In 1913² Box reported the cases of two children who were brothers. One of these cases was immediately fatal, and a thorough investigation of the pathological material was made by Sir Frederick Mott³ and reported in the same number of this journal. The microphotographs of the histopathology of pellagra, and the coloured plate of Dr. Box's case, would repay inspection by anyone interested in this subject.

The history of pellagra is interesting as throwing light on the aetiology. In 1763 Casal, the Spaniard, published a treatise on the disease, and attributed it to faulty diet, and a few years later the name pellagra

was given to it by the Italians. At that time it was prevalent in Italy. Its spread throughout Europe can be said to coincide with the introduction of maize into Europe from America, where pellagra has been for many years, and still is, a menace. There seems no doubt, however, that pellagra can occur on diets other than maize, such as rice and millet, and some patients reported upon in the British Isles had never eaten maize. Nevertheless, to quote the Medical Research Council's monograph on vitamins,⁴ p. 177, "It should not be forgotten that pellagra is almost exclusively a maize-eater's disease, and that its occasional appearance amongst a population consuming other cereals attracts attention by its very rarity." It was held, and still is by many workers, that pellagra is due to the consumption of proteins of too low a biological value. Without doubt milk and meat are among the most potent foods in the prevention of the disease. Brewers' yeast gives complete protection, and, as yeast contains very little protein nitrogen, it seemed probable that some other factor was at work. This factor, called PP (pellagra-preventive) was found by Goldberger and Wheeler⁵ to be present in tomato juice, wheat germ, and canned salmon, and to this PP factor the name vitamin B₂ has been given. The therapeutic value of yeast is now beyond any doubt. Next in potency come milk and meat. It is still maintained by some that there is a toxin present in deteriorated maize which is the cause of pellagra, but this theory has still to be justified. To quote once more from the Medical Research Council's report: "It is very interesting to recall that in the last century the French physicians concerned with pellagra directed their efforts mainly to the elimination of maize from the diet of the people. Their campaign was ultimately successful, and the use of maize in France was discontinued. The simultaneous disappearance of pellagra naturally appeared to be a complete justification of the policy."

Mott found in his cases a widespread sclerosis of the cord and brain stem. From his experience he put this down to a chronic toxæmia rather than an inflammatory process. There was chromatolysis of the posterior spinal ganglion cells, as well as the anterior horn cells. The peripheral nerves showed degenerative changes. Since the lesions of the nervous system are so widespread it is not surprising that the clinical picture should vary so enormously. There are three sets of symptoms for which the clinician must look out if he wishes to make an early and accurate diagnosis. First, the skin manifestations which appear in the early spring, and are present on the exposed portions of the body—namely, the face (particularly the forehead), hands, and, in children especially, the knees and dorsum of the feet. These parts of the body appear to be sunburnt, but on closer inspection they are rough, and have a bran-like peeling appearance, or the skin is shiny and glazed. As the summer comes on, the

¹ Stannus, H. S., and Gibson, C. R.: *Quart. Journ. of Med., New Series*, vol. iii, No. 10, April, 1934 (vol. xxvii of the continuous series).

² Box, C. R.: *British Medical Journal*, 1913, ii, 2.

³ Mott, F. W.: *Ibid.*, 1913, ii, 2.

⁴ Medical Research Council: *Vitamins: A Survey of Present Knowledge*, H.M. Stationery Office, 1932.

⁵ Goldberger and Wheeler: *Public Health Reports*, Washington, xlii, 1299.

condition is intensified, and with it other symptoms appear. The second group associated with this sunburnt appearance are the gastro-intestinal symptoms—a chronic diarrhoea, which fails to respond to simple treatment, causing wasting, and very often a sore mouth and tongue are present in addition. The nervous and mental symptoms complete the picture. Usually the former precede the latter by some months, or even years. There may be difficulty in walking; tremulous movements of the hands, amounting almost to ataxia; and much exaggerated knee-jerks, even spasticity of the legs. Then the mental symptoms may show themselves by simple confusion, the patient being rambling or incoherent, or melancholic, with a tendency to suicide, or unduly elated. Finally occur prostration, cachexia, and death.

The prognosis, up to the present, has been extremely bad in this country. In fact, Stannus and Gibson appear to have the first case in this country from which there has been recovery. This was a girl aged 10 years, and her history is known from the age of a few months. Her diet appeared to have been a normal one. The symptoms occurred first when she was perhaps 2 or 3 years old, and the rash was present each summer from that time, gradually becoming more and more marked. Nervous lesions were widespread and mental symptoms definitely present. The patient ran considerable fever at times, and both skin and gastro-intestinal symptoms were typical of pellagra. After continuous treatment with yeast, from the age of 8 years, for a period of two years, a remarkable improvement occurred. She is now back at school, and although she still shows nervous symptoms the skin and intestinal lesions have completely cleared up, and she seems mentally normal. This case must be contrasted with the two reported by Hutchison and Paterson,⁶ the first of which was that of a girl aged 6 years 10 months, admitted to hospital for loss of walking power and shaking of the limbs, and who had been fed on cornflour as an infant. For nearly three years she had had the typical rash on the face, hands, and knees. The second case was that of a girl of 9 years 10 months, who was admitted for mental deterioration and inability to walk, and who had lived all her life in a suburb of London, like the other child. Examination of the blood, cerebro-spinal fluid, and urine showed no abnormalities cytologically or biochemically. The neurological lesions and mental deterioration in these cases were aggravated by the appearance of sunshine and summer weather. Both children died within a few months of their cases being reported.

Doubtless those in charge of mental institutions throughout the country are much on the watch for such cases. Certainly a paper such as Stannus and Gibson's is of extreme value in bringing the symptoms and treatment of this disease afresh before the profession, and it would occasion no surprise if several further cases were recognized as a result of their paper.

⁶ Hutchison, Robert, and Paterson, Donald: *British Medical Journal*, October 13th, 1923.

NUTRITIONAL ANAEMIA

Few physicians to-day would agree with a statement made in the leading textbook of haematology in 1923 to the effect that "it is obvious that malnutrition must be exceptionally severe and of unusual duration before there is any possibility of anaemia developing."¹ It is now known that 50 per cent. of the adult women and infants in the poorest classes of our cities are anaemic, and studies of various communities have shown how accurately the adequacy of the diet is reflected by the haemoglobin level of the population.^{2,3} Nutritional anaemia also affects man indirectly, on account of the heavy losses sustained through the death of farm animals from this cause, and Professor Stanley Davidson and Dr. Leitch⁴ have been wise to include in one review the chemistry of blood formation and the nutritional anaemias of animals and man. There is still much to be learnt concerning the value of different constituents of the diet in blood formation. Dr. Leitch points out that the essential building-stones of the red cells are those of the organic matrix or stroma, the pigment complex of haemoglobin, iron, and the constituent amino-acids of globin. There does not appear to be any evidence that the materials necessary for the formation of the stroma or of globin are ever lacking, and the injections of amino-acids such as tryptophan and histidine, which have been advised by French haematologists⁵ in cases of intractable anaemia, have found scant support in theory or practice. Little is known of the source of the pigment complex of haemoglobin and similar tissue compounds, but there is evidence to indicate that it is derived from similar complexes in the food. Abnormal metabolism, or excessive loss of porphyrin from the body, such as is found in the rare metabolic disorder porphyrinuria, may interfere with haemoglobin synthesis and lead to severe anaemia. Green vegetables are a valuable source of these pigment complexes. They are also a good source of iron, of which spinach, watercress, and parsley contain especially large amounts. It is of interest to learn of the high iron content of syrup (or molasses) and cocoa, which are recommended as a source of this mineral in cheap human dietaries. But it is still uncertain what proportion of the iron of the various foods is available for blood formation. Although egg yolk contains a relatively large amount of inorganic iron, its haemoglobin-forming power in experimental animals has been found to be small. This is a surprising result in view of the high reputation which egg yolk enjoys as a haemoglobin-forming food in man, and there is need for further investigation of the availability of the iron of different foods by actual observations on man. The role of diet in anaemia is essentially prophylactic, for when frank anaemia develops it is scarcely practicable to repair it by diet alone. Professor Davidson assesses the curative dose of iron given as a ferrous salt at 180 milligrams of metallic iron a day, and Fontes and Thivolle⁵ point out that "to give

¹ Naegeli, O.: *Bluthrankheiten und Blutdiagnostik*, fourth edition, 1923, p. 262.

² Orr, J. B., and Gilks, J. L.: Medical Research Council, Special Report Series, No. 155, 1931.

³ Spence, J. C., and Charles, J. A.: *Health and Nutrition of Children in Newcastle-upon-Tyne*.

⁴ Davidson, L. S. P., and Leitch, I.: *Nutrition Abstracts and Reviews*, 1934, iii, 901.

⁵ Fontes, G., and Thivolle, L.: *Le Sang*, 1933, vii, 210, 342, and 455.

50 milligrams of iron it would be necessary to condemn the patient to eat every day, for weeks or months, about 3 kilograms of fresh spinach, a treatment which would rapidly end in a complete digestive breakdown." In addition to the raw materials of which the red cells are composed, certain hormones, or catalysts, are necessary if blood formation is to proceed in an orderly way. The active principle of liver extract, and copper, are the most important of these. The chemical composition of the liver principle and the element in the diet from which it is derived are still unknown, but any diet which contains a normal amount of first-class protein will supply sufficient material for its elaboration. The chief differences between the distribution of iron and copper in the food are that, as regards copper, poultry is superior to beef, and that root vegetables have about the same value as leaves and legumes. Of outstandingly high copper content are liver, oysters, chocolate, cocoa, and molasses.

WORLD PREVALENCE OF DIPHTHERIA AND SCARLET FEVER

The March-April issue of the Epidemiological Report of the Health Section of the League of Nations gives an instructive account, illustrated by numerous maps, charts, and tables, of the recent trend of diphtheria and scarlet fever prevalence throughout the world. In most European countries, and non-European countries such as Africa, America, Asia, and Australia, the incidence of diphtheria was rising from 1926 to 1930. It is impossible, however, to say whether this represents a significant trend in the curve of diphtheria or is merely a cyclical variation such as might occur in the usual course of the disease and changes in the proportion of susceptible individuals in the population. The diphtheria mortality, on the other hand, during the period 1923-33 shows a notable decline as compared with the last decennia of the nineteenth century and the beginning of the twentieth. Except in Central and Eastern Europe only a fraction of this decline is attributable to the fall in the birth rate and in the resultant proportion of children in the population. In most countries of Western Europe, the United States, Canada, Australia, and New Zealand the diphtheria case fatality rate appears to have reached a fairly low and steady level, whereas in Central and Eastern Europe it seems to be still fairly high and relatively unstable. The campaign that has been carried on in favour of active immunization since 1923 has not yet affected a large enough proportion of the children or total population of the various countries for the results to be shown in the curves of mortality or morbidity. As regards scarlet fever there was an increase in its incidence in 1932 and 1933 in Great Britain, France, Belgium, Holland, Germany, the Saar Territory, Denmark, Switzerland, Czechoslovakia, Hungary, and Japan, but this rise remained within the limits of the more or less regular fluctuations shown by these countries, and did not apparently change the general tendency of the curve over a period of fifteen or twenty years. On the other hand, a decrease took place in Norway, Rumania, Yugoslavia, and Soviet Russia, and the morbidity rate remained more or less stationary in Finland, Lithuania, Austria, Poland, Greece, Turkey, Australia, and the United States. The general decline

during the last ten years, especially in the countries of Northern, Western, and Central Europe, is in the main attributable to a progressive drop in the case fatality and only in an insignificant degree to improvement in the notification of cases. On the other hand, the case fatality remains high in the countries of Eastern Europe, where the mortality is still high and unstable; in other words, where the disease is still prevalent in the epidemic rather than in the endemo-sporadic form.

FRACTURES OF THE NECK OF THE FEMUR

Whitman's method for the treatment of fractures of the neck of the femur has held the field for a number of years; when introduced, it marked a great advance on everything that had gone before. Nevertheless, expressions of dissatisfaction have been voiced more recently, as it has become evident that even this method did not yield more than 50 or 60 per cent. of successes. Another cause for complaint was the danger to old people of long confinement in plaster-of-Paris. Open operation and fixation of the fracture by an autogenous bone graft (Albee, Noordenbos, and others) or by means of a steel pin (Smith-Petersen) is now being practised by a number of surgeons who claim far more frequent successes than were ever obtained by Whitman's method. At this time, therefore, which may well be a turning-point in our attitude towards the treatment of these difficult fractures, a statistical study based on the results of treatment in 250 cases, most of them dealt with by Whitman's method, is of particular value.¹ MacAusland, MacAusland, and Lee confirm the traditional British teaching that this type of injury occurs most commonly in patients past middle life; they find this as true of trochanteric as of cervical fractures. Noordenbos's emphatic statement that such fractures are equally common in young people probably holds good only for Amsterdam, where about half the population live on bicycles, falls from which are by no means unusual. Dealing first with fresh fractures of the femoral neck the authors affirm that Whitman's technique of reduction of the fracture by abduction and internal rotation of the lower limb under anaesthesia, followed by prolonged fixation in plaster in this position, is still the most reliable general method of treatment. In their hands about 60 per cent. of patients so treated obtained a stable painless joint, with an almost normal range of movement; 20 per cent. were able to walk with or without the aid of a stick, though complaining of pain or limp after much exercise; and in the remaining 20 per cent. the results were poor. Almost all the failures occurred in patients over the age of 60. Unlike other simple fractures, fractures of the femoral neck carry a very definite mortality: 7 per cent. of the patients dealt with at the MacAusland clinic died of pneumonia within a few weeks of the injury. When one considers the advanced age and poor physical state of the majority of patients coming to hospital with this condition it must be admitted that these results are impressive. Furthermore, the difficulties of open operation are formidable to all but experienced surgeons: Whitman's method, though not foolproof, is simple by comparison, and this bears out the contention that the latter is the best therapeutic measure for the average case in the hands of the average

¹ *Surg., Gynecol. and Obstet.*, 1934, lviii, 679.

surgeon. Indeed, Whitman's technique may well hold its own against open operation as practised by the specialist until equally extensive statistics have been produced to prove the superiority of the major procedure. If non-union is present, even in spite of efficient treatment by Whitman's method, open operation offers the only prospect of obtaining bony union. At the MacAusland clinic cases of non-union have been dealt with by removal of the great trochanter, followed by insertion of the freshened femoral neck into the head and replacement of the trochanter as low down the shaft as possible. In other cases, in which the head was so atrophic as to be functionally useless, Whitman's reconstruction operation was performed. The authors express themselves as satisfied with the results.

SEPARATION OF RABIES VIRUS FROM BRAIN TISSUE

The electric charge carried by bacteria and filterable viruses has been studied by many workers. Its importance in the agglutination reaction is well known, but attempts to make use of it for other purposes, such as the distinction of virulent from non-virulent bacilli of the same species, have not so far proved very successful. It is probable, therefore, that the results described by Dr. G. Sankaran, Major K. R. K. Iyengar, and Mr. W. A. Beer¹ on the separation of fixed rabies virus from the infected rabbit brain by electrophoresis will arouse considerable interest. Briefly, the experiments consisted in passing a 4-milliamper current through a 5 per cent. suspension of infected rabbit brain in sheep serum, and subsequent testing by animal inoculation of the material collected at the positive and negative poles. The current was transmitted through special electrophoresis cells filled with phosphate buffer solution at pH 7.38. Within thirty minutes of the passage of the current a faint turbidity became noticeable in the side-arm of the cell attached to the positive pole. The level of the turbid fluid continued to rise, and within two and a half to four and a half hours sufficient material had collected to be used for inoculation purposes. The buffer solution in the side-arm of the cell attached to the negative pole remained clear. Six experiments were performed in all, and in each experiment 0.2 c.cm. of the material collected at the positive and negative electrodes was inoculated separately into two rabbits. The results were very striking. Of the twelve animals injected subdurally with the "negative" material, none developed rabies within a month: of the twelve inoculated with the "positive" material all developed typical rabies within seven to nine days—the usual incubation period of the strain of fixed virus used. The conclusion was therefore drawn that under the influence of the current, electro-negatively charged particles had migrated into the positive cell, and that these particles actually consisted of the rabies virus. Further experiments to confirm these initial findings were carried out by Sir Robert McCarrison, Dr. Sankaran, and Mr. Beer.² It was first ascertained that neither normal rabbit brain nor normal sheep serum yielded, on electrophoresis, substances capable of causing rabies-like symptoms in rabbits. It was next shown that street virus from rabid dogs, when subjected to electrophoresis, migrated

to the positive pole, and that material from this pole gave rise on subdural injection into guinea-pigs to rabies in from eleven to sixteen days. The nature of the disease was proved by the demonstration of Negri bodies in the hippocampus. The original experiments with fixed virus were then repeated. Of twenty-eight rabbits and five sheep inoculated with material from the positive pole in ten different experiments, all but two rabbits and one sheep developed rabies, whereas of a similar group of animals inoculated with material from the negative pole none developed rabies. By attaching an L3 filter candle to the lower end of the side-arm of the positive electrophoresis cell, it was found possible to separate the rabies virus elements from the accompanying brain tissue. After passage of the current for twenty-four hours the material inside the filter candle proved infective. Since the material obtained by electrophoresis remains virulent for at least eight days at room temperature, the authors conclude that the way is now open for the preparation of a more highly concentrated antirabic vaccine than has hitherto proved possible.

HARVEY AND LITERATURE

In a recent communication before the History Section of the Royal Society of Medicine (June, 1934, xxvii, 1095) on the subject of "William Harvey's Knowledge of Literature—Classical, Mediaeval, Renaissance, and Contemporary," Professor D. F. Fraser-Harris displays the fruit of a research which should be of interest to students of medical history. In his published writings and in his correspondence Harvey shows the most intimate knowledge of the works of many authors, mentioning twenty-five Greek and fourteen Latin writers and thirty-two names in the Renaissance and contemporary period. In quoting Aristotle so frequently (269 times), Harvey was but following his own counsel contained in a conversation with Aubrey: "Go to the fountain head and read Aristotle, Cicero, and Avicenna." While the majority of references are to subjects of biological importance, he was fond of quoting from Virgil. The absence from this collection of Caesalpinus's name is significant, and Professor Fraser-Harris infers that Harvey found nothing of value concerning the problem of the circulation in the writings of a man who in some quarters even to-day is regarded as its discoverer.

EXCRETION BY THE MILK

There is a vast amount of folk-lore on the excretion of substances into milk, but there is a singular lack of definite scientific evidence as to the substances which actually pass from the maternal circulation into human milk. Recently, Dr. G. Drefus-Sée¹ has made an interesting summary of present knowledge on this question. As he points out, much more is known about the passage of food substances and drugs into the milk of the cow; but it is unsafe to assume that facts established for one species will be true in the case of another. For example, an increase in the salt content of the diet does not raise the chloride content of the cow's milk, but apparently such an effect can be produced in women. A large number of inorganic substances such as bromides, iodides, arsenic, mercury,

¹ *Indian Journ. Med. Research*, 1934, xxi, 909.

² *Ibid.*, 1934, xxi, 917.

¹ *Rev. de Méd.*, 1934, li, 198.

and lead are excreted in the maternal milk, as well as, in traces, a number of organic drugs—for example, anaesthetics and hypnotics, morphine, and many alkaloids such as quinine, caffeine, and strychnine. Other drugs, such as the volatile oils, can change the taste of the milk, whilst rhubarb causes a yellow discoloration. It is, however, doubtful whether the active purgative principles of any of the anthracene group are excreted. It is of interest to note that only very small quantities of alcohol and nicotine find their way into the milk. Dr. Drefus-Sée considers that it is very doubtful whether any drug appears in the milk in a quantity sufficient to produce a definite therapeutic action on the child, and that in all cases drugs and toxic substances are excreted in very small quantities except when there is a massive maternal intoxication.

BIOCHEMISTRY AND NUTRITION

The council of the Royal Society of Arts attended at Clarence House on July 11th, when the president, H.R.H. the Duke of Connaught, handed the Society's Albert Medal for 1934 to Sir Frederick Gowland Hopkins, P.R.S., "for his researches in biochemistry and the constituents of foods." In making the presentation the Duke of Connaught said: "Your work has largely lain in the domain of pure biochemistry. Your discoveries have not only enriched this science, but have done much to make it a distinctive subject for study, attracting a large and enthusiastic body of research workers. Actually the discovery that foodstuffs contained certain factors now called vitamins, and that life could not be maintained on a synthetic diet alone, gave a new impetus to work on nutrition and to the study of deficiency diseases, in which work you have continued to take an active part. In consequence the world has acquired a clear conception of the vitamins, of the part they play in health and disease, and their distribution in various foods. As a further result, nutrition, the feeding of a nation, is becoming a more exact science, to the benefit of the health of everyone. Of no less consequence to the general advance of science has been your personal willingness at no small sacrifice of comfort and leisure to give help at all times and in every way to scientific workers and associations with scientific aims. I have the greatest pleasure in handing you this medal, which was founded as a memorial to my dear father in 1862."

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* and *Epitome* have been printed; they will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or all of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

On March 4th, 1935, Sir Holburt Waring, President of the Royal College of Surgeons of England, will open the new building of the Royal Australasian College of Surgeons, in Collins Street, Melbourne.

ROYAL COLLEGE OF SURGEONS CONVERSAZIONE

EXHIBITIONS AND DEMONSTRATIONS

Those who attended the conversazione of the Royal College of Surgeons of England, on July 11th, were entertained by a series of interesting demonstrations and exhibitions of the latest work in surgery and in cancer research. Developments of new technical methods were shown by research workers at the Buckston Browne Surgical Research Farm and at the Royal College of Surgeons Laboratories. These included a new treatment for spasm of the cardiac sphincter, and a method for resection and anastomosis of the lower third of the oesophagus. The results of treatment of facial paralysis in man by autogenous grafts and the experiments which led to the development of this treatment were illustrated by cinematograph films. A most interesting exhibit was an experimental study of surgical shock, which demonstrated that it is no longer possible to hold to the theory that shock depends on the distribution by the blood stream of histamine or other products of tissue trauma. From these experiments a possible line of treatment was suggested. The Surgical Unit of St. Bartholomew's Hospital demonstrated some of the results of arteriography in diseases of the peripheral vessels. Thorotrast injections were used and radiograms taken at definite times after the injection. The results of thoracic ganglionectomy for Raynaud's disease and of radium treatment for carcinoma of the tongue were very strikingly shown by water-colour drawings. Studies of diaphragmatic herniae and hyperparathyroidism in relation to bone conditions were also demonstrated.

RECENT WORK ON CANCER

The series of exhibits bearing on the cancer problem was most complete. Tissue culture work was demonstrated by the Strangeways Research Laboratory and the Stroud Laboratories of the Imperial Cancer Research Fund. The former institution showed the effects of gamma rays in known doses on isolated cells *in vitro* and on the whole embryo. The effects on the whole embryo were of great interest, as it was shown that gamma rays have two effects—a direct one on the cells, and an indirect one on the cells due to damage of the circulatory system. The growth and spread of "filterable" fowl tumours were demonstrated by the Stroud Laboratories, which also exhibited an interesting series of specimens and photographs of individual cells after various experimental procedures. A method of differentiating cells in tissue cultures by means of vital staining was used also to determine the functional activity of the cells.

The exhibit of the Imperial Cancer Research Fund Laboratories included a demonstration of the technique of micro-incineration, which eliminates the organic matter in the section and enables the mineral skeleton to be examined and the relative increase or decrease of the inorganic salts to be determined. Experimental work on cancer-accelerating substances found in the liver has shown that these substances are not identical with the haemopoietic factor. It was pointed out that it is not yet known whether or not the cancer-accelerating substance is present in the many preparations of liver on the market, or if the administration of fresh liver in pernicious anaemia cases is likely to precipitate the onset of cancer in susceptible individuals. The division of spontaneous tumours into radio-resistant and radio-sensitive groups was shown. It appeared that in the radio-sensitive tumours there is no direct lethal effect on the malignant cells, but that the effect produced by radiation is due to

an invasion of macrophages, which are later transformed into fibroblasts. In this way a massive stroma is formed and the tumour split into narrow strands of cells which are absorbed later. There is no macrophage invasion in the radio-resistant tumours and consequently no stroma formation. The importance of these observations, in view of the extensive use of radium, cannot be gainsaid, but it will be necessary to reconcile these results with the known direct and indirect effects of radiation on growing cells such as was demonstrated by the Strangeways Research Laboratory.

The Research Institute of the Cancer Hospital and the Research Laboratories of the Middlesex Hospital combined to demonstrate the effects of cancer-producing compounds closely related to oestrin. It was shown that these substances are capable of producing a full oestrous response in addition to producing cancer when applied to the skin. Oestrin in benzene solution painted on the interscapular region was found to produce mammary cancer in a castrated male mouse within 175 days from the commencement of the application to the skin. The transmission of tar-induced tumours in the fowl by filtered extracts was demonstrated by the Middlesex Hospital. The interpretation of this result will provide much interesting discussion on the relation of a virus to the tar-induced tumours.

The Physics Department of St. Bartholomew's Hospital contributed an interesting series of experiments illustrating the effects of radiation on chemical activity and on colloids. An ingenious radiation detector was demonstrated. This piece of apparatus was able to detect amounts of radium salts which were too small to be seen or even to affect an electroscope. The application of very high frequency electrical currents to the differential healing of tissues was shown. This machine will make it possible to heat a specific tissue to any temperature, while other tissues surrounding it remain at body temperature. It is possible, with this apparatus, to "boil" an egg in water without heating the water or without any electrical contact being made with either egg or water! Will it be possible, some day, to "cook" a cancer without affecting the normal tissues? Perhaps an answer to this question will not be long delayed. Professor J. C. McLennan of the Radium Beam Therapy Research at the Radium Institute gave a demonstration of the use of the 5-gram unit. Methods of detection and measurement of radiation and the effective screening of large masses of radium were demonstrated.

OTHER SCIENTIFIC EXHIBITS

In addition to the above demonstrations bearing directly on surgical advances and cancer research there were many other scientific exhibits. The National Institute of Medical Research contributed two demonstrations: (1) A demonstration of the actions of acetylcholine. (This substance is released at parasympathetic nerve endings in ganglia and at the endings of voluntary nerve fibres on striped muscle, and has, therefore, an important role in the animal economy.) (2) The recent work on viruses was also demonstrated. "Virus bodies" or "inclusion bodies" were demonstrated from various kinds of tissue. The application of the tissue culture technique to the study of scar formation on the chemical factors involved in the process of repair formed part of the Strangeways Laboratory exhibit.

Experimental work on teratomata and the analysis of the tissues of these tumours was shown in the Buckston Browne Surgical Research Farm exhibit. A study of these tumours demonstrated the fact that certain tissues are always differentiated in close association to each other—for example, nerve tissue always close to cartilage and

bone. Connexions of the brain cortex with different parts of the thalamus and the connexions of the retina with specific regions in the lateral geniculate body formed the demonstration of the Anatomy Department, St. Thomas's Hospital.

Two anthropological demonstrations completed the exhibition. The first consisted of the ancient human remains found in caves on Mount Carmel in Palestine by a joint expedition led by Miss Dorothy Garrod. The specimens included the Neanderthaloid skeletal remains now being freed at the Royal College of Surgeons from the rocky matrix in which they were embedded. A very much earlier fragment of a human femur and specimens of the modern type of man from the upper levels of the caves were shown. The second exhibit was a museum case to illustrate the discovery of Piltdown man. A scale model of the site showed the exact situation in which were found the jaw and occipital fragments. The model was finished with actual specimens of the gravel layers. Casts and reconstructions completed a very interesting exhibit. This case is but the first of a series which will illustrate the most historic sites where relics of ancient man have been found.

The guests were received in the museum hall by the President and Lady Waring. Dr. J. A. Murray and Professor J. C. McLennan gave their demonstrations in the lecture theatre. In the inner hall books and manuscripts from the library were on view. This was the first medical scientific evening of the kind that has been held at the College, and the general hope is that it will not be the last.

STUDY OF CHRONIC RHEUMATISM

AN INTERNATIONAL CONGRESS

An international congress devoted to the study of chronic rheumatism was held at Aix-les-Bains in Savoy from June 28th to July 1st, under the presidency of Professor Fernand Bezançon of Paris. Some 350 medical men attended, and official delegates were present from twenty countries.

The subject chosen for discussion was "Rhumatisme Chronique Progressif Généralisé," or, as we know it, rheumatoid arthritis. During the meeting twenty papers and some forty short communications were read. The work was arranged so that the first day was devoted to a general survey of the problem and to the pathology and aetiology of this disease process. On the second day the clinical aspect was discussed, with special reference to symptomatology and to clinical diagnosis. The third day was devoted to therapeutics.

GENERAL SURVEY OF RHEUMATOID ARTHRITIS

Professor Bezançon and Dr. Mathieu-Pierre Weil of the Saint-Antoine Hospital in Paris defined the limits of this subject, and described in detail that clinical picture which was originally presented by Charcot and which is recognized in this country as "rheumatoid arthritis." Subsequent speakers, including Professor Mouriquand of Lyons and Professor Roche of Geneva, discussed the relation of endocrine factors, infection, constitution, and the autonomic nervous system to the disease. Professor F. Coste (Paris) gave a critical review of the evidence on which the various theories of infection have been based, and assessed the relative value of the work that has been done in connexion in particular with the streptococcus, the gonococcus, and the tubercle bacillus.

As might be expected from the international character of the meeting, terminology was used somewhat loosely, and a great variety of different conditions were referred to under the title of rheumatoid arthritis. The general trend of thought, however, was undoubtedly towards the French

A. VICTOR NEALE AND ALLAN G. W. WHITFIELD: RHEUMATISM AND ITS RELATION TO ARTERIAL DISEASE
AND PERIARTERITIS NODOSA

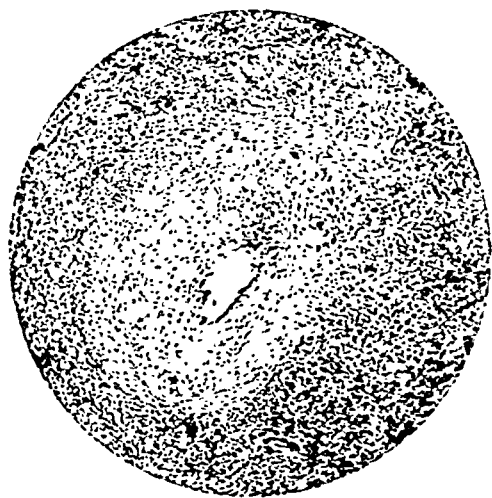


FIG. 1.—The arterial disease in the heart muscle. ($\times 55$.)



FIG. 2.—The arterial disease in the liver. ($\times 55$.)

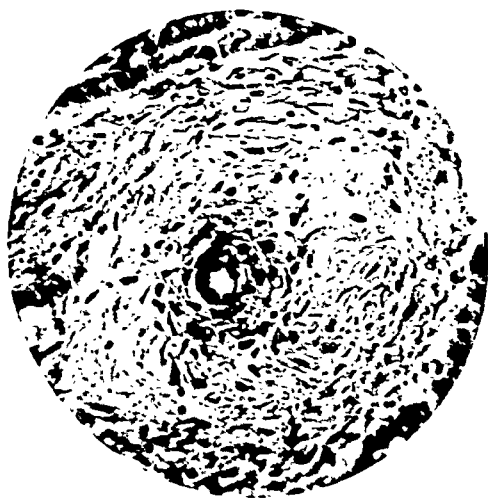


FIG. 3.—The arterial disease in the liver. ($\times 250$.)



FIG. 4.—The arterial disease in the pancreas. ($\times 55$.)

A. VICTOR NEALE AND ALLAN G. W. WHITFIELD: RHEUMATISM AND ITS RELATION TO ARTERIAL DISEASE
AND PERIARTERITIS NODOSA

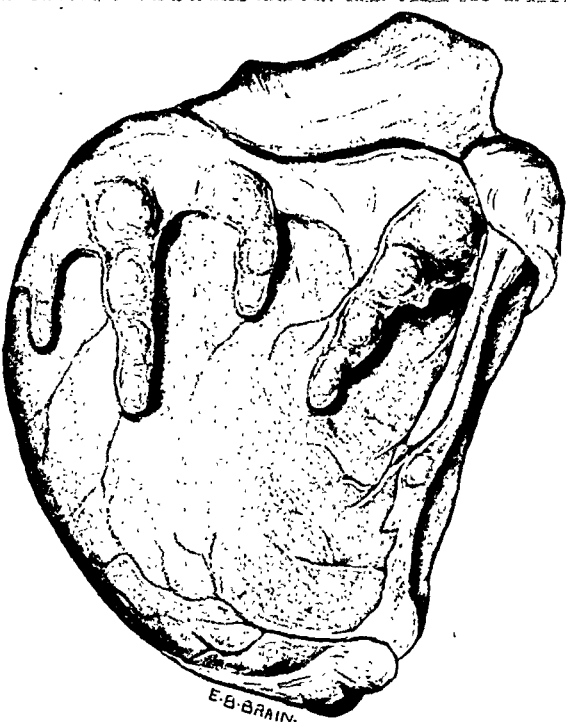


FIG. 5.—Exterior of heart showing nodular thickening of the arteries.

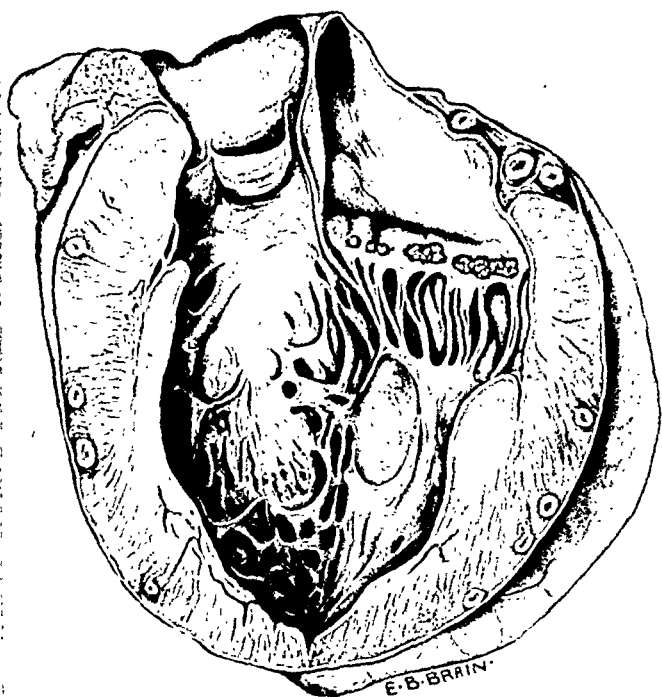


FIG. 6.—Interior of heart showing mitral valvular disease and diffuse disease in the arterial circulation.

DUNCAN C. L. FITZWILLIAMS: INFLAMMATORY DISLOCATION OF THE ATLAS

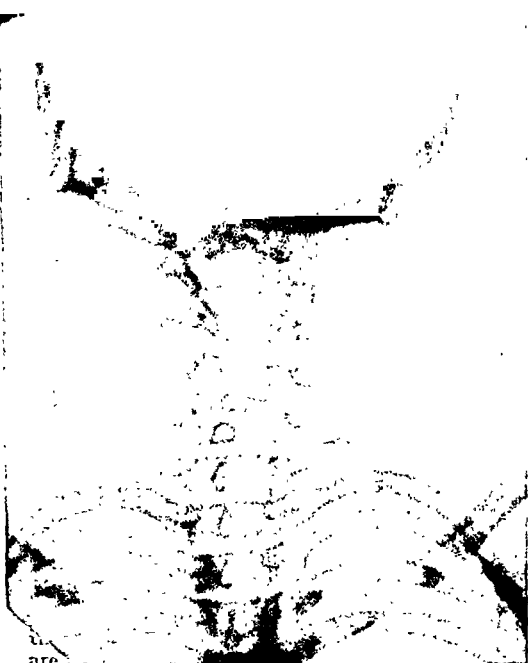


FIG. 1.—X-ray, front view.



FIG. 2.—X-ray, side view.

J. E. PATERSON AND MARGARET LESLIE: GUMMA OF THE BRAIN

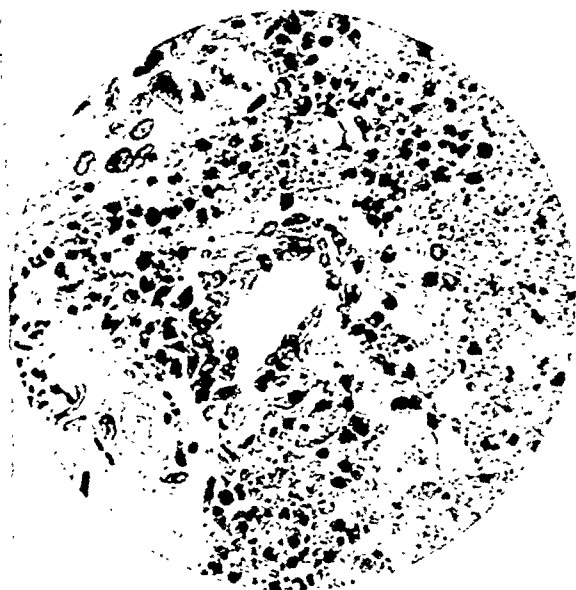


FIG. 1.—Showing gummatous focus in brain with central giant cell, mononuclear cells clustered external to same, and further out on left side cells of spindle-celled type. To right of giant cell, area of focal necrosis with ill-defined cell outline and poorly staining nuclei.

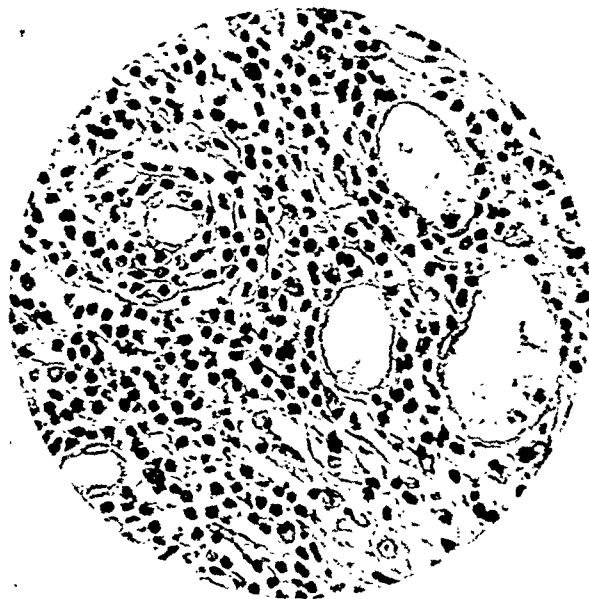


FIG. 2.—Section of vascular area showing round-celled proliferation; dilated vessels with some thickening of lining epithelial wall.

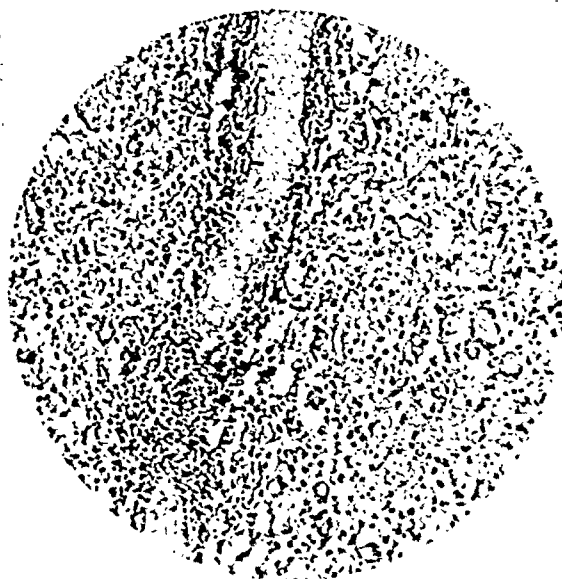


FIG. 3.—Section of brain tissue at periphery of area of degeneration showing a syphilitic perivascularitis of a vessel in longitudinal section. Definite inflammatory reaction seen in wall of vessel.

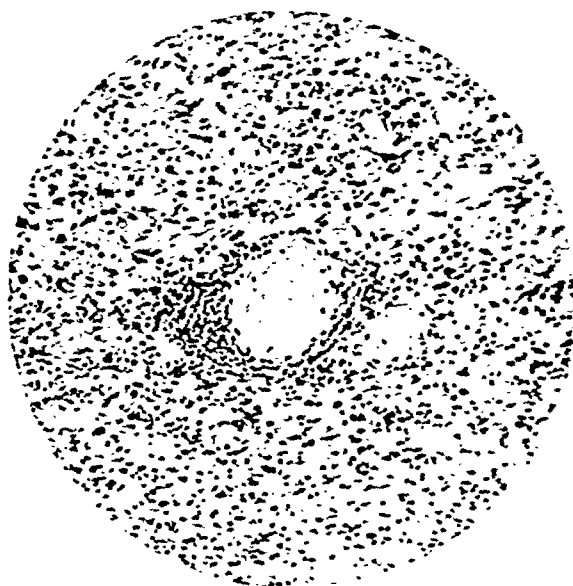


FIG. 4.—Section of brain tissue from a similar area showing a perivascularitis of vessel in transverse section. Note increase of round cells and heaping up of same at external aspect of vessel wall.

ARCHER HOSKING: CAESAREAN SECTION.
DELIVERY OF 254-DAY EXTRAUTERINE FOETUS



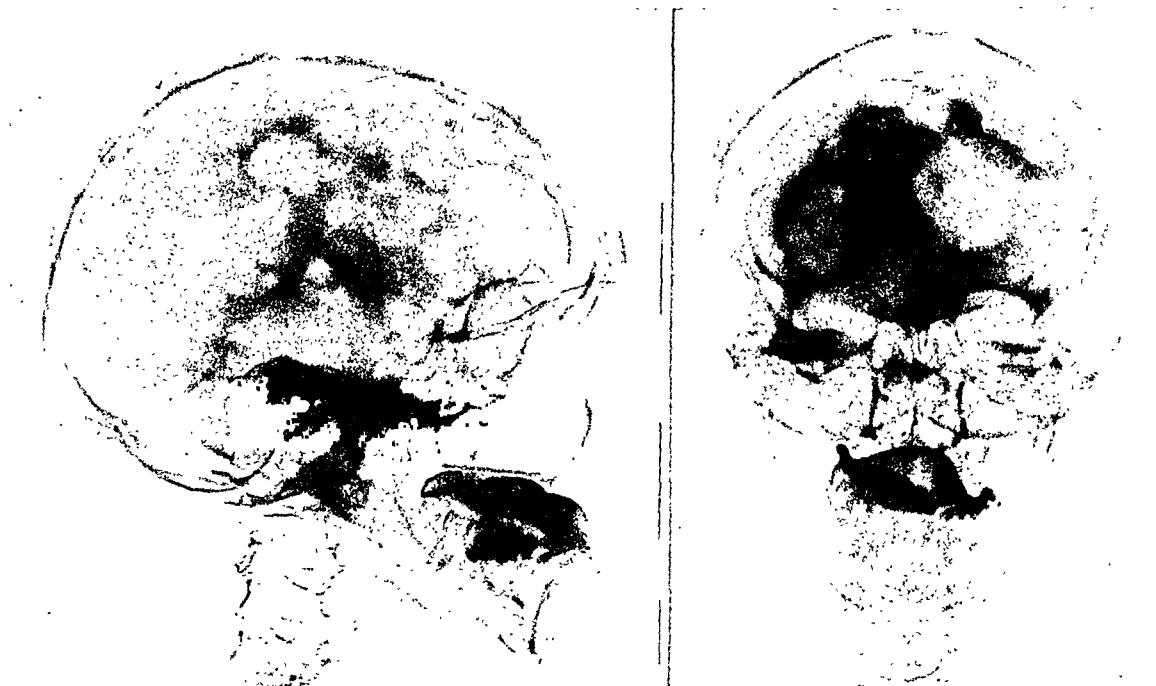
Extrauterine foetus: 250th day.

G. P. GOODWIN: CUTANEOUS MANIFESTATION
OF VITAMIN A DEFICIENCY



Front view of patient's legs.

C. L. SPACKMAN: LATE RECURRENCE OF CARCINOMA



Lateral and antero-posterior views of skull, showing areas of rarefaction.

concept of "arthritis," to the individual and the way he reacts, on account possibly of a specific constitution or diathesis, to a variety of extraneous factors, such as infection, metabolic disturbance, and so on, to produce the clinical picture of rheumatoid arthritis. This aspect was emphasized frequently in contradistinction to a specific infection or metabolic upset being the specific cause of the clinical pictures presented by this disease.

CLINICAL AND PATHOLOGICAL ASPECTS

The second session opened with a paper by Dr. Francis Bach (London) on the anatomy and the physiology of the skeletal system, and the pathological changes that occur in the early stages of rheumatoid arthritis. The importance of the general decalcification of bone, as one of the earliest signs of this disease, was emphasized by Dr. S. Gilbert Scott (London), who followed with an interesting paper on the radiographic aspect of rheumatoid arthritis. The bone changes that may be present in the various stages of the disease were described, and an illustration was given of the value of the standardized radiograph of the hand as an aid to the early diagnosis of rheumatoid arthritis, and its differential diagnosis from osteoarthritis, gout, and other conditions. Professor Abrami (Paris) gave an able word picture of the different clinical forms in which the disease may manifest itself, and Professor Marañón (Madrid) read a carefully prepared paper on the differential diagnosis of rheumatoid arthritis. Drs. R. J. Weissenbach (Paris) and F. Françon (Aix-les-Bains) discussed the importance of taking, in conjunction with the clinical picture, the laboratory and the radiographic evidence and the response to treatment in making a prognosis in the individual case. A paper on sulphur metabolism in rheumatoid arthritis was communicated by Dr. A. R. Neligan and Mr. H. B. Salt, M.Sc., from the laboratory of the Royal Bath Baths Clinic, Droitwich. The session concluded with a paper by Professor Kahlmeter (Stockholm) on the changes in the blood which may be found in this disease.

DISCUSSION ON TREATMENT

The third session was devoted to a discussion on treatment. Among the papers was one read by Sir William Willcox, who discussed the part that infection, and in particular "focal" infection, plays in the genesis of this disease. He outlined the technique of its treatment by vaccine therapy. Professor Rathery (Paris) described the methods of drug treatment and chemotherapy that have been recognized to be of value. Professor Gunzburg (Brussels) described the indications for, and the methods of, physiotherapy that may be applied. Professor Paul Mathieu, professor of clinical surgery in Paris, and Dr. Loring T. Swaim of Boston described the orthopaedic treatment of rheumatoid arthritis. A provocative paper was read by Professor Leriche (Strasbourg) on the role of surgery in this disease. He described bone and joint pathology, and the role of the parathyroid gland in the regulation of calcium metabolism. He stressed the value of parathyroidectomy in the treatment of this disease, and discussed the indications for arterial sympathectomy and arthroplasty. A film showing aspects of the orthopaedic treatment of rheumatoid arthritis was demonstrated by Dr. Vincent Coates (Bath).

Most of the papers read at the meeting were collected and published beforehand.¹ The secretaries, Dr. Mathieu-Pierre Weil of Paris and Drs. F. Françon and J. Forestier of Aix-les-Bains, had arranged the scientific part of the congress with great care. The subject for discussion had been well defined, and excellent opportunities were given for the consideration of its pathological, aetiological, and clinical aspects. The new thermal baths were open for inspection, and the various methods of physical treatment for which Aix-les-Bains has long been famous were shown to the delegates.

¹ Reports: *Rhumatisme chronique progrès de généralité*. Aix-les-Bains, 1934. Imprimeries Reunies de Chambéry, 3, Rue Lamarque, Aix-les-Bains.

BEIT MEMORIAL TRUST FOR MEDICAL RESEARCH

A meeting of the trustees of the Beit Memorial Fellowships for Medical Research was held on July 12th for the election of Fellows and other business. The annual report, which was adopted by the trustees, expressed deep regret at the death, on July 3rd, at the age of 82, of their senior colleague, Sir James Kingston Fowler. For twenty-one years, in his double capacity of trustee and honorary secretary, Sir James had given devoted service to the welfare of the Trust, and when enfeebled health made it necessary for him to relinquish the secretarial duties he still watched closely, as trustee, the progress of the work, which owed so much of its success and even of its existence to his creative powers. When Dean of the Faculty of Medicine in the University of London Sir James had been foremost among those who were planning for certain changes in the teaching of the preclinical subjects, and for this end he had won the practical sympathy of Mr. Alfred Beit. The plan was not realized, but Sir Otto Beit, on the death of his brother, generously decided to give the money that the latter had intended for the plan, together with a great addition to the sum on his own part, for a new purpose—the establishment of Beit Memorial Fellowships. The Trust was created in 1909, and every step of its formation and growth was nursed by Sir James with a wisdom that rested on his knowledge of practical affairs, and yet never lacked the vision that was content to wait for results provided that Fellows of high scientific abilities were chosen. His eager care in fostering the aims of the Trust rivalled that of the founder himself—Sir Otto Beit—during the twenty years in which the latter lived to preside as chairman of the trustees; and to both of them (now dead) all gratitude is due for such personal service.

Fellowships throughout the year 1933-4 were held by twenty-four workers. Among the distinctions gained by past and present Fellows during the year may be especially noted the appointment of Professor E. Mellanby, F.R.S. (1910-12), as secretary of the Medical Research Council. Dr. H. Cohen (1924-5) has been appointed Professor of medicine in the University of Liverpool. Dr. Helen Mackay (1920-2) was elected to the Fellowship of the Royal College of Physicians, London, being the first woman to be thus honoured. Dr. Dorothy Russell (1923-6) gained the Hunter Medal and Triennial Prize of the Royal College of Surgeons, London; and Dr. Janet Vaughan (1931-4) received the Triennial Liddle Prize of the London Hospital. Dr. Maurice Stacey (1933-) earned an unusual distinction as first-year Fellow in being awarded the Meldola Prize of the Institute of Chemistry.

ELECTION OF NEW FELLOWS

The following elections to Fellowships were made by the trustees:

Fourth-year Fellowships (value £500 per annum).—Robert Hill, M.A.Camb. To continue his research on the properties of haemoglobin and cytochrome. (Dunn Institute of Biochemistry and Molteno Institute, University of Cambridge.) Leonard Hubert Stickland, M.A., Ph.D.Camb. To continue his work on the metabolism of the strictly anaerobic bacteria of the genus *Clostridium*. (Dunn Institute of Biochemistry, University of Cambridge.)

Junior Fellowships (value £400 per annum).—Solly Zuckerman, M.A.Capetown, D.Sc.Lond., M.R.C.S., L.R.C.P. Proposed research: Experimental study in animals of the neurovascular control of reproductive functions. (Department of Human Anatomy, University of Oxford.) Harold Williams Fullerton, M.A., M.B., Ch.B.Aberd. Proposed research: The aetiology and treatment of hypochromic anaemia of women of the poor classes. (Department of Medicine, University of Aberdeen, and the Rowett Research Institute, Aberdeen.) Emanuel Mannie Lourie, M.B., B.S.Lond., D.P.H., D.T.M. and H. Proposed research: Studies on chemotherapy in protozoal disease. (Liverpool School of Tropical Medicine.) Joseph Stanley Mitchell, B.A., M.B., B.Ch.Camb. Proposed research: The effects of radiation on thin protein films.

(Laboratory of Colloid Sciences, University of Cambridge.) David Ezra Green, M.Sc. New York, Ph.D. Camb. Proposed research: The effect of hormones and vitamins upon the metabolism of individual organs. (Institute of Biochemistry, University of Cambridge.) Gordon Allison Grant, M.Sc. Dalhousie, Ph.D. Toronto. Proposed research: The metabolism of galactose and the physiological synthesis of lactose by the active mammary gland. (Lister Institute of Preventive Medicine, London.) Stuart Lawson Cowan, B.Sc. Lond. Proposed research: To continue study of the chemical exchanges occurring in crustacean nerve, as a result of stimulation and oxygen want; to study the blood flow through the kidney during diuresis. (Pharmacology Laboratories, University of Cambridge.) Maurice Jowett, B.Sc., Ph.D. Liverpool. Proposed research: Metabolism of the central nervous system with reference to the effects of narcotic and basic amines in cases of mental disorder. (Biochemical Laboratory, Cardiff City Mental Hospital.)

In considering candidates for election this year the trustees were influenced by a special desire to promote research in relation to mental disease.

All correspondence of Fellows and candidates should be addressed to Professor T. R. Elliott, M.D., F.R.S., honorary secretary, Beit Memorial Fellowships, University College Hospital Medical School, University Street, W.C.I.

Union of South Africa

[FROM OUR CORRESPONDENT IN PRETORIA]

Medical and Nursing Services in the Native Territories

The urgent health needs of the four million Bantus living in the native reserves of the Union are at last to be met by an organized scheme of relief. Six years ago a State commission inquired into the practicability of training Bantus in medicine, with a view to their serving their own people in the territories after qualification. It was then pointed out that there were areas where only one medical man was available to attend to the health needs of some 40,000 people. In such areas native herbalists and witch doctors flourished, and preventable mortality was excessive. That commission recommended that a full course of medical training for natives leading to a registrable qualification be instituted at one of the South African universities. This was considered by the Government of the day to be impracticable, and no action was taken in the matter.

Recommendations of Departmental Committee

Last year an interdepartmental committee was appointed by the Government to advise on methods for meeting the health needs of the Bantus, and during the 1934 Budget debate the Minister of Public Health announced that the Government proposed to carry out the recommendations made by that committee. The committee pointed out that the provision of a sufficient number of fully qualified native practitioners to meet the requirements of all the reserves was impracticable. Even if all financial obstacles could be overcome, the difficulty of providing the necessary training would still be insuperable. The number of suitable Bantu students who would be available for training would of necessity be very small for many years—too small to justify the establishment of a separate Bantu medical school. Parallel classes at the two existing European medical schools would also be unjustifiably expensive, in view of the relatively small number of students who could avail themselves of the course. Individual talented Bantus should not, however, be debarred from all prospect of qualifying as doctors, and the legitimate claims for higher education could not be ignored. Since facilities for their training in the Union could not be provided, although such were provided for

their fellow tax-paying European citizens, some State aid in the form of scholarships for proceeding over-seas was recommended. The inducements for European practitioners to settle in the reserves were too slight to attract more than a very few, apart from the State-aided district surgeons and the devoted men working in conjunction with missionary societies. With full facilities provided the number of Bantus who could qualify during the next few decades would also be much too small to meet the medical requirements of these people.

Medical Aids

Because of the urgent necessity of providing some medical relief, however, special training of suitable natives in a shortened course not leading to a medical qualification was recommended. The individual so trained is to be referred to as a "native medical aid." The course will, at all stages, differ from the corresponding stage of the medical curriculum. Apart from the elimination of study unnecessary to the future activities of the medical aid, it was considered important to meet possible opposition from the medical profession because of an "inferior" medical degree or diploma. The training will differ fundamentally from the medical curriculum in that it will not be concerned with principles on which the practitioner subsequently builds. The medical aid will be trained to do a limited number of duties very well. Thus he will be specially trained in first-aid treatment, and in the careful preparation of blood smears for malaria examination, of nasal smears for leprosy examination, and of sputum for tuberculosis examination. In such matters high technical skill will be required of him. He should be capable of dealing with most of the ordinary ailments and injuries, and know when to call to his aid a medical man. He will be in full-time Government employ, though he may be seconded to a local authority or other body concerned with health administration. Private practice will be precluded. Any fees due by patients for services rendered will be collected by the Government or local authority. He will be given a suitable house, considerably superior to the huts in the kraal where he will be stationed, and a dispensary and consulting room will be provided. The Minister stated that the proposals had been generally approved by the Federal Council of the South African Medical Association, and the Government had decided to accept the obligation of the conduct of a native health service. The institution of the scheme would necessarily be progressive, keeping pace with the training of the necessary personnel. It was contemplated that ultimately 200 native medical aids would be employed, at the cost to the State of approximately £70,000 per annum. The initial capital expenditure for residential and dispensary quarters would be about £100,000. Realizing the importance of the proposed health service, not only for the natives but for South Africa as a whole, the Government has readily accepted these commitments.

The Johannesburg Chamber of Mines had previously announced that it was prepared to make an appropriate donation towards some suitable scheme for Bantu welfare in the Union. On learning of the Government's decision it donated £75,000 for the medical training of natives, the disposal of this sum being left to the Government. The latter decided, with the Chamber's concurrence, to pay it to the South African Native College, the council of which is to be empowered to use not more than £5,000 for building purposes, and to invest the remainder as a permanent fund. As a result of the Chamber's generous action, coupled with the Government's decision, it has now become possible to proceed with one of the biggest forward steps in native welfare which have been taken for a very long time.

Female Nurse Aids

The need for female nurses in the reserves was also emphasized by the committee, and it was proposed to provide facilities for the training of a large number of nurse aids, with special reference to obstetrics. The committee was satisfied that the best way of providing additional native nurses and nurse aids would be by subsidizing to an increased extent the various mission hospitals that are already doing most praiseworthy work in this connexion. Non-European hospitals under provincial government administration should also be induced to increase the training both of registrable Bantu nurses and of nurse aids.

England and Wales

Port Sanitation at Liverpool

A comprehensive survey of the activities of a port sanitary authority, with an indication of the ways in which these activities are related to the local inhabitants and to the general community, is afforded by the annual report of the medical officer of health to the Port Sanitary Authority of Liverpool for 1933. Dr. W. M. Frazer details the measures adopted under the Port Sanitary Regulations, with special references to the campaign against rats, the improvement of the sanitation of vessels, the inspection of imported foodstuffs, and the medical inspection of aliens, interspersing observations on the way in which these measures have worked out in practice. An additional attraction is a review of the development of the Port of Liverpool by Dr. E. R. Peirce, senior assistant port medical officer, since the first reference to it in the reign of Edward III. From 1901 onwards all vessels arriving from abroad have been examined by trained rat-searchers, and many epizootics of rat plague have thus been brought to light. In the year under review no case of bubonic plague was detected. When any possible harbourage for rats is seen, representations are made to the owners or agents, and such harbourage is eliminated or the certificate is endorsed. The Liverpool docks are of solid construction, and for the most part present a minimum of shelter for rats, apart from such places as engineers' stores and accessory structures. As the result of long-continued action these have now been rendered rat-proof, and are so maintained. Dr. Frazer concludes, therefore, that the risk of the introduction into this country of rat plague has now been very greatly reduced. He adds that since the enforcement of Article 28 of the International Sanitary Convention of Paris (1926) there has been a steady increase in the number of ships examined which show no evidence of rat infestation. The methods adopted at Liverpool have proved so successful that numerous inquiries about the details are received. Dr. Frazer has therefore deemed it useful to reproduce in his present report the lines of procedure which were published in its predecessor. Statistics indicate that, in spite of the most careful precautions, rats are always likely to gain access to a vessel when cargo is being loaded. For "deratization" the fumigation of ships with sulphur dioxide or hydrocyanic acid gas is preferred. On one occasion last year a partly loaded vessel had to be fumigated. So far as could be ascertained no damage was done to the cargo, which included sugar, rice, bags of salt, and barrels of port produce. Dead rats were found in various parts of the vessel. Close attention has been paid to the hygiene of the quarters of crews. The use of tongue-and-groove boards in the forecables is the cause of a large amount

of infestation with bugs, and the Port Sanitary Authority always urges that this form of boarding should be removed, with subsequent free use of the blow-lamp. If boards are to be used in the forecable three-ply wood should be substituted. A marked improvement in the condition of the crews' quarters has been noted when they are fumigated for each voyage and sprayed with an insecticide, a supply of which is made available also for use during the voyage. Food inspections have shown that much more care is now being taken to exclude unsatisfactory carcasses in most importing countries, but not yet in all. Exception was taken to the label "Fit for human food" which was carried by one consignment of canned dog food. Such examples of the details of the work of the authority enliven a valuable report.

Sheffield Radium Centre: Deep X-Ray Therapy

On July 5th the Duchess of York opened the Sheffield Radium Centre. In greeting Her Royal Highness on behalf of all associated with the Sheffield Royal Infirmary and the Radium Centre, Sir Ronald Matthews referred to the installation of a new deep x-ray therapy set. Sir Ronald said: "I think, I may say that it has, so far, justified the highest expectations of those who advised us to install it, and I hope that in years to come it will be a means of saving a great deal of suffering among the people of Sheffield and the surrounding areas." The x-ray equipment in the Radium Centre has been supplied by the research department of the Metropolitan-Vickers Electrical Co., Ltd., and the arrangement is such that it is possible to treat two patients simultaneously, but the apparatus is designed so that this is done with a minimum of complications. The equipment, under the control of Dr. F. Ellis, comprises two x-ray tubes and associated apparatus, operating at 200,000 volts. The Metropolitan-Vickers high-voltage x-ray tube for deep-therapy treatment has been rendered possible by the production in the company's laboratories of a range of low vapour pressure oils for use as working fluids in condensation pumps, thus enabling the highest vacua to be attained without the use of liquid air or other cooling media. These pumps had already been applied to evacuate dismountable valves, and experience had been gained of their operation under commercial service conditions. The feasibility of running vacuum apparatus continuously on pumps had been proved many times, and Dr. T. E. Allibone, who had already demonstrated that x-ray tubes operating under laboratory conditions at up to 450,000 volts could be run in this way, was soon able to design a tube suitable for medical service and operating at 200 to 250 kV.

Central Midwives Board

At the July meeting of the Central Midwives Board for England and Wales it was agreed to reply to an inquiry from the county medical officer of health for Hertfordshire that, as the rules stand at present, the administration by midwives of nitrous oxide or, in fact, of any anaesthetic, by any method otherwise than under the direction and personal supervision of a duly qualified medical practitioner, is regarded as treatment outside their province. The following point had been raised by the medical officer of health of a local supervising authority. In his area, he said, there was a nursing association employing a district midwife who did not wish to book abnormal cases, but was required to do so by the association, apparently at the instigation of four doctors on the committee of the association, one or more of whom, it was suggested, would be summoned by the midwife under Rule E. 20 to the abnormal cases, and would thus benefit by the payment of fees by the local supervising authority. The medical officer of health felt that these

cases should be booked by doctors, and that the local supervising authority should not be called upon to pay fees to the doctors because, in the first instance, the case was booked by the midwife and doctors were then summoned under Rule E. 20. He wished to know if he would be justified in telling the midwife that she must not book these abnormal cases. The Board agreed that the medical officer of health had no power to instruct a midwife not to undertake work which, by law, she was entitled to undertake.

India

Health of the Armies in India

The second volume of the annual report of the Public Health Commissioner with the Government of India for 1932 deals with the health of the British and Indian armies in that country. Malaria still remains the chief scourge, 14.5 of all admissions to hospital in the year under review being due to it. Yet there has been a gradual decline in the last decade from an admission rate of 206.8 per mille in 1924 to 84.1 in 1932, when, however, the climatic conditions were generally unfavourable to the spread of malaria. An adverse factor was introduced by the suspension of antimalarial engineering work by the prevailing financial stringency. Partly by a process of exclusion, and partly from slowly accumulating clinical and statistical evidence, the tentative opinion is now expressed that the more extensive and intelligent use of plasmoquine is mainly responsible for the fact that 1932 was a record year. The full results of the first year's systematized administration of the drug are not yet available. In addition to the improvement as regards malaria there were fewer admissions to hospital in 1932 in respect of all the other causes. The combined ratio of constantly sick in hospital and under treatment as out-patients was 47.02 per 1,000 of the strength, compared with 50.71 in the previous year. The actual loss to the army in India in working days was 972,579, as compared with 1,033,607 in 1931. The mortality and invaliding rates were similarly lower. Sandfly fever continues to be a source of anxiety, despite the destruction of breeding places. Certain observations suggest that the infection is not acquired in the barrack rooms so much as during night duty in the trenches guarding the perimeter. Active investigation is being pursued into the habits and bionomics of the sandfly. The admission rate of dengue is diminishing. The diagnosis of sporadic cases of typhus is becoming much more common, probably owing to a more universal recognition of the symptoms of the disease than to an increased incidence, since in the past there is little doubt that many cases were classified as pyrexia of unknown origin. While the general picture corresponded to tick typhus, as described by Megaw and others, it has been impossible in most cases to obtain a definite history of tick bite. There was often a relationship between the onset of the disease and recent residence in forest bungalows and camps, which is in keeping with the hypothesis that typhus is a disease of the wilds, normally occurring in some lower animal which constitutes the reservoir of infection, and conveyed to man by some parasitic arthropod which occasionally selects him as a host. Although there has been a steady decline of the enteric fevers in both the British and the Indian armies, the case mortality has shown little variation in the last few years. Blood culture remains the most satisfactory method of diagnosis. Statistical tables indicate the value of prophylactic inoculation in reducing the incidence of these infections, though it does not influence the case mortality. It is admitted

that these findings are at variance with the generally accepted views. The dysentery and diarrhoea figures remain undiminished. It is believed that the policy of multiplying examinations for carriers had led rather to the concealment of active cases, and it is now proposed to abandon it in favour of a system of encouraging the active bacillary case to report sick and to be suspended from duty until non-infective. Intractable chronic or relapsing cases will be discharged. Examination of possible amoebic carriers has similarly failed. At no time has the incidence in units suggested carrier infection; on the contrary, it has been roughly proportionate to the numbers at risk. Moreover, the number of detected carriers is in excess of the number of cases of amoebic dysentery, and it is concluded, therefore, that the cyst-passer is only one of the factors in infection. Routine investigations for carriers are being abandoned as of inadequate value.

Extension of Madras General Hospital

Sir George Stanley, Governor of Madras, opened, on March 26th, the new institute of radiology, the new surgical block, and the new pathological block of the Madras Medical College; the new out-patient department of the General Hospital has been in use for nearly two years, and is part of the same scheme for hospital extension in Madras which originated when Lord Goschen was Governor. The General Hospital was founded in 1664; it was rebuilt in 1692 and again in 1711. A new site was found in 1753, and extensions followed in 1859, 1874, 1884, 1894, and 1897. Remodelling has steadily continued from 1928 until the present comprehensive scheme, of which part still awaits completion. The Madras Medical College was established in 1835, and its clinical instruction from the first has been carried on in the General Hospital. The first x-ray outfit was installed about 1900, and twenty years later the Government organized a radiological service, temporary buildings in the hospital being at first utilized for this purpose. These soon became inadequate; in 1933 they had to cope with 75,780 sessions. The newly completed institute will be one of the largest and most up-to-date in the world. Instruction in radiology is to be one of its most important functions, and it is contemplated that the University of Madras will grant a diploma in this subject in the near future. It is hoped that much of the administrative expense will be met by contributions from paying patients. The building consists of two blocks, and includes diagnostic and treatment departments, a large remedial exercise and massage hall, a bed-sitting room for barium meal patients, and departments for clinical photography and electrocardiology. A feature is the incorporation of barium sulphate in the actual building bricks used in all the x-ray and radium departments; it is calculated that this affords protection equivalent to at least 8 mm. of sheet lead, while being much cheaper. The radium safe and the alcove in which it stands will be given a protection equivalent to twelve inches of lead. All the rooms in which the work will take place have been air-conditioned, so as to ensure that the temperature shall be 10° lower than that outside and the humidity be maintained at 60 per cent., no matter what the outside weather conditions may be. The entire conditioning plant works automatically. Besides serving the needs of the General Hospital, the institute will be available for the other smaller hospitals in Madras, and for patients coming from any part of the Presidency. The surgical block gives accommodation for an additional 124 beds and four sets of operating theatres. Provision for the nursing staff is made on the top floor, and it will now be possible to train thirty more nurses. The pathological block contains laboratories and rooms for pathology, bacteriology, and biochemistry, and also a large examination hall and library. It is three

stories high, and is connected with the east wing of the old hospital by a new wing, in which are situated the offices of the superintendent and laboratories for the professors. It is estimated that the cost of the whole hospital extension scheme will ultimately exceed fifty-two lakhs of rupees.

Scotland

Problems of Mental Disorder

In the report of the Glasgow Royal Mental Hospital for 1933 reference is made to the renovations and conversions of old buildings which have been effected. An admission centre for new female patients has come into being, the new ward consisting of eight bedrooms and a four-bed dormitory, with sitting room and dining room accommodation. The laboratory of the Neuro-Psychiatric Institute, which is situated in the grounds of the hospital, was opened a year ago, and is both well equipped and modern. An exceptionally large number of new patients were admitted during 1933, most of whom were acutely ill; nearly 60 per cent. were voluntary patients. The physician-superintendent, Dr. A. MacNiven, remarks that this fact is a forcible reminder of the high prevalence of mental illness in the community, and is an indication of the great need for active, preventive, and therapeutic measures. He sees little immediate hope of reducing this incidence, owing to the complexity of the causative factors. So far no one has had the temerity to outline a system of education and training which would have effective prophylactic value, even though great advances in knowledge have been made by psychological experts. It seems unlikely, therefore, that changes brought about by continued social progress, and resulting in an increase of material comfort and a general mitigation of the rigors of life, will result in a corresponding improvement in the standard of mental health of the community, for the reaction of the individual person to a good as well as an evil environment still remains incalculable. Dr. MacNiven adds that it is still necessary to point out that a mental hospital is something more than a prison, so deep-rooted in the community outlook is the fear of and antipathy to mental illness. Financial assistance for mental hospitals is scanty, and there is great need in Glasgow of a psychiatric clinic, similar in character to those in America and Germany. Such a clinic would enable the number of patients in the care of the physician to be diminished, would free the staff from administrative responsibility, and would promote research, which would have great economical benefits as well as improve the prospects of successful therapy. Dr. MacNiven thinks that erroneous ideas about the role of heredity in the production of mental disease are responsible, to a large extent, for the stigma which still clings to this disease. He fears that the prominence given to heredity in the report of the Departmental Committee on Sterilization may increase public anxiety unjustifiably. While mental defect in itself is a permanent bar to social independence, is in some cases inherited, and may therefore be suitably dealt with by sterilization, this is far from being the case in many forms of mental disease, and a distinction should be made. In regard to the latter, knowledge of the relative importance of heredity and environment is still so imperfect that there are very few cases in which a psychiatrist would feel justified in recommending sterilization. The growing interest of the general practitioner in the psychological aspect of his patients is indicated by the increased number of patients referred, in the year under review, to the Western Infirmary Psychiatric Out-patient Clinic. The total was 689, and the figures have

steadily risen since the inception of the clinic in 1910. In view of the importance of early treatment this rise is encouraging, but Dr. MacNiven recognizes that the psychiatrist is too often regarded as the last and not the first resort in cases of psychoneurosis and the minor neuroses. He comments also on the value of this clinic in the training of medical students.

Training of Nurses

The Departmental Committee recently appointed by the Secretary of State for Scotland to inquire into the training and registration of nurses has now held its first meeting. The meeting, which was of a preliminary nature, had under consideration the terms of reference:

"To inquire into the training and system of registration of nurses in Scotland, and to recommend what amendments, if any, should be made in the Nurses Registration (Scotland) Act, 1919, or the rules made thereunder, and what other steps, if any, should be taken to improve the existing system of training and registration."

In view of the wide terms of the reference it will be necessary for the committee to review the whole problem of nursing training and registration. Its aim will be to evolve, if possible, a more logical system than the present one, which, although an improvement on the position before the passing of the Nurses Registration Act in 1919, still achieves little in the way of mobility and interchangeability for nurses who desire to attain proficiency in all branches of their profession. The committee will not meet again until after the holiday period—probably some time in October—but in the meantime it is open to receive memorandums on the subject of the inquiry from persons and bodies interested. All communications should be addressed to the secretary of the committee, Mr. W. T. Mercer, Department of Health for Scotland, 121A, Princes Street, Edinburgh.

Gogarburn Institution for Mental Defect

At the opening of two new wards at Gogarburn Certified Institution, Edinburgh, on July 7th, the chairman, Councillor Mrs. Morison Millar, pointed out that the estate of Gogarburn had been purchased in 1923 by the District Board of Control to provide accommodation for at least 500 patients suffering from mental defect. There were already 330 patients, and the new blocks would accommodate 110 more. Bailie Raithby, the senior magistrate, said that Gogarburn Institution was an important part of the health services of the town council of Edinburgh. Occupation was provided for female patients in laundry work, kitchen work, sewing, and house work, and for males in gardening, stoking, and transportation of food and stores. There was also a school conducted by three teachers for the mentally defective children, and troops of scouts and guides had been formed among the patients.

The National Baby Week Council (117, Piccadilly, W.1) has issued two new publications in connexion with its propaganda on nutrition. A four-page pamphlet entitled *The Diet of the Expectant Mother*, by Stuart J. Cowell, M.R.C.P., professor of dietetics, University of London, is specially planned for midwives, and the majority of local supervising authorities distributed copies to midwives during National Baby Week this year. *Thoughts on Food and Feeding* is a propaganda leaflet intended to help mothers and housewives to become interested in the whole problem by securing the best nutrition at the lowest expenditure. Local supervising authorities are proving very ready to support the teaching to midwives embodied in the pamphlet by the distribution of it to mothers and housewives in their area.

Reports of Societies

OXFORD OPHTHALMOLOGICAL CONGRESS

The twenty-fourth annual meeting of this congress was again held at Keble College, Oxford, on July 5th, 6th, and 7th. The foreign and overseas members present were: Professor Joseph Meller of Vienna, Dr. J. Edward Rivera of Peru, Professor Berg of Upsala, and Dr. T. Donald Gordon of Durban.

PROCEEDINGS

These began on July 5th with a short speech from the Master, Mr. CYRIL WALKER, who referred in moving terms to the death of the Immediate Past Master—Mr. BERNARD CRIDLAND—which occurred only five days before the congress assembled. The congress had been founded twenty-five years ago by the late Robert Walter Doyne, but there was no doubt that the continued success of the meetings had been in very large measure due to the late Mr. Bernard Cridland, who was secretary for fifteen years, and became Master in 1929. He proposed the following resolution:

"That this meeting of the Oxford Ophthalmological Congress desired to express to Mrs. Cridland and family its profound sympathy with them in their recent bereavement; and to place on record their sense of the irreparable loss the Congress had sustained in the death of the Immediate Past Master."

Immediately afterwards Sir FARQUHAR BUZZARD opened a symposium on "The Functional Diseases of the Eye." He described how the opinions of ophthalmic surgeons had changed on this subject during the last twenty-five years, and that now a much more scientific attitude was taken on the matter.

He was followed by Mr. WILLIAMSON-NOBLE, who dwelt on the need for liaison between ophthalmology and psychiatry, quoting cases and discussing their treatment. He suggested a possible explanation of functional amaurosis with inactive pupils. He then discussed in detail the general considerations of ophthalmic methods of diagnosis to eliminate functional from organic causes of asthenopia. The variability in threshold stimuli in the production of headache in different patients was fully discussed. He thought it was possible to over-emphasize the importance of the functional element in the production of asthenopia.

Dr. WILLIAM BROWN said that the psychological factors at work in causing or sustaining functional diseases of the eye were identical in general—namely, inadequate solution of mental conflicts, faulty adjustment to the conditions of life, and a general failure to make headway along the individual chosen path. The baulking of fundamental instincts, especially those of self-preservation and sex, was responsible for much functional eye disease; but mental stress and shock arising in conditions involving eye strain would be especially potent in this direction, as in the case of miners' nystagmus. The visual symptoms in some forms of hysteria are of special theoretical interest, in that they illustrate with particular clearness some of the psychological characteristics of the illness. The disturbances of vision in war neurosis were very instructive, since they portrayed the working of psychological factors in a clear and simple form. In civilian cases of slow and prolonged development the psychological motive could only be revealed by long and painstaking analysis. There were a great number of cases of organic eye trouble with functional overlap, where the disturbance of function was in excess of that to be expected from the organic defect, and was due to the mental reactions of the patient to his disability.

A very interesting discussion followed, which was carried on by Sir ARNOLD LAWSON, Dr. TRAQUAIR, Dr. SEXTY GOOD, Mr. P. H. ADAMS, Dr. GEARY, Mr. GRAY CLEGG, Mr. F. WALKER, Mr. AFFLECK GREEVES, Mr. ALABASTER, and Dr. RIVERA. Mr. AFFLECK GREEVES related a case of retinal glioma in the second eye treated by radium externally. The first eye was removed when the patient was fourteen months old, and at the operation an ophthal-

moscopic examination was made of the other eye, which was discovered to be gliomatous as well. It was treated externally with radium in a wax mould; and when the case was seen three years later there was no sign of recurrence.

In the afternoon Dr. H. W. BARBER, physician in charge of the skin department, Guy's Hospital, read an exhaustive paper on the aetiology and treatment of some conditions affecting the eyelids. Eczema was first discussed at length as regards aetiology and treatment, then relapsing streptococcal lymphangitis with or without subsequent elephantiasis. Next Dr. Barber fully described the seborrhoeic state associated with blepharitis, styes, granuloma pyogenicum, sycosis, and rosacea. This was followed by a detailed description of miliary, lupoid, and rosaceous tuberculide, herpes simplex, and disturbances of the autonomic nervous system, and finally certain tumours of the lids were dealt with.

Mr. TUDOR THOMAS showed a patient who had had corneal graft performed on both eyes successfully, and he described the operative technique of the procedure.

Tea was taken at Oriel College, where the members were received by Dr. and Mrs. Franklin.

The annual dinner was held in Keble Hall in the evening, presided over by the Master, Mr. Cyril Walker. During the dinner the opportunity was taken of making a presentation to Professor ARTHUR THOMSON, who had just retired from the professorship of human anatomy in the University of Oxford, and who had kindly allowed the congress to hold its meetings in his department for the last twenty-four years.

OTHER PAPERS

On the morning of July 6th Dr. THOMSON HENDERSON read a very interesting paper on the constitutional factor in myopia. He brought forward the view that axial myopia was the result of constitutional factors, which, by inducing an inadequacy of the sclerotic, cause the posterior pole of the globe to give way under the normal intra-ocular pressure. Current theories as to the causation of myopia were criticized. It was shown that after the age of 5 years growth took place behind the equator, and hypermetropia resulted from an arrest of such development while myopia resulted from an over-extension. Congenital causes and hereditary influences were not considered to play a great part in determining myopia.

Mr. ARNOLD SORSBY read a paper on the pre-myopic state. The physical and biological conception of the normal eye was considered, and reference was made to the work of Steiger. The curves of the globe and the normal refraction in infancy were fully discussed.

The Doyne Memorial Lecture was given by Professor JOSEPH MELLER of Vienna, and was entitled "Tuberculosis and its Relation to Spontaneous Post-traumatic and Sympathetic Ophthalmia." The aetiological classification of the uveitides was criticized, and the opinion was expressed that a large proportion of these cases were of tuberculous origin. Professor Meller dwelt on the insignificance of the general tuberculous changes found in the lungs or glands of these patients. It was emphasized that only a positive focal reaction to tuberculin made the diagnosis certain. Sympathetic ophthalmia was next considered, and, after a short historical survey, reasons were given indicating its endogenous character. The results of Lowenstein's method of blood examination in cases of sympathetic ophthalmia were described. A culture from the tissue of the exciting eye in a case of sympathetic ophthalmia in 1932 showed tubercle bacilli. Further cases were also reported. In post-traumatic iridocyclitis bacillaemia was proved in 20 per cent. of the cases, but positive bacillary tissue findings were still lacking.

Dr. OLIVER PRATT read a paper on "The Influence of Diet in Ophthalmic Practice." Migraine was first discussed as regards its causation and treatment. Faulty fat metabolism was considered to be an underlying cause in many cases, and it was pointed out that assistance might be obtained for this defect by prescribing glucose. The inflammatory conditions of the cornea and conjunctiva were often associated with excessive carbohydrate consumption, and aggravated by lack of vitamins. Diabetes

was next discussed, and it was pointed out that when this was untreated myopia tended to develop. In diabetic retinitis diet alone was insufficient to arrest deterioration, and properly controlled treatment by insulin was essential.

Mr. BERNARD CHAVASSE read a paper on "Thermoplasty of the Extraocular Muscles." He described a method of heat coagulation of the motor nerve fibres destined to supply that portion of a muscle whose action it was desired to abrogate. A method was also described in which by the same means the effect of a muscle upon the position of the eye might be increased by longitudinal heat shrivelling of its tendon.

Mr. J. JAMESON EVANS and Mr. PHILIP JAMESON EVANS read a paper on "Some Remarks on the Aetiology and Treatment of Congestive Glaucoma." The aetiology of this condition was described as essentially one of angioneurotic oedema or thrombophlebitic oedema of the ocular structures. The necessity of preliminary treatment, which was mainly medical, was dwelt upon, and the actions and uses of acetylcholine were described.

On the morning of July 7th Mr. FREDERICK RIDLEY read a paper on "The Clinical Significance of the Composition of the Tears," with special reference to the action of lysozyme. Mr. SAVIN read a paper and fully described a case of uveoparotid fever. The patient improved after drainage of an empyema of the right maxillary antrum, and no evidence of tuberculosis was found. The last paper was by Mrs. LYTGOE, giving the result of some research work on the "Production of Rosettes in the Mammalian Retina." This paper was of great scientific interest, and was obviously due to much thoughtful and original work. A kitten was shown, in which rosettes had been developed in the retina, which could easily be seen with an ophthalmoscope.

The proceedings were closed by a short speech from the MASTER, who stated that 116 members had attended the congress.

OCCUPATIONAL THERAPY

A conference on occupational therapy, organized by the National Council for Mental Hygiene, was held at the house of the Royal Society of Tropical Medicine and Hygiene on July 11th.

Sir HENRY GAUVAIN, who was in the chair in the afternoon, defined occupational therapy as "occupation carried out under direct medical control and supervision with a definite therapeutic object." It should be prescribed, he said, in the same way as medicines with regard to the requirements of the individual patient. The movement was of recent development, and in this country we were merely on the fringe of the subject. The value, both psychological and physical, of the occupational treatment of all persons whose infirmities necessitated a prolonged sojourn in hospital or institutional environment was daily becoming more apparent to all those concerned in their care and restoration to normal health.

Dr. J. B. McDougall, medical director of the British Legion Village, Preston Hall, gave an enthusiastic and inspiring account of the trades and industries carried on there. The effect on the morale and general health of the men he described as amazing.

Dr. VERONICA DAWKINS, resident medical officer, Malmsbury Farm Sanatorium, Nayland, discussed the possibilities and limitations of occupational therapy in a sanatorium with a relatively shifting population. She laid great stress on the value of handicrafts, and described a regime carefully graded according to the patient's capacity for work and exercise. In addition to handicrafts, patients assisted in the utility services of the sanatorium, but in all cases this was carefully individualized and carried out under constant medical direction.

Dr. H. J. SAMPSON, resident surgeon, Royal National Orthopaedic Hospital, Brockley Hill, Stanmore, warmly espoused the cause in respect of patients treated in that hospital. He stressed its importance in re-educating crippled limbs as well as its psychological effect on the morale of the patients. Controlled occupation was one of the greatest advances in therapy of modern times.

OCCUPATIONAL THERAPY FOR MENTAL AND NERVOUS CASES

At the evening session Dr. NATHAN RAW, the Lord Chancellor's Visitor in Lunacy, was in the chair, and the discussion centred round occupational therapy in the treatment of patients suffering from mental and functional nervous disorders. The principal speaker was Mrs. ELEANOR SLAGLE, secretary and founder of the American Occupational Therapy Association. Her organization has official recognition, and supplies trained workers to all the principal Government institutions for mental illness and mental defect in the State of New York. She also supplies workers to mental hospitals and defective colonies in numerous other States. Mrs. Slagle described recent methods and advances in America. She emphasized the importance of using workers properly trained according to a recognized syllabus. The course in her school took two years, and included not only training in handicrafts but practical experience in their application to the treatment of patients in mental hospitals. It was also necessary, she said, that a considerable proportion of the nurses should have a knowledge of occupational therapy, so that they could supplement and assist the work of the specialist by helping the patients in the wards. It was the practice in America for nurses to have a short course of special training in the application of occupation therapy. She was convinced that this individualistic treatment, which brought the patients into contact with reality and obliged them to live a life approximating, as far as they were capable of it, to the normal was the greatest and most valuable weapon in the armamentarium of mental treatment.

Dr. J. R. REES, medical director of the Institute of Medical Psychology, warmly endorsed Mrs. Slagle's remarks, and said how greatly he had been impressed by the conditions in those mental hospitals in America where he had seen occupational therapy fully organized. It was proposed to start a school of occupational therapy in connexion with the Institute of Medical Psychology in London.

Dr. ELIZABETH CASSON, medical director, Dorset House School of Occupational Therapy, Clifton, Bristol, described the regime at her school. She was convinced of the immense therapeutic value of the time-table of exercise, occupation, amusement, and rest in the treatment both of the psychoses and of the psychoneuroses. Nothing was worse for patients than to drift about aimlessly. The carrying out of such a regime required the loyal co-operation of every member of the staff—medical, nursing, and occupation specialists.

Dr. NORAH HOWARTH, assistant medical officer at Severalls Mental Hospital, Colchester, described the forms of occupation therapy used in that hospital. She distinguished between the employment of handicrafts in the wards and in a special occupation centre, and occupation in the utility services of the hospital. The latter undoubtedly had a useful place in treatment provided that the occupation was fitted to the patient and not vice versa. For example, it was quite a different matter whether a patient was drafted into the laundry because she showed a special inclination for some branch of laundry work, or whether she was sent there because there happened to be a shortage of laundry hands.

Miss RUTH DARWIN, a Senior Commissioner of the Board of Control, said that she was convinced of the great value of occupational therapy in the treatment of mental illness. In order that it should be successful it was necessary to have co-operation from four angles: (1) the medical superintendent and assistant officers, who set the tone for the whole hospital, (2) the visiting committees, (3) the nursing staff, (4) the occupation teachers. Medical superintendents were coming more and more to realize its value, and in several hospitals this system was already in operation. Miss Darwin hoped that in the near future many more would come to appreciate it as a valuable and, indeed, necessary method of treatment. She was convinced that it would soon become a *sine qua non* of a well-conducted modern hospital. She quite appreciated in regard to hospital committees that they

must be satisfied that any expenditure incurred was justified by the results. She was sure that if visiting committees would acquaint themselves with the improved conditions in those hospitals where occupational therapy was well established they could not fail to appreciate its value. The nursing staff also of necessity took their tone from the medical officers. Where this was favourably disposed nurses had already shown themselves able and willing to co-operate to an invaluable degree with the trained occupationists. Occupation to be really successful must not be confined to a special room or an hour two or three times a week, but carried on daily in the wards. It appeared to be a psychological necessity for all humanity, whether mentally sick or mentally sound, to have some occupation with an object.

SUB-SPECIES OF ANOPHELES MACULIPENNIS

At a meeting of the Royal Society of Tropical Medicine and Hygiene at Manson House, on June 21st, Dr. L. W. HACKETT, assistant director, International Health Division of the Rockefeller Foundation, read a paper on the present status of our knowledge of the sub-species of *Anopheles maculipennis*.

Dr. Hackett said that the six varieties of *A. maculipennis*, as identified by their eggs, were each to be found in a number of different areas which were widely separated geographically. Within its own climatic range the presence of a given sub-species was determined by the orohydrographical conditions of the area, or, more particularly, the character of the surface water which the insect required for oviposition. No observations as yet suggested that an environment or micro-environment suited to the adult of either sex could determine the presence or prevalence of any sub-species. It had not been shown that individuals laying the same kind of egg varied significantly in physiology or behaviour, even if they came from different regions. Surveys of new zones proceeded, therefore, on the assumption that the egg type would serve to identify the sub-species, which was broadly homogeneous throughout its range in spite of adaptations to local conditions. Such modifications were apt to be quantitative (as in duration of sexual repose in winter, or range of micro-climatic tolerance) rather than qualitative and genotypic. The biological differences between sub-species were such as apparently to preclude hybridization in nature, and while cross-mating had occurred in the laboratory successive hybrid generations had never been obtained. The sub-species differed also in the frequency and regularity with which they bit man under present conditions of rural life, and since this determined the amount of malaria transmission some races were more consistent vectors than others. Thus *maculipennis (typicus)* and *melanoon* had little contact with man; *labranchiae* and *elutus* were continually penetrating into houses in relatively large numbers wherever these races occurred; while *messeeae* and *atroparvus* were easily deviated by domestic animals but overflowed into human habitations in search of food in various circumstances, among which were a disproportionate density of anophelines, a scarcity of animals, or the stimulus of certain physical states such as temperature, humidity, etc. Under identical conditions the various sub-species behaved quite differently, being drawn by diverse instincts into different environments and to different hosts. This in general explained their separate roles in the spread of malaria, but whether a given sub-species became a vector or not in a given locality depended also on a complex of local conditions, which might in one place lead it into continual contact with man or in another restrict it to animals to such a degree as to render malaria transmission highly improbable. The range of adaption of *labranchiae* and *elutus* was so wide, however, that there was no region in which either was known to be effectively deviated by domestic animals.

DISCUSSION

Professor P. A. BUXTON said that it was abundantly clear from Dr. Hackett's paper that races or sub-species of anopheles did exist, and that they were different in

anatomical characters, in details regarding breeding, and in their relation to malaria. Much of the published work on this subject was, however, in a very confused state. It could be classified in three very distinct categories: first, taxonomy; secondly, biometric facts; thirdly, physiological characters. Considerable progress might come about if attention were paid to physiological characters, not only in the field but also in the laboratory. If, for instance, a stock of *atroparvus* were taken and bred at different temperatures, or fed differently, would one get differences in the eggs or the larvae or the adult structures? No one had any real knowledge of what the answer to that question would be.

Dr. F. W. EDWARDS of the British Museum agreed that the race of *maculipennis* showed very different characters, at least in the eggs, but in regard to certain other distinctions some were less easy to understand. The chief point of distinction in the males was whether a particular hair or spine on the tail end was blunt or pointed, and that might be a matter of mere label rather than pure fact. On the other hand, probably more attention might be paid to colour pattern. However, if observers themselves could not distinguish the insects, the latter managed to distinguish each other, for they never made a mistake on mating, as exemplified by certain species of gnats in this country distinguished only by their minute characters, such as a tiny wing spot and so on. How they did it was a mystery, but undoubtedly the whole truth was being approached as a result of the investigations of Dr. Hackett and others.

Colonel S. P. JAMES remarked that, not being an entomologist, he was a little bit confused, but felt quite sure that all would in time agree about some, if not all, of the varieties of *maculipennis* that Dr. Hackett had described. The late Mr. Richard Burton as early as 1916 had noted two forms of *maculipennis* in Shropshire, one of which was found hibernating completely in the winter in clock towers, church steeples, and the like, while the other passed the winter in stables and in the bedrooms of some kind of houses. Later, in association with Mr. Shute, a great number of observations were made on the habits of these two different forms of *maculipennis*, which were of value in explaining why malaria in England had such a peculiar distribution, especially along the coast, and why it was particularly a disease of certain houses. This house mosquito was now known to be *atroparvus*.

Sir RICKARD CHRISTOPHERS said that the discovery of these races of *maculipennis* was by far the biggest thing in the epidemiology of malaria in recent years, and it was a curious thing that this work should have originated in Western Europe with its three species of anopheles. Further, although in the Tropics it was known that the habits of anopheles were very important, it came somewhat as a shock to find that the presence of malaria in Holland, for example, turned upon a most trivial habit of a particular variety, which was scarcely distinguishable from others. But the greatest change this new work had made concerned the conception of what a carrier species was. Dr. Hackett, who had taken the foremost part of any worker in studying this question, put it clearly in one sentence: "A carrier species is so by reason of the relative frequency with which it bites man twice." Once is not enough—it must bite man twice! Dr. SENIOR-WHITE stated that four years ago Sir Rickard Christophers had said at Algiers that the study of *maculipennis* was becoming a separate science: he trembled to be in charge of an area in the Tropics containing twenty-one so-called species of anopheles, many of which, even on superficial examination, presented something queer in species. Major AUSTEN discussed the vexed question of nomenclature, and supported the plea put forward by Sir Rickard Christophers for its revision; he also upheld Professor Buxton's suggestion for more laboratory investigation. Sir MALCOLM WATSON said there was no doubt that the malaria reports of the League of Nations between 1924 and 1928 had discouraged the prevention of malaria throughout the world. They cast grave doubts on the relationship between anopheles and malaria, and certainly called a halt in many parts of the field. Dr. Hackett's work in Italy and Sardinia gave the malaria position a better course.

In reply, Dr. HACKETT dealt with the status of sub-species, and agreed it might be better to accept Fulleroni's recent suggestion by giving another name to *typicus*; then all the races would have names and none of them would be called the type. He agreed with Professor Buxton that physiological studies were important, and an enormous cage which contained pigs and a stable had been made in Albania, which Lewis was now filling with *typicus* to see whether they could mate under conditions as natural as possible.

STERILIZATION OF THE UNFIT

At a meeting of the London Association of the Medical Women's Federation, held at B.M.A. House on June 26th, with Professor MARY LUCAS KEENE in the chair, Dr. LETITIA FAIRFIELD spoke on eugenic sterilization of the unfit.

Dr. Fairfield based her observations on the recently issued report of the Departmental Committee on Sterilization. She pointed out that the wide popular interest in sterilization had grown out of two main factors. First, the increase in biological knowledge of the hereditary factor in mental and physical disease, and secondly, the sociological outlook, which attributed numerous evils of society to mental and physical "unfitness." The appointment of the committee was inevitable, for it had become fashionable to regard sterilization as a panacea, and in the case of mental deficiency, for example, the over-emphasis on sterilization had been allowed to swamp every other aspect of a many-sided problem. It was only fair to state that the efforts of many prominent eugenicists and the findings of the Departmental Committee's report were directed towards correcting these exaggerated claims. Dr. Fairfield then reviewed the findings of the report. She considered that the legal obstacles in the way of the eugenic sterilization of persons of normal mentality had been somewhat exaggerated. As a matter of fact, no one who was able to pay for such an operation at the present day had the least difficulty in getting it done, and probably more hospitals were performing such operations than was supposed. No case of a surgeon suffering any penalty for doing a eugenic sterilization was on record, and it was impossible to imagine such a case being brought into court, provided that genuine grounds existed for believing that diseased offspring might be procreated. It was, however, recognized that the sterilization of mental defectives was undoubtedly illegal.

In examining the present knowledge of the causation of mental defect the committee had evidently found itself on highly contentious ground. All their witnesses agreed on the important part played by "heredity," but they were not at one on the exact meaning of the term. Some would include in the family tree any deviation from the normal, including epilepsy, instability, delinquency, and insanity, while others would confine the term to the transmission of a single defect such as certifiable mental deficiency. Naturally the percentage of "hereditary" cases differed according to the view taken, the variation extending from 5 to 80 per cent. The report had recorded some interesting researches into the mentality of the offspring of defectives, who showed an unexpectedly high rate of mental deficiency—namely, nearly one-third of surviving children. Dr. Fairfield pointed out, however, that the figures were overweighted, as defective offspring were likely to call the attention of the authorities to defective parents. The report further blackened the picture by bracketing the "subnormal" and defective children, although the former might be little different from the general population. While assessing the part played by environment in causing mental abnormality, many witnesses stressed the point that this factor acts in combination with defects of heredity, the thesis being: "environmental factors may accentuate inherited weakness." The evidence also brought out a point which was still often overlooked—namely, that mental deficiency was so devious in its manifestations that it could not conceivably be a single unit transmissible on Mendelian lines, though certain sub-varieties might be. The final

recommendations of the committee condemned compulsory sterilization as unjustifiable in the present state of knowledge of genetics, and likely to arouse public hostility. It was not clear, however, whether it would be possible to keep voluntary sterilization really voluntary. It was difficult to imagine the precautions which would prevent enthusiastic committees from using the social services (such as outdoor relief) or the bait of discharge from an institution as an inducement to sterilization. This was avowedly happening in other countries where sterilization measures were on the Statute Book. As regards high-grade mental defectives, the committee evidently considered it an easy matter for a doctor to decide whether they were or were not mentally competent to give a valid consent to the operation, but no standards were laid down, and Dr. Fairfield considered that in practice the point would be a very difficult one to determine. As regards mentally normal persons, it seemed to have been overlooked that any attempt to regulate voluntary eugenic sterilization would seriously restrict the freedom of action now enjoyed by the "well-to-do"—that is, by all who could afford to pay for an operation. In future they would have to submit to an elaborate process, beginning with two medical certificates, and involving reference to the Ministry of Health, and possibly to the Board of Control, or a special advisory committee of experts. Notoriously, in the sight of a Ministry a thousand years was but as a day, and the loving couple who longed to be united could hardly be expected to await inevitable official delays. It seemed probable that the regulation of voluntary sterilization was doomed to failure. In view of the small proportion of institution cases which would be suitable for sterilization, and the grave risks involved by any form of legislation on the subject, it seemed doubtful whether the recommendations of the report would receive general support.

Dr. C. P. BLACKER, the general secretary of the Eugenics Society, said he found himself in entire agreement with most of the points which Dr. Fairfield had made. The propaganda in favour of legalizing eugenic sterilization would, he said, do more harm than good if it were seized upon by local authorities as a justification for inertia, or if it were interpreted by the general public as a measure likely to save the pocket of the ratepayers. Much confusion also centred around the meaning of the word "heredity." According to the report of the Committee on Mental Deficiency appointed by the British Medical Association, the term "heredity" implied "that in the ancestry of any given case of mental deficiency there has existed a morbid condition of bodily and/or mental development, which may have taken the form either of mental deficiency or of some neuropathic condition, or of some other defect due to damage inflicted to one or other of the germ cells before fertilization." According to this sweeping definition we would be justified in regarding as hereditary a given case of mental defectiveness if it were known that there had occurred in the ancestry of that defective a case of cleft palate in the time of William the Conqueror. Careful scrutiny of recent American and Continental investigations into the heredity of mental deficiency pointed to the conclusion that the more carefully the pedigree was investigated the greater was the importance attributed to heredity as a causal factor, and the larger was found to be the percentage of parents of high-grade defectives who were themselves on the borderline between subnormality and certifiable defectiveness. At the same time, it should be remembered that, though discussions on sterilization continued to focus themselves upon mental deficiency, the recommendations of the Brock report extended far beyond this sphere. The eugenic benefits, in fact, of legalizing the voluntary sterilization of mental defectives would probably turn out to be small, as compared with the results of legalizing it for persons who had recovered from mental disorder and for persons who exhibited or carried mental or physical disease or defect. The results, said Dr. Blacker, of the uncertainty in regard to the present state of the law relating to the sterilization of persons who are *compos mentis* had at present the effect of discriminating against the poor. The legal risk, admittedly small, was willingly taken by

surgeons who operated, in a private capacity, upon paying patients; the same surgeon, however, before operating upon a hospital patient usually found it necessary to obtain the consent of the superintendent of the hospital. This consent was often withheld, partly for fear of alienating Roman Catholic subscribers to the hospital, and partly because, in view of the already long waiting list, many hospitals hesitated to incur the smallest legal risk. Such discrimination between rich and poor was unfair, and it constituted a good argument for regularizing the position for people of all classes by Act of Parliament. In the matter of safeguards, said Dr. Blacker, a course had to be steered between two opposing camps of critics, and, in his opinion, the recommendations of the Brock Committee constituted a happy *via media*. Some safeguards, he thought, were necessary. It was to be remembered that vasectomy was a simple operation, capable of being performed under a local anaesthetic; it took but a few minutes, and necessitated at most a day's absence from work, yet it produced irreparable and irreversible effects. Every new law was exposed to certain criticisms and objections. Dr. Blacker was far from denying that a voluntary sterilization law along the lines of the recommendations of the Brock Committee was exempt from these, but in deciding whether to oppose or to support it the question we had to ask ourselves was: "On balance did the advantages outweigh the disadvantages?" and he believed that in this instance the answer was "Yes."

CORRESPONDENCE

Prescription of Thyroid

SIR,—Your article in the *Journal* of June 9th serves a very useful purpose in drawing attention to the danger of prescribing overdoses of thyroid owing to the confusion between the dosage of fresh gland and dry gland preparations to which you refer. The letters of Dr. W. Martin and of Mr. N. Evers in the *Journal* of June 23rd show there is still some difference of opinion as to the relative strength of the two, but in practice I have found that, as you state, 1 grain of dry thyroid B.P. is equivalent to 5 grains of fresh gland. The dangers and ill effects of continued overdosage are well illustrated by the cases of thyroid addiction described by Dr. S. W. Patterson in the *Journal* of July 7th.

In prescribing dry thyroid it is important to bear in mind the amount of it which is equivalent to the daily output of the normal gland of an average adult. This varies in different individuals, but long experience has shown that in the majority of fully developed cases of myxoedema, in which the gland has become functionless, a daily dose of from 1 to 2 grains is sufficient to restore and maintain good health for many years, so that this amount may be taken to represent the daily quantity of secretion produced by a normal gland. In the treatment of these cases there is nothing to be gained by exceeding these doses. In mild cases of hypothyroidism, in which the gland still supplies a small but insufficient amount of secretion, a single daily dose of 1/2 grain is adequate. When it is desired, as a means of treatment, to raise the basal metabolic rate above the normal level larger doses are necessary, but should be employed under medical supervision, so that the effect on pulse rate and weight and, if possible, on the basal metabolic rate may be observed, and the dose diminished as soon as any ill effects appear. The official B.P. dose is given as 1/2 to 5 grains. The latter is too large, as the continued use of 5-grain doses two or three times a day is apt to produce the symptoms of induced hyperthyroidism observed in Dr. Patterson's cases.—I am, etc.,

Manchester, July 11th.

GEORGE R. MURRAY.

Pyloric Stenosis

SIR,—The interesting article by Dr. H. L. Wallace and Mr. L. B. Wévell and recent correspondence in the *Journal* on congenital hypertrophic stenosis of the pylorus, reveal many points of view on which differences are manifest and results by no means uniform. As one of your correspondents states, team work is essential; the practitioner, the paediatrician, and the surgeon all play their parts, but sufficient stress is not laid by him on the importance of early diagnosis and the part played by the practitioner in making this possible. Valuable as is the assistance of the paediatrician in pre- and post-operative care, the surgeon prefers the infant to reach his hands within, say, ten days of the onset of cardinal symptoms, before wasting has become excessive.

Under such circumstances the mortality should not be more than 5 per cent. As I pointed out in 1927,¹ a group of ninety cases operated on at the Birmingham Children's Hospital had a mortality of 40 per cent. Among these were fifteen "private" patients, none of whom died. These cases were treated in the private ward of the hospital under conditions exactly comparable to those in the general wards, but they differed inasmuch as symptoms had, on the average, only been present for thirteen days in this group, compared with eighteen days in the cured cases from the ordinary wards, and twenty-five days for those who died following operation.

If a palpable tumour is to be a cardinal point in the diagnosis, as we are accustomed to regard it, the examination must be painstaking and prolonged. Its presence clinches the diagnosis, and differentiates cases of pyloric spasm. In the last two years, in cases referred to me by my colleague Professor Parsons, palpable tumour was found by him in forty-one cases out of forty-three. In one case it was definitely not felt, and in the other no note was made.

Radiography appears to be used but little in this country as a routine method of differential diagnosis. In France it appears to be otherwise; Poucel, in his recent monograph,² regards it as a normal and harmless procedure. In Birmingham we regard it as usually unnecessary and not altogether harmless.

Since the commencement of 1930 I have operated on eighty-nine cases to date, with seventeen deaths—a mortality of 19 per cent. This compares favourably with the group of ninety cases which I published in 1927 with a mortality of 40 per cent.; and, though it is undoubtedly true that most of the seventeen cases might have been saved with earlier diagnosis, yet I think great credit is due to those upon whom the responsibility for the initial diagnosis rests—namely, the practitioners—for the improvement in results already manifest in a disease which has only been generally recognized and adequately treated for just over a decade.—I am, etc.,

Birmingham, July 10th.

SEYMOUR BARLING.

Preliminary Ligature in Toxic Goitre

SIR,—There are a number of cases of toxic goitre in which a primary radical operation, even in the best hands and after careful preliminary treatment, is associated with a considerable, indeed an unjustifiable, risk. I refer particularly to cases in which the goitre is large and the patient over 40 years of age. A preliminary ligature of both superior thyroid arteries will almost invariably effect a notable improvement in such cases. I would go further and maintain that the subsequent thyroidectomy should be done in two stages.

¹ *Lancet*, September 3rd, 1927, p. 492.

² Poucel: *La Sténose Hypertrophique du Pylore chez le Nourisson*. Paris: Masson et Cie. 1934.

A death following thyroidectomy means bad management—a failure to assess just how much the patient will stand at one time. I look back to some of my early cases in which death followed a subtotal thyroidectomy with keen regret. I failed to discriminate and to recognize the case in which operation by stages is the secret of success.—I am, etc.,

Edinburgh, July 13th.

D. P. D. WILKIE.

Notification of Tuberculosis

SIR,—In the closing paragraph of "Musings in the Garden: Fifty Years' Association with the Tubercle Bacillus," published in the *Journal* of June 23rd, I expressed the hope that I had not trodden unwittingly on anyone's toes. Least of all could I dream of disturbing my old and honoured friend, Sir Arthur Newsholme, who takes me rather to task in an historical note in this week's issue for doing him less than justice. Nothing was further from my thoughts.

Looking back through the years, Sir Arthur may realize the feeling of acute disappointment which overtook me when, eighteen years after advancing a strong plea for the compulsory notification of pulmonary tuberculosis—a plea which was based on continuous observation at the tuberculosis dispensary (1887-90)—I read in his volume, published in 1908, that the considered opinion of the Chief Medical Officer of the Local Government Board of England was that, at that date, "it would be inexpedient, unwise, and of relatively little use to advise the general adoption of compulsory notification of phthisis."

This recalled the "stone wall" of which Sir Henry Littlejohn had warned me eighteen years previously. It was the more disappointing, since in the interval compulsory notification had been introduced in New York in 1897 through the weighty authority of Herman Biggs, and the Local Government Board of Scotland, in a circular dated March 10th, 1906, had declared that notification was necessary if the Public Health Act (Scotland) was to be applied effectively to pulmonary tuberculosis, with the result that by 1908 nine local authorities, including Edinburgh, had applied for the Board's sanction to the adoption by them of compulsory notification. The fact would seem to have been that Sir Arthur was himself up against a stone wall, and the words quoted represented less his personal views and rather those of the Chief Medical Officer, who was encountering, as he tells us, "almost insuperable difficulties in overcoming central official opposition."

I would assure Sir Arthur that, in citing his words in my address, I was recalling events of the past in the simplest way possible. There was no *arrière pensée*. Happily, as we get up in life, we become more understanding of the complex conditions which govern the course of events.—I am, etc.,

University of Edinburgh, July 13th.

R. W. PHILIP.

Point of Entry of the Tubercle Bacillus

SIR,—Sir Robert Philip, in his most interesting address "Musings in the Garden" (*Journal*, June 23rd, p. 1105), has once again done a great service to the cause of combating tuberculosis by giving it as his opinion that the lymphatic system is the main port of entry of the tubercle bacillus. My own much more limited experience definitely confirms this conclusion, and in a paper published in the *Journal* in August, 1929, I endeavoured to show that pulmonary tuberculosis was secondary to lymphatic infection. The opinion that infection is mainly by the respiratory tract dies hard, although all the facts, as I see them, are entirely against such an assumption. I was interested in his view that the tubercle

bacillus can pass through a young mucous membrane without showing any trace of its passage, and that no gross lesion may be evident in the lymphatics. Certainly the percentage of children showing small, shotty cervical glands is very high, even in those enjoying excellent health. It is only very occasionally that infected glands call for surgical intervention. A good many years ago I asked myself the question, Is the lymphatic gland of the child more permeable than that of the adult? I passed on this question to a distinguished physiologist, but he was unable to give an opinion. On clinical grounds I certainly think that the young lymphatic glands are more permeable, and, if we can accept this assumption, it becomes much easier to accept the idea of the lymphatic system as the main port of entry, and follow intelligently its course.

In my own experience of children the number showing clinical evidence of tuberculous infection was as high as 15 per cent., and the percentage was highest among those suffering from some infection of the nasopharyngeal cavity. The percentage of children giving a positive reaction to tuberculin is, of course, very much higher. The natural drift of any infection, particularly a chronic and persistent invader like the tubercle bacillus, is towards the lungs, and if the resistant power of the lungs was not very high the percentage of sufferers from pulmonary tuberculosis would be very much greater. We know that the tracheo-bronchial glands are very frequently tuberculous, and in that respect the main principle of Parrot's law is correct in stating that the infection present in the bronchial glands is secondary to infection from the lungs. It does not necessarily follow, however, that there was any real invasion of the lung parenchyma. It is much more in keeping with our knowledge of the history of pulmonary tuberculosis cases that the tubercle bacilli, coming along in small numbers, are quickly taken in hand by the defensive mechanism and hurried towards the root glands. The continual bombardment, so to speak, must lead to pathological changes in those glands which would render them less permeable, and the tubercle bacilli would be held up in that situation.

This suggested course of events would explain the high percentage of children giving a positive tuberculous reaction compared with the really small percentage showing definite evidence of pulmonary tuberculosis. When adolescence is reached the tuberculous infection has been established for many years, and the subsequent course depends on the efficiency of the defensive mechanism, as well as the degree of infection, which again is influenced by many factors—such as hygienic conditions, worry of any kind, depression from long and serious illnesses, etc. There are no reliable means which will enable us to make an accurate assessment of subsequent events.

Acceptance of this theory makes it easier to follow the course of the disease. Fibroid phthisis can be explained by a slow, backward spread of the infection along the lymphatics; even bronchiectasis could be similarly explained. A sudden invasion of a lung, or part of a lung, repeatedly noted by me, would result from an infected caseous gland rupturing into a bronchus; miliary tuberculosis would be due to a sudden mass infection from an acutely inflamed tuberculous gland finding access to the lungs, via the blood stream, and this would also explain the widespread infection. Miliary tuberculosis and tuberculous meningitis often attack people who have previously enjoyed good health, particularly so in the case of meningitis. A sudden mass infection from outside the body of a relatively healthy person, via the respiratory passages, is much less likely than a mass infection from an already infected source inside the body.

All my experience and observations, extending over a period of twenty years, forced me to the above con-

clusions; infection from some unknown origin, coming like "a bolt from the blue," is not in the least convincing.—I am, etc.,

Birkenhead, June 29th.

D. J. GAIR JOHNSTON.

Sunbathing and Tuberculosis

SIR,—I do not wish to deny the possibility that prolonged exposure to sunlight may aggravate active pulmonary tuberculosis, or even be responsible for the lighting up of a latent focus—a popular belief anyway. Nevertheless, before the cases described by Drs. Hope Gosse and Erwin (July 7th, p. 15) are accepted as evidence in support of this hypothesis certain points should be kept in mind. Only five of the eleven patients had been in good health before the sunbathing. In the remainder symptoms had been present before, which suggest that the aggravation afterwards might well have been due to the natural progress of the disease. In view of the universal popularity of sunbathing during the last two or three years the five cases could presumably be the result of coincidence. Moreover, it is possible that some other associated factor may play a part—for example, the excessive exercise whilst in an unfit condition often indulged in during a holiday. Finally, it would have been of interest to compare the proportion of fair- and dark-haired individuals in the exposed and non-exposed patients in view of the difference in tolerance to sunlight by pigmented and non-pigmented people.

Drs. Hope Gosse and Erwin's paper has attracted attention to a subject which urgently requires further investigation, owing not only to the popularity of sunbathing, but to the difference of opinion which, I believe, still exists on the danger of ultra-violet therapy in pulmonary tuberculosis.—I am, etc.,

Cannes, July 12th.

G. GREGORY KAYNE.

SIR,—There is little doubt that the danger referred to by Drs. Hope Gosse and Erwin does exist when exposures are uncontrolled and over-exposure occurs. The warning is indeed timely. But their complete condemnation of heliotherapy as a therapeutic measure in pulmonary tuberculosis is not confirmed by the practical experience of some twelve years in this institution, where heliotherapy has been used for non-febrile pulmonary cases throughout this period. For the last six years no less than 43 per cent. of all cases of pulmonary disease have had a course of heliotherapy, and 40 per cent. have had general carbon arc treatment in the winter months. The type of case admitted during these years may be briefly indicated by the fact that 58 per cent. were classified as B3 cases. The treatment must, however, be properly organized under experienced medical supervision, and a nurse should be on duty solely for the purpose of accurate timing of exposures, checking pulses and temperatures before and after exposures, and so on, without other duties to interrupt her. Under these conditions I have never seen any serious ill effects, for unsuitable cases are quickly detected and treatment is limited to shade exposures only or given up.

Nearly all our most successful cases have had light treatment in some form in addition to any other special treatment which may have been given. A moderate dose of heliotherapy increases metabolism whilst the patient is still at rest, and is theoretically just what these patients require. In practice, however, there are many patients who have not the power of response to this stimulus, just as there are similar cases of non-pulmonary type whose response is inadequate. Weakly or toxæmic patients are generally unsuitable, as are those with a history of frequent hæmoptysis or staining. Neverthe-

less, the figures given above show that many cases are suitable, and in my opinion this method of improving general fitness ought not to be neglected.

A striking indication of the value of heliotherapy and aerotherapy is the improvement in the condition of the skin, subcutaneous tissue, and muscles—a change so marked when dealing with non-pulmonary tuberculosis, and obtainable also in many pulmonary cases. This change is generally accompanied by an increased feeling of well-being and improved appetite and sleep. I agree entirely with the authors, however, that the treatment is dangerous without proper control. Another danger is that of patients sitting in the hot sunshine when fully clothed for an unlimited time without supervision. This is a common cause of fever in pulmonary patients, and one not generally realized.—I am, etc.,

J. E. WOOD,

Medical Superintendent, King George's
Sanatorium for Sailors.
Liphook, Hants, July 13th.

Ligature of the Innominate Artery

SIR,—Sir William Wheeler's reference in the *Journal* of July 7th (p. 38) to the late Mr. Coppinger's celebrated case of ligature of the innominate artery prompts me to state that a second successful ligation of the innominate artery was carried out by myself, in the same hospital, in 1932. The patient, a middle-aged woman, was admitted with a rapidly growing and intensely painful right subclavian aneurysm. The Wassermann reaction was negative. A curious feature of the case was that no pulse could be felt in the left subclavian or in any part of the left arm. The artery, exposed by removal of the inner end of the clavicle and right half of the manubrium sterni, was doubly ligated with stout linen thread. The common carotid was not tied. The patient made an excellent recovery, pain completely disappeared, the aneurysm consolidated, and she is now carrying on her occupation of insurance collector as actively as ever.—I am, etc.,

Dublin, July 9th.

CHARLES MACAULEY.

Tests of Renal Function

SIR,—Dr. F. S. Fowweather's paper on "The Examination of Renal Function" (*British Medical Journal*, July 14th) is valuable in pointing out the fallacies of the urea clearance test as ordinarily performed, and also in suggesting methods by which these fallacies may be minimized. The chief objection to the test, in my opinion, is its obvious pretence to a scientific accuracy which it does not possess, even in its modified form. In Table II of the paper referred to, showing the results of the test in patients with renal disease, the only case mentioned as having uraemia shows a urea clearance considerably better than the average for the group. Actually I do not find in practice that the urea clearance test is as helpful as a *dilution and concentration* test (a more accurate way of performing the simple test of function described by Dr. Fowweather), and examination of the blood for non-protein nitrogen and indican. The urine tests show what the kidney can do, and the blood tests show what it has been doing—that is, how near the patient is to uraemia.

There are two statements in Dr. Fowweather's paper which I would like to question. The first is that in chronic nephritis "albuminuria is rarely more than slight, and often is absent altogether." This is an assertion which I hold to be erroneous, handed down from the days when high blood pressure was sufficient evidence for a diagnosis of "chronic interstitial nephritis"—that rubbish heap of cardio-renal disease now fortunately unnecessary. In all cases of true chronic nephritis albuminuria is

definite, if not copious (usually 2 to 5 grams per litre), and in cases of hypertension with nephrosclerosis all those that I have seen develop renal failure have had a very definite and constant albuminuria. In fact, I regard the presence of albuminuria (more than a trace) as a fairly good rough indication of involvement of the kidney (nephrosclerosis) in essential hypertension. The only exceptions have been cases of essential hypertension which were without serious renal insufficiency until heart failure occurred, and, by lowering the blood pressure, caused oliguria and consequent uraemia.

When oliguria develops in such a case the specific gravity of the urine rises; and this brings me to the second statement, which is that "failure of concentration is compensated for by polyuria." Surely the truth is that "compensatory polyuria causes failure of concentration." The polyuria represents the functional reserve¹ of the kidney, called out on account of the loss of renal substance. According to Verney's law the composition of the urine depends upon its rate of secretion. The rapid secretion causes the failure of concentration, as is well shown by the above observation that if anything (such as heart failure) interferes with the rate of secretion the concentration of the urine increases. Thus the power to produce a moderately concentrated urine is not lost, but merely in abeyance.—I am, etc.,

Sheffield, July 16th.

ROBERT PLATT, M.D., M.R.C.P.

Agranulocytic Angina

SIR,—I have read Dr. A. Daly Briscoe's account of his very interesting case in the *Journal* of July 14th (p. 61). The dysuria and the pain on defaecation which "became the prominent features of the case," and were associated with a large tender prostate, suggest that the condition may have been secondary to some focus of acute infection in the prostate, and the case, therefore, one of malignant neutropenia rather than a primary agranulocytosis.

Dr. Briscoe rightly stresses the rarity of the disease, but I cannot accept his statement that only five cases have been reported in this country when he omits to mention the case I myself recorded in 1933²—this was the first case in English medical literature in which pentose nucleotide K 96 was used. Even though the reported cases are few the true incidence of the disease is not thereby reflected: a record of a case is only made if it presents unusual features, if a new therapeutic agent is made available, or if light can be thrown on the cause.

Out of a most extensive literature on the condition two facts only of importance have emerged—the value of pentose nucleotide in treatment, and the importance of amidopyrine, either by itself or in combination with a barbiturate, in causation; I feel that no writer should record a case without mentioning whether these drugs have been given or not.

There seems no question, from reports from all parts of the world, that amidopyrine plays a part in the production of agranulocytosis; to quote from the latest report of the Council on Pharmacy and Chemistry of the American Medical Association³: "In fact no other agent has been found, either chemical or bacterial, which has been a factor in causing so many attacks"; "No definite case has been recorded in which a barbiturate alone is responsible," but in many cases a combination of amidopyrine and a barbiturate has been incriminated.

Individual susceptibility to amidopyrine is doubtless a factor, but caution in its use is indicated, with control of the white blood cells if its use is continued. The difficulties of the position are increased when the presence of

amidopyrine (pyramidon) is concealed by the name of some proprietary preparation of it with a barbiturate—alional and cibalgin are two examples of this. I should add that in the case I published the patient had not taken amidopyrine or a barbiturate.—I am, etc.,

ERNEST BULMER, M.D.,

Birmingham, July 15th.

M.R.C.P.Ed. and Licd.

Asthma and Chronic Bronchitis

SIR,—Dr. H. S. Russell in the *Journal* of June 16th (p. 1097) writes: "It appears probable that the action of sodium iodide [in cases of asthma and chronic bronchitis] depends mainly on stimulation of thyroid activity, and that equally good results might be obtained by the administration of tab. thyroid. B.P."

There is no conclusive evidence that cases of asthma (and chronic bronchitis) are in particular the result of thyroid insufficiency. Both chronic bronchitis and asthma essentially are due to disorder of the vago-sympathetic respiratory complex, an anatomical fact which may be amply demonstrated by careful x-ray investigation of the bronchial tree injected with a radio-opaque substance. Lipiodol injections indicate also that asthma, asthmatic bronchitis, chronic bronchitis, with their satellites bronchiectasis and emphysema, are each and all due to the effects of this disorder in the respiratory department of the autonomic nervous system. The basal cause, or starting-point, of the incoordination of the normal balance between vagal and sympathetic influences is another matter, which must needs be referred to biochemists and to the physiological laboratory. It is fundamentally a question of nutrition.

Adrenaline antagonizes vagal influences by stimulating the sympathetic. The suprarenal glands supply adrenaline, the secretion of which is under the control of the autonomic nervous system. It is logical, tempting, but perhaps speculative to suppose that there is an internal secretion which antagonizes sympathetic influences in the bronchial tubes, or which stimulates the vagus nerve as in a parallel fashion adrenaline antagonizes the bronchial vagus, the vagal secretion being also under the control of the autonomic nervous system, which, incidentally, supplies all the viscera. That this is not wholly speculative is indicated by the recent work of Dr. E. Arnold Carmichael and Professor F. R. Fraser on the effect of acetylcholine in man.¹ The autonomic nervous system is not dependent on the metabolism of a single endocrine gland. The relation of the autonomic nervous system to respiratory ailments needs further investigation, having in view the work on the involuntary nervous system by W. H. Gasrell and J. N. Langley, and its more recent application to diseases of the viscera under the control of the autonomic nervous system.

The stethoscope, introduced by Laennec in 1819, in conjunction with percussion, recommended by Auenbrugger in 1751, has been relied on for diagnosis in diseases of the chest for over a hundred years, and it is no disparagement of these still indispensable methods to say that for diseases where bronchial tubes are in question the stethoscope must make room for later developments in diagnostic procedure—x rays, lipiodol, the bronchoscope. The evidence of the eye is less open to error than that of the ear, since with the stethoscope auditory impulses must be transformed into mental pictures, not always true.

When Pasteur and his contemporaries established the part played by micro-organisms as causal factors in disease, bacteriology claimed chronic bronchitis as a bacteria-produced disease. It would appear from clinical and anatomical evidence derived from x-ray examination

¹ Verney, E. B.: "The Reserve Forces of the Kidney," *Lancet*, 1931, ii, 63.

² *Lancet*, May 27th, 1933, p. 1119.

³ *Trans. Amer. Med. Assoc.*, June 16th, 1934, p. 2183.

¹ *Heart*, 1933, vii, No. 3-4.

of bronchial tubes injected with lipiodol that bacteria, though undoubtedly present in the bronchial tree, and indisputably modifying the cause of, and producing definite reaction in, the disorder, are not the primary cause of chronic bronchitis. There is evidence, supported by the same method of examination, that asthma, chronic bronchitis, bronchial asthma, bronchiectasis, and emphysema, usually considered independent diseases, need re-investigating, re-sorting, reclassifying, rearranging into a respiratory group whose fundamental causes must be looked for among disorders of the autonomic nervous system, which must be left by the anatomist to the biochemist and to the physiological laboratory. It may be that we shall have to await the successful application of cinema technique to the *x*-ray and radio-opaque-substance investigation for visual confirmation of this statement. (Some writers claim that they can make out movements in the lipiodolized bronchial tubes depending on vagal and sympathetic influences—by screening the lung after the injection.)

With regard to evidence which may be drawn from stained pathological sections of the bronchus in chronic bronchitis—with the exception of the micro-organisms in the expectoration and the destruction of the bronchial ciliated cells—there is nothing in the characteristic, thickened submucous coat in chronic bronchitis and asthma which is inconsistent with a non-inflammatory sero-cellular exudation due to neurovascular causes. The frequent association of chronic bronchitis with disorders of the autonomic nervous system—for instance, mucous colitis—commented on at the Annual Meeting of the British Medical Association in 1923 by Lord (then Sir Thomas) Horder, strengthens the thesis that chronic bronchitis is essentially a neurovascular disease. The anatomical relation of asthma and chronic bronchitis must be reviewed in their relation to each other and to the autonomic nervous system, and determined before the deeper biochemical problems as to basic causes are considered. Both diseases are illusive. Investigators need to be critical.

With regard to asthma, theories abound, probably all in some degree correct, and there are many who, in their eagerness to discover a new and specific cure, follow tracks which lead nowhere. The will-o'-the-wisp conducts inquirers in the direction of, and may approach close to, the truth, but it never reveals the actual sanctuary. I wonder whether Dr. Russell is following an asthma will-o'-the-wisp when he sets out to discover in the thyroid gland the *fons et origo mali*?—I am, etc.,

London, W.1, July 10th. J. B. CHRISTOPHERSON, M.D.

Vitamin A Deficiency in Childhood

SIR,—I have read with great interest Dr. Helen Mackay's article on vitamin A deficiency in children in the *Archives of Disease in Childhood*, to which you refer in your issue of June 30th. I would be glad if you would allow me to offer a criticism of this most important work.

The only diseases which were more prevalent among children not receiving extra vitamin A were lesions such as sore buttocks, sore scrotal skin or foreskin, intertrigo, dribbling eruptions, etc. These conditions are usually regarded as being largely due to lack of care and attention on the part of the mother or nurse, or, in Dr. Mackay's own words, "to some form of local irritation."

The physiological effect of the administration of special preparations, whether containing vitamins or not, has been admirably shown by Dr. Sutherland in his recent work on vitamins, where he found that in 80 per cent. of children fed on capsules containing no vitamins the parents considered that a marked improvement had taken place.

In Dr. Mackay's investigation is it not possible that the mothers, or those in attendance on the children, were conscious of the fact that their children were receiving special attention, as the vitamin A, in addition to being incorporated in the dried milk, was also given in the form of an emulsion? These parents would thus be expecting an improvement, which would result, perhaps unconsciously as far as they were concerned, in sufficient added attention to their children to give rise to the "statistically significant" improvement noted in their condition.—I am, etc.,

Slough, July 16th. W. H. S. WALLACE, M.D., D.P.H.

Barbiturate Poisoning

SIR,—Apropos of your review of the work of Professor Carrière and his associates on acute barbiturism, may I draw your attention to a recent article published by these workers (*C. R. Soc. de Biol.*, 1934, cxvi, 768). In this they deal with lesions observed in different organs post mortem. The severity and extent of the renal lesions are a function of the duration of the coma. Simple tumefaction is found in cases of brief duration. In animals treated with strychnine no difference in the intensity and general nature of the lesions was observed. On the contrary, acute pulmonary emphysema was found only in rabbits which had consumed large amounts of strychnine. Nothing is said of the influence of alcohol in this respect.—I am, etc.,

Paris, July 5th. D. T. BARRY.

Criticism of Ante-Natal Work

SIR,—The destructive criticism of the results of ante-natal work, by Mr. A. J. Wrigley (*Journal*, May 19th, p. S91), has been very timely, and the call for constructive criticism by Mr. Aleck Bourne (June 23rd, p. 1141) has stimulated me to express my views about ante-natal work in those cases which come under the classification of minor degrees of disproportion, and which often unnecessarily, as Mr. Wrigley has conclusively proved, undergo the procedure of premature induction of labour.

One of the defects in ante-natal work on these cases has been due to non-recognition of the fact that a large proportion of these potentially abnormal cases undergo a natural process of expansion of the pelvis, which converts them into potentially normal cases. Pelvimetry is one of the most important means of examining these cases, and, apart from a history of a previous normal labour at full term with a normal-sized foetus, it can only be out-classed by the methods of determining the relative proportion of the un moulded foetal head to the pelvis in the last five weeks of pregnancy. The result of the latter method will depend on the skill of the observer, and will only be possible in ante-natal clinics when the clinic accoucheur attends the childbirths himself. Hitherto, the clinic doctor usually has to rely on pelvimetry, other skeletal considerations, history of previous labours, etc.

The most reliable measurement in internal pelvimetry is the diagonal conjugate, but it is not a very easy procedure in primiparae, and the large number of women who object to internal examinations will go to the doctor who avoids these examinations. In external pelvimetry the most useful measurement is the external conjugate. This is the measurement to which I wish to draw attention.

It is generally taught that an external conjugate of less than seven inches indicates pelvic contraction in the majority of cases, and that with a further reduction of half an inch contraction is practically invariable. Six years ago a private patient of mine had a pelvis of the generally contracted type with an external conjugate of six and a half inches at two and a half months; at seven and a half months the external conjugate was seven inches. At thirty-seven weeks there was

apparent disproportion; medical premature induction failed; and stomach-tube induction at thirty-eight weeks ended in normal childbirth and a live child (6½ lb.). The following year I attended at the childbirth of the second baby, which weighed a little more than the first (7 lb.), and was born by the natural passages at full term without induction. Mother and children progressed normally. Early this year a similar primipara at two and a half months had an external conjugate of six and a quarter inches; at six and a half months the external conjugate measured seven inches, and, though the pelvis is of the generally contracted type, I am hoping for a normal natural delivery at full term without induction.

During the last six years I have repeatedly noted a growth of half an inch in the external conjugate during pregnancy; it may be due to stretching of the ligaments of the symphysis pubis and sacro-iliac joints, and some of the cases have complained of pain in the groins and hips relieved by lying down. Knowledge of this expansion of the pelvis during pregnancy may diminish considerably the number of premature inductions and diminish the consequent foetal mortality and maternal morbidity to which attention has been drawn. Before six years ago I used to limit my pelvimetry to an early date in pregnancy, and possibly ante-natal clinics are in the habit of doing the same.

I have searched the literature and can find no reference to anyone who has noted this increase of the external conjugate in any of the recent British or American textbooks of obstetrics or in Jarcho's book *The Pelvis in Obstetrics*, 1933. Owing to the care taken, I am convinced that the pelvic expansion is real and not due to increased adipose tissue or to flexion of the lumbar spine. The same increase will be noted if the posterior point of the pelvimeter is kept over the upper sacrum instead of the lower edge of the fifth lumbar spine.—I am, etc.,

E. HESKETH ROBERTS, F.R.C.S.Ed.

London, W 1, July 2nd

Traffic Control by Light Signals

SIR,—I was interested in Dr. Guy Bousfield's letter in the *Journal* of July 7th (p. 40) on the subject of traffic control lights, but I think that one or two points call for comment. I do not agree that a driver requires such lengthy warning of an intended stop as your correspondent suggests. Surely the mere fact that a signal-post is visible suggests the necessity of being prepared to stop and bringing the car "under control," though I trust that there are not many drivers who make a habit of going about with their cars out of control. Anyway, they will not do it for very long! I think that the present warning of the impending red stop signal is sufficient, but the period during which the amber is showing should be standardized.

If there are drivers with such a long reaction time as Dr. Bousfield suggests, surely they ought to give up driving altogether. If they are apt to fail at such a simple emergency as the traffic stop light it seems to me that they will be always having accidents, and belong to the class that Americans term "accident-prone."—I am, etc.,

London, S.E.15, July 9th

W. W. KING BROWN, M.B.

Evipan Anaesthesia

SIR,—I am now in entire agreement with Dr. Kuhne when he writes in your issue of July 7th (p. 40): "In the second instance evipan was acting on a centre already depressed by the premedication." The whole purpose of my previous letter was to suggest this, and I am satisfied that he has altered his opinion.—I am, etc.,

MONTAGUE SOLOMON, M.B., Ch.B., D.P.H.

Liverpool, July 7th.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

DISSOLUTION OF PARTNERSHIP

The partners can provide, in their agreement, for dissolution upon any terms they choose, but if they omit to do so the Act lays down the following regulations for dissolution.

If the partnership is entered into for a fixed term it is dissolved on the expiration of the term. If no term is fixed it is dissolved by any partner giving notice to the others of his intention to dissolve it. He may name a day for its dissolution: if he does not it is dissolved as from the date on which he communicates the notice. If any partner dies or goes bankrupt the partnership is dissolved as regards all the partners; and if any partner charges his share for his own debts the partnership may be dissolved at the option of the others. When a partner dies the survivors may collect and pay partnership debts, and may sue debtors without joining the representatives of the deceased partner as parties to the action. When a partner goes bankrupt the solvent partners may collect the partnership debts, and the trustees or assignees of the bankrupt can be restrained from interfering.

ILLEGAL PRACTICE

A partnership is dissolved by any event which makes the business unlawful, or makes it unlawful for the partners to carry it on together. It is probably illegal, as well as unethical, for a qualified and an unqualified person to agree to practise medicine in partnership (*Davies v. Mahama*, 1884), so such an alliance would not be recognized by law. If a member of a medical partnership had the misfortune to be removed from the *Register* by the General Medical Council under its penal jurisdiction, he could probably continue to practise without making the partnership illegal, but his partners would be liable to be struck off the *Register* for associating in practice with an unregistered practitioner. They would also be unable to sue for fees for the work he did. The court would probably consider the removal of a partner from the *Register* to be good ground for dissolving the partnership.

THE PARTNER OF UNSOUND MIND

The Act lays down several events in which the court may dissolve the partnership if one partner asks it to. If a partner is found lunatic by inquisition (a somewhat rare legal procedure), or is shown, to the satisfaction of the court, to be of permanently unsound mind, the court may decree a dissolution. In this case not only the other partners but also the insane partner, by his next friend or his "committee,"[†] has the right to ask that the partnership be dissolved. Lunacy does not of itself dissolve a partnership, and so long as the continuing partners elect to carry on in the hope that the insane member of the firm will recover there is no dissolution.

In *Jones v. Noy* (1833) the incapacitated partner, who died, had contracted to be always actively engaged in the business—that of a firm of solicitors. As the continuing partner was considered to have carried on in the hope of the other's recovery the representatives of the incapacitated partner were held entitled to his share of the profits.

Unless the sick partner has been found lunatic by inquisition the court will only dissolve the partnership if it is satisfied that his incapacity is permanent—not an easy question for a psychiatrist to answer on oath. If the partner has no active duties to perform the court will probably not dissolve on the application of any other partner. A partner of unsound mind might seriously injure the business of a medical firm if he were permitted to

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), and the third on July 7th (p. 42).

† The legal guardian of a person who has been found lunatic by inquisition.

interfere with it, and the position of the other partners when one of the firm contracts mental disease is no enviable one. It is hardly possible to imagine a more urgent and delicate situation. To certify him themselves would impose on them a responsibility of the first magnitude, and bring upon them the gravest suspicion of the court; yet they might justify their action if the urgency were great, and if they had taken scrupulous care to have their judgement confirmed immediately by independent and expert practitioners—and also to preserve the ailing partner's interest in the business—and if they had immediately and frankly disclosed the facts to their partner's relatives. The fundamental question the court applies to all partnership transactions is: Did you safeguard your partner's interests as scrupulously as your own? For obvious reasons a certifiably insane partner offers less difficulty than one whose eccentricity is less patent. If the other partners can produce good evidence that their colleague is damaging the partnership by his conduct they may succeed in obtaining an injunction to restrain him from interfering in the partnership affairs; but the evidence must be good and may be very difficult to present to a judge necessarily unaccustomed to medical practice. The important point is that the court will not be interested in the medical condition *per se* of the sick partner, but only in the effect which his conduct is likely to have on the practice. The proof, therefore, should be kept on a basis of conduct, and the question whether the partner is or is not of unsound mind—whatever that may mean—is left for determination by other authority.

INCAPACITY AND MISCONDUCT

The court may also decree dissolution when a partner becomes permanently incapable, from any cause other than lunacy, of performing his part of the partnership contract; or when a partner has been guilty of conduct calculated to prejudice the carrying-on of the business; or has wilfully or persistently committed a breach of the agreement; or has so conducted himself that it is not reasonably practicable for the other partners to carry on business with him. The court may dissolve a partnership when it can only be carried on at a loss, and has general discretion to dissolve partnerships when circumstances have arisen which seem to make dissolution just and equitable. Before the Act was passed, in 1890, the court used to inquire chiefly whether the conduct complained of was likely to destroy mutual confidence between the partners, but the Act permits it to ask also whether the conduct is likely to prejudice the welfare of the business and shake its public credit. In every case the nature of the particular business is all-important. It is, for instance, highly probable that the court would dissolve a medical partnership because one of the partners had been guilty of sexual immorality, for such conduct must be very damaging to the firm.

A doctor complained to his defence society* that his partner had been cited as co-respondent in divorce proceedings, had been found to have committed adultery, and was openly living with the respondent. He was rightly advised that this conduct would be likely to cause serious injury to the practice, and that he would be justified in giving notice terminating the partnership under the clause in the articles dealing with misconduct.

In this case, of course, the aggrieved partner could have pleaded that the other had broken the written agreement, and would not have had to rely on the terms of the Act. The court would, however, in interpreting the misconduct in the articles, apply the same standards as if it were deciding whether misconduct had been committed in the sense of the Act. Nevertheless, the court will not interfere merely because a partner has committed a trivial departure from duty, or a technical violation of the articles, or some minor misconduct. Courts of equity do not allow a party to a contract to take unreasonable advantage of the letter of an agreement, and it is necessary to show grave damage to mutual confidence or to the good name of the firm.

* Annual Report L.C.M.P. Society, 1928, p. 29.

TEST FOR LIVE BIRTH IN CASES OF INFANTICIDE BY DROWNING

When the dead body of a newly born infant found in a waterway is the subject of medico-legal examination the first point to be dealt with is, Was the infant born alive? The answer to this question depends on the state of maturity of the infant, the volume and colour of the lungs, the flotation test, the contents of the stomach, etc.¹ On the Continent, however, great importance is laid on the contents of the bowel below the pylorus.

Fagerlung² states that the presence of water or foreign material from the waterway is definite evidence of live birth, and furthermore, it is definite evidence that the infant was alive when it entered the water. He immersed the bodies of stillborn infants in water for from seven to forty-three hours, and in no instance did he observe any of the water below the pylorus. Experiments on the same lines have been carried out by Beothy,³ and these confirm the fact that no water can pass the pylorus unless there has been life. Beothy dealt with twenty-four cases, in which he removed the stomach and filled it under pressure with water coloured with carbo-fuchsin or methylene-blue. In none of his cases did any of the fluid pass the pylorus.

From these experiments, therefore, it would appear that if water or any foreign material from the waterway be found below the pylorus it is definite evidence of live birth.

FRANK W. MARTIN, M.D.,

Assistant, Forensic Medicine Department,
Glasgow University.

¹ Glaister: *Medical Jurisprudence and Toxicology*, fifth edition.

² Fagerlung: *Vjschr. gerichtl. Med.*, N.F. 52.

³ Beothy: "Fremdkörper in den Darmpartien unterhalb des Pylorus als Lebenszeichen von Neugeborenen." *Deut. Zeit. f. d. Gesamte Gerichtliche Medizin*, 1932, Band 19, Heft I.

Universities and Colleges

UNIVERSITY OF OXFORD

The Board has recommended to the Vice-Chancellor that the Theodore Williams Scholarship in Human Anatomy, 1934, be divided between D. L. P. de Courcy, New College, and L. L. Whythead, Oriel College. This will necessitate the passing of a decree.

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At a congregation held on July 14th the following medical degrees were conferred:

D.M.—R. S. B. Pearson.

M.Ch.—H. F. Hoesley.

B.M.—J. H. Bartlett, D. W. Geidt, W. H. A. Picton, C. E. Greenwood, R. I. Bence, T. W. Lloyd, A. M. G. Campbell, R. H. Gardiner, C. A. Boucher.

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—(Part I): M. Kahn, N. G. Moitra. (Part II): T. R. Harlan, M. S. Kavarana, A. U. Mullar, N. G. Moitra, G. R. Nolan, W. O'Neill, J. P. Raban, C. W. Robertson, T. F. Tierney.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

M.S.—(Branch I, Surgery): G. V. W. Anderson, A. W. Kendall, D. Trevor (University Medal), H. L.-C. Wood.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, L. J. Temple; Entrance Exhibitions, R. Mawson, W. S. Levin; Sharpey Scholarship (Physiology), D. H. K. Lee, M.Sc., M.B., B.S.; Anatomy (Senior Class—Gold Medal), Nancy E. G. Richardson; Physiology (Senior Course—Gold Medal), M. Albert.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

ACADEMIC POST-GRADUATE DIPLOMA IN PUBLIC HEALTH.—O. M. Akhiani, O. M. T. Ansari, K. P. Beaubrun, Catherine B. Crane, W. H. Crichton, F. R. Danson, H. A. Dickze, Margaret L. Foxwell, Muriel O. Gibson, J. B. Great Rev, G. S. C. de S. Gueskera, Ellen G. Heycock, G. Holroyd, F. E. Lipscomb, F. J. G. Lashman, G. H. Lowe, G. P. McC. Marshall, K. J. G. Milne, D. D. Payne, Ethel A. Perrott, C. D. Preston, *Abson J. Rae, L. B. E. Seneviratne, Mary Sutcliffe, L. G. W. Urich, M. H. Wace, E. C. P. Williams, *S. L. Wright. (Part II): Muriel V. Joscelyne, Hyacinth I. Lightbourne, I. A. MacDougall.

* Awarded a mark of distinction.

UNIVERSITY OF LIVERPOOL

The following awards have been made in the Faculty of Medicine. *John Rankin Fellowships in Anatomy*, (Senior) Dr. A. G. Leigh, (Junior) Dr. R. A. Hughes. *Johnston Colonial Fellowship in Biochemistry*, G. R. Tristram. *Robert Gee Fellowship in Human Anatomy*, Dr. A. J. Hellet. *Holt Fellowship in Pathology*, Dr. C. S. Anderson. *Holt Fellowship in Physiology*, Dr. J. G. Hailwood. *Thelwall Thomas Fellowship in Surgical Pathology*, Dr. A. S. Kerr. *John W. Garrett International Fellowship in Bacteriology*, Dr. E. R. Jones. *Ethel Boyce Fellowship in Gynaecology*, Dr. J. Polonsky. *University Graduate Scholarship*, H. F. Harwood. *Honorary Scholarship*, L. Henry. *Samuels Memorial Scholarships*: (Medicine) Dr. J. Libman, (Surgery) Mr. M. Silverstone, (Obstetrics and Gynaecology) Dr. J. Polonsky. *Junior Lyon-Jones Scholarship*, Frances E. Brierton. *William Mitchell Banks Bronze Medal (Anatomy)*, E. L. Salinger. *Kanthack Medal (Pathology)*, H. R. W. Lunt. *Silver Medal for Forensic Medicine and Toxicology*, V. K. Brennan; *proxime accessit*, A. C. Brewer, A. Cohen. *Gold Medal for Public Health*, V. K. Brennan. *Silver Medal for Pharmacology*, A. J. Gill; *proxime accessit*, A. Singer. *George Adam Prize in Pathology*, H. F. Harwood. *Owen T. Williams Prize*, Margaret F. Procter.

The Council, on July 11th, appointed Dr. D. B. Blacklock, Walter Myers professor of parasitology in the University since 1929, to the newly instituted Chair of Tropical Hygiene, and T. Southwell, D.Sc., Ph.D., lecturer in helminthology in the Liverpool School of Tropical Medicine, as lecturer in parasitology in the University, both from October 1st.

UNIVERSITY OF SHEFFIELD

Dr. F. E. E. Schneider, medical superintendent of Rampton State Institution, has been appointed assistant lecturer in mental diseases. Dr. R. T. Cooke has been appointed junior assistant bacteriologist.

The following candidates have been approved at the examination indicated.

FIRST MB, ChB.—Part II. Kathleen M. Adamson and M. B. Brady (with second-class honours), J. K. A. Beverley, T. Lodge, G. F. E. Ramsden, H. R. Vickers, W. D. Wallace.

UNIVERSITY OF ABERDEEN

The following degrees were conferred at a graduation on July 9th:

MD.—T. N. Morgan, *Ann L. Thomson, †A. Cruickshank, †J. R. M. Mackie, †A. G. Badenoch, †R. Mackay, E. Farquharson, †A. Fraser, W. H. Harris, A. W. Henderson, Catherine I. A. Jamieson-Craig, Mary Riddoch.

MB, ChB.—C. Ludwig (second-class honours), E. P. Adel, A. J. Beddie, H. Burnett, J. R. Byars, J. Cameron, E. Cay, E. M. Darnley, I. K. Etkin, Jane R. Forgie, C. Glassman, J. F. R. Goodlad, J. T. Grassie, D. Horn, J. R. Horn, R. A. Horne, P. W. Ingram, M. H. Kirsner, A. H. Lavelle, L. A. Ledingham, A. P. Macdonald, J. C. McGregor, D. A. M. MacLennan, J. H. S. Morgan, A. F. T. Ord, G. Parker, J. R. M. Sangster, I. M. Schner, J. A. Shreier, I. Shechner, S. R. N. Smith, E. J. Strachan, J. W. M. Sutherland, A. H. Weiner.

D.Ph.—A. G. Badenoch, D. Bell, Alexandra H. Duthie (née Benton), J. B. Ewen.

* Awarded highest honours for thesis. † Awarded honours for thesis. ‡ Awarded commendation for thesis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the Royal College of Surgeons of England was held on July 12th.

Sir Holburt Waring was re-elected President, and Mr. Wilfred Trotter, F.R.S., and Mr. A. H. Burgess were elected Vice-Presidents.

Professor William Wright (anatomy) and Professor John Mellanby (physiology) were appointed to conduct a Primary Examination for the Fellowship at Madras in December, 1934.

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. Harold Burrows, C.B.E., one lecture on Some Observations on the Sex Hormones in Relationship to Surgical Pathology; Mr. C. Max Page, D.S.O., one lecture on the Late Results of the Operative Treatment of Osteoarthritis; Mr. W. Rowley Hirstow, one lecture on Internal Derangement of the Knee-joint; Mr. T. Pomfret Kilner, one lecture on the Transplantation of Skin; Mr. Laurence O'Shaughnessy, one lecture on the Surgery of the Lung Root; Mr. H. J. Seddon one lecture on the Morbid Anatomy of Caries of the Thoracic Spine in Relation to Treatment; Mr. B. W. Rycroft, one lecture on Recent Investigations in the Aetiology and Treatment of Glaucoma; Mr. G. C. Knight, one lecture on the Innervation of the Oesophagus in Relation to the Surgical Treatment of Achalasia of the Cardia; Mr. Lambert Rogers, one lecture on the Surgery of Spinal Tumours; Mr. C. Bowdler Henry, one lecture on the Aetiology and Treatment of Misplaced Third Molars; Dr. Macdonald Critchley, one lecture on the Morphology of the Cerebro-spinal Arteries and their Clinical Significance; Dr. James F. Bradford, one lecture on Dystrophies of the Skeleton.

Arns and Gale Lecturer.—Dr. John Beattie, three lectures on the Anatomy and Physiology of the Hypothalamus: (1) the central mechanism controlling the cardiovascular system; (2) the relation of the hypothalamus to the gastro-intestinal tract; (3) the nervous control of metabolism and the relation of the pituitary gland to the hypothalamus.

Erasmus Wilson Lecturers.—Mr. R. Davis-Colley, C.M.G., Mr. C. E. Shattock, Mr. Cecil P. G. Wakley, and Mr. E. K. Martin, one demonstration each on Pathology; Mr. T. B. Layton, D.S.O., one demonstration on the Rhinological (or Nasal) Aspects of (or Problems in) Mummification, Mr. Ronald W. Raven, one demonstration on Abnormalities of Surgical Importance resulting from the Persistence of Rudimentary Embryological Structures.

Arnott Demonstrator.—Dr. John Beattie, Six demonstrations on the contents of the Museum.

Sir Frank Colyer, K.B.E. (honorary curator of the Odontological Collection), and Mr. C. J. S. Thompson, M.B.E. (honorary curator of the Historical Collection) were re-appointed for the ensuing year. Mrs M. L. Tildesley was reappointed curator of the Department of Human Osteology for the next six months.

The Hallett Prize for Anatomy and Physiology was awarded to David Lloyd Griffiths, M.B., Ch.B., of Manchester; and the fifth MacLoughlin Scholarship of £120 per annum was awarded to Joseph Francis Smith of Bristol Grammar School.

Diplomas were granted jointly with the Royal College of Physicians as follows:

DIPLOMA IN PRINCIPLES OF MEDICINE.—S. M. Ab, J. H. Dobbin, P. B. Lee Potter, E. K. Patchard, J. M. Rose, A. T. G. Thomas.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—G. J. Allan, K. W. Allen, J. N. Atkinson, G. I. Barnes, I. S. Bhalley, R. H. P. Clark, F. J. Copeland, A. P. Davis, S. B. Dimson, H. Erston, P. S. Gowerdardene, A. C. de B. Helme, N. M. James, W. B. Johnston, F. H. Reynolds, M. Shun-Shun, C. H. Yeoh.

DIPLOMA IN ORTHOPAEDIC MEDICINE AND SURGERY.—E. D. Anklesaria, R. U. Gillan, G. Gordon-Nigier, T. R. Jansen, A. H. Lowther, D. W. McLean, L. H. Motter, M. M. Parikh, A. A. Pomfret, K. Rai, D. Ram, W. E. Rutledge, A. C. Shuttleworth, S. B. Smith, M. M. Sydlun, C. Taylor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. E. C. Adelt, C. N. Atlee, A. Balke, L. T. Hilliard, S. G. June, Madeline R. Lockwood, J. Mackay, F. E. Pilkington, C. H. Swanton, A. H. Wilson.

DIPLOMA IN LUNACY AND SURGERY.—S. K. N. Chowdhury, R. Howarth, A. R. Khan, D. Loing, W. B. McKelvie, C. E. S. Osby, J. A. Tumarkin.

DIPLOMA IN MEDICAL RADIOLOGY.—J. E. Blawett, P. Hogan, W. H. Hooton, A. H. Richardson, A. M. Vlek.

COMBINED SCHOLARSHIPS EXAMINATION

As the result of the combined hospitals scholarships (Guy's, St. Bartholomew's, and St. Thomas's), the following scholarships and exhibitions have been awarded:

Guy's Hospital Medical School: University Scholarship, E. B. French (St. John's College, Cambridge); Exhibition, R. G. Blackledge (New College, Oxford).

St. Bartholomew's Hospital Medical College: University Scholarship, D. I. Crowther (Magdalen College, Oxford); Exhibition, P. F. Barwood (Sidney Sussex College, Cambridge).

St. Thomas's Hospital Medical School: University Scholarship, T. J. Fairbank (Trinity College, Cambridge); Exhibition, J. Sutcliffe (St. John's College, Cambridge).

interfere with it, and the position of the other partners when one of the firm contracts mental disease is no enviable one. It is hardly possible to imagine a more urgent and delicate situation. To certify him themselves would impose on them a responsibility of the first magnitude, and bring upon them the gravest suspicion of the court; yet they might justify their action if the urgency were great, and if they had taken scrupulous care to have their judgement confirmed immediately by independent and expert practitioners—and also to preserve the ailing partner's interest in the business—and if they had immediately and frankly disclosed the facts to their partner's relatives. The fundamental question the court applies to all partnership transactions is: Did you safeguard your partner's interests as scrupulously as your own? For obvious reasons a certifiably insane partner offers less difficulty than one whose eccentricity is less patent. If the other partners can produce good evidence that their colleague is damaging the partnership by his conduct they may succeed in obtaining an injunction to restrain him from interfering in the partnership affairs; but the evidence must be good and may be very difficult to present to a judge necessarily unaccustomed to medical practice. The important point is that the court will not be interested in the medical condition *per se* of the sick partner, but only in the effect which his conduct is likely to have on the practice. The proof, therefore, should be kept on a basis of conduct, and the question whether the partner is or is not of unsound mind—whatever that may mean—is left for determination by other authority.

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Fagerlung² states that the presence of water or foreign material from the waterway is definite evidence of live birth, and furthermore, it is definite evidence that the infant was alive when it entered the water. He immersed the bodies of stillborn infants in water for from seven to forty-three hours, and in no instance did he observe any of the water below the pylorus. Experiments on the same lines have been carried out by Beothy,³ and these confirm the fact that no water can pass the pylorus unless there has been life. Beothy dealt with twenty-four cases, in which he removed the stomach and filled it under pressure with water coloured with carbo-fuchsin or methylene-blue. In none of his cases did any of the fluid pass the pylorus.

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³ Beothy: "Fremdkörper in den Darmpartien unterhalb des Pylorus als Lebenszeichen von Neugeborenen," *Deut. Zeit. f. d. Gesamte Gerichtliche Medizin*, 1932, Band 19, Heft I.

Universities and Colleges

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The following candidates have been approved at the examination indicated:

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UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

M.S.—(Branch I, Surgery): G. V. W. Anderson, A. W. Kendall, D. Trevor (University Medal), H. L.-C. Wood.

UNIVERSITY COLLEGE

The following awards have been made in the Faculty of Medical Sciences:

Entrance Scholarship, L. J. Temple; Entrance Exhibitions, R. Mawson, W. S. Lewin; Sharpey Scholarship (Physiology), D. H. K. Lee, M.Sc., M.B., B.S.; Anatomy (Senior Class—Gold Medal), Nancy E. G. Richardson; Physiology (Senior Course—Gold Medal), M. Albert.

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The following candidates have been approved at the examination indicated:

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* Awarded a mark of distinction.

UNIVERSITY OF LIVERPOOL

The following awards have been made in the Faculty of Medicine. *John Rankin Fellowships in Anatomy*, (Senior) Dr. A. G. Leigh, (Junior) Dr. R. A. Hughes. *Johnston Colonial Fellowship in Biochemistry*, G. R. Tristram. *Robert Gee Fellowship in Human Anatomy*, Dr. A. J. Helfet. *Holt Fellowship in Pathology*, Dr. C. S. Anderson. *Holt Fellowship in Physiology*, Dr. J. G. Hailwood. *Thelwall Thomas Fellowship in Surgical Pathology*, Dr. A. S. Kerr, John W. Garrett. *International Fellowship in Bacteriology*, Dr. E. R. Jones. *Ethel Boyce Fellowship in Gynaecology*, Dr. J. Polonsky. *University Graduate Scholarship*, H. F. Harwood. *Honorary Scholarship*, L. Henry. *Samuels Memorial Scholarships*: (Medicine) Dr. J. Libman, (Surgery) Mr. M. Silverstone, (Obstetrics and Gynaecology) Dr. J. Polonsky. *Junior Lyon-Jones Scholarship*, Frances E. Brierton. *William Mitchell Banks Bronze Medal (Anatomy)*, E. L. Salinger. *Kanthal Medal (Pathology)*, H. R. W. Lunt. *Silver Medal for Forensic Medicine and Toxicology*, V. K. Drennan; *proxime accesserunt*, A. C. Brewer, A. Cohen. *Gold Medal for Public Health*, V. K. Drennan. *Silver Medal for Pharmacology*, A. J. Gill; *proxime accessit*, A. Singer. *George Adams Prize in Pathology*, H. F. Harwood. *Owen T. Williams Prize*, Margaret F. Procter.

The Council, on July 11th, appointed Dr. D. B. Blacklock, Walter Myers professor of parasitology in the University since 1929, to the newly instituted Chair of Tropical Hygiene, and T. Southwell, D.Sc., Ph.D., lecturer in helminthology in the Liverpool School of Tropical Medicine, as lecturer in parasitology in the University, both from October 1st.

UNIVERSITY OF SHEFFIELD

Dr. F. E. E. Schneider, medical superintendent of Rampton State Institution, has been appointed assistant lecturer in mental diseases. Dr. R. T. Cooke has been appointed junior assistant bacteriologist.

The following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—Part II: Kathleen M. Adamson and M. B. Brody (with second-class honours), J. K. A. Beverley, T. Lodge, G. F. E. Ramsden, H. R. Vickers, W. D. Wallace.

UNIVERSITY OF ABERDEEN

The following degrees were conferred at a graduation on July 9th:

M.D.—T. N. Morgan, *Ann L. Thomson, *A. Cruickshank, *J. R. M. Mackie, *A. G. Badenoch, *R. Mackay, E. Farquharson, *A. Fraser, W. H. Harris, A. W. Henderson, Catherine I. A. Jamieson-Craig, Mary Riddoch.
M.B., Ch.B.—C. Ludwig (second-class honours), E. P. Adel, A. J. Beldie, H. Burnett, J. R. Bvars, J. Cameron, E. Cay, E. M. Darlev, I. K. Ettman, Jane R. Forgie, C. Glassman, J. F. R. Goold, J. T. Grassie, D. Horn, I. R. Horn, R. A. Horne, P. W. Ingram, M. H. Kirner, A. H. Lasdon, L. A. Ledingham, A. P. Macdonald, J. C. McGregor, D. A. M. MacLennan, J. H. S. Morgan, A. F. T. Ord, G. Parker, J. R. M. Sangster, I. M. Schnee, J. A. Shearer, I. Shechner, S. R. N. Smith, E. J. Strachan, J. W. M. Sutherland, A. H. Weiner.
D.Ph.—A. G. Badenoch, D. Bell, Alexandra H. Duthie (née Benton), J. B. Ewen.

* Awarded highest honours for thesis. * Awarded honours for thesis. * Awarded commendation for thesis.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly meeting of the Council of the Royal College of Surgeons of England was held on July 12th.

Sir Holburn Waring was re-elected President, and Mr. Wilfrid Trotter, F.R.S., and Mr. A. H. Burgess were elected Vice-Presidents.

Professor William Wright (anatomy) and Professor John Mellanby (physiology) were appointed to conduct a Primary Examination for the Fellowship at Madras in December, 1934.

The following lecturers were appointed for the ensuing year:

Hunterian Professors.—Mr. Harold Burrows, C.B.E., one lecture on Some Observations on the Sex Hormones in Relationship to Surgical Pathology; Mr. C. Max Page, D.S.O., one lecture on the Late Results of the Operative Treatment of Osteoarthritis; Mr. W. Rowley Bristow, one lecture on Internal Derangement of the Knee-joint; Mr. T. Pomfret Kilner, one lecture on the Transplantation of Skin; Mr. Laurence O'Shaughnessy, one lecture on the Surgery of the Lung Root; Mr. H. J. Seddon one lecture on the Morbid Anatomy of Caries of the Thoracic Spine in Relation to Treatment; Mr. B. W. Rycroft, one lecture on Recent Investigations in the Aetiology and Treatment of Glaucoma; Mr. G. C. Knight, one lecture on the Innervation of the Oesophagus in Relation to the Surgical Treatment of Achalasia of the Cardia; Mr. Lambert Rogers, one lecture on the Surgery of Spinal Tumours; Mr. C. Bowdler Henry, one lecture on the Aetiology and Treatment of Displaced Third Molars; Dr. Macdonald Critchley, one lecture on the Morphology of the Cerebro-spinal Arteries and their Clinical Significance; Dr. James F. Brailsford, one lecture on Dystrophies of the Skeleton.

Arris and Gale Lecturer.—Dr. John Beattie, three lectures on the Anatomy and Physiology of the Hypothalamus: (1) the central mechanism controlling the cardiovascular system; (2) the relation of the hypothalamus to the gastro-intestinal tract; (3) the nervous control of metabolism and the relation of the pituitary gland to the hypothalamus.

Erasmus Wilson Lecturers.—Mr. R. Davies-Colley, C.M.G., Mr. C. E. Shattock, Mr. Cecil P. G. Wakeley, and Mr. E. K. Martin, one demonstration each on Pathology; Mr. T. B. Layton, D.S.O., one demonstration on the Rhinological (or Nasal) Aspects of (or Problems in) Mummification; Mr. Ronald W. Raven, one demonstration on Abnormalities of Surgical Importance resulting from the Persistence of Rudimentary Embryological Structures.

Arnott Demonstrator.—Dr. John Beattie, Six demonstrations on the contents of the Museum.

Sir Frank Colyer, K.B.E. (honorary curator of the Odontological Collection), and Mr. C. J. S. Thompson, M.B.E. (honorary curator of the Historical Collection) were re-appointed for the ensuing year. Miss M. L. Tildesley was reappointed curator of the Department of Human Osteology for the next six months.

The Hallett Prize for Anatomy and Physiology was awarded to David Lloyd Griffiths, M.B., Ch.B., of Manchester; and the fifth MacLoughlin Scholarship of £120 per annum was awarded to Joseph Francis Smith of Bristol Grammar School.

Diplomas were granted jointly with the Royal College of Physicians as follows:

DIPLOMA IN PUBLIC HEALTH.—S. M. Ali, J. H. Dobbin, P. B. Lee Potter, E. K. Pritchard, J. M. Reese, A. T. G. Thomas.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—G. J. Allan, K. W. Allen, J. N. Atkinson, G. T. Barnes, I. S. Bhalla, R. H. P. Clark, F. J. Copeland, A. P. Davis, S. B. Dimson, H. Epstein, P. S. Goonewardene, A. C. de Helme, N. M. James, W. B. Johnston, F. H. Reynolds, M. Shun-Shin, C. H. Yeoh.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—E. D. Anklesaria, R. U. Gillan, G. Gordon-Napier, T. R. Jansen, A. H. Lowther, D. W. McLean, L. H. Mottet, M. M. Parikh, A. A. Pomfret, K. Rai, D. Ram, W. E. Rutledge, A. C. Shuttleworth, S. B. Smith, M. M. Sydnin, C. Taylor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—H. E. C. Aslett, C. N. Atdee, A. Baldie, L. T. Hilliard, S. G. James, Madeline R. Lockwood, J. Mackay, F. E. Pilkington, C. H. Swanton, A. H. Wilson.

DIPLOMA IN LARYNGOLOGY AND OTOTOLOGY.—S. K. N. Chowdhury, R. Howarth, A. R. Khan, D. Laing, W. B. McKelvie, C. E. S. Oxley, J. A. Tumarkin.

DIPLOMA IN MEDICAL RADIOLOGY.—J. E. Blewett, P. Hogan, W. H. Hooton, A. H. Richardson, A. M. Vick.

COMBINED SCHOLARSHIPS EXAMINATION

As the result of the combined hospitals scholarships (Guy's, St. Bartholomew's, and St. Thomas's), the following scholarships and exhibitions have been awarded:

Guy's Hospital Medical School: University Scholarship, E. B. French (St. John's College, Cambridge); Exhibition, R. G. Blackledge (New College, Oxford).

St. Bartholomew's Hospital Medical College: University Scholarship, D. I. Crowther (Magdalen College, Oxford); Exhibition, P. F. Barwood (Sidney Sussex College, Cambridge).

St. Thomas's Hospital Medical School: University Scholarship, T. J. Fairbank (Trinity College, Cambridge); Exhibition, J. Sutcliffe (St. John's College, Cambridge).

Obituary

W. W. KING, F.R.C.S.ED., F.C.O.G.

Surgeon, Jessop Hospital for Women, Sheffield

We regret to announce the death, on July 9th, of Mr. William Wilfrid King at the age of 52. He was educated at Stonyhurst and the Bristol Medical School, whence he qualified M.R.C.S., L.R.C.P. in 1906, subsequently taking the Edinburgh Fellowship in 1908, and, on the formation of Bristol University, the M.B. of that university.

Mr. King went to the Royal Hospital, Sheffield, almost immediately after qualification, and was soon recognized by the contemporary generation of "housemen" in the various hospitals of the city as a man of exceptional energy, ability, and what is known as character. As a house-surgeon at the Jessop Hospital for Women, and later as surgical registrar at that institution, he showed a special aptitude for gynaecology and obstetrics, and in addition to winning the esteem of the honorary staff he also began to become known among the practitioners in the city. When a vacancy occurred on the staff of the Jessop it was assumed by most that King would be appointed, but he was passed over, and it was a great blow to him. Crippled by the absence of private means, King had to make a very momentous decision: to stay in the city and await another vacancy. Those were not the days when the hospitals and universities nursed young consultants. King had to find some means of subsistence whilst he besieged the gynaecological citadel. He was known to have had a good laboratory training, and the Royal Infirmary staff asked him to apply for the part-time post of clinical pathologist at the meagre salary of £75 a year; protesting with characteristic candour that his aim was not pathology, he applied for the post and was appointed (1911); he was a great success. In the old clinical laboratory of the Infirmary he slogged away with inadequate equipment—helped by a B.M.A. grant—in an attempt to elucidate the toxæmias of pregnancy, and his first important paper was on the Abderhalden reaction for pregnancy. Then came the war, and he at once joined the R.A.M.C., being attached to the Third Northern General Hospital. King was never passed for general service, and remained in the city for the duration of the war. His capacity for work was truly colossal. It did not seem to matter what it was: he did any amount of work in the laboratory—chiefly in connexion with the search for typhoid and dysentery carriers—and in addition he tackled all kinds of surgery, and found time to rush out and see a few patients on behalf of colleagues who were over-seas. Somewhere about the end of the war he became a member of the staff at the Jessop Hospital for Women, and immediately began to pull his full weight. He spent much time studying the pathology and clinical features of pelvic adenomyomata, but the great interest of his life turned out to be the aetiology of puerperal sepsis. King was in charge of a large municipal maternity home, and, as is well known, has taken a large part in the attempt to correlate streptococcal infections of the throat with puerperal sepsis. Indeed, this work was probably the cause of his premature death: he went out to investigate an outbreak of sepsis in a neighbouring town, and about forty-eight hours later was himself attacked by a tonsillar infection with *Streptococcus haemolyticus*, which eventually, through infection of the deep veins of the neck, proved fatal.

As a teacher King was excellent, but his own rapid thought and sincerity of purpose did not fit him to tolerate fools. Rapidity of thought and action were characteristic of the man in all his activities. He was

a great surgeon, cut off just as he had attained success and reputation. His untimely death will be an immense loss to his hospital and university, which had every right to expect another ten years of active service. The local profession has lost a wise counsellor, not only on matters gynaecological, but on medico-political affairs, as shown by his tenure of the chairmanship of the United Hospitals Staff Club and of the Sheffield Division of the British Medical Association.

No notice of King's life would be complete without reference to his religion, as he was a sincere Catholic who took part in all activities of the Church open to the layman. He leaves a widow and four children.

A. E. B.

BRENNAN DYBALL, F.R.C.S.

Surgeon, Royal Devon and Exeter Hospital

By the unexpected and untimely death of Mr. Brennan Dyball of Exeter, at the age of 62, the West Country has lost one of its foremost surgeons. After a distinguished career as a student, when he became a gold medallist in surgery and gained the Beane Scholarship in that subject, he went to Exeter in 1898 with a great reputation from St. Thomas's Hospital, and from the Leeds School, where he had been resident surgical officer at the General Infirmary. At the time of his death, at his moorland bungalow, he had for long commanded the respect and affection of all his colleagues and of the profession generally.

By disposition modest and retiring, and hating publicity in any shape—for example, no one ever succeeded in persuading Dyball to take the chair at a professional dinner—he was yet recognized by all who came in contact with him as an outstanding instance of the rare combination of high and widely cultured intellectual gifts, soundly balanced vision and judgement, and a meticulous mind for the smallest detail of any work or scheme, large or small, which he took up. Moreover, he excelled as a carpenter and as a motor-car technician. Of physique ideal for his work, he was full surgeon to the Royal Devon and Exeter Hospital for twenty-one years, for the last twelve of which he was the senior; and from the first set a standard of study and technique worthy for all to aim at, and not only maintained that standard to the end, but was for ever ceaselessly seeking to improve it. His active and eager mind was always out for the best of the latest methods. His approach to a case was that of a physician, and every side of a problem received full consideration before a decision was reached. A man of very few words, he yet, by his manifest kindness and understanding, held the fullest confidence of his patients of all classes, among whom must be included an exceptionally large number of doctors and their families; and, though not rich, he was notoriously, indeed sometimes embarrassingly, indifferent to the financial reward of his labours.

Mr. Dyball acted as honorary secretary of the Section of Surgery at the British Medical Association's meeting at Exeter in 1907. Early during the war he was given a commission in the R.A.M.C. (T.), but, being indispensable at home, was seconded to take charge of No. 5 Section of Exeter War Hospitals, a hospital of over 200 beds, the whole of the surgical work of which he carried out; in addition to his work at the Royal Devon and Exeter Hospital and a large private practice. But the outstanding public fruit of his prevision was the establishment of the orthopaedic organization throughout Devon, centred at the Princess Elizabeth Orthopaedic Hospital; and by general consent the whole credit for this work must be equally divided between him and, on the lay side, Dame Georgiana Buller. And, having envisaged it, Dyball characteristically designed it, not only as to general

layout but down to the smallest detail, and plunged whole-heartedly into every aspect of the institution of this new service, from the active surgical work of which he at once retired when it became possible to appoint a whole-time specialist in this branch. His creative skill found scarcely less opportunity for full play in the many improvements and large additions to the Royal Devon and Exeter Hospital since the war, some long accomplished and others now under construction or as yet only designed in detail which he was destined not to see, but all of which bear the manifest imprint of his influence and skill, as all engaged with him in the committee work would readily testify.

The colleague to whom we are indebted for this memoir adds: In Dyball the profession has lost a man who was generally beloved and who combined powers of independent and original practical thought with manual dexterity, and it is not too much to say that the whole county mourns his loss.

THE LATE MR. BERNARD CRIDLAND

D. S. S. writes: As one of the number of residents whose privilege it has been from time to time to work with and for Mr. Bernard Cridland, I would like to add to the many that you will have received my appreciation of his unfailing kindness to his juniors. In particular he maintained an interest in the future of the many younger members of the specialty to whom in their hospital days he so freely imparted information and help, and encouragement to emulate his operative skill. Though he set himself and his residents a high standard of perfection, he was more than charitable to one's constant failures to attain it. His hospitality, generosity, and courtesy will be long remembered and appreciated by all who had the opportunity of personal contact with him, and his influence will continue to be felt for many years. Since leaving his immediate supervision I have had many occasions to be grateful to him for his considered opinions on matters of every kind, and his juniors have lost not only a revered and respected chief, but a very good friend.

THE LATE SIR JAMES FOWLER

Dr. REGINALD HEARN writes: I feel that I may have something of interest to add to your obituary notice of that gracious personality the late Sir James Fowler. He and I, since my election in 1924, were the only medical members of the Beefsteak Club. He loved the place, and not only visited it in former years, as you correctly state, but continued to dine there with the utmost regularity until the latter part of 1933. He then told me with uncanny accuracy that he had only a short time in which to live, that this was his last visit, and that he intended at the end of the year to resign from the club after a membership of nearly fifty years. At the Beefsteak everyone dines at the same table, and conversation is general. In the vast majority of cases its members are prominent and distinguished in most varying walks of life; but in our profession we all know the stupid manner in which even the most intelligent layman will occasionally attempt to discuss the technical side of medicine with a doctor. Fowler hated it, and the whimsical, kindly, albeit sometimes cutting manner in which he repelled all such attempts was a joy to behold. This side of him only appeared when laymen were present. If, as often happened, we were alone together, he would delight in giving me the benefit of his rich professional experience, and I only hope that I may have benefited from it. Such occasions would be late in the evening after other members had left, for he was always a late diner, and going early to bed did not appeal to him. His great friendship with his fellow member Lord Montagu was formed at the Beefsteak, and the associations with Beaulieu which resulted from it were the delight of his later years. His general culture was wide and profound, which rendered his conversation fascinating. About him there seemed to cling the atmosphere of the more spacious and leisured age

which he represented, and in his passing we have to mourn one who was, in the truest sense of the term, a "scholar-physician" of a rare and splendid type.

Dr. ARTHUR F. PERIGAL, New Barnet, writes: I was fortunate to be one of Kingston Fowler's house-physicians at Brompton thirty-four years ago, and learned much by his meticulous and thorough examination of patients and his accurate deductions therefrom, albeit street noises were often distracting, causing him to remark upon the difficulty of auscultating to the accompaniment of popular tunes of the day! He had a charming and genial manner which made consultations with him a pleasure, and his kindness I have never forgotten.

Dr. DAVID CHARLES LLOYD, the tuberculosis officer for Cardiganshire under the Welsh National Memorial Association, died at his home in Lampeter on June 26th after only a day's illness. A native of Corwen, North Wales, and a student at Guy's Hospital, after qualifying in 1911 he went into general practice at Llanfairfechan, where he remained for three years. His knowledge of the work and the trials and difficulties of general practitioners stood him in good stead later on in establishing cordial relations with his colleagues in practice. The Welsh National Memorial Association, for the prevention, treatment, and abolition of tuberculosis in Wales, was incorporated by Royal Charter in 1912. To an ardent Welshman fresh from hospital work this national effort to stamp out a national scourge made an immense appeal. From quite an early date Lloyd was co-operating with the tuberculosis physician for his area and consulting with him on cases met with in his own practice. From this interest grew what was to become a life-long passion—the fight against tuberculosis. In 1915 he entered into the service of the Memorial Association and came under the stimulating influence of Dr. Marcus Paterson, and learnt to apply the basic principles of the treatment of tuberculosis laid down by the latter. After various appointments under the association, Dr. Lloyd became a tuberculosis physician for Cardiganshire, and after his eighteen years in the county it is difficult to think of Cardiganshire without thinking of him. Those who have been engaged in tuberculosis work realize the long uphill fight which took place in the early days before the subject received adequate recognition; the long struggle against prejudice, ignorance, and superstition. The work was exacting and the discouragements many, and those devoting themselves to it were of the nature of pioneers. In a pioneer we expect ability allied to fearlessness, tenacity, and self-sacrifice. The pioneer must live with and for his work. In medicine we expect to find in addition sympathy and understanding. The work is important, but must never be allowed to submerge the patient. Dr. Lloyd had all these qualities combined with a receptive mind, always open to new knowledge, and ever ready to apply what was useful to the treatment of his patients. He was generous in giving credit to others, and, although disclaiming any credit to himself, had the satisfaction of seeing the death rate in his own county fall from 157 to 66 in a period of twenty years. To his patients he was physician, counsellor, and friend, and in his dealings with them never forgot they had minds as well as bodies. He lived a full and strenuous life, and the manner of his going was such as he would have wished—to go when still actively engaged in the work he loved so much.

H. A. R.

We regret to announce the death, on July 15th, as the result of a motor accident, of Dr. ROBERT HERVE YELF of Norwich. Both his father, Dr. R. E. B. Yelf, now of Selsey and a past-president of the Oxford and Reading Branch of the B.M.A., and his grandfather, the late J. L. K. Yelf, were medical practitioners at Moreton-in-Marsh Gloucestershire. He was educated at Rossall School, served during the Great War as Lieutenant in the 24th Royal Lancashire Regiment, and was badly wounded. He studied for the medical profession at King's College Hospital, London, and, after qualifying in 1925, held resident posts at his own

at the Royal Waterloo Hospital for Children, and at St. Andrew's, Dollis Hill. About four years ago he entered into partnership with Dr. E. B. Hinde of Norwich, and became medical officer of the 4th Norfolk Territorial Regiment. He was on his way by road to join this battalion in camp at Roedean, near Brighton, when about 10 p.m. on July 14th he was involved in a collision with another car. He was taken to the Horley Cottage Hospital, where he died two hours later without recovering consciousness. He was buried at Church Norton, near Selsey, the C.O. of his regiment providing a bearer party and bugler to accord him the last honours. Dick Yelf was 36 years old and unmarried. He was keen on his work and games. He played Rugby football for his school and hospital, and was devoted to swimming and music. Above all, he had a great faculty for friendship, and many contemporaries at school and hospital and in the regiment will miss his cheery personality.

Dr. ELIZABETH GOULD BELL, who died recently at her residence, College Gardens, Belfast, was one of the first women medical graduates in Ireland, taking her degrees in the Royal University, Ireland, in 1893. Dr. Bell devoted most of her time to the welfare of children and women. She was honorary physician to the Women's Maternity Home and the Babies' Home, Belfast, and one of the medical officers appointed by the Belfast Corporation in connexion with their babies' clubs welfare scheme. Ill-health compelled her to resign the latter position some years ago. She was one of the keenest advocates in the pre-war movement for the extension of the franchise to women, and through this she became a close friend of Mrs. Pankhurst and her daughter and Lady Betty Balfour. Dr. Bell married Dr. Hugh Fisher, who died some years later. There was one son of the marriage, Mr. Hugo Bell Fisher, who was a medical student at Queen's University when war broke out, and who died of wounds received when his battalion of the Munster Fusiliers was decimated at Passchendaele. His mother also volunteered for service in the campaign, and was in charge of a ward in the Malta Hospital.

The death took place on July 13th, in Dumfries and Galloway Royal Infirmary, of Dr. ROBERT GLOVER, a well-known surgeon in the Dumfries district. Dr. Glover, who was born in 1868 at Maxwelltown, took a medical course at Edinburgh University, and graduated M.B., Ch.B. there in 1907. After holding a resident appointment at Preston Royal Infirmary, and practising for a time at Manchester, he settled in Dumfries. Latterly, being in indifferent health, he gave up private practice to a large extent, and accepted the post of medical superintendent of Dumfries and Galloway Royal Infirmary. Dr. Glover has two brothers in the profession, Dr. T. A. Glover of Doncaster and Dr. J. A. Glover of Tadcaster.

Mr. JOHN FREDERICK JENNINGS, F.R.C.S., whose death we record, was born at Cardiff on August 7th, 1876, the son of John Jennings, a timber merchant. Educated at the Cardiff University, in Geneva, and privately, it was intended that he should enter the business of his father. He decided, however, that he was more suited for medicine than for a business career, and entered as a medical student at St. Bartholomew's Hospital. He took the M.R.C.S. in July, 1900, and was selected by the late Sir Henry Butlin to act as his house-surgeon. Sir Henry resigned in November, 1902, and the rest of Jennings' term of office was passed under William Bruce Clarke, who then became full surgeon. In 1903 Jennings was elected F.R.C.S., and was for a short time a demonstrator in the pathological laboratory at St. Bartholomew's Hospital, then under the control of Professor F. W. Andrewes. Jennings went into practice in Mayfair as soon as his term of office had expired, and quickly obtained a large circle of patients, who also became his friends. His sound knowledge of his profession, his absolutely fair tolerating his buoyant manner, his fluent knowledge of pharac, and his numerous good stories went far to ensure

this success. During the Great War he acted as surgeon specialist to the Queen Alexandra Military Hospital, and consulting physician to the Swedish Hospital and to the Michil Hospital at Queen's Gate. He married Gwendolin Thomas in 1906, who survives him, but without children. He died on July 5th at 11, John Street, Mayfair, and the funeral service took place at Golders Green, the service being taken by the Rev. Christopher Cheshire of Holy Trinity Church, Sloane Street. P.

Dr. FRANCIS EDWARD FORWARD died at Motttingham, London, S.E., on July 2nd, aged 67, after an illness of over eighteen months. He was born at Chard in Somerset in 1866, and was educated at Sherborne School. After studying medicine at St. Thomas's Hospital he qualified M.R.C.S., L.R.C.P. in 1889, and obtained the diploma of F.R.C.S.Eng. a year later. After serving as house-physician and ophthalmic house-surgeon at St. Thomas's he was appointed medical officer of the Holberton Hospital in Antigua, British West Indies, and held that position from 1891 until 1899, during which time he was made a justice of the peace and a member of the Legislative Council of the Leeward Islands, of which Antigua is the seat of government. He was then transferred to H.M. Home Department, and held various appointments under the Home Office until he retired in 1930. On his retirement he received the O.B.E. Dr. Forward leaves a widow and one son.

The Services

DEATHS IN THE SERVICES

Major-General George Bainbridge, Bombay Medical Service (ret.), died at Dawlish on July 6th, aged 89. He was born in August, 1844, the son of Frederick Bainbridge, surgeon, of Knaresborough, was educated at Leeds and at St. Mary's, and took the M.R.C.S. and L.R.C.P. diplomas and the L.S.A. in 1866; subsequently the M.R.C.P.Lond. and the M.D.Durh. in 1891. Entering the I.M.S. as assistant surgeon on April 1st, 1867, he became surgeon colonel on August 4th, 1896, and surgeon major-general on August 16th, 1897. His whole service was spent in the Bombay Presidency, and wholly in civil employ, except for the short period of a year after his promotion to administrative rank, when he held the post of deputy surgeon general of the Sind District. He held the civil surgeoncies, successively, of Dhulia and Satara, till, in 1878, he was appointed ophthalmic surgeon and professor of ophthalmic surgery in the Grant Medical College, Bombay. He always had a particular bent for ophthalmic work, and about 1888, when he was at Karachi, he was specially detailed to operate on the Meer of Hyderabad-Sind for double cataract. After sick leave in 1880, he was again appointed civil surgeon of Satara, and afterwards of Karachi, and held the latter post till his promotion. In August, 1897, he became surgeon general with the Government of Bombay, and held that appointment for five years, till his retirement on October 30th, 1902. During his tenure of office plague was at its height in Bombay; he did useful and responsible work as a member of the Plague Commission, and was the author of a *Report on Plague in Sind in 1896-7*. General Bainbridge had been a member of the British Medical Association for sixty-five years. He never allowed himself much relaxation from his duties, but as a young man he was extremely keen on big game shooting and riding, and had many fine trophies. After retirement he led a quiet, studious life. He was an omnivorous reader of books on science, politics, sport, and travel, and also current medical literature. He retained his health and memory almost to the end, and had a richly stored mind.

Colonel Jonas William Leake, C.M.G., late R.A.M.C., died at Belmont, Surrey, early in July, aged 60. He was born on August 8th, 1873, the son of the late Surgeon J. R. Leake of the 80th Foot, was educated at St. Edmund's College, and at Charing Cross Hospital, and took the M.R.C.S., L.R.C.P.Lond. in 1897, and the D.P.H. of the London Colleges in 1906. Entering the R.A.M.C. as lieutenant on January 28th, 1899, he became lieutenant-colonel in the long war promotion list of March 1st, 1915, and colonel on December 20th, 1923, retiring in 1926. He served throughout the South African War of 1899-1902, when he took part in the relief of Ladysmith, including the actions of Spion Kop, Vaal Krantz, Tugela Heights, Pieter's Hill,

and Laing's Nek, also in operations in Natal, the Orange River Colony, Cape Colony, and the Transvaal, and received the Queen's medal with six clasps and the King's medal with two clasps. In the war of 1914-18 he was mentioned in dispatches in the *London Gazette* of February 17th, 1915, and January 1st, 1916, and received the C.M.G. In 1890 he married Mabel Mary, daughter of Mr. W. Morgan, and had three daughters.

Surgeon Commander Reginald Lyon, R.N. (ret.), died suddenly at Dundee on July 10th, aged 44. He was the second son of the late Andrew Thomson Lyon of Glenogill, and was educated at Glasgow, where he graduated M.B., Ch.B. in 1915. After qualifying he entered the Navy, became surgeon lieutenant-commander on July 16th, 1921, and retired on reaching the rank of surgeon commander six years later. He served in the war of 1914-18, receiving the medal.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

This week the House of Commons discussed the Estimates for the Departments of Mines and Education, and also for Scottish administration, including the Department of Health. Progress was made with the Cattle Industry (Emergency Provisions) Resolution and Bill.

The House of Lords was in Committee on the Traffic Bill.

In the House of Lords, on July 12th, the Royal Assent was given to the Finance Act, the Adoption of Children (Workmen's Compensation) Act, the Prince of Wales's Hospital (Plymouth) Act, and to other measures.

On July 16th the Ministry of Health and Provisional Order Confirmation (South Middlesex and Richmond Joint Hospital District) Bill was read the third time by the House of Commons.

The Health and Housing Committee of Conservative members of Parliament, with Sir Francis Fremantle in the chair, heard addresses on July 18th on the plan of the Amulree Committee for establishing a National Housing Trust.

In the House of Lords, on July 17th, the Ministry of Health Provisional Order Confirmation (South Middlesex and Richmond Joint Hospital District) Bill was received from the House of Commons with an amendment, with which the Lords agreed.

The parliamentary recess is expected to begin about August 2nd.

Milk Debate in the House of Lords

The second reading of the Milk Bill was moved in the House of Lords by Earl DE LA WARR on July 12th; the Bill has already passed the House of Commons. Earl De La Warr said the Bill attempted to increase the production of milk in the United Kingdom. The first method of doing this was by cleaning up the herds from tuberculosis, and the provisions for this were contained in Clauses 9 and 10. The second method, a scheme of milk publicity, included spending £500,000 a year for the next two years largely on increasing the supply of milk in schools for school children. So that the Government and the farmers could co-operate in a campaign for cleaning up the herds from tuberculosis there was to be a grant of £750,000 from the Exchequer over four years. Attested herds would be those completely free from tuberculosis. It would be necessary for a producer to have two successful tests, with a six months' interval, to show the herd to be completely free. As soon as this was done, the producer could apply to the Ministry for an official test at the expense of the Government. If the latter was satisfactory he would be able to enter the scheme for attested herds, and would receive on his milk a premium probably amounting to 1d. a gallon. Discussions were in progress with the Certified and Grade "A" (T.T.) producers whether they should come into the scheme. Another grade of herds, the accredited herds, would be administered by the Milk Marketing Board. These would have to submit twice a year to full clinical examination, and their produce would

have to attain to the Grade "A" standard. There would be a premium of 1d. per gallon from the funds of the Milk Marketing Board. Clause 11 dealt with publicity for milk. It was not intended that much of the £500,000 should be spent on advertising; the Government would like to see the money spent on reducing the price of milk in schools. At present over 800,000 children were paying 1d. per day for a third of a pint. The Government had nearly completed a scheme whereby these children would obtain their milk for 1d. a day.

Lord MARLEY said that what the country suffered from was not over-production of milk but under-consumption. He asked whether the Government was going to use public money to secure an increased consumption of the rotten milk now being distributed or whether it would wait until the milk was really good before increasing its consumption by school children. Lord De La Warr had told the House that the milk was bad. Lord DE LA WARR replied that he had not said that. Lord MARLEY, continuing, said the facts about the quality of milk had been given by other peers, and had not been controverted. The report of the Committee on Cattle Diseases showed Great Britain had the highest percentage in the world of tuberculosis-infected herds, being at least 40 per cent. of cows in dairy herds compared with a percentage of 4 in the United States and approximately 12 in Canada. The Committee had said that neglect of adequate precautions against increase of the disease made it improbable that tuberculosis was diminishing in British herds. Lord Marley cited a speech by Lord Moynihan at the Mansion House to the effect that 59 per cent. of cases of glandular enlargement and 35 per cent. of bone and joint disease in England and Wales were due to the drinking of contaminated milk, and in Scotland the proportions were far worse. This was the milk which Lord De La Warr was now going to advertise to be increasingly consumed in this country. There was to be a campaign, towards which the Government would contribute £750,000, to ensure the proper inspection of tuberculous herds. Dr. Elliot had stated in the House of Commons that this campaign would take a long time. Lord Marley asked if Parliament could receive a report every six months of the progress of the scheme. He noted that the Bill also contained proposals to pay premiums for pure milk; this was a good preliminary measure. He had seen it carried into effect in a Midland dairying combine which had its centre in Birmingham. A premium was paid there for each gallon of milk that came up to a certain bacilli count test, and had more than a certain percentage of fat-content. The result was that the number of bacilli per cubic centimetre had been enormously reduced and the fat-content had improved. Lord Marley thought the only way Parliament could ensure pure milk for the nation was by preventing the sale of untested milk by retailers. He suggested that retailers should, meanwhile, be compelled to put up notices in their shops to say that they were selling untested milk which might very well be contaminated.

Medical Profession Criticized

Lord CRANWORTH said the medical profession urged on Parliament the duty of cleaning up the milk supply, and pointed to impurities which existed in a very small section of the milk produced. He criticized the profession because it did not also speak of the unclean production of milk over-seas—for instance, in Switzerland and Denmark—where cows went indoors in the early autumn and never came out again until the spring. Parliament had no help from the medical profession in drawing attention to the import of skimmed milk into the United Kingdom, although analysis showed that practically the whole value lay in the sugar in the condensed skimmed milk. That was the only form of milk many poor children ever received. The harm to those children by drinking condensed skimmed milk was greater than if they drank the dirtiest milk produced on any farm in this country. It was quite true that possibly 40 per cent. of cows in country were reactors. Probably 80 per cent. of cows in the city were reactors. Probably 80 per cent. of these cows were discovered by careful and regular examinations. The scheme now being considered for accredited herds was admirable, but a still more important recommendation of the Animal Diseases Committee was that all herds should be subject to periodical clinical examination. Accredited herds would consist at first of those which their owners were sure were clean at the start. If these owners possessed any

doubtful cows they would hand them over to neighbours before clinical examination. He asked the Government to consider what the expense of the scheme would be. The number of reactors in certain parts of the United States had been reduced in ten years by about 60 per cent. The cost of that was 150,000,000 dollars. He asked the Government also to consider the reliability of the test. The present method was a double intradermal test. Any peers who possessed herds knew from experience how unreliable these tests were at present, and how an animal would prove one day to be a reactor and a week later not to be one. He also asked the House to allow for the strides made by scientific knowledge. A book had just been published called *Spahlinger contra Tuberculosis*. This described the course of Spahlinger's experiments in Switzerland and Norfolk, which were successful. The Government of Northern Ireland held an inquiry, and on December 17th, 1932, published a report of an official demonstration in Belfast, which showed that 100 per cent. of the calves immunized by Spahlinger's vaccine had resisted an infection of tuberculosis which proved fatal to non-vaccinated calves in a few weeks. Medical men might have reasons to prove that what was stated in this book was not true, but it was full of names of the highest repute, and deserved the attention not only of the Minister of Agriculture but also of the Ministry of Health.

Necessity for Standardized Tuberculin

Viscount ASTOR said there was general agreement that some milk was unsatisfactory and even dangerous, but it was easy to over-emphasize the consequent danger to children. Of the cows reacting to the tuberculin test only 22 per cent. gave tuberculous milk, and of the human tuberculous population only 5 per cent. suffered from bovine tuberculosis. The deaths from non-pulmonary tuberculosis in 1911 were 14,600. Last year those deaths dropped to 5,400. That indicated a decided improvement in the quality of the milk available for children. If they were to get tubercle-free herds and increase the number of tubercle-free cows a reliable test was vital. They needed reliable tuberculin, and also veterinary surgeons qualified by experience to carry out this difficult and delicate test. The potency or strength of all tuberculin used must be adequate and the same. He cited a memorandum by the Tuberculin Committee of the Medical Research Council emphasizing the need for this, and the fact that all tuberculin on the market was not of equal potency. Confidence would not be established in the minds of the public or of the farmers without reliability in the tuberculin used. Either the Government should standardize tuberculin or, if that were impossible owing to administrative difficulties, it should restrict the use of tuberculin for licensed herds to specified brands of known and adequate potency. Lord De La Warr should consult his experts to learn whether more frequent testing than twice a year would be desirable, particularly when a cow was brought into the herd. Lord ROWALLAN said the standardization of tuberculin had been before the medical profession as a goal for many years, and he hoped Lord De La Warr would do something to ensure this. If any large scheme of free testing were introduced in the United Kingdom there would not be sufficient experienced veterinary officers to carry it out, results would be anomalous, and years would be required to overcome the ill effects. Referring to Spahlinger's experiments, Lord Rowallan asked if the presence of tuberculosis could be detected by the ordinary means after injection. The use of B.C.G. vaccine in inoculation in Great Britain had been discredited because, after inoculation, the animal became a permanent reactor to the tuberculin test. He was not sure whether Spahlinger's inoculation would not prevent the testing of the inoculated animal later by the tuberculin test. He challenged Lord Marley's statement that Scotland was backward in the cleanliness of its milk. He called attention to an experiment made not long ago in the West of Scotland to test raw as against pasteurized milk. Milk from non-reacting cows was divided, half being pasteurized and half given raw to calves. At the end of a year each of the calves which had been fed from sooty udders on pasteurized milk reacted to tuberculin, and a large number of those which had been fed on raw milk. Lord De La Warr said that at present the English certified Grade "A" milk producers were not under the Milk Board. It would be dangerous if they were left out of the scheme

adumbrated by the Bill, but new regulations might be disastrous just when this milk was required. An enormous amount of unestablished theory about tuberculosis ought to be scientifically checked before drastic alterations were made.

Replying to the debate, Lord De La WARR said that for the final test of herds only standardized tuberculin would be used. It was hoped that when future legislation made possible the control of certain therapeutic substances tuberculin would be one of the first substances to be dealt with. Milk sold in schools would be approved by the medical officer of health, and also by the school medical officer if he were not the same man. Lord Marley's charge that the Government was going to force dirty milk into the schools was made without inquiry into the facts. The milk from many areas and many farms could be improved, but it was unnecessary to libel the whole commodity as Lord Marley had done. Lord MARLEY said he had only contended that milk was a bad and dangerous drink unless produced in clean conditions from herds which were properly tuberculin-tested. Lord Moynihan had said he would rather put a barrel of gunpowder in his nursery than a glass of milk, but that was an exaggeration. Lord De La WARR, in conclusion, said this Bill was a first step. It might be desirable eventually to work out a scheme for supplying completely free milk to schools.

The Bill was read a second time without a division.

Restoration of Economy Cuts

Supplementary Estimates issued on July 12th include £1,700 to meet the extra cost of the restoration, from July 1st, 1934, of half the abatements made from the remuneration of part-time medical and dental referees and consultants under the Ministry of Health in 1931. The Ministry of Health Supplementary Estimate also includes provision of an appropriation-in-aid of £301,300. The restoration, from July 1st, 1934, of one-half the abatements from the remuneration of insurance doctors and chemists involves this reduction in the amount to be applied toward expenses of administration of national health insurance under the National Economy (National Health Insurance) Order, 1931. The similar appropriation-in-aid for the Department of Health for Scotland is £34,200. A new estimate of £1,556,500 for services under the Milk Bill, when passed, includes £6,500 for payments in the year ending March 31st, 1935, after consultation with the Minister of Health, for securing as far as practicable that the milk supplied for human consumption in England and Wales is pure and free from the infection of any disease. The similar Estimate for Scotland is £12,000.

Poor Relief in Scotland

The Poor Law (Scotland) Bill was read a second time by the House of Lords on July 12th. In moving it, Lord STRATHCONA AND MOUNT ROYAL said Clause 8 aimed at the break-up of the general or mixed poorhouse. Separate accommodation was desired for the sick, the children, and the aged and infirm. Clause 10 gave specific statutory authority for the boarding-out of children, which had long been a feature of Poor Law administration in Scotland. Clause 11 proposed to incorporate the provision of the National Health Insurance Act, 1924, disregarding the first 7s. 6d. of health insurance benefit when calculating the means of an applicant for poor relief. It was also proposed that the first 5s. of sick pay from a friendly society or trade union should be disregarded, as in England, and the first £1 of a wound or disability pension.

Tarring of Roads and Cancer

On July 16th Mr. SHAKESPEARE, replying to Mr. Hepworth, said that investigations into the theory that the tarring of roads was possibly connected with the existence of cancer were already being undertaken in various quarters, and any available information on the subject would receive careful consideration by the Departmental Committee on Cancer. The Minister of Health was advised, however, that prolonged inquiries would be necessary before any definite conclusions could be reached.

perpetuated this injustice on the motoring public they were in some danger of raising insurance premiums, especially on the lighter class of vehicles, to a point which many motorists could not afford to pay. The EARL OF PLYMOUTH said that the amendment was open to a number of objections, and he could not accept it. Lord SOMERLEYTON said that the hospitals were not built for motorists, but for the sick poor of the neighbourhood. The hospitals found great difficulty in getting payment for the treatment of road accidents, and the total cost to hospitals of such accidents was about £230,000 a year. That sum spread over 2,000,000 motorists would not mean more than about 2s. 6d. each. He would, however, withdraw the amendment at this stage.

The amendment was withdrawn.

(Further consideration of the Bill in committee was adjourned until July 19th.)

A Plea for More Nursery Schools

The House of Commons in committee, on July 17th, discussed the vote for the Board of Education, when Mr. F. WELSH advocated more nursery schools. He said that another 250 were required. They would cost £2,000,000 to build, but it would be a good investment. Miss RATHBONE expressed the view that the medical tests in the schools for malnutrition were not satisfactory. Mr. RAMSBOTHAM, in reply, said that Miss Rathbone would do much more good to the cause she had at heart if she would try to impress on all concerned a better understanding of the diet provided in the home.

Committee on Rehousing.—On July 9th Mr. SHAKESPEARE informed Mr. Chorlton that the Minister of Health had appointed a committee to advise on buildings required in rehousing after slum clearance. Sir George Humphreys would be chairman, and Mr. A. Zaiman, whose services had been lent by the Department of Scientific and Industrial Research, would be secretary of the committee.

Successor to Dame Janet Campbell.—Replying, on July 12th, to Mr. T. Smith regarding the post left vacant by the resignation of Dame Janet Campbell, Sir HILTON YOUNG stated he had placed in charge of the maternity and child welfare work a most experienced woman medical officer, who had previously acted as deputy to Dame Janet Campbell. She was directly responsible to the Chief Medical Officer, and received additional remuneration for her increased responsibilities. Another woman medical officer would shortly be added to the staff engaged on this important branch of the work of the medical staff. Replying to Sir Francis Fremantle, Sir Hilton Young said the title of the office was subject to an alteration, which he would explain if required.

Reports of School Medical Officers.—Mr. RAMSBOTHAM told Mr. Tom Smith, on July 12th, that the Board of Education had not recommended that the annual reports of school medical officers should be abridged as much as possible, but that repetitive matter should be abridged so as to enable fuller information to be given on new developments or special investigations.

Notes in Brief

The numbers of new houses completed and under construction under the Housing Act, 1930, at March 31st last were 17,569 and 10,512 respectively. The number of houses demolished under the same Act at the same date was 19,840.

To accelerate housing in Scotland the Secretary of State has appointed additional administrative and technical officers charged with the duty of visiting and assisting local authorities in preparing and carrying out housing schemes. Their headquarters will be the Department of Health, Edinburgh.

The Government's proposals for the encouragement of beef production in the United Kingdom include the establishment of a permanent Commission, an essential function of which will be to co-operate in a reform of slaughtering systems with a view to greater economy and efficiency.

Mr. Shakespeare states that in the five years ended last March nearly £262,000 was sanctioned for the purchase and lay-out of lands for recreation in rural areas, and much other land had been provided by gift or otherwise.

Medical News

A post-graduate course will be held at St. Thomas's Hospital from September 24th to 28th. The course includes lectures and demonstrations from 10 a.m. to 12.15 p.m.; ward rounds from 2 p.m. to 4 p.m.; and lectures from 4.30 p.m. to 5.30 p.m., each day. The fee for the course is £2 2s. The old students' dinner will be held at Dorchester Hotel on Friday, September 28th.

The next monthly clinical meeting for medical practitioners will be given at the Hospital for Epilepsy and Paralysis, Maida Vale, W.9, on Thursday, July 26th, at 3 o'clock, when Dr. Anthony Feiling will demonstrate. Tea will be provided, and those intending to be present are asked to send a card to the secretary beforehand.

A course in psychology for public school masters, matrons, and others concerned with residential students, will be held at the Institute of Medical Psychology, Malet Place, W.C.1, from August 1st to 11th. The special problems of young people of all ages up to 19 years will be discussed, and practical demonstrations given at a children's clinic. The scheme has been organized by the Child Guidance Council.

The Fellowship of Medicine (1, Wimpole Street, W.) has arranged lecture-demonstrations at 11, Chandos Street, W., on July 24th and 31st, at 2.30 p.m. Also demonstrations at the National Temperance Hospital on August 11th, and at St. George-in-the-East Hospital from August 13th to 17th. All courses, demonstrations, etc., arranged by the Fellowship are open only to members. Particulars are given week by week in our *Supplement*, in the *Diary of Post-Graduate Courses*.

A medical congress on cider and apples was recently held in Paris, when papers on their dietetic and therapeutic value were read by Professor Porin of the medical school of Rouen, Dr. Legrain and Professor Labbé of Paris, and Dr. Motet of Angers.

A congress on *B. coli* infections and other intestinal infections and intoxications will be held at Châtell Guyon on September 23rd and 24th, when Dr. Heitz-Boyer will discuss the entero-renal syndrome, and Drs. Brulé and Garbau the effect of intestinal affections on the liver. Further information can be obtained from Dr. T. Balme, Châtell Guyon.

The sixth Congress for Therapeutical Paedagogy will be held from July 26th to 28th at the University of Munich, when the principal subject for discussion will be therapeutic paedagogy in the service of public health, inheritance, and education, when the chief speakers will be Drs. Wettstein, Pfandner, and Luxemburger. Further information can be obtained from the secretary, Erwin Lesch, Vossstrasse 12/2, Munich.

The Lord President of the Council has appointed Mr. E. Barnard, D.S.O., M.A., to be director of food investigation in the Department of Scientific and Industrial Research, and Mr. F. Kidd, M.A., D.Sc., to be superintendent of the Low Temperature Research Station, Cambridge. Both these posts were previously held by the late Sir William Hardy. Mr. Barnard has been assistant director of food investigation since 1931. He joined the Department of Scientific and Industrial Research on entering the Civil Service in 1919. Dr. Kidd, who has been on the staff of the Low Temperature Research Station since its establishment in 1922, has been engaged on food investigation work under the department since 1918.

Professor W. S. Lazarus-Barlow, chairman of the Appeal Committee of the British Empire Cancer Campaign, in his report to the Grand Council at its meeting held at the House of Lords on July 9th, reported that the proceeds of the Empire Day appeal will probably exceed £60,000. Of this sum £5,330 was the result of the wireless appeal on Whit Sunday evening by Lord Moynton of Leeds, and the balance from flag days, house-to-house collections, and various other efforts held in aid of the campaign on Empire Day in approximately 1,400 centres.

A notice by the University of London appears in our advertisement columns this week inviting applications for the University Chairs of Medicine and Pathology, both tenable at St. Bartholomew's Hospital Medical College. The salary for the chair of medicine is £2,000 a year; and for the chair of pathology £1,200 a year, together with £500 as pathologist to the hospital. Applications should reach the Academic Registrar, University of London, S.W.7, by September 18th.

A memorandum on the collection and storage of rainwater for domestic water supplies (Memo. 183W, H.M. Stationery Office, 1d.) has been prepared by the Ministry of Health. Experience of the drought has again emphasized the serious neglect in many parts of the country, of any attempt to make prudent use of rainwater for this purpose, and has also indicated the desirability of spreading more information of necessary measures. With a comparatively small expenditure rainwater can be conserved so as to provide generally a sufficient reserve for domestic purposes, not only in areas where other sources of supply are not available, but in areas where there are such sources but the cost of rendering them available is very high.

The council of Epsom College, at its meeting on July 11th, awarded the vacant "France" pension of £30 a year, together with a bonus of £12 a year, to Dr. John Henry Chaldecott.

The issue of *Paris Médical* for June 16th is devoted to bone and joint surgery.

The issue for July 7th of the *Nederlandsch Tijdschrift voor Geneeskunde*, the organ of the Dutch Association for the Advancement of Medicine, contains a sympathetic obituary notice of the late Prince Consort of the Netherlands, who was president of the Dutch Red Cross Society for twenty-five years.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

Treatment of Raynaud's Disease

Lieut.-Colonel L. B. WARD, late A.M.S. (Upper Colwyn Bay, North Wales), writes: I would feel very grateful if any of your readers could suggest further treatment for a case of Raynaud's disease beyond what is usually given in textbooks, which consists usually of warmth and galvanism.

Deafness After Opothary

"M. M. S." inquires whether there is any evidence that insulin or thyroid extract causes deafness, or at any rate diminishes the acuity of hearing.

House Flies

"B. W. L." in reply to "G. L." writes: As I have had an identical experience both in England and in Africa I may be able to suggest a cause and permanent lethal cure. I have lived in a country house with nearly as many windows as "C. L." mentions, and for twice as many years. One window has always been chosen as a promenade for flies of all sizes: in one corner of this window a large fly-catching spider has constructed a domicile. Hundreds of flies are constantly being killed by this spider. As flies attract other flies, this window is never cleaned, but some of the dead flies are constantly removed. This window keeps the flies away from the larder and the other windows, which are kept clean and unattractive to flies. My wife, who is a naturalist, would not have the large spider, or any of the accessory spiders, removed on any account. We do not find it necessary to wage chemical warfare as "G. L." has done; we leave Nature to take her course without undue interference. It is useless to take windows out of their frames, as "G. L." has done, in order to find the breeding places. Perhaps there are horses near his house. He must look for the breeding places in manure or refuse, and these probably will not be far away. By all means wage war with "flit," etc., on other places, but not on a window garrisoned by spiders. As far as I know the fly-catching spiders never do harm to food, but flies can convey the most pathogenic bacteria known to man. Probably "G. L." will find Nature's remedy far more efficacious than chemicals. I have always found spiders far more efficient at killing flies than pampered cats at killing mice.

Exercises for Lumbago

Dr. OLIVER HEATH (London) writes in reply to the inquiry by "W. H. T." (*Journal*, June 30th, p. 1195): The discussion "W. H. T." is trying to remember may be that published on fibrositis in the *Proceedings* of the Royal Society of Medicine (vol. xix, Parts 1 and 2 (joint discussions), p. 30), and reported in the *British Medical Journal* (1925, i, 509). In the first reference (p. 32) I described my treatment of one acute attack three days after a gumboil, and of a second acute attack two days after an overdose intravenous inoculation of *B. typhosus* vaccine. The treatment evolved from these personal experiences consisted in frequent slow bending forward as if to pick up an object from the ground, just so far as and no further than the point where pain commences, followed by slow recovery to the upright position. With each repetition of the bending the movement becomes easier and pain less. For twenty-four years now, since the first severe attack of fever, I have used this exercise successfully to ward off numerous threatened attacks of lumbago. An alternative, necessitating help of another, is massage applied scientifically on the same principle just to the point of causing pain.

Income Tax

Assessment of New House

"M. B." has had a new house built and moved into it on completion on March 24th, 1933. It has been assessed to income tax at £53 10s. net. When and for what periods will tax be payable?

* It is probable that the authorities will ignore the few days prior to April 5th, 1934, in which case tax will first become payable, as for the financial year 1934-5, on January 1st, 1935. Income tax on property is chargeable on the current year's basis.

Schedule A Assessment

"A. M. R." has a house of which the gross value for rating purposes is taken as £140, and the net rateable value as £113. What should be the corresponding Schedule A assessment?

* £140 gross, less the usual statutory allowance for repairs; if the gross Schedule A assessment were taken as £113 there would, in effect, be a double allowance for the cost of maintenance.

Assistant becoming Partner

"G. T." has been an assistant, and is going into partnership with his principal on July 1st, 1934. The practice has been assessed on the cash basis, and the change is not likely to affect materially the gross income of the practice. Should the practice be assessed as a continuing concern?

* Yes, undoubtedly—in that event the firm's liability for the whole of 1934-5 will be assessed on the net profits

of the practice for 1933, when "G. T." was a paid assistant and the profits reduced by payment of his salary and car allowance; obviously the division of an assessment so reduced between the two partners will benefit both. In addition, the same advantage will apply to June 30th, 1934, and therefore will affect half the assessment for 1935-6. This does not necessarily mean that the inspector of taxes will agree to the continuance of the cash basis, but we see no reason why he should object to that course. With regard to "G. T.'s" car depreciation claim, there is no need to have the car valued as at July 1st, 1934; the value as at that date can be calculated on a 20 per cent. written-down basis.

General Household Expenses

"J. S. T." states that in the town where he lives the usual professional allowance is one-third of the general household expenses, whereas in Edinburgh, so he is informed, the ratio is two-thirds. Is it worth while his appealing to the Commissioners?

* The higher ratio in the cases where two-thirds is given is probably due in part to the fact that high rents are paid for houses in a particular street or quarter—the ratio would obviously be higher in, say, Harley Street than in a small country town. In the latter case the remaining two-thirds of the rent might very well be only a fair equivalent for the private accommodation. We hesitate to advise an appeal to the Commissioners, though it might succeed, as such questions are often matters of general decision within the area for which they act.

LETTERS, NOTES, ETC.

Triplets Without Tears

Dr. GEOFFREY BARBER (Dunmow) writes: The subject of triplets is not infrequently evoked to cause laughter in the music-hall, but one would not imagine that it would actually keep the parturient mother in peals of mirth. Yet the following case combines the two unusual features of three live sons at one birth and childbirth regarded by the patient as an amusing event. On July 12th I went to the confinement of a primigravida 25 years old. Labour was four weeks early, the abdomen was about normal in size for full time, but very puzzling to diagnose on palpation. Examination per vaginam showed that there was first a foot and later a buttocks presentation. Strong pains began at 3 p.m. The patient was very cheerful, and encouraged the pains by pushing hard herself on the fundus, and exclaiming, "Come out of it, you little rascal!" At 7.55 p.m. her efforts were rewarded by the birth of a small male child, delivered easily as a breech with extended legs. There were no efforts at respiration until this was stimulated by a gentle stream of CO₂. The uterus remained much the same in size, and the mother would not believe the birth until shown the child, when she laughingly suggested the presence of a whole football team to follow. Renewed efforts on her part bore a second male child at 8.20, also a breech, and the only slightly diminished uterus now confirmed the presence of triplets. Her spirits rose even higher, and the nurse and I could not fail to join in her laughter when she abjured the third's delay with, "Come out of it, you little toad!" The patient's mother, who was waiting below, became so worried that she rushed up the stairs and burst into the room to know if she was losing her reason, and was only partly pacified at the unorthodoxy of the laughter. A third very feeble boy was born at 9.20, and at 9.35 the single placenta followed. It was oval, with three umbilical cords in a line about four inches apart. The patient then demanded a meal, and is making a very rapid recovery. The suggestion to name the triplets Tom, Dick, and Harry was eventually turned down in favour of Mark, Luke, and John. Mark and Luke flourish, but John was feeble from the first, and died twenty-four hours later. Their aggregate weight was little more than 11 lb., so that the ease of the labour was due to its being on the "instalment system."

Young's Rule

While the terms "Young's modulus" and "Young-Helmholtz theory" of colour vision are known to every student, the eponym "Young's rule" (for calculating the dosage of drugs suitable for children) is less familiar, and even those who are accustomed to its use may not necessarily associate it with Thomas Young. In the

current number of the *British Journal of Children's Diseases* (April-June), Dr. W. R. Bett quotes the original wording of the rule taken from Young's *Introduction of Medical Literature* (1813, p. 428). A brief account is given of the man, who is described as one of the most prodigious and baffling figures the world of science has ever seen. A precocious child, who before the age of 4 had read the Bible through twice and by the age of 14 knew a dozen languages, he became F.R.S. while still a medical student. As a doctor he was too scientific to become fashionable, and in his bedside manner he lacked the necessary air of assurance. The physician was eclipsed by the physicist, who was the author of the wave theory of light. As an Egyptologist he was a pioneer in deciphering hieroglyphics.

Anglo-American Continental Medical Society

A meeting of the Anglo-American Continental Medical Society and its friends in the British Medical Association will be held next week during the Bournemouth meeting. Members and guests will assemble at 12.30 p.m. on Friday, July 27th, and lunch together in the Pavilion. Those wishing to attend should communicate with Dr. Tom Williams before July 23rd, at the Royal Societies Club, St. James's Street, S.W.1.

Addendum

In the footnote to our review of Professor J. R. Blayney's *Dental Pharmacology and Therapeutics* (July 14th, p. 68) the name of the publisher—Henry Kimpton—was accidentally omitted.

Disclaimer

Dr. R. BLAIR GOULD (London, W.) writes: My attention has been drawn to an article concerning myself which appeared in two London daily newspapers last week. I wish to make it quite clear that this article was published without either my knowledge or consent.

"An Encyclopaedia of Sexual Knowledge"

Dr. NORMAN HAIRE (London, W.) writes: Anybody reading the report on page 94 of the *Journal* for July 11th of the prosecution concerning a pamphlet advertising the "Encyclopaedia of Sexual Knowledge," in which my name was mentioned, would be justified in inferring that I was responsible for the pamphlet. I should be obliged if you would publish this disclaimer. The facts are these. I was engaged to write some new chapters for the English edition of the book, which had already appeared in French, and to edit the English edition. Unfortunately I did not foresee that there would be any need for me to obtain an assurance that advertisements of the work should be subject to my approval. Ten thousand copies of the pamphlet were sent out before I ever saw it. As soon as I saw it I protested to the publisher that it was in bad taste, and that I objected to its being issued in connexion with a work under my editorship. I showed him copies of other pamphlets advertising books on sexual subjects issued by leading London publishers, and asked him to let me prepare a pamphlet along these lines to take the place of the one to which I objected. He refused to do so, and of course I had no way of compelling him. I had to be contented with his permission to ameliorate the pamphlet slightly, but my draft for the revised pamphlet, which I regarded as at any rate less objectionable than the original one, underwent alterations and was sent out without a proof being submitted to me. I protested again, and received an apology and an assurance that in future proofs of all new advertising matter would be sent to me. It was, however, too late for this to be of any use to me, and as a matter of fact the police authorities had already visited the firm's offices in connexion with the pamphlet. In your report the manager of the defendant company is stated to have said in court: "It was revised and extensively altered by the editor, Dr. Haire, before being sent out." If this is an accurate and full report of his statement it is the truth but not the whole truth, and conveys a false impression. As I was absent on an obstetric case in Scotland when the case was heard I was unfortunately not able to bring out these facts in court.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 40, 41, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 44.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, JULY 28th, 1934

British Medical Association

ONE HUNDRED AND SECOND ANNUAL MEETING, BOURNEMOUTH, 1934

President's Address

ON

CLIMATE AND HEALTH

BY

S. WATSON SMITH, M.D., F.R.C.P.Ed., M.R.C.P.Lond.

HONORARY PHYSICIAN, ROYAL VICTORIA AND WEST HANTS HOSPITAL, BOURNEMOUTH

My first words must be spoken to my colleagues, to give them my most humble and hearty thanks for the very great honour which they have this day shown me by bestowing on me, though unworthy, the highest dignity in their gift—that of President of the British Medical Association. My next pleasant duty is to offer a most cordial welcome to Bournemouth to all members and visitors in the name of the community, and more especially on behalf of your hosts, the members of the Bournemouth Division, and in the name of the whole body of medical men in this town and neighbourhood, and of the civic authorities of this county borough. All have helped unsparingly so that this meeting may prove as attractive and interesting as it will be illustrative of the liberal hospitality and eminence of Bournemouth; and for this whole-hearted and generous support I would, at the outset, voice the gratitude, not only of the Division, but of the Association.

We have in our midst colleagues from every part of these Islands, and delegates and visitors from all quarters of the British Empire, to whom, as to our distinguished guests from other countries, we would stretch forth the right hand of fellowship. Members of the great priesthood of Medicine, sons of Aesculapius, grandsons of Apollo, it is for us, hand in hand, strenuously to carry on the good work begun, built up, and strengthened, age by age, by our predecessors, who established a community of interests whereby life and work are dedicated to the art and science of Medicine and Surgery, the healing and relief of sick and suffering humanity ever being the first and constant aim of all followers of Galen and of Luke, the beloved physician. That this meeting may prove valuable in scientific discussion, and enjoyable by reason of the rest, change, and entertainment hereby afforded, and that each of you may return to his "lonely furrow," refreshed in body and mind, with a store of happy memories of old comradeship revived and new friendships made, is our most earnest wish.

Introductory Remarks

In 1891 (from July 28th to 31st), forty-three years ago, the fifty-ninth Annual Meeting was held in Bournemouth under the presidency of John Roberts Thomson, M.D.Ed., F.R.C.P., a Freeman of this county borough, whose eminent services to the Association are gratefully remembered. His name is indelibly impressed upon the

hospital and other benevolent institutions of this town, in which he wielded a great influence for good.

Nearly half a century has passed since then, but our minds are still occupied by questions akin to those raised by Dr. Roberts Thomson in his opening address, which he devoted to topics of local and general interest to the profession and to the State, bringing forward important health problems for public consideration. Although the awakening of the conscience of the State to a sense of its duties concerning the public health has, naturally, been gradual, if not slow, matters have now reached a stage when local authorities are in process of developing the national hospital scheme for providing for the sick and disabled of all classes. Such schemes, which have a national outlook, must, in the future, continue to take the direction of the prevention of disability and disease by compelling better living and working conditions and environment as well as that of their treatment and cure; and should first take into consideration the views and demands of the medical profession, the members of which, above all sections of the community, know the real needs of the health situation, whether local or national.

We know that now and in the future we can speak with no uncertain authority through the British Medical Association, which ought to be trusted to hold the scales fairly and impartially between the medical profession and the great public which it serves. In the century of its existence the ever-widening responsibility and the beneficent work of the Association stand in bold relief, an imperishable record, with the name of one illustrious member after another as milestones to mark the direction which the policy and work have taken. It is important now that we should continue, like the realists we are, to take the broad view as to the means of promoting the public health, and to see things actually as they are in an objective and scientific spirit as facts rather than as ideals. Accordingly, I propose to address you upon a subject which, always of interest to the profession, has become more so because it is capable of inclusion in the scheme of things as a practical, effective means of securing speedier recovery in many conditions of sickness, and of maintaining a higher general standard of health—namely, *Climate in its influence upon Health*.

This subject is as old as the art of medicine itself, having its origin in the dim, distant past, when the

practice of medicine was still in the hands of priests and religious orders. It has renewed importance, however, now that medical science can the better gauge the greater value of natural processes and environment in preventive and curative treatment. In talking of climate we shall not now define the term in the Johnsonian fashion as "a space upon the surface of the earth, measured from the equator to the polar circles"; or in the sense used by Sir Thomas Browne, when he wrote (1643) that he was born in the eighth climate; or again, in the popular meaning, as a region differing from another by reason of the temperature of the air. We shall define it in a broader sense, the meaning of the word, modified by time and necessity, indicating all the solar and terrestrial factors and influences which affect animal and vegetable life, including sunlight, atmospheric temperature, humidity and pressure, movement of the air, and prevailing winds—the factors which make our climate what it is; and, whilst including airs, also embracing waters and places. My remarks will also refer to the history of medical climatology and hydrology generally, and to the advisability of a more frequent use of British spas and health resorts.

In the choice of this subject it seemed to me that Bournemouth—fair as it is and so handsomely endowed by nature with beauty, grace, and charm—was a fitting place from which to speak. Alone of its kind and in the front rank of coastal health resorts, this area can claim to have restored health to invalids without number, and to have afforded rest and recreation for the many. Here, in Shakespeare's words, "The clymat's delicate, the ayre most sweet."

History of Medical Climatology

It is generally believed that, in the dawn of civilization, from the Middle East and from the shores of the Mediterranean, migrations of a people, mainly pastoral, took place in consequence of drought, a changed climate causing insufficient sustenance for tribes and flocks; and that thus knowledge spread eastward to China (2300 B.C.)—where even to-day a superstitious belief survives in the malign effects of climatic influences (Fung-Shui, literally wind and water)—to Libya and Egypt, whence to Greece, whither many Egyptian ideas made their way.

In Greece medical knowledge and practice flourished, chiefly in the Cnidos Peninsula and in Rhodes, the "rose-covered" island of the Aegean, where climate and physical influences seem to have been specially studied by the Greek philosophers; and in Cos and at Epidaurus, where the cult of Asklepios first appears. At these places health temples were founded—originally sacred shrines controlled by priests, their sites being chosen, not only from proximity to wells or hot springs, but also with a view to climatic salubrity. At these temples patients would drink the waters and bathe; the sick would flock thither to be treated by the presiding priests, just as cure and relief are now sought by pilgrimage to a holy well. The extent to which such "spas" were used is shown by the provision for entertainment at the health temple of Epidaurus of an open-air theatre capable of accommodating 12,000, and of a stadium for 20,000, spectators.

Pausanias, in his *Description of Greece*, mentions that whilst visiting Epidaurus he met a traveller from Sidon who declared his opinion that Apollo was the sunshine and Asklepios, his son, the fresh air. His worship as the god of healing was widely spread among the Greeks. His powers included even that of raising the dead. In his honour temples were built at many places, the most notable, that of Epidaurus, becoming the traditional seat of the cultus of the god, originally probably a form of sun-worship.

A salutary belief underlay the religion of Asklepios, that the maladies of the soul could be reached through the subtle gateways of the body; that, in the words of Walter Pater, "the body became but an handmaid of the soul." Thus the Greeks strove for perfect physical development, esteemed even above learning, their artists and philosophers employing their rare talents in the production of beauty and the search for truth. This idea of a select humanity was revealed in the Stoic plan of a world of the wise only, and in later Christian times found its expression in the conception of the Church as the only pathway to salvation for the human race.

The earliest surviving treatise on climatology is the chapter "Of Airs, Waters and Places" in the works of the immortal Hippocrates (460-370 B.C.), Father of Medicine, in which he deals with many questions of importance in public hygiene, giving numerous incidental references to the effects of weather and climate, winds, seasons, and localities. At this period Greek art and learning were at their zenith, instructing, edifying, and refining the world as they still ought to be doing. Hippocrates showed an extraordinary grasp of matters relating not only to climate and its causes, but also to the art of medicine; so much so that he founded a system of physic which embraced the results of actual observation in place of the superstitious and hypothesis till then obtaining, and dominated medical practice for many centuries.

In Rome, Scipio Africanus (died 129 B.C.) was one of the first to order the construction of baths. Later, in A.D. 21, thermae were opened by Vipsanius Agrippa, son-in-law of Augustus and grandfather of Caligula. It became customary to build a large bath over a natural hot spring, attaching to it several smaller baths. The neighbourhood of these became fashionable watering-places. Authors like Petronius and Martial throw much light on Roman bathing. The latter, taking note of the smaller details, describes a visit to the public and private bath each of which had its own regular customers. He watched the masseurs manipulating their patients, and a wily thief awaiting the right opportunity of pillaging from a bather's robe. It was usual for special bathing times to be allotted according to the rank and social status of the bather. Occasionally a bath would be used in common by the sexes; but such mixed bathing was forbidden by Trajan and by his successor Hadrian. In the reign of Justinian (A.D. 527-565), builder of St. Sophia, partitions were put up to separate the Byzantine sexes. During the Roman occupation of Britain spas and health resorts were founded, some of which, like Bath, "remain unto this day." London also had its medicinal wells and baths, the latter being early established there by the Romans.

In the obscure ages which succeeded the fall of the Western Empire the use of mineral springs dwindled, but after the Crusades (A.D. 1096-1272) warm baths again became fashionable, some associated with saints developing into centres of pilgrimage. During the fifteenth century the Greeks fled from fallen Constantinople, leaving the baths behind them for its conquerors, but taking with them into Italy their literature and learning, so that in the sixteenth century Hippocrates's work was again taken as an example to follow in the practice of medicine.

At length the immortal Harvey, by his work *De Motu Cordis* (1628), a record of investigation made by the experimental method, overturned the whole theory of the ancients, founding principles and the practice of physic on the scientific basis whereon they now stand. Thomas Sydenham (1675), Father of Clinical Medicine, "a rational man," laid great stress upon the seasonal variations of disease and the relation of disease-distribution to latitude.

At the end of the eighteenth and the beginning of the nineteenth century, the climatic dangers of travel were

demonstrated by the failure and destruction of the two expeditions into Africa of Mungo Park, himself a surgeon (see his *Travels*). But since the last few years of the nineteenth century a great improvement has taken place in tropical hygiene and sanitation. Many deadly climatic diseases are now known to be of parasitic origin, the constant warm climates of tropical regions rendering them the best breeding-ground for the organisms causing such diseases. Due to the direct effect of climate upon the parasites or their human or extra-human hosts, these diseases are fortunately absent from temperate and cold latitudes.

The second half of the nineteenth century was the scientific age, noted for its advances in medicine and surgery. Consequently, in the present century, many of the worst areas of the earth, where so many of our fellow-countrymen had been "climate-beaten" in the past, have been rendered wholesome and habitable for all races of mankind by pioneer work, done often under great risk to health and life, by colleagues of the profession. Such results have been brought about by the application of methods evolved by the original work of men like Patrick Manson, David Bruce, Ronald Ross, Andrew Balfour, and countless others, true pioneers of Empire, many of whom had passed on, forgotten by their own times, unhonoured and unsung; they constitute a splendid record of self-sacrificing labour on behalf of the civilization and well-being of mankind, and afford a demonstration of that spirit and genius, the proud heritage and hallmark of the profession of medicine.

In these days we seem to live in an age of transition, when each man's scientific knowledge and opportunities are expanding and increasing well-nigh beyond belief. Yet we find the same riddles presenting themselves for solution as in previous ages, merely changed in their scientific features. There must always be a demand for proof: a constant testing of our assumptions, investigations, and conclusions, to prove them true or false, and accordingly to receive or abandon them. The doctrines of science, many of which are now admittedly beyond dispute, at first confined to the scattered few, have been gradually gaining general acceptance. By the processes of trial and search for error they are constantly being clarified and corrected. Science, indeed, by its revelation of the established order of things, shares common ground with Religion.

Of Airs

"It is no wonder," wrote Clarendon (1647), "if England is generally thought secure, with the advantage of its own climate." There are those, indeed, who believe climate to be the most influential of the natural causes controlling the destinies of mankind. The observations of centuries on climate in its relation to the treatment of disease amply prove it to be one of the most valuable resources of the physician. The study of its phenomena, therefore—that is climatology—should have a corresponding value and importance.

Apart from secondary causes, biologically concerned, such as temperature, humidity, altitude, winds, soils, etc., the chief factor governing climate would seem to be insolation. The world-distribution of sunlight, and the resulting variations of temperature, appear to determine the differences between coastal, plain, and hill climates; as also such matters as diversity of colour types (the pale Eskimo, the fair-haired Scandinavian, the bronzed Arab, and the dusky negro of the Equator).

That, under Providence, the habitable globe depends for its existence on the sun, is a truism. The importance of sunlight to life and health cannot be over-estimated; indeed, it has become the fashion to assess the climatic value of a locality by the amount and intensity of the

ultra-violet light which it may receive in the course of the year. It is desirable, however, to impress upon the community that, whilst the sun is our greatest natural friend, he can, if regarded with disrespect or insolence (*ὕβρις*), become an equally potent foe. Here again it is the duty of the profession to counsel that moderation (the *σωφροσύνη*—*τὸ μὲν δὲν ἄγαν* of the Greeks) essential to the successful practice of any theory.

For an excessive exposure to light-rays, whether natural or artificial, not only entails fatigue and exhaustion, but also produces early degeneration of the skin, such as may be seen in sailors or in those who have lived for many years under tropical skies. The external ears, the lower half of the face, and the backs of the hands degenerate so as to exhibit a skin become thin, atrophied, and pigmented, upon which are grafted warty growths which, later, may assume a malignant form. Because of immediate and remote risks of over-radiation, caution should be advised in the use of the sun-bath and of artificial-light-baths. But, properly and prudently used, sunlight is of inestimable value. From the point of view of the man of business alone it has been proved that daylight and industrial efficiency are directly proportional, the one measuring the other. Such efficiency may also be encouraged by the creation of a so-called artificial climate, mechanically controlled as to temperature, humidity, and movement of air, promoting ventilation indoors, which should be applicable with advantage to the modern hospital or school, and to places of business or amusement.

But the sun is the ruler of all climates and determines temperature, the lessened or increased humidity of which has been used as a practical means of classifying climate as bracing and tonic, or sedative and relaxing; the former including busy places providing entertainment and excitement suitable for those needing bracing-up, an escape from routine-business, and change from sedentary work; the latter qualifying resorts favourable to rest and tranquillity, beneficial in nervous complaints, such as insomnia, in high blood pressure, or in disorders of the heart and circulation. There are, however, in the British Isles, all gradations between the two extremes. The term "relaxing," in reference to climate, I use in no derogatory sense such as enervating, but as synonymous with "sedative," indicating the quiet and repose desirable for the relief of these and other conditions of ill-health, and the maladies of old age, compelling a slowing-down of the pace, and encouraging restful days and nights, and a reduced metabolic rate.

The ignorance of the majority as to the climate, and so the health resort, best suited for them is notorious. A careful study of an invalid's general state of health and mental traits should be made before recommending the suitable place. Often a climate with frequent but moderate variations will prove beneficial, the more so if combined with a regular rhythm of rest, sleep, open-air exercise, and a properly supervised and dispensed diet; beautiful surroundings, changes of scene and of manner of life, all helping to encourage the invalid.

As our knowledge of applied climatology increases it will be found to be more and more of value as a factor in the successful treatment and diminution, or even elimination, of disease, the results of which, under differing climatic conditions in various parts of the world, and especially of the British Isles and Empire, will thus be tabulated and mapped out.

Of Waters

"To Epsom by eight o'clock," wrote Samuel Pepys, "to the well; where much company, and I drank the water: they did not, but I did drink four pints." From of old, the sick have benefited by medicinal water drinking

and bathing, the science of which was early to the fore in practical therapeutics. Interest in the subject has waxed and waned down the centuries, but, with widening knowledge of biochemistry, it should increase in importance.

Waters and baths are to be looked upon as factors accessory to climate, over which they may have a dominating therapeutic influence. Spas frequently specialize in the treatment of particular ailments, and should be classified not only according to type of climate but also upon their therapeutic indications. Mineral waters have their pharmacological action by virtue of their water-content, and of the various contained chemical and physical properties. Some have radio-activity, a property of high value, which is being increasingly utilized in treatment; a quality, however, so evanescent as to be speedily dissipated on exposure, so that such water must be used immediately when drawn.

Although from a medical standpoint doubt has been cast upon the value of the chemical properties of spa waters, this doubt has been dispelled with a more exact knowledge of biochemistry, which has led to a correct interpretation of their action, and so of their medical use. Up to the middle of the nineteenth century, when medical climatology again came into prominence, spa practice was purely empirical. Now every resort with a claim to therapeutic value should develop its own resources along scientific lines. For, in the words of Fortescue Fox, "Each spa has its own individuality," which should be fostered and guided aright by utility in treatment and by a reasonable limitation of its reputed curative value, so that a wise choice may be made by a physician for the benefit of his patient. A family resemblance among spas as to their medical value should not too lightly be taken for granted, for how often has it not been repeated that we do not treat diseases, but those who suffer from them; and so with spas as places of treatment, the aim of which should be to enhance and profit by the climatic and other advantages of the place. *Pars medicinae adjuvare non obstaré Naturam!*

Eliminatory Action of Spa Waters

Whatever the chemistry of medicinal waters their effects are several and complex. The eliminatory action, as carried out by Guelpa's abstinence-purgative and distoxicative method, described by him at the Annual Meeting in 1910, has proved of much value in certain autotoxic conditions needing alimentary rest and better excretion. Examples are to be found in over-alimentation and in any condition of auto-intoxication. The correction of faulty elimination and the "good-riddance" of waste products by starvation, coupled with the action of waters and baths upon the emunctories, is recognized as a chief method of treatment at all spas. It is of such proved value that it should not be lost sight of.

Replenary Action

There is another action of cardinal importance in health as well as in disease—namely, the replenary action; the regular replenishment of the circulation is a vital necessity, and the normal healthy intake of water should amount to three pints each day. Although volume of blood cannot yet be measured clinically, we know from observation that there is substantial variation in individual fluid capacity and tissue demand. Children of tender years, too young to help themselves, may, and often do, have so small a daily allowance as to suffer fluid starvation. In such we have seen a condition of collapse occur with empty surface vessels, distant, weak heart sounds, cyanosis, and sighing breathing, where quick recovery occurred with the filling up of vessels.

Similarly, the elderly may drink too little; but the fault of taking insufficient liquid during the twenty-four hours is more common among women, the resulting dehydration of tissue disposing them to calculous disease. Whereas dehydration, then, is harmful to the healthy, it has much direr consequences in illness.

Biochemical Action

This action of medicinal waters is perhaps of greater moment than hitherto generally believed. Calcium, iodine, bromine, iron, magnesia, salines, sulphur—all occur in readily assimilable form as a dilute solution of electrolyte in different spa waters, thereby providing a means of restoring to the individual what has been lost by dysfunction and disease; a replacement-therapy to stimulate chemical activity and repair tissue. Of these, the last-mentioned, sulphur, is perhaps less curative than has generally been thought; the very mention of it may be a reason for warning a particular case away from a favourite spa. It is often said that sulphur is valuable in skin diseases, but it is seldom found to be so in practice; in fact, it is harmful in some. Indeed, the only diseases where it is found useful are parasitic, or belong to the hydroa group; or, perhaps, are certain persisting dermatoses where a few applications are found of advantage in stimulating the eruption towards an effort at healing. But the prevalence of the parasitic class of diseases having much diminished with the discarding of the wig and with greater personal cleanliness, sulphur is much less in demand than formerly. In rheumatoid arthritis, however, being deficient in the liver, sulphur is found to be useful, exhibited in small doses.

Tonic Action

Spa waters, whether taken by the mouth or by bathing, have a tonic action; they stimulate the skin response to heat and cold, lessen heart load, improve peripheral blood circulation, and stabilize the heat-regulating mechanism, likewise improving general nervous tone, stimulating oxidization and general metabolism. The thermal action of all baths is exerted through the skin. Their effect upon the peripheral circulation and upon arterial tension is well known. The serious condition of so-called thermal debility is the real danger of bath treatment at spas, and is induced, especially in the delicate, sooner or later, by too frequent hot baths, as by hot climates. Thus the need arises for applying cold to the skin after hot baths to produce a reaction, which should, of course, be observed and encouraged. Particular disorders are recognized as especially amenable to bath treatment, if used in the early stages of disease, when as yet there is only functional derangement.

Of Places

When, a hundred years ago, England was still an agricultural country, holidays were few and short, and transport laborious. Since then the rural population to a large extent, much to be regretted, has migrated to the towns, where it requires cheap transport and changes of air and place to counteract intensive living, and to afford relaxation and rest away from the hurries of business and the trammels of social duties. In his *Anatomy of Melancholy* Robert Burton writes that "he that loves his health if his ability will give him leave must often shift places, and make choice of such as are wholesome, pleasant, and convenient . . . and generally for health to wander up and down." This is true enough to-day, when the restless spirit of the age must move about. The holiday rush to the sea is the tonic treatment for the masses, beginning at a time of year when health is at its lowest ebb after a winter's work.

Inufficient rest is a very fruitful source of premature collapse, so that a sedative environment has to be sought for escape from the nervous strain of modern life, such as can be found in the South Coast resorts, and on the plains, inland, away from valleys. There are many persons, however, with nervous system and cardiovascular and kidney disease, who do better in the familiar comfort of their own homes, in the cooler, bracing atmosphere of our temperate climate; but the milder climates inland or on the South Coast will bring relief to those suffering from conditions such as essential arterial hypertension, insomnia, or debility consequent upon the nervous strains and stresses of present-day life. The British Isles abound in bracing climates on the East and West Coasts and in the inland hills. The South Coast provides many sedative resorts where, to quote Cobbett, "there are as fine days as ever came out of the heavens."

In convalescence, his native place and air will often prove the most beneficial for a patient, because he is inured to them, *acclimatized*. Men are often misplaced, compelled to live unhappily in unsuitable environment, and so suffer accordingly; for survival can only come by adaptation to environment. Like disease, health is never static, but varies and differs in its manifestations from day to day, even from hour to hour. It takes a man, especially if of poor tissue and inferior physique, all his care to be able to maintain an efficient tissue-functioning during an average span of life.

With advancing age, when "the years draw nigh, when thou shalt say, I have no pleasure in them," it is wise to take an interest in Nature, whose simple ways thus acquire a charm for us hitherto, maybe, unnoticed, and the lovely villages and backwaters of the countryside "bring the soul nearer to the divine source of all being." The temperature and changeable climate of the British Isles have in the past bred a vigorous, hardy race, able to face life in almost any part of the world. This must be considered one of the chief underlying causes of the formation and successful growth of the British Empire, fostered and encouraged by the great Queen in the nineteenth century.

At the present time the fashionable rest cure appears to be the sea-cruise holiday in the sun, offering the complete rest possible for the healthy man, his whole mental outlook changing, as the waves carry him away for many days from shore conditions. For the healthy and vigorous nothing can be better; but for the invalid the discomforts of rough weather and sea-sickness, with the possibility of being "cabin'd, cribb'd, confined" in consequence, render such cruises of very questionable benefit.

Britain, being a most favoured land as to spas and health resorts, it is now generally understood in the profession that there is seldom, if ever, medical necessity to winter abroad, unless it be to obtain by altitude, or by dry or sea air, a suitable climate for the tuberculous or asthmatic. Moreover, the discomforts of travel, change of language and food, absence of home comforts and friends (to say nothing of the less satisfactory sanitary arrangements prevailing on the Continent), can be more easily faced, nay converted into sources of amusement, by the young, high-spirited, and healthy, than by the elderly or invalid.

On the other hand (and who, by the way, does not know the pleasure and excitement in the mere anticipation and planning of travel?), and in spite of Horace's famous dictum, *Caelum, non animus mutant, qui trans mare currunt*, there is no doubt that Continental or foreign travel, giving a complete change, may often be beneficial in cases of mental strain and nervous trouble; producing, as it does, a detachment from insular home prejudices, a broadening of outlook by unfamiliar scenes, manners,

and customs, and encouraging an interchange of visits and courtesies from country to country.

Concluding Remarks

Whilst the duty, too often neglected, of increasing the amenities and preserving the beauties of health resorts and spas must primarily belong to public authorities, the scientific, sane, and right guidance of their development should naturally be the part of an educated medical profession. Both locally and generally the whole subject ought to be surveyed, reviewed, and tabulated. Such places are a national asset; the increase of their value to the national health should therefore be the concern of the State and of public bodies to support and encourage. The medical men on the spot, with their experience and local knowledge, must inevitably be the advisers as to type of patient and disease to be benefited and relieved by the resources available at the place in question; and so should have it in their power to increase and improve the part played by our health resorts in the life of the nation.

Medicinal springs and baths should be under a public control, ensuring regular chemical analyses, purity, ease of access to the waters, and the circulation of accurate information available alike for rich and poor, for doctor or patient, detailing such accessory matters as climate, environment, endowment of the place with natural beauties, and its mental and bodily advantages: in a word, the individuality of the neighbourhood, *genius loci*. At these health resorts the public is demanding additional methods of treatment, including all manner of baths. Besides providing medicinal waters and baths, these resorts should offer a wide range of electrical, physical, and other external accessory means and methods for the re-education of body functions and of structures such as joints and muscles. So that an up-to-date watering-place, wishing to prosper, will do well not to be deficient in these respects or in available advice as to diet and mode of life best suited to the particular climate or malady.

The average hotel or boarding-house, no doubt, prefers catering for the healthy rather than for the sick. But the comfort and well-being of the latter are essential for the fair reputation or continued prosperity of any place calling itself a health resort, and could be fostered and maintained by a varied improvement of facilities for attendance and for the provision of various special diets. An admirable plan would include the provision in hotels catering for invalids of one or more State-registered nurses, responsible to the patient and his medical adviser, and to them only; an invalid annexe would be another device for the attraction and lodging of visitors not fitted for the ordinary daily routine of the healthy. Patients would be ambulatory or convalescent, not confined to bed or in need of any special medical attention.

There is much need for an increase at health resorts in the number of convalescent homes, suited to the means of all sections of the community, not excluding the overburdened upper and middle classes. Such institutions, municipally or privately owned, administered perhaps under health insurance schemes, might be, so to speak, territorial or regional, used near a patient's home in finer months, or in the south or west in winter. Their cost would amply be repaid by increased efficiency in work of all descriptions, and by gradual elimination of the later stages of such maladies as those of the rheumatic or fibro-itic type, which cause so much disablement with loss of time and wage. It is plain, then, that our health resorts are in need of necessary, but sympathetic, reorganization and improvement, much of which could be effected by a healthy rivalry in catering for the requirements of the jaded and sick, and by competition in the provision of the things that matter.

Among the things that matter vitally are those of the mind, far more neglected in England than on the Continent by poorer folk. We must not neglect and starve the mind, while lavishly catering for the body. Our ideal must be the *mens sana in corpore sano*; for the latter is virtually impossible without the former. Consequently our health resorts should be equipped for mental as well as for corporal benefit. The provision of libraries, art galleries, and museums is as necessary, if not so patently urgent, as that of convalescent homes and baths, for the ultimate attainment of our goal; for are not the former as much the sanatoria of the mind as the latter are those of the body? A day may well come when the healing art will include advice as to suitable studies in art, science, and literature as mental tonics.

The advantages of our health resorts are not infrequently lost to the sick through doubt, indifference, or

septicism as to their real value; by bad and selfish building development; by destruction of natural beauty; by ugly as opposed to reasonable and beautiful forms of advertisement; by too much noise; or by a cost of living which it should be the aim of all sensible government to reduce. Signs are not wanting, however, of good efforts to lay the foundations of a better state of things by a well-directed campaign of education as to the great advantages of British spas and resorts, not only to ourselves in these islands and to our kinsfolk abroad, but also to our neighbours on the continents of Europe and America.

Let us hope that the day will dawn when we shall be able in *propria persona* to recite the words of Alexander Pope in his *Essay on Man*:

"For me, health gushes from a thousand springs;
Seas roll to waft me, suns to light me rise;
My foot-stool Earth, my canopy the skies."

FOCAL INFECTION AS A PROBLEM FOR THE LARYNGOLOGIST*

BY

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I regard this subject as being peculiarly suitable for a discussion at such a meeting as this, in that our knowledge is at present fragmentary and in that such progress as has been made has been based rather on clinical observation than on laboratory research. I think it probable that you all have some sort of conception as to what you individually mean by focal infection, and I also imagine that these conceptions would differ one from the other. It would therefore seem necessary, since I have to open this discussion, for me to try and explain what picture is presented to me by this term. By "focal infection" I conceive the existence of a local inflammatory lesion or lesions producing pathological changes in organs or tissues of the body, such changes not being, as far as we can judge, due to the direct spread by continuity of the primary focal disease. I could perhaps clarify what I mean by giving a concrete example. Given a maxillary antral infection as the primary focus, I should regard a complicating conjunctivitis as being due to a direct spread of infection via the lachrymal apparatus, and therefore not as an example of focal infection. On the other hand, I should regard an iritis as being such a result.

In the great majority of cases we are unaware of the method by which the secondary changes are produced from a primary focal infection. In some cases, no doubt, there is a direct transfer of organisms via the blood stream from the primary focus, as is seen in the case of a gonococcal infection of a joint resulting from a primary lesion in the urethra. The clinical picture, however, in many cases seems to render it unlikely that this is the universal explanation, and we are therefore compelled to invoke the idea of the transfer of toxic products resulting from the activity of the organisms in the primary lesion. The picture of focal infection is further confused by the existence of infinite variations of sensitiveness to the effects of organisms or their products, such variations in sensitiveness being either inborn or acquired. I am aware that I have offered an imperfect definition, but the fact that our knowledge is at present imperfect adds enormously to the interest of the subject. As a result of a somewhat close clinical study extending now over many

years I am myself becoming more and more impressed by its importance, particularly in the sphere of chronic disease.

The Problem for the Laryngologist

In reviewing the possible sites for a focus of infection one finds that a considerable proportion of them occur in the domain of the laryngologist. The reasons for this are fairly evident. The skin is, as a whole, resistant to infections, and such infections, when present, do not tend to produce secondary results. The more usual site of infection is the lining of the food passages and upper air passages, and more particularly perhaps the aggregations of lymphoid tissues in these regions. When, therefore, we have taken our share, there is left for others, for practical purposes, the intestinal and genito-urinary tracts. The domain of the dental surgeon marches so closely with ours that, if we carry out our work with any degree of thoroughness, we must inevitably review his territory.

The problem for the laryngologist is, as I see it, twofold. He may, on the one hand, have to initiate the suggestion of a focus of infection in cases in which such an idea has not been thought of, and, on the other hand, when such an idea is put to him, he must try to decide whether such a focus is present and what degree of importance it assumes in the particular case.

It seems to me that this discussion can also be usefully employed in an interchange of our clinical experience as to how far, with our present knowledge, we can decide whether a focus of infection is present, and, secondly, as to how far the treatment of such a focus has resulted in improvement in the secondary lesions. It is along this path of clinical research that our knowledge, and therefore our practice, is likely to improve.

It would be well to consider, in turn, the various possible sites for the primary focus.

Nasal Infections

My experience has led me to join the school in which nasal infections, particularly those of the accessory sinuses, are only to be regarded as of constitutional importance when they are manifest—that is, when there is a definite infective lesion which can be recognized by routine methods of diagnosis. By this I do not mean to imply that there are not many cases of individuals who have a chronic infective focus, say in one antrum, but who do not appreciate the fact through having become so used to their symptoms that they regard them as the normal state of affairs.

Chronic antral infection, particularly if of dental origin, is the type of nasal sinus infection which most frequently

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

presents the picture of focal infection, the secondary results, as a rule, appearing as a chronic fibrositis or arthritis. In addition, changes in the nervous system do, I believe, sometimes result, and some cases of nerve deafness and optic nerve defects can be explained by such a focus. The type of chronic nasal pansinusitis accompanied by hypertrophic changes with polypi very rarely acts as an infective focus.

Dental Infections

The results produced are similar to those which I have just enumerated as following a chronic antral infection. In considering infection in the mouth, I believe that more importance is to be attached to one dead tooth with an apical infection than to widespread pyorrhoea, presumably owing to the fact that the former is a closed focus and therefore more prone to discharge its products into the blood stream.

Tonsillar Infections

These, you will agree, present the greatest problem of all. For some reason the faucial tonsils seem to be much more usually the seat of a focus of infection than either the nasopharyngeal or lingual tonsils. In addition, the picture of focal infection results from a primary tonsillar disease more often than from disease in any other site in the body. The tonsils seem to have a particularly intimate association with the general vascular and lymphatic systems, and it is, no doubt, their function to absorb samples of the infections in our environment, presumably with the object of establishing immunity. Under civilized conditions, in which opportunities for gross infection abound, such as in the modern cinema, this lymphoid protective machinery seems to break down and become chronically infected, and, by introducing products from such infection into the body to an excessive degree, to produce serious damage to the organism. As a result of a chronic focus in the faucial tonsils there can, I believe, be produced chronic lesions in the skin, joints, heart, kidneys, nervous system, and organs of special sense.

It is in diagnosis that the tonsils present their greatest problem. How can we decide when infection is present? Can the bacteriologist help us? Must we depend on the clinical history, which I believe to be of very great importance, as not infrequently a history of slight recurrent sore throats can be obtained? How far can examination of the tonsils themselves help? Is hyperaemia of the anterior faucial pillar a helpful sign? Is the presence of cheesy secretion in the crypts of any importance? And how far can compression of the tonsils or the application of suction to them help in diagnosis? An interchange of views on these points would, I think, be of considerable value.

The Ears

The picture presented by a chronic infection in the middle ear is, I believe, most commonly one of an individual showing the general signs of a chronic toxæmia, such as some degree of anaemia, lassitude, etc., but without, as a rule, the typical picture of definite secondary changes in the joints or other parts of the body.

Having thus briefly considered the possible foci of infection in the domain of the laryngologist, I should like to consider the other side of the picture from this point of view. Is there any lesion of the nose, throat, or ear which can be regarded as a secondary result of such an infection? We have, I believe, in some cases of nerve or perceptive deafness such an example. I am becoming increasingly convinced that some of these cases are to be explained as resulting from the toxic effects of a focus of infection. To illustrate this, I should like to quote an example: A male, aged 52, was first seen by

myself twenty-one years ago, and has been seen at odd intervals ever since. His hearing during the last ten years had gradually depreciated owing to a nerve defect. Some eighteen months ago I suggested that he should have his mouth, which was obviously infected, put in order. I did not see him again until recently, when, to my surprise, I found that his hearing had recovered to a degree which brought it back to what it had been some ten years previously. Apart from the removal of his infected teeth, I discovered no other possible factor which could have produced this improvement.

Some Difficulties and Mistakes

As a final contribution to this discussion I should like to relate some of the difficulties and mistakes which are likely to be experienced in applying the principle of focal infection to practice.

1. *The Primary Focus may be Difficult to Detect.*—This state of affairs is most often met with in connexion with a tonsillar focus. As an example of such a case in which serious secondary results have followed a barely discoverable infective focus, I cannot do better than quote the following. A woman, aged 32, had suffered for some months from a pustular eruption on the face. When first seen over two years ago she gave a history of progressive oedema of a few weeks' standing, the urine being solid with albumin. Careful investigation of the medical history disclosed nothing beyond a vague history of occasional sore throats, in no case sufficiently severe to lay the patient up. Superficial examination of the pharynx revealed nothing abnormal, but retraction of the anterior pillars disclosed small and somewhat unpleasant-looking tonsils. Removal of these has resulted in complete resolution of both the nephritis and the dermatitis.

2. *A Mistaken Focus.*—In view of what has just been said it is not surprising that difficulty often occurs in deciding which of two or more possible foci is the guilty one. For instance, I regard the following case as an example of such a mistake of my own. The patient, a man aged 27, had suffered from recurrent attacks of iritis for three years. Two years ago I operated on his nasal septum, on the mistaken assumption that the iritis was secondary to a nasal infection. Six months later he developed a quinsy, which was immediately followed by an attack of iritis, and after this there was a succession of sore throats, followed on each occasion by a flare-up in the eyes. His tonsils were removed nearly a year ago, and, following this, the attacks of iritis have ceased and his general condition has enormously improved. In this case I have no doubt that the tonsillar infection was the primary one. As a result of experience I am now of the opinion that where one is in doubt as to the relative blame of possible foci in the nose and throat the tonsils are by far the most frequently blameworthy.

3. *Consecutive Foci.*—A misleading difficulty that not infrequently arises is that, following the surgical removal of an infective focus with resolution of the secondary results, at a later date a recurrence of these secondary lesions takes place, due, apparently, to the arising of a fresh primary focus in a new situation. Thus I believe we not uncommonly see an intestinal focal infection following on a tonsillar one, and, as in the case which I give here, a tonsillar infection following on a nasal one. In either case we have a descending infection, but it would be of interest to devote special attention to the question as to whether the reverse can take place—that is, a nasal infection follow a tonsillar one.

As an example of this occurrence of consecutive foci a female, aged 44, was seen five years ago with a history of nasal discharge of some years' standing, associated recently with severe muscular rheumatism. Drainage of infected nasal sinuses caused a complete clearing up of the rheumatism,

with considerable improvement in the general condition. Four years later, however, she had an attack of acute tonsillitis, which was followed by a recurrence of the rheumatism. Removal of her tonsils has resulted in improvement in her general condition and rheumatic symptoms.

4. Multiple Foci.—The occurrence of multiple infective foci presents a somewhat similar difficulty. Having discovered one focus, the surgeon is apt to rest content and thereby miss another, and possibly more responsible, one. An excellent example of this mistake can be shown by the case of a woman, aged 42, who, fifteen years ago, was affected with septic arthritis of relatively sudden onset. This was presumed to be associated with infected teeth, and these were dealt with, with perhaps some degree of improvement, but the patient remained more or less an invalid. The occurrence of an otitis media two years ago led, as a routine, to the examination of the nose. To my surprise I found on transillumination that the antrum on one side was completely opaque. Operation disclosed chronic disease in the antrum, which from its nature had almost certainly resulted from the original dental infection many years previously. A recent note of her condition states that she is now fit. Some deformity of the joints remains, but there is no sign of any active disease.

To sum up, I hope that to-day's discussion may do something towards the consolidation of our ideas as to the scope of focal infection and as to the way in which the difficulties of its application to clinical practice may be surmounted.

ELECTROTHERAPY IN THE TREATMENT OF DISEASES OF THE GENITO- URINARY SYSTEM*

BY

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Owing to the fundamental character of its action electricity, in one of its many forms, has proved itself of value in a very large number of diseased conditions. If, however, as Dr. Golding Bird¹ wrote in 1847, when dealing with electrotherapy, we wish to act as "scientific and philosophic physicians," we must inquire into the "rationale of the process" which we employ. It is not sufficient merely to enumerate the various diseases which may be beneficially treated by electricity, or to allege a number of cures. There will be no advance in our methods, and none of our scientific brethren will be convinced, if we lay down an empirical classification of our remedies, baldly stating that "zinc ionization" is good for endometritis, or that diathermy is indicated for the relief of dysmenorrhoea. Such mere assertions will carry no conviction.

On the other hand, if we expound the "rationale of the process" which we employ—namely, that the septic membrane in endometritis can be thoroughly and completely destroyed by the electro-chemical process which ensues from the electro-deposition of a caustic-forming ion, such as zinc, upon the interior of the uterus—we afford an explanation of the "rationale" of our method—which is deserving of the consideration of all open-minded physicians. Or, if we point out how the relaxation of spasm and tension in dysmenorrhoea can be effected by the deep heat generated by the diathermic current, and how the vibratory process, which is the precursor and

generator of this thermal action, further serves by its dispersive action to relieve tension and pressure, then we may obtain a rational appreciation of electrotherapy from all except those whose complete ignorance of electrical methods is only equalled by their reluctance to learn anything about them. It is on such broad principles that I propose to open this discussion.

The main forms of electrical current employed in electrotherapy are: (1) the constant or galvanic current; (2) the interrupted currents of low frequency; and (3) the interrupted currents of high frequency.

Local Application of the Constant Current

In its general application the constant current owes its main effects to the reflex action induced by the stimulation of the skin nerve endings by the electro-deposition of various ions. In this form it is not of great importance to the subject of the present discussion. In its local or polar application, on the other hand, it is one of the most valuable remedies at our disposal. In the treatment of endometritis by the constant current we introduce a zinc rod or uterine sound within the uterus, and connect it with the positive pole of the source of supply. The zinc cations proceeding from this zinc rod carry the positive charge down to the mucous membrane of the uterus, at which point, owing to a change of liquid, another set of ions, mainly the hydrogen ions of the tissues and blood, continues the convection. The mucous membrane thus forms a virtual pole at which the zinc ion, yielding up its positive charge, forms with the oxygen and chlorine of the tissues an oxychloride of zinc, and, by the chemical decomposition involved in the formation of this salt and by its subsequent caustic action, the membrane is thoroughly and intimately destroyed. Provided the different electrode and pad surrounds the whole circumference of the abdomen, the destruction takes place over the whole inner surface of the uterus, and so evenly is the destructive process distributed that the destroyed membrane may be subsequently passed as a complete cast of the interior of the uterus.

The application lasts for about fifteen or twenty minutes towards the end of which uterine contractions, appreciated as pain, may be excited; these are an indication to cease the treatment. If the application causes any pain in its early stages it is evidence of complications in the appendages, such as pyosalpinx, and further treatment should be discontinued, since these cases are unsuitable for this method. It is interesting to recall that Apostoli employed the method to ascertain the condition of the uterine appendages. According to him, if the large current of 100 to 150 mA was tolerated the appendages were above suspicion. If a current of 50 mA excited pain the appendages were open to suspicion. Intolerance of 30 mA indicated serious trouble in the tubes, and if there was intolerance of 20 mA the uterine annexes should be removed.

From what, in current parlance, may be termed a fifty-fifty experience of curetting and zinc electro-deposition, I have no hesitation in pronouncing in favour of the latter method, except in cases from which placenta remains have to be removed or scrapings obtained for pathological examination. Zinc electro-deposition entails little inconvenience, and no nursing home, anaesthetic, or lying up. The apparatus required is of the simplest kind, the best battery for the purpose, complete with water resistance costing less than 5s. There is no better, no less expensive, and no more convincing method with which the general practitioner can begin electrotherapy. A similar method of treating gonorrhoea by zinc electro-deposition was introduced by Bouchet in 1907. He employed a zinc wire within a perforated rubber catheter, through which a solution of 1 or 2 per cent. solution of zinc sulphate

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

was irrigated. A similar method has been used with success for the treatment of otitis media, and many other conditions.

The history of electrotherapy shows us that one of the many and great disadvantages attending the lack of any systematic teaching of our science, and consequent upon its non-inclusion in the schedules of the examining boards, is that older and more valuable methods are often lost sight of owing to the glamour that accompanies the introduction of a hitherto unknown method of treatment. There is no doubt that the benefits of electro-deposition do not to-day receive the recognition they deserve.

Interrupted Currents of Low Frequency

While these currents are certainly among the most valuable and the most frequently indicated in other diseased conditions, they are of relatively little use in the treatment of genito-urinary disease. The method of the graduated electrical excitation of muscle by the faradic coil, which we owe to Sir Morton Smart and Mr. Rowley Bristow, is of great value in the restoration of tone to the abdominal muscles, and so indirectly aids in the relief of uterine malposition. The faradic coil is also of considerable benefit in the treatment of many cases of incontinence of urine in the male, and to a less extent in the female.

The Morton wave current, a unidirectional, interrupted current of low frequency, is often indicated in the treatment of the prostate, but I need say little in reference to this, since it will be dealt with fully by Dr. Howard Humphris, who has had far more experience in this than I have; it was, indeed, to Dr. Humphris that I owed my first introduction to this valuable instrument, the static machine. The very high voltage obtainable from this instrument—about 60,000 volts—and the very abrupt break of the current by spark discharge, yields a density of current which most thoroughly pervades the muscle or organ treated, and excites more powerful muscular contractions with less discomfort than any other method. Compare for a moment the effect obtained in this way, in the treatment of the prostate, with digital pressure on that organ per rectum. For cleanliness, convenience, and, above all, for efficiency, it must be evident that a method which enables us to produce alternate contraction and relaxation of the whole gland must be incomparably preferable to the remote kneading of its posterior surface by digital pressure. Among the most convincing proofs of the efficiency of this technique are the permanent cures which result from the treatment of those painful conditions of prostatitis which often follow old-standing cases of gonorrhoea.

Interrupted Currents of High Frequency

The interrupted currents of high frequency are a very valuable group in the treatment of diseases of the genito-urinary system. The paramount question in relation to the therapeutic action of these currents is whether their effects are due to heat alone, or whether they are, in part at least, due to the vibratory or oscillating action of the ions which precedes and produces this heat. I ventured to raise this point eleven years ago at the Portsmouth meeting in 1923, and the view then expressed was that this question should not be raised, as medical men were just beginning to appreciate the beneficial effects of diathermic heat, and their minds should not be confused by the possibility of these currents possessing any additional action. It is clear that this question cannot be dismissed in this summary fashion. On purely *a priori* grounds it would appear evident that a current of the high voltage employed, oscillating at a frequency of 1,000,000 to 30,000,000 times a second, must produce

effects other than the heat generated by the ionic collision at such a frequency and voltage.

Arguing from analogy, we recognize that the vibration of modern motor traffic is injurious to our old buildings. In this case it is not merely the weight of the vehicles that is the cause of the trouble, for we have had the slow-moving, but very heavy, traction engines for years past without any serious vibration damage resulting. The modern damage has resulted from a certain ratio between speed and weight, analogous to frequency and voltage. And it is possibly from the fast travelling and heavy motor buses that much of the damage has resulted. Passing from the coarser to the finer vibrations, we have the molecular disintegration, occasioned by the electromagnetic stresses, which takes place in the wire winding of our Oudin resonators—that is to say, if such resonators are wound with brass instead of phosphor bronze wire, the brass wire becomes so disintegrated in its structure, and so soft and friable, that a length of about six inches, when held horizontally, has insufficient cohesion of structure to support its own weight.

In the experiments of Wood and Loumis on supersonic waves of high frequency and high voltage, generated by a piezo-electric generator of quartz, we find a very striking example of the extraordinarily powerful "pounding" action of these supersonic vibrations. The voltage employed in these experiments was very high—50,000 volts—and the oscillations were 300,000 per second. In general outline the generator was of the triode valve type. Blood blisters, persisting for several weeks, were formed by the pounding transverse vibrations on the fingers holding a glass rod, the end of which was dipped in the transformer oil in which the vibrations were occurring. Small fish and frogs were quickly killed. "Filaments of living spirogyra were torn to pieces and the cells ruptured." Blood corpuscles were broken up by the molecular oscillations set in motion by these pounding vibrations.

D'Arsonval and Charrin found that the toxicity of a very active diphtheria toxin was destroyed by exposure to high frequency for fifteen minutes, although the temperature of the media or their contents never exceeded 98.5° F. Clinically, when administering diathermy, I have noticed the disappearance of a bruise exactly corresponding in its limits of disappearance to the area of the electrode. If this disappearance of the ecchymosis was due to heat the limits of its disappearance would be more diffused. The rapid subsidence of swelling in the treatment by diathermy of a recent injury, such as a Colles's fracture or a sprained ankle, is more rapid than can be accounted for as the effect of heat alone. It has been alleged that these disappearances of ecchymosis and swelling are due to the pressure exercised by the bandages which secure the electrodes in place, but I have noticed a similar disappearance, both of swelling and of ecchymosis, when treating a sprained ankle by a 30-metre wave-length. In this case the electrodes were not bandaged on but merely supported in position by lateral sandbags, and were only in contact with the ankle at the malleoli; the disappearances corresponded exactly in their limits with the high-frequency electro-magnetic field.

Bordier obtained very similar results to those of Wood and Loumis, although he utilized a frequency of 30,000,000 at a far lower voltage than they did. Thus there would seem to be an optimum wave-length of very high frequency at which these disruptive and dispersive results can be obtained. Now this is a point of great importance and interest when dealing with the short and ultra-short wave-lengths which are now beginning to excite so much attention. It would appear, I think, that there is not a specific wave-length at which any particular micro-organism can be destroyed, but rather an optimum

wave-length at which the organism can be destroyed at a minimum voltage, though at a longer wave-length an increased voltage would produce a similar effect.

Some fifteen or twenty years ago I was one of the first to treat dysmenorrhoea by diathermy. I was led to do so by the remark of a patient whom I was treating by diathermy for pelvic pain, unassociated with the menstrual period, to the effect that after her last period she had had the first period free from pain for fifteen years. I adopted this useful hint, and have learned the great value of this treatment in suitable cases of spasmodic dysmenorrhoea. It is, indeed, easy to visualize that the spasm tends to be relieved by the thermal effects of the high-frequency currents, and that dispersal of the engorgement is aided by the vibrations; the value of these united actions in the treatment of such distressing conditions is thus readily appreciated. I believe that the short or ultra-short wave high-frequency currents will prove to be of special value in these cases. Space will not allow me to deal fully with their advantages, but it must be evident that a technique which does not necessitate the removal of any clothing is in itself a great advance. This, however, is only a matter of convenience, and the specific value of the short-wave currents will be found to be due perhaps to some extent to their more rapid and finer vibrations, but chiefly to their more even concentration and action within the body. The long-wave diathermy of about 300 metres enters the body mainly by conduction, partly by condenser or leaky condenser effect through the skin, and in a few types of application by a condenser field action. Consequently, with such wave-lengths, the conductivity of the tissues influences to some extent the effect of the treatment. The short waves, on the other hand, excite their effects solely by a condenser field action; no current actually passing through the skin, the oscillations are excited solely within the body, and as a result the tissues and structures of the body react more evenly and uniformly. It is upon such lines that I venture to open this discussion and to explain the rationale of our processes; in this manner we travel along a path, parallel to that along which physical science is to-day advancing, towards a goal of as great efficiency and exactitude as has as yet been reached by any branch of medical science.

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¹ Golding Bird: *Lectures on Electricity and Galvanism*, 1849.

Census of England and Wales, 1931: Occupation Tables is now on sale at H.M. Stationery Office, price 30s. net. In addition to the statistics for the country as a whole, data are furnished in similar detail of occupational subdivision for twelve geographical regions into which England and Wales has been divided, and also for counties and large urban areas. For the smaller urban areas and for rural districts data are supplied according to a condensed list of occupations and occupational groups. The statistics relating to industries will be published in a separate volume. The principle upon which the classification is based is the nature of the work performed, though in the case of the productive occupations the nature of the material worked in has been embodied in the scheme as a factor essentially determining the character of the operations. Full details of the classification, together with an alphabetical index of about 35,000 occupational terms, is published in a separate volume entitled *Classification of Occupations*, price 12s. net. On this occasion for the first time statistics of persons out of work at the date of the census are included. The classifications of such persons embrace all classes of the community, including those outside as well as those within the scope of existing statutory insurance schemes.

NON-SPECIFIC COLITIS IN RELATION TO DEFICIENCY DISORDERS AND ANAEMIA

BY

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Colitis is here used as a general term for a well-recognized clinical condition; "haemorrhagic colitis" and "ulcerative colitis" are considered as synonymous terms. Colitis is a sporadic disease occurring with some frequency in England and other temperate climates. The cause of this disease has always been very puzzling, for no specific infection has been found, though its chief symptom—diarrhoea with blood and mucus—suggests a relation to the dysenteric infections. Notwithstanding the failure to establish a definite intestinal infection, treatment has been to a great extent concentrated on the local condition, and colon lavage is employed almost universally, often assisted by irrigation from above through a stoma in appendix or caecum. The unreliable results of such treatment and its failure to prevent relapse are, however, generally acknowledged.

The purpose of this paper is to point out the resemblances of this disease to a deficiency disorder, and to urge treatment with high vitamin diets and, in particular, the vigorous treatment of the anaemia, when present, as a cure of this may be accompanied by an amelioration or remission of the colitis symptoms. Emphasis is laid on the necessity for massive doses of iron or liver. The temporary increase in diarrhoea or of other symptoms which often follows at the outset is no contraindication to continuing the treatment. Improvement in the bowel symptoms may be slow, especially at the beginning of an acute relapse, and perseverance is required. It is urged that all local treatment and sigmoidoscopic examination should be avoided if possible, as the bowel wall is highly susceptible to trauma; examples of the harm that may result are given. If colon lavage is continued, it may keep up the diarrhoea and bleeding, and cause apparent failure of other treatments.

Colitis a Deficiency Disorder

The evidence in favour of adding colitis to the list of deficiency disorders of the gastro-intestinal tract is gathered from experimental and clinical sources. The study of experimental vitamin deficiencies shows that both vitamin A and the vitamin B complex are necessary for the development of the healthy mucous membrane of the intestine and for maintaining its resistance to infection (Cramer,¹ Goldblatt and Benischek²). McCarrison,³ and Tilden and Miller,⁴ working with monkeys, found intense changes in the colon with vitamin-deficient diets, and in these animals the clinical signs of human colitis were closely reproduced. In human beings it is recognized that good nutrition may completely prevent the development of clinical dysentery, even though the amoeba is present in the gut. It is not suggested that non-specific colitis is the outcome of a gross diet deficiency in the majority of cases in this country; it may be due to a latent deficiency which is either inborn or acquired as the result of diet and disease. Colitis resembles a deficiency disease in that it occurs in attacks, with spontaneous remissions and relapses which follow without apparent cause; the first attacks are often slight and transitory, and each relapse tends to be more severe than the last. The highest incidence of the disease is in the second, third, and fourth decades.

A consideration of the functions of the colon is of interest. Starling states that its chief value in carnivora

and man is as an excretory organ. It has a remarkably selective capacity with regard to drugs, being particularly concerned with the excretion of calcium, iron, and bismuth. The association of a severe iron-deficiency anaemia with colitis and with malignant growths of the caecum and ascending colon is of particular significance in this connexion. The special tendency of certain metabolic toxins, as in uraemia, to cause colitis may be due to their elimination by this route, and it seems probable that clinical colitis represents some toxic attack on a colon of low resistance.

The Characteristics of Colitis

The disorder affects not only the mucosa of the bowel but the muscle wall as well. There are hypertonicity and irritability of the bowel and areas of irregular spasm and dilatation, or a general contraction with loss of haustrations: this disturbance of tone is very persistent, and causes diarrhoea with colicky pains or spastic constipation, the symptoms often alternating in chronic cases. This high tone is found after all other symptoms have disappeared, and is evidence of the continued tendency to relapse (Larimore²). In acute attacks the colon wall becomes atrophied to a papery thinness, and may perforate; in long-standing cases inflammatory reaction and thickening appear. The mucous membrane is granular, velvety, and intensely injected, bleeding everywhere on light touch; superficial necrosis with sloughing and ulceration may follow. The maximum incidence is usually in the sigmoid colon, from where it spreads upwards and downwards; but the caecum may be severely affected or the whole colon involved simultaneously. The stools differ with the acuteness of the condition. In early, slight, or chronic cases they may be well formed, with adherent streaks of blood and little mucus: in the acute condition offensive liquid faeces are passed with varying amounts of mucus and blood, which are less intimately mixed than in dysenteric stools; pus is usually present microscopically. The appearance of stools passed in succession may be very diverse: this is an observation of diagnostic importance.

In a severe attack, or in a chronic condition, an anaemia of secondary type develops which may be out of all proportion to the degree of haemorrhage, and is found in non-haemorrhagic cases. Severe general oedema and fever sometimes accompany the anaemia, and complications such as phlebitis and urinary tract infections are not infrequent at this stage. The differential diagnosis cannot be discussed here, but it may be based on a detailed history, repeated inspection of the stools, microscopy and culture of the stools, and opaque enema. Digital rectal examination should of course be made, but sigmoidoscopy should only be carried out if the diagnosis is still in doubt after other investigations have been completed.

The notes of twenty-five cases have been studied. Sixteen of these patients have been observed personally during some period of their illness; all were females, many of them being treated at the Elizabeth Garrett Anderson Hospital.

Aetiological Factors

The age of onset was under 20 years in four cases, from 20 to 25 in four, from 26 to 30 in eight, from 31 to 40 in five, and over 40 in four. The cause of an attack was given by fourteen patients, and may be grouped as follows: a chronic tendency to diarrhoea, but attack due to eating fruit (two cases); chronic or acute constipation (six cases); gastric influenza (two cases); influenza (one case); slimming diet (one case); sea-bathing (one case); twin pregnancy (one case).

Special dietary indiscretions in some of the above were eating excess of raspberries, plums, tomatoes, and cucumber. Bargen³ has published the causes of relapse in a series of cases, and finds that the majority (52 per cent.) are related to infections of the upper respiratory tract, and 12 per cent. to gastro-intestinal conditions. The effect of trauma in producing an attack is evident when it occurs after taking food with indigestible residue. That colon lavage and sigmoidoscopy may also produce trauma and relapse is demonstrated in these notes. Colon lavage does not seem to produce harmful results in all cases, and patients may improve under treatment; but the results of local therapy are very uncertain, and a method which appeared to cure a first attack may be quite unsuccessful in a second. The benefits are at least doubtful, and such improvement as arises may be due to a spontaneous remission.

Relapse after Colon Lavage

One patient, aged 27, had had two previous severe attacks of colitis, but had been fairly well for fifteen months. She was thought to have a growth in the colon, and was admitted to hospital for examination. No growth was found, but there was a discharge of blood and mucus, for which daily lavage was given; acute relapse set in within three or four weeks and lasted many months. Two patients with chronic colitis were noted to have had normal motions for five and seven days respectively after admission; following colon lavage all the motions contained large amounts of blood and mucus. In one case the motions became normal when the treatments were stopped; in the other there was a prolonged relapse. In two other cases lavage brought about intense pain and increase in diarrhoea.

Relapse after Sigmoidoscopy

Sigmoidoscopy was carried out in fourteen patients in this series; in some it was repeated during treatment. All the cases showed a granular, intensely hyperaemic mucosa; three had small ulcers in addition; and one, a long-standing case, had rectal polyposis. Unfortunately an acute relapse may follow sigmoidoscopy even when carried out by experienced surgeons. One patient, aged 18, was admitted with a second attack of colitis of five weeks' duration; there were two motions daily after admission, with occasional blood, no fever; after sigmoidoscopy there was a severe relapse with fever: stools five to seven. Another patient of the same age had a first attack of colitis. The symptoms gradually increased for six months; there was no loss of weight and no fever: stools two to three; some blood. Sigmoidoscopy was followed by an acute fatal relapse: stools six to eight, with much blood and mucus.

Gastric Secretion and Colitis

No relation could be discovered between the gastric secretion and the severity of the colitis symptoms. In the present series fourteen patients had a fractional test meal: six had a normal acid reaction, six a low acidity, and two achlorhydria. Among the six normals, four had very severe attacks and the other two were chronic relapsing cases, and three in this group developed marked anaemia with oedema and phlebitis. Of the two patients with achlorhydria (histamine test not given), one had a slight attack without anaemia, and the other was a severe chronic case. In another case with dysphagia a "test vomit" contained no free acid; this patient had a very chronic colitis with Plummer-Vinson syndrome. Glossitis was noted in six instances, usually developing during an acute attack of colitis; it was most severe in two patients

with achlorhydria and chronic anaemia. Brittle nails were noted in four cases.

Anaemia and Colitis

The association of severe anaemia with diarrhoeal diseases with little or no haemorrhage is well recognized. It may in part be due to a deficiency associated with hurry and want of absorption in the intestine, but Castle⁷ has shown that the failure of haemopoiesis cannot be entirely related to this, but depends upon some associated though independent factor. Examples of such anaemias are afforded by tropical sprue, non-tropical sprue (Bennett, Hunter and Vaughan⁸), and chronic post-dysenteric colitis (Keefer⁹). The variability in the character of these anaemias is striking, and must depend on which of the essential factors is lacking. Further, it appears to be impossible to predict what form of therapy will prove effective, though as a rule a good response to liver may be expected when the anaemia tends towards the macrocytic group with a high colour index (as in Case 1). Massive oedema accompanying severe anaemia developed in three patients; two had phlebitis, and one a urinary infection.

Examples of Blood Changes

In five cases of anaemia without gross haemorrhage the haemoglobin values lay between 24 and 44 per cent., the red cells between 2,900,000 and 5,500,000, and the colour index between 0.4 and 0.56. These anaemias have all been hypochromic in type, such as respond well to massive doses of iron. Case 2 illustrates the importance of treating the anaemia, and the possibility of producing a prolonged or perhaps permanent remission of the colitis, even in a very chronic case. It should be emphasized again that a temporary increase in the diarrhoeal symptoms should not be regarded as a contraindication to treatment.

SUCCESSFUL TREATMENT WITH LIVER

Case 1.—The patient, aged 18, had acute colitis for eight months, with profound anaemia, oedema, and fever. There was a rapid clinical cure with massive liver therapy: no relapse after three years.

The first attack, sudden in onset, occurred in September, 1930, with the passage of blood, slight colic, and two to three stools daily. She continued at work for two months. In December, 1930, the anaemia was very severe; the stools contained blood and mucus; no specific infection. Sigmoidoscopy revealed a granular mucous membrane; one small ulcer was seen. Gastric acid was normal. For two months the symptoms gradually increased, with slight fever. Then there was an acute exacerbation, with fever up to 102° F. and pulse rate up to 125; stools six to twelve; not much loss of blood. Massive oedema developed, with rapid increase of anaemia: the increase of symptoms followed a course of daily colon lavage. In May, 1931, the oedema was better but there was still fever, the anaemia was unchanged and the patient had lost 2 st. Treatment during January to June included two blood transfusions and colon lavage; liver (4 oz.), ventriculin, and massive iron were each administered for short periods (coincidentally with the colon treatments), but were omitted as they appeared to increase the diarrhoea. In June, 1931, liver extract (1½ lb. daily) was again tried; it caused an acute reaction of fever and diarrhoea for eight days, but subsequently there was rapid improvement, with a gain in weight of about four pounds a week (2 st. in six weeks). When seen in April, 1934, the patient was very well, and had been free from any bowel trouble. Blood counts:—November, 1930: haemoglobin 27 per cent., red cells 2,500,000; colour index 0.56. June, 1931 (before liver treatment): haemoglobin 24 per cent., red cells 1,250,000; colour index 0.9. After two weeks of liver therapy: haemoglobin 36 per cent., red cells 3,130,000; colour index 0.58. Reticulocyte peak 13 per cent. on fourth day. After six weeks' liver and four weeks' massive iron: haemoglobin 70 per cent., red cells 4,580,000; colour index 0.76.

SUCCESSFUL TREATMENT WITH IRON

Case 2.—The patient, aged 45, had had a very chronic relapsing colitis for twelve years, and severe anaemia. Clinical cure was obtained with massive iron therapy: no relapse for four years. There was a history of severe constipation from childhood, and of anaemia. At the age of 29 she had the first attack of acute colitis, with much blood and mucus. At the age of 31 she had a relapse, and was treated by appendicostomy, which was closed after ten weeks. Subsequently chronic symptoms developed with severe anaemia: blood transfusions were given at the ages of 37 and 38. When 39 she first came under my personal observation, having frequent subacute attacks with slight fever. There was a typical Plummer-Vinson syndrome, with glossitis and dysphagia; a test vomit contained no free acid; haemoglobin 32 per cent., red cells 4,400,000. A full course of anti-dysenteric serum produced a strong reaction, but there was a relapse with blood and mucus two weeks later. In April, 1930, massive iron treatment was begun, and has been maintained almost continuously since. There has been no relapse of colitis in four years, although occasional slight bleeding occurs, and sore tongue and dysphagia reappear if the iron is omitted for long. The patient is able to do regular hard work. Blood counts:—March, 1928: haemoglobin 32 per cent., red cells 4,400,000; colour index 0.4. February, 1930: haemoglobin 38 per cent., red cells 4,400,000; colour index 0.43. December, 1930, after eight months' iron treatment: haemoglobin 106 per cent., red cells 5,650,000; colour index 0.94. Haemoglobin has been maintained between 90 and 100 per cent. since.

COMBINED TREATMENTS WITH IRON

Case 3.—The patient, aged 39, had been very anaemic all her life: no menses since the age of 35. She had always suffered from looseness of the bowels. In the first attack there was acute colitis for five months; phlebitis developed first in one leg and then in the other. There was much oedema on admission. Urinary infection was present; stools five to seven, with flecks of blood and very offensive. The patient was given two blood transfusions, intramuscular liver daily, massive iron, and radiostoleum. The haemoglobin rose from 24 to 80 per cent. in eight weeks, with marked general improvement; stools two to three.

Case 4.—This patient, aged 37, was seen in a second attack (first occurred twelve months previously). Apart from this her health had been good. She had a subacute colitis: stools one to two, with little blood or mucus. There was slight anaemia. She was treated with ventriculin and massive iron. The haemoglobin rose from 68 to 88 per cent. in five weeks; she gained four pounds in weight; the stools showed no marked change.

VITAMIN THERAPY WITHOUT IRON

Case 5.—The patient, aged 50, had had chronic colitis for three years, with very slight anaemia. Amoebic cysts were present in the stools (six to eight daily, with little blood). She was treated with emetine and yatrien, with severe reaction. At first liver was given intramuscularly daily, and yeast powder by mouth. Later, marmite and cod-liver oil were given. After nine weeks the stools were one to two daily—"better than at any time in the past three years."

Failure of Liver Treatment

The following three cases gave no apparent response to liver treatment during acute and subacute attacks; there was no initial anaemia.

Case 6.—The patient, aged 18, had had a first attack (very slight) one year before. She was admitted with a second attack of five months' duration (subacute). There was no anaemia. An acute relapse set in after sigmoidoscopy: stools seven to nine. Liver was administered intramuscularly daily, and yeast powder. The condition did not improve in three weeks. She lost 14 lb. in weight, and discharged herself.

Case 7.—This patient, aged 45, had had her fourth attack in five years; she was quite well between attacks. There was no initial anaemia. She had a severe haemorrhagic diarrhoea. stools three to six, later six to nine. Liver

JULY 28, 1934]

LATE TENDON SUTURE

extract by mouth (1 lb. daily) resulted in no apparent improvement in three to four weeks. There was gradual improvement later on other treatments.

Case 8.—This patient, aged 22, was seen in a first attack (subacute) of eight months' duration: stools two to four daily; slight anaemia only. Liver extract by mouth (1 lb. daily) led to no definite improvement in three weeks. She gradually got better later on other treatments.

Diet and Drugs

A good diet, adequately balanced, is of great importance. Many chronic colitis patients tend to take an excess of carbohydrate food, and care should be taken to avoid this. Patients should have small meals and never go long without food, and in particular they should avoid a heavy meal when fatigued. Iced food and drinks should be forbidden. Even during the acute attack, if appetite allows, a generous diet may be given, including as fish, eggs, chicken, and, later, mutton and beef. Small amounts of green-leaf vegetables (sieved), a cupful of orange or tomato juice, and marmite should be added. In convalescence fresh green-leaf salads, stewed fruit or pulped raw apple, pear, or banana may be ordered. The usual instructions to eschew food with coarse residue should be given.

Constipation should be treated with liquid paraffin and antispasmodics, as atropine or belladonna, especially when there is colicky pain. Mild aperients, as senna, are sometimes necessary, but should be omitted as far as possible. The dose of intramuscular liver was 2 c.cm. of concentrated preparation of tested potency in pernicious anaemia. In the massive iron therapy 90 grains of iron ammonium citrate were given daily. The yeast powder—a preparation of high potency in the vitamin B complex—was prescribed in doses of 3 drachms daily.

I am indebted to my colleagues at the Elizabeth Garrett Anderson Hospital for giving me access to their patients and records, and to the pathological staff of the hospital for their assistance.

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The Queen Victoria Memorial Hospital at Welwyn, Herts, which the Duchess of York opened on July 24th, was founded in 1902. Until the present time it has been housed in the original building, to which additions were made from time to time. It is adjacent to a high road, which now carries a large amount of motor traffic. In consequence of a generous bequest made for the purpose of erecting an up-to-date cottage hospital in a quiet position, the committee was able to acquire an excellent site of about five acres and erect this new hospital.

The annual general meeting of the Medical Society of Individual Psychology was held at the Florence Restaurant, London, W., on July 12th. The chairman, Dr. J. C. Young, presided, and eighteen members dined together before proceeding to business. The present officers were re-elected. Dr. Neil Beattie and Dr. E. Taylor were elected to vacancies on the committee. The reports of the honorary secretary and honorary treasurer showed that the society is maintaining its position in membership and financial stability. An interesting programme is promised for next session.

LATE TENDON SUTURE

BY
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Although delay in the suture of a ruptured tendon diminishes the chance of success, there are occasions when excellent function follows a delayed operation.

Rupture of the Triceps Tendon

The patient, a theatrical gymnast, sustained an accident while performing in a Paris music-hall. He was standing on his hands and supporting his partner's weight when he came upon a ridge in the carpet, which flung him sideways, so that he wrenched his left arm and tore his triceps tendon. The injury was apparently not diagnosed, and when seen three months later he had a gap of 1.2 inch above the olecranon process, and was only able to extend the elbow by the feeble action of supinator longus and the forearm extensors. He



FIG. 1.—Case 1. Rupture of left triceps tendon. Theatrical gymnast, aged 43, one year after reinforced suture performed three months after his accident.

FIG. 2.—Nearer view, showing situation of operation scar.

had done no work since the accident, and it was manifestly impossible for him to do so. X-ray examination showed a few flakes of the olecranon lying 1/2 inch proximal to their normal insertion.

At operation, on May 24th, 1933 (three months after the accident), the tendon was found to be torn so close to the bone that direct suture was impossible. A hole was drilled transversely through the olecranon, and a part of the tendon pulled down with strong catgut and threaded through this. Reinforcement was obtained by a length of half the width of peroneus longus tendon, which was passed through the bone and through two holes in the triceps tendon, and was then stitched both to tendon and to itself with catgut. The limb was left in extension for six weeks before exercises were attempted, but the patient then made such good progress that he was able to resume his occupation on October 1st, when he appeared at a music-hall at The Hague and considered his arm "normal" again. I have since seen his performance at a West-End music-hall, and he certainly did not spare his triceps.

The photographs were taken on March 24th, 1934, and show him supporting a 15-year-old boy a year after the accident.

Rupture of the Tendo Achillis

A tea-planter, aged 38, was playing deck tennis on the homeward voyage when he felt a pain in his left leg, and found that he was quite unable to stand on tip-toe. He was so pleased to be home again that his condition was not diagnosed until four months after the accident, and valuable time had been lost.

At operation, on May 20th, 1931, it was found that a gap of $1\frac{1}{2}$ inches in the tendo Achillis had been bridged by fibrous tissue. This was excised and the calf muscles mobilized, without, however, making direct apposition possible. The knee and ankle were flexed, but there was still a small gap to bridge. A length of $3\frac{1}{2}$ inches of half the peroneus longus tendon was passed through the two ends of the tendo Achillis, and a part of the proximal end of the tendo Achillis was turned down and sutured to its distal part. No attempt was made to close the sheath, and there was considerable difficulty even to get the skin together. The limb was put in plaster-of-Paris with the knee fully flexed and the ankle plantar-flexed. The knee was extended in a week, and the foot brought to 110 degrees two weeks later, when the stitches were removed and the plaster changed.

Eight weeks from the operation the patient was walking in an ordinary shoe, with the heel raised half an inch, but no plaster or apparatus. When he was seen four months after the operation he was wearing an ordinary heel, his foot was at 90 degrees, and he could stand on tip-toe on the affected side, bearing his whole weight on that foot for a fraction of a second. He had experienced no trouble, except for a stitch abscess, which was no doubt due to the mistake of using silk instead of catgut.

Bilateral Rupture of the Quadriceps Tendon

On March 18th, 1932, a Jewish shopkeeper, aged 77, and weighing 16 st., caught his heel on the stairs and slipped.

He had been unable to extend his knees since the accident, and walking was out of the question. He was very depressed by reason of a gloomy prognosis, based on the assumption that he had a haematomyelia of the cord and would never walk again.

At operation on the right side, on June 6th, 1932 (two and a half months after the accident), the quadriceps tendon was found to be torn at the actual point of insertion into the patella, making it necessary to drill a hole in the patella and suture the tendon with strong silk. This suture line was reinforced with fascia lata, and the capsule of the joint closed with catgut. Two weeks later the left side was operated upon, and a complete rupture disclosed and repaired.

A year later the patient was seen at his little shop in Holborn: he could walk without sticks, and had active extension of the knee through 30 degrees. He did, however, generally use sticks for walking, as he felt somewhat insecure, no doubt partly owing to his age and weight.



FIG. 3. — Case III. Bilateral rupture of quadriceps tendon. Sixteen-stone patient, aged 79, nearly two years after delayed and reinforced suture. Operation two and a half months after accident. He can stand unaided, as shown.

Comment on Delayed and Reinforced Tendon Suture

The successful results in these three cases are no argument for delay in suturing cut or ruptured tendons. The diagnosis of such an injury ought to be followed immediately by operation in any recent case. If, however, diagnosis or treatment has been delayed, there is still a good chance of getting a satisfactory result, even two or three months after an injury of the large extensor tendons. The story is an altogether different one for the smaller tendons, which are concerned with fine movement, such as those of the hand.

Operative Technique

The exact operation will vary in different cases, but the following points in technique seem reasonable.

1. The functional efficiency of a muscle demands apposition of the torn ends of the tendon whenever possible, and, failing that, the shorter the bridge the stronger will be the muscle.

2. Aids in securing apposition. Posture of adjacent joints and mobilization of muscle bellies help, but good honest pulling on the muscle generally helps more.

3. Suture material. Strong chromic catgut is the best, but it must be supported by splint or plaster-of-Paris for six weeks. Weight-bearing may be allowed during the latter half of the period if the sutured tendon is in the lower limb.

4. Supplementary sutures. Peroneal tendon and fascia lata will sometimes turn doubt into security. They are always available in case of need.

5. The immediate post-operative position of a joint should relax the suture line, but if such is a malposition it must be gradually corrected in two or three weeks if the patient is an adult. In children this is not so essential.

6. It is much better to put the tendon through a hole in the bone than to stitch it to periosteum.

A SECOND ATTACK OF ACUTE POLIOMYELITIS

BY

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The occurrence of a second attack of acute anterior poliomyelitis is rare.* In 1930 Still¹ reported one case, and was only able to collect eight definite cases from the literature. The diagnosis depends entirely on clinical evidence. In the case here reported this seems to be so complete as to leave no doubt as to the diagnosis.

Case Record

History.—On February 14th, 1934, W. L., aged 7 years, was brought to the out-patient department of the Royal Victoria Infirmary, Newcastle, because he was paralysed. His mother volunteered the following history. The child was healthy at birth, but at 10 months of age he had an attack of pneumonia. He was ill for fourteen days. After this the lower limbs seemed to "pine away," and he did not progress normally with learning to walk, as he had been doing previously. When the child was 3 years old he walked so badly—"his feet just seemed to flop about"—that his mother took him to see Dr. Natrass at the Royal Victoria Infirmary (April 5th, 1930). He was given massage treatment and fitted with iron splints. He was able to walk remarkably well in these, used to go to school in them, and lived as a normal boy until eight weeks ago. He was then sent home from school because he was not well. The mother noticed that he was "heavy" and feverish, and his nose was running. A doctor who was called in thought he was sickening for measles. In a day or two, however, he improved, and returned to school after a week's absence. A week later the child was taken ill again, and had to be put to bed. On the third day a rash appeared, which was diagnosed as measles. The child became very weak and helpless, and unable to feed himself. He complained of pains in his back and limbs, which were sore to the touch. After fourteen days an attempt was made to get the child up. It was then found he could neither stand nor sit.

* A short case record appeared in the *Epitome of Current Medical Literature* of June 9th, 1934, para. 474.

A SECOND ATTACK OF ACUTE POLIOMYELITIS

JULY 28, 1934]

Clinical Findings (February 14th, 1934).—Examination revealed a rather pale child of normal intelligence. No abnormality could be detected on examination of the respiratory, cardiovascular, or alimentary systems. The cranial nerves were found to be normal. Examination of the upper limbs was as follows. The proximal muscles were normal, and of the hands there was marked wasting of the interossei, and of the thenar and hypothenar eminences, so that the hands appeared flattened. The fingers were held in slight flexion at the interphalangeal joints, and hyperextension at the wrists and phalangeal joints. The power of flexion of the left hand fingers was weak. There was no power at all in the left interphalangeal joints, and attempts to do so only resulted in an increase of the claw-hand deformity. He was able to extend the flexor carpi ulnaris. The patient was unable to extend the interphalangeal joints of the fingers or flex the metacarpo-phalangeal joints. There was no power of adduction or increase of the metacarpo-phalangeal and the interphalangeal joints of the thumbs. There was marked wasting of joints of opposition of the thumbs. There was hyperaesthesia to both lower limbs, and each showed the deformity of talipes equinovarus. There was some cutaneous hyperaesthesia moving touch of the left lower limb. Both quadriceps hip-joints were very much reduced in power, particularly on the left side. All the muscles moving ankle and tarsals and hamstring muscle groups were very weak, particularly on the left side. All the muscles moving ankle and tarsals joints were completely paralysed save the left posterior tibialis, which had a trace of power. There was no power in the recti abdominis.

Electrical Reactions (April 24th, 1934).—There was no faradic response in the muscles of the legs and (?) no galvanic response. There was no faradic response in flexors of the right wrist or fingers, but some in the flexor carpi radialis. No faradic response occurred in the muscles of the right hand. There was fair galvanic response. Faradic response was present in all flexors of the left wrist and fingers, there being no faradic response in the muscles of the left hand. The galvanic response was fair.

It was particularly fortunate that this child was originally seen in the hospital, for the following clinical findings, made on April 5th, 1930, are available. "A case of anterior poliomyelitis—atrophy weakness of both lower limbs, double paralytic talipes equinovarus." The electrical reactions recorded at the same time are given as follows. "Right leg—no faradic response in extensor digitorum longus, and posterior tibialis; or peronei; good response in anterior and posterior tibialis; faint response in calf muscles; galvanic response rather poor. Left leg—no faradic response in anterior tibialis or peroneal muscles; good in calf muscles; long flexor doubtful; galvanic response rather poor."

The child was given the usual physical treatment, and was fitted with double irons to the right knee and full-length irons on the left leg attached to pelvic band.

Conclusion

From these findings there appears to be no doubt that the child, at an early age, had an attack of acute anterior poliomyelitis. This left him with some weakness of the lower limbs, but he was able to walk remarkably well in supports, and lived as a normal boy until nearly 7 years of age. Then, following two rather indefinite febrile illnesses, the muscular weakness became much more widespread. The affection of the lower limbs increased in severity, and the hands and recti abdominis were affected in addition. In consequence the child was left in a very helpless condition. While he has been in hospital the condition of the limbs has not improved, but the recti abdominis are recovering slowly. There would appear to be no other explanation of these findings but that a second attack of acute anterior poliomyelitis has occurred.

My thanks are due to Mr. Gordon Irvin, under whose care the patient is, for permission to publish the case, and to Dr. F. J. Nattrass for his helpful advice and criticism.

REFERENCE

1. Still, G. F.: Second Attacks of Acute Poliomyelitis and the Minimal Duration of Immunity. *Arch. Dis. Child.*, 1930, v, 291.

Clinical Memoranda

A MODIFICATION OF BENEDICT'S TEST

In most laboratories either Fehling's reagent¹ or Benedict's qualitative reagent² is used in making a preliminary rough estimate of the amount of sugar in the urine, but with the application described below I have been able to dispense with the standard quantitative determinations altogether in routine clinical work. The method depends on observing the colour of the filtrate obtained after boiling the urine with Benedict's qualitative reagent. By experiment it was found that 5 c.cm. of the reagent is just decolorized by 0.5 c.cm. of 2 per cent. glucose (that is, 10 mg.) in five minutes in a boiling-water bath.

TECHNIQUE OF TEST

Five c.cm. of Benedict's qualitative reagent and 0.5 c.cm. of urine are mixed in a test tube, which is placed in a boiling water bath for exactly five minutes. The mixture is filtered hot through a fine paper (Whatman No. 44) into a tube of the same bore as that of the standard colour tubes. The colour of the unknown is then compared with that of the standards, the tubes being observed against a white background. If the filtrate is colourless 2 per cent. or more of glucose is present; the test is therefore repeated, employing urine which has been diluted twofold or fourfold, and allowing for the dilution in the calculation. The preparation of the standard colour tubes and the concentration of sugar to which each corresponds will be clear from the following table.

No. of Standard Tube	Amount of Benedict's Solution (c.cm.)	Amount of Distilled Water	Percentage of Glucose to which Tube Corresponds
		0.5	0.0
1	4	1.5	0.4
2	3	2.5	0.8
3	2	3.5	1.2
4	1	4.5	1.6
5	0	5.5	2.0 or over
6			

The above data have been established by direct experiment. Thus it was found that the colour of the filtrate, after heating 5 c.cm. of reagent and 0.5 c.cm. of 0.4 per cent. glucose in a boiling-water bath for five minutes, exactly matched the colour of a mixture of 4 c.cm. of reagent and 1.5 c.cm. of water; and so on for the other tubes. The filtrate may have a greenish tinge which, when marked, renders matching with the blue standards rather difficult. Nevertheless, the accuracy that can be attained by this modification is always sufficient for clinical purposes. The only special apparatus required is a set of six uniform tubes containing the standard solutions. These can be readily prepared from the table given above.

I wish to thank Dr. G. A. Harrison for providing the facilities for doing this work in the Laboratory of Chemical Pathology at St. Bartholomew's Hospital. A compact outfit, comprising a set of standards fixed in a suitable stand, filter paper (No. 44), small filter funnels, and tubes uniform with those containing the standard solutions, can be obtained from British Drug Houses, Ltd., Graham Street, London, N.1.

JOSEPH FINE, M.D.

St. Bartholomew's Hospital.

REFERENCES

- ¹ Harrison: *Chemical Methods in Clinical Medicine*, 1930, i, 96; ii, 85.
- ² Beaumont and Danks: *Recent Advances in Medicine*, 1934, p. 103.

Reviews

GENERAL ANAESTHESIA

Privatdozent HANS KILLIAN's textbook on general anaesthesia, *Narcosis for Operative Purposes*,¹ shows evidence of balanced judgement and outlook, with much experience of both clinical and experimental work. The author's wide reading is shown by the liberal documentation to every chapter, and indeed it may be questioned whether the book is not overloaded with references, though, as he states, the literature on the subject is terrific (*ungeheuer*). The history of anaesthesia and of the various agents and methods employed is concisely and fully given; recent innovations are mostly described, excepting divinyl ether, while pending further experience judgement on cyclopropane is withheld. The author explains that the development of the specialty in Germany has been hindered by economic and other causes, and that operating surgeons generally demand as complete a control of the anaesthesia as of the operation, while specialization is often condemned. Though he states here that the future will show whether these conditions really make for the benefit of patients, in a later chapter he ascribes the failure to make use of nitrous oxide in dental work largely to the absence of specialists.

The arrangement of the book is rather unusual, for the theoretical aspects of narcosis as a whole—chemistry, physics, absorption, elimination, etc.—are very fully and completely described and illustrated with graphs, charts, and tables, as are its effects on the various systems and on the metabolism. The technical side is also fully dealt with—namely, the preparation of the patient, stages and progress of anaesthesia, signs of depth, and so on. In regard to the latter, eye signs rightly appear very low down on the list, while alterations in breathing are placed high. A transatlantic flavour is given, among other things, by the graphic schemata for the course of anaesthesia with the various agents. The prevention and treatment of complications are described.

The amount of space given to the details of administration contrasts strongly with that devoted to theory; thus, although the technical chapter comprises 100 pages, the allotment of space for practical instruction is as follows: Ether, "open" nine lines, Ombredanne fifteen, vapour methods twenty-eight. Chloroform has one line only—"The use of chloroform in clinical practice is forbidden," a verdict which many may think too harsh. Nitrous oxide, including gas-oxygen, has eight lines. The use of 100 per cent. gas for induction is condemned, while throughout the book particular emphasis is laid on the need for the avoidance of cyanosis and for the maintenance of high oxygen percentages, an opinion which may not be shared by all authorities. Ethylene has three lines, narylen (acetylene) five, and others in proportion.

The statistics of anaesthesia, also its deaths, complications, and sequelae, are fully and cautiously discussed, while the comparative mortality figures are very fairly given. The use of methods other than narcosis is considered, without bias, for various operations and regions. A section on therapy makes no reference to the use of carbon-dioxide-oxygen mixtures in asphyxia neonatorum.

The author's attitude towards basal narcosis is conservative, and he considers that, although the barbiturates give good results with gas, their use has increased the mortality and morbidity rates for ether (though lack of skilled administrators may not be without influence here). Avertin is condemned for chest surgery, owing to its depressant effect on an already hampered respiratory

system, and in general he considers that its use will decrease in future. Nembutal is not mentioned. Evipan (endorm) is justly praised as the most valuable of the barbiturate series at present, and though the use of after-doses is described, no extravagant claims are put forward.

Though there is not the customary textbook display of small instruments, a fairly complete range of gas and other apparatus is illustrated, but no complete British machine, with which the author is evidently unfamiliar, since though two small ones are shown, one is described, but quite incorrectly, while the other, which is said to be similar, is in fact totally different in design and construction (pp. 377-8). The mouth-hook on a nasal gas fitting is strangely described as a suction tube (p. 373). The author's machine appears well designed and practical, but the block of his sight-feed is upside down (p. 361). He is not at all enthusiastic about carbon dioxide absorption methods, but advocates the exhaustion of expired gases from the machine, or mask. A novel principle described is the use of anaesthesia under negative pressure for producing anaemia during cerebral operations. Tracheal insufflation and intubation are described, but there is no mention of Magill's "blind" method. It is admitted that the former prejudice against tracheal methods in Germany was unjustified, and that they should be more widely used. The mode of intubation described (p. 343)—namely, to insert the spatula between the cords and then to twist it so as to separate them widely—will hardly commend itself to English readers. A chapter on explosions and safety precautions stresses a danger which has had little attention here.

PARSONS'S "DISEASES OF THE EYE"

It is a pleasure to extend a welcome to the seventh edition of Sir J. HERBERT PARSONS's manual of *Diseases of the Eye*.² Four years have passed since the sixth edition appeared, and during these four years ophthalmology has seen considerable advances. It is one of the best features of this book that the essentials of the new knowledge are incorporated in each successive edition without adding to its bulk or changing its character. As has been said in previous reviews, its lucidity, its comprehensiveness, and its compactness make this an ideal textbook for the student as well as an excellent reference book for the practitioner, while its worth is enhanced by the absence of polemic discussions of theoretical matters of temporary interest or questionable value, and by its insistence on the practical points of diagnosis and treatment as these affect the everyday practice of ophthalmology. What is new is not added to the text inconsequently, but it is sifted and assessed by a mind of unusual critical power in the light of an experience which it would be difficult to parallel. The book has always been considered the best manual on its subject in our language; the new edition will carry on this tradition, and well deserves to do so.

DETERMINATIVE BACTERIOLOGY

Most bacteriologists, at any rate those concerned with the teaching of this subject, are already acquainted with BERGEE's *Manual of Determinative Bacteriology*.³ All will admit the necessity for the introduction of order into the chaos of bacteriological classification. Unfortunately the system elaborated by the Committee of the Society of American Bacteriologists, which this manual presents, has not received universal sanction; even the society itself

¹ *Narkose zu Operativen Zwecken*. By Dr. Hans Killian. Berlin: J. Springer. 1934. (Pp. 406; 165 figures. RM.24; geb., RM.26.80.)

² *Diseases of the Eye*. By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., F.R.S. Seventh edition. London: J. and A. Churchill Ltd. 1934. (Pp. 695; 353 figures; 21 plates. 18s.)

³ *Bergey's Manual of Determinative Bacteriology*. By David H. Bergey. Fourth edition. London: Baillière, Tindall and Cox. 1934. (Pp. xvi + 664. 27s.)

REVIEWS

JULY 28, 1934]

points out that the system is in no sense official or standard. However, opinion for and against what has come to be known as the American system of classification crystallized out long ago, and in introducing the fourth edition the duty of the reviewer is mainly confined to announcing its appearance. This new edition contains additions and modifications. Two new genera have been recognized—*Brucella* and *Listerella*—and the genus *Pfeifferella* has been combined with *Actinobacillus*. Many new species have been included, and some organisms have lost their specific status. However, those interested will consult the book and see for themselves the advances which have been made.

"ANNALS OF MEDICAL HISTORY"

The May instalment of the *Annals of Medical History* opens with an extremely interesting but hitherto somewhat neglected subject—the costume and outward trappings of medical men; Mr. W. J. Bishop has here brought together a great deal of information from many sources, including the Royal College of Physicians of London, and has introduced some lively quotations and episodes. Dr. H. E. MacDermot of Montreal contributes an attractive analysis of the early editions of Osler's *Textbook of Medicine*, and from a study of the author's own copies in the Osler Library at McGill traces the changes in the successive editions, and brings to light many of Osler's quips and turns of speech. In the next article Dr. Pitfield gives a sketch of the life of Dr. T. H. Chivers, "the wild Mazepa of letters," also described as being "at the same time one of the best and one of the worst poets in America" in the first half of the last century. Dr. W. E. Robertson's article on physical diagnosis from the time of Röntgen is not such modern history as the title suggests, for reference is made to the activities of medical pioneers before the discoverer of x rays was born; a number of eponymic physical signs are mentioned, among them Riesman's sign in exophthalmic goitre, which are unfamiliar to many medical men. The state of treatment in this country, as judged by John Wesley's popular *Primitive Physic* (1772) is compared with that in Persia at the beginning of the sixteenth century, as shown in Joseph of Herat's work on therapeutics, by Dr. H. A. Lichtwardt of Meshed, who arrives at the rather startling conclusion that there was not much difference between them. Dr. B. W. Weinberger of New York contributes a well-illustrated article on ancient dentistry in the *Old World*, and Dr. Lynn Thorndike provides a glimpse of the state of medicine in the third quarter of the seventeenth century by analysing the *Bibliographia Medica et Physica Novissima* (1681) of Cornelius a Beughem.

MOVEMENT, MANIPULATION, AND MASSAGE

Written as a handbook for the qualified masseur and in the hope of interesting medical practitioners in the prescribing of massage for their patients, Dr. J. B. MENNELL's *Massage, Its Principles and Practice*, has become the standard English book on the subject. It was published during the war, and was then remarkable for the progressive views which have wrought such a change for the good in the treatment of recent injury, and have aided so many disabled men in recovering the greatest possible measure of functional activity.

A third edition has now appeared, under the new title of *Physical Treatment by Movement, Manipulation, and Massage*. New Series, vol. vi, No. 3, May, 1934. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc., London: Baillière, Tindall and Cox. (Pp. 193-290; illustrated. Volume of six numbers, £2 15s.; single number, 12s. 6d.)

Massage.⁵ This change is a happy one, for it indicates the more comprehensive nature of the contents, the earlier title having suggested treatment limited to massage in the more restricted sense of the term, although the book actually covered a wide field of physical treatment. The new edition has been greatly augmented, and much has been rewritten. Some wholly new chapters have been added, including a timely one on "the use and abuse of the faradic current," which comprises a description of the technique of applying the faradic current for one of its lesser-known properties—namely, its sedative effect and its use in teaching relaxation. A new section on "referred pain from the back" has been added to the valuable account of the problem of backache, and the importance of the two chapters devoted to this subject cannot be too highly stressed. The simplified diagrams illustrating them are clear and telling. Another new chapter which will be welcomed deals with joint manipulation. Concerning physical treatment in obstetrics and gynaecology, the detailed prescription for measures to be adopted during the puerperium gives exactly the information most helpful to a masseuse who, after qualification, may for the first time have an opportunity of administering this very beneficial prophylactic treatment. Altogether, the third edition of Dr. Mennell's book is a distinct advance on the original edition, admirable though the latter was, and it ought to be possessed and seriously studied alike by the experienced masseur and the medical practitioner.

LEPROSY CONTROL IN MALAYA

The Government of the Federated Malay States has issued a booklet⁶ describing the Leper Settlement at Sungei Buloh in order to record the steps that have been taken to fight this disease and with a view to assessing so far as is possible the extent to which the effort is proving successful. The Settlement was completed in 1930 in conformity with the Malayan law that every leper must be segregated. After eliminating from the valley in which it was placed all breeding grounds for the *Anopheles maculatus*, and the eradication of indigenous malaria, fifty-seven acres were taken over for the necessary living houses, farm area, fruit plantations, enclosures for rearing live-stock, administrative buildings, treatment blocks, and playing fields. There is accommodation for nearly a thousand lepers, obtained at a cost of about £100,000. Most can walk about, and assist in the conducting of the Settlement life, but for advanced cases and the sick there are two specially constructed wards for men and one for women. The principles of modern town planning have been skilfully introduced into the Settlement, no monotonous streets or dull blocks of houses being permitted. There is no suggestion of control by coercion; the settlement is not on an island, there is no wall, and no outside guards or police between it and the main road to Kuala Lumpur. Yet very few lepers attempt to escape, and most of those who do so return voluntarily in a short time. Ample opportunity is given for recreation, and the work and partial control of the Settlement is in the hands of the lepers. There are five social clubs and an open-air cinema; dramatic entertainments are arranged from time to time, with obviously beneficial results on the health of the leper children. Educational facilities are provided. The workers in the Settlement receive a small monthly payment.

Discussing the problem of marriage among lepers, Dr. G. A. Ryrie, who has been medical superintendent for *Physical Treatment by Movement, Manipulation, and Massage*. By J. B. Mennell, M.A., M.D. Third edition. London: J. and A. Churchill Ltd. 1934. (Pp. 618; 274 figures. 21s.)

⁵ *Physical Treatment by Movement, Manipulation, and Massage*. By J. B. Mennell, M.A., M.D. Third edition. London: J. and A. Churchill Ltd. 1934. (Pp. 618; 274 figures. 21s.)

⁶ Malaya Publishing House, Ltd., Singapore.

most of its existence, and has drawn up the booklet, defends the provision of married quarters. He points out that no child is ever born with leprosy, but it is necessary to remove such children from their leprosy parents in order to prevent infection. The birth rate is low. Children born in the Settlement are removed after two weeks to the General Hospital in Kuala Lumpur, where they are cared for at Government expense. When the parents are discharged from the Settlement their children are returned to them; others are adopted by benevolent families outside. Patients are encouraged to look forward to ultimate discharge; they are considered free to leave after having been for six months free from symptoms both clinically and bacteriologically. On discharge a patient is given a railway ticket to his home and a certificate to his previous employer. There are a dozen leper "policemen," who organize exercise groups, help the older people and the children, act as messengers in the Settlement, and generally promote an atmosphere of courtesy and good will. In these ways a small staff controls happily and successfully a thousand patients who are legally in detention, even though there are at least six different religions and a babel of languages. All except the most hopeless cases are under treatment, and research is in active progress on this mass of clinical material. There are special centres for teeth disorders, the treatment of venereal diseases, children, and sores of the hands and feet.

Dr. Ryrie discusses the interesting topics that arise in connexion with this modern way of tackling a national problem. The success achieved is indicated by the steady rise in the number of voluntary admissions. The Settlement educates the leper in the way he should live, and sends him out to carry the information to others. In no other country does the same field exist for the investigation of the different racial varieties of leprosy, for the observation of relative incidence and its causes, and for the consideration of the effects of national diets and habits on the course of the leprotic process.

Notes on Books

In his little book *Studies in Blood Formation*⁷ Dr. T. D. POWER describes and discusses his observations on the administration of sulfosin, thyroxine, and indian ink to rabbits and man, and also the blood changes that follow the treatment of general paralysis by malarial parasites. These observations do not advance our knowledge of blood formation, and the discussions involve amateur speculations of little value. The introductory chapters, which are concerned with haematological technique and the histology of the blood and bone marrow, are superfluous, and will not appeal to haematologists familiar with these subjects. The cytology of the bone marrow cannot be studied satisfactorily in sections. The author does not make it clear that reticulocyte formation *always* precedes the formation of mature red cells, but the appearance of reticulocytes in the circulation depends largely on the rate of maturation of these cells in the bone marrow.

The latest addition to the historical series of *Clio Medica* is the little book on *Japanese Medicine*,⁸ by Dr. FUJIKAWA, which first appeared in a German form in 1911, at the International Health Exhibition held at Dresden, and has now been translated into English by Professor RUHRÄH, with a supplementary chapter on recent medical history in Japan by Dr. KAGEYAS W. AMANO. The book is divided into ten chapters, devoted to the history of medicine in Japan from remote antiquity down to the

⁷ *Studies in Blood Formation*. By T. D. Power, M.D., M.R.C.P., D.P.H., D.P.M. London: J. and A. Churchill Ltd. 1934. (Pp. 124; 25 figures. 8s. 6d.)

⁸ *Japanese Medicine*. By Y. Fujikawa, M.D. Translated from the German by John Ruhräh, M.D., with a chapter on the recent history of medicine in Japan by Kageyas W. Amano, M.D., D.Sc. New York: Paul B. Hoeber, Inc. 1934. (Pp. 114. 1.50 dollars.)

present day. At first all medical lore came out of China, but from the seventeenth century onward European practitioners, especially the German and Dutch, who came to Japan as physicians to their respective embassies, had considerable influence in the development of Japanese medicine. The chapter on the recent history of medicine, by Dr. Amano, contains an illustrated account of the work of Shiga, Takamine, Kitasato, Noguchi, Inada, and Ido, among others, and a list of Japanese medical schools. A chronological table of the chief works in Japanese medicine, from 413 B.C. to the present day, is appended.

A review of the many medicaments of every description that have been used in the treatment of arterial hypertension is furnished by Professor ROCH⁹ of Geneva, and should be of service to medical practitioners anxious to try yet another treatment for this chronic malady. The book is well written, and the indications for the various lines of treatment suggested are clearly described.

In a thesis on Local Treatment of the Lung¹⁰ Dr. VICENTE DE PABLO maintains that the modern method of local treatment of the various accessible organs should logically be applied to the lung. The only method hitherto employed has been that of tracheo-bronchotherapy, which has been carried out by relatively few persons, owing to the difficulties in its performance. On the other hand, the transglottic method of Garcia Vicente, adopted by the author, is simpler, and enables the treatment to be applied directly to the trachea, bronchi, lungs, a single lung, or a single lobe. A bibliography of 107 references is appended.

Mr. C. L. HINTON, of the British Association of Research for the Cocoa, Chocolate, Sugar, Confectionery, and Jam Trades, has compiled a *Summary of Food Laws and Regulations*, and this is published at the high price of one guinea by the Nema Press Ltd. (33, Tothill Street, London, S.W.1).

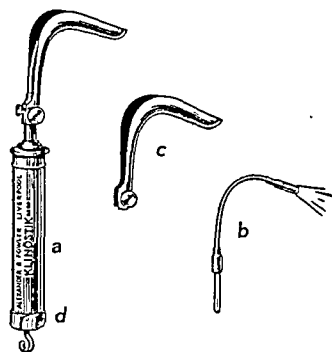
⁹ *Les Traitements de l'Hypertension Artérielle*. By Maurice Roch. Paris: Masson et Cie. 1934. (Pp. 128. 20 fr.)

¹⁰ *Medicación local pulmonar por vía intratraqueal*. By Dr. Vicente de Pablo. Cordova and Buenos Aires: A. Lopez. 1933. (Pp. 57; 21 figures.)

Preparations and Appliances

A NEW LIGHTED VAGINAL SPECULUM

Mr. M. DATNOW, F.R.C.S. (Liverpool), writes: For the purpose of simplifying the demonstration of the cervix and its lesions to students, I have had made for me by Messrs. Alexander and Fowler, Liverpool, the speculum illustrated below. Its advantage is that it is compact and simple to sterilize, as the whole instrument, except for the battery, can be boiled. The parts are easily detached and there is nothing



to go wrong. The battery is contained in the handle (a); the cap (d) acts as a switch and has a hook attached on which may be placed a weight so that, for operating purposes, the speculum can be retained with the patient in the lithotomy position. The other parts are the light (b) and a detachable blade (c), which can be procured in different sizes.

Inspection of the cervix, vaginal fornices, and anterior vaginal wall are greatly facilitated by this instrument. I have

PREPARATIONS AND APPLIANCES

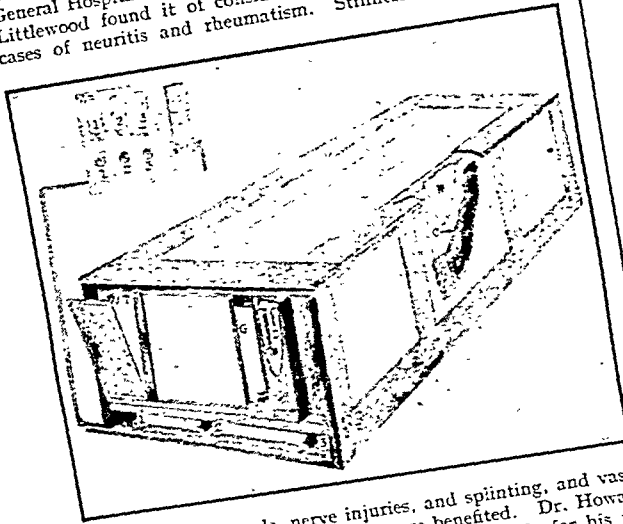
JULY 28, 1934]

also found it very useful in operations in nulliparae and persons with narrow vaginae, where a light which occupies no room is a distinct advantage. There is no doubt that inspection of the cervix will not infrequently reveal a small polyp or ulcer that is missed by palpation. The omission of cervical inspection during gynaecological examinations frequently leads to important lesions being overlooked in the early stages. I hope that this speculum, by facilitating inspection, will encourage this procedure.

AN ECONOMICAL DESIGN OF THE MELTED PARAFFIN WAX BATH

Sir LEONARD HILL, M.B., LL.D., F.R.S. (Supervisor, St. John Clinic and Institute of Physical Medicine, Ranelagh Road, London, S.W.), writes:

Treatment by application of melted paraffin wax was first carried out in France. Some years before the war Mr. W. L. Ingle noticed that many of his workpeople were in the habit of immersing their hands and feet in a vat of wax, which was at his works at Cherwell, Yorkshire. The vat had a holding capacity of half a ton, and steam was used for heating it. So many were benefited by it that Mr. Ingle, during the war, presented the bath to the 2nd Northern General Hospital for the use of wounded soldiers, and Colonel Littlewood found it of considerable value in giving relief in cases of neuritis and rheumatism. Stiffness of muscles and



joints, due to wounds, nerve injuries, and splinting, and vasomotor troubles such as frost bite were benefited. Dr. Howard Humphris, having seen this bath, had one made for his use in London, and in a lecture given in 1919 stated that he had found it useful for chilblains, neuritis, rheumatic and gouty joints, fibrositis, cramp in the calf and intermittent claudication, eczema vesiculosum, and phlebitis. The bath was made of white glazed fire-clay, 3 inches thick (to prevent radiation of heat), and was fitted with a self-contained heating apparatus which kept the wax at the required temperature (120° to 130° F.). If the melting-point of the wax is 110° when the patient immerses, say the hand, in the bath for twenty to thirty minutes the wax forms a glove of solidified wax on the part, and the vapour under this acts as an insulator and prevents burning. The sensation of heat is thus quite comfortable. When the part is removed and allowed to cool for two to three minutes the wax coating is easily peeled off. The bath itself is thus not contaminated, while the wax peeled off the patients is reddened, moist, and somewhat greasy, and in ideal condition for massage. The patient usually experiences relief from pain, and finds the joints more limber. Patients with nerve lesions can stand only 115° to 118° without blistering, while others can stand 130°, and even up to 140°.

Immersion of a part in the bath, according to Dr. Howard Humphris is a better form of treatment than pouring melted paraffin wax on to it.

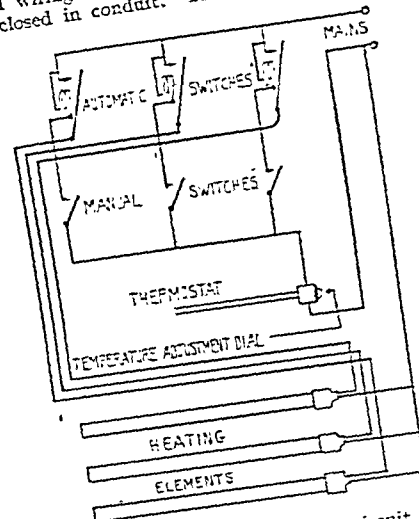
The paraffin-wax bath has been found costly to run, and I have been told of a general hospital being forced to give it up on that account. The excessive cost is due to the

amount of current required for keeping the bath hot. It was obvious that the cost might be very much lowered by proper insulation. Glazed firebrick is a good insulator for high but not for low temperatures.

With the help, then, of Mr. H. Saunders of 205, Chichester Road, N.9, an engineer well versed in problems of insulation, a bath was so constructed that the cost of electric current for running it was only 1s. per week when the bath was covered and not in use, and under 6s. per week when one hundred treatments per week were being given.

The bath consists of a water-jacketed tank, whose inside dimensions are 4 ft. 6 in. long, 2 ft. 3 in. deep, and 2 ft. 6 in. wide, provided with electric heaters in the jacket wall, which heat the water, W, with which the water-jacket is filled. The water-jacket is 3 in. wide at the sides and 5 in. at the bottom. The outside of the jacket is packed with cork, C, insulation 4 in. thick, and finished with panelling.

The working temperature of the bath is controllable by means of the adjustment screw and dial on the thermostat, T, the stem of which projects into the water-jacket, a removable panel being provided to enable it to be readily accessible for adjustment and change of working temperature. The thermostat controls the circuit breakers, 1, 2, 3, which are arranged on the switchboard on the wall of the room, and the electrical wiring from the board to the thermostat and heater is enclosed in conduit. The operation of the heating



system and control is illustrated in the circuit diagram, and their arrangement may be followed from the equipment figure. In addition, a gauge glass, G, filling tube, I, and overflow, D, are provided, these being arranged in another removable panel box above the heater panel.

All elements and components to the heating and water system are interchangeable, and easily accessible to enable their replacement in the event of defects arising—a comparatively simple matter. The wax, which is surrounded by the water-jacket, never comes in contact with any temperature above that at which the water is held; thus no danger can arise from volatilization or fire, and as the area for heat transmission is very large the heat recovery is more efficient. As the usual range of temperature working is approximately 130° F. the water evaporated is not very much, and it is not necessary to provide a permanent connexion to the water supply. Loss of water observed in the gauge glass can easily be made up by feeding water by hand into the feeding tube, I, to the required level. For immersion of the legs a broad seat and back support is arranged at one end of the bath. There are steps, too, at the side of the bath on which patients can stand for the comfortable immersion of their arms. A wooden cover for hand or leg can be constructed by Mr. Saunders on the same principle, and made movable.

The patients at this clinic report very favourably of the wax-bath treatment. The clinic, which was known as the London Clinic, has now been named the St. John Clinic, as the control of the clinic is under the Order of St. John.

British Medical Journal

SATURDAY, JULY 28th, 1934

THE PRESIDENTIAL ADDRESS, 1934

The opportunity given him by his high office naturally leads a President of the British Medical Association to strike a topical note. Often the place at which the Annual Meeting is held is the inspiration of the address. Sometimes the occasion is used for dealing with the special department of medicine in which the President is interested, or for reviewing the progress of medicine or of the Association during the interval which has elapsed since a previous meeting at the same place. Dr. S. Watson Smith, in taking as his subject "Climate and Health," has happily chosen one peculiarly fitted to a place which is perhaps the best example in this country of a health resort richly endowed by nature, which was deliberately created as such and has been developed by the labours of several generations of vigilant and far-sighted citizens. Moreover, the subject is very suitable to a period when physical medicine, of which the study of airs, waters, and places constitutes a very important part, is receiving so much attention. There can be few places, outside the spas of the country, in which such a subject could so fitly be treated, especially as it was followed on Wednesday morning, in the Section of Balneology and Climatology, by a discussion which may be said to be complementary to much that is contained in the Presidential Address.

Dr. Watson Smith's brief reference to those problems of public health which were debated at the Bournemouth meeting of 1891 is a useful reminder, to which the rest of his address can be regarded as a corollary, that the advance of medical science is definitely orientated in the direction of the prevention of disease, largely by means of the improvement of environment. His faith that the British Medical Association can be trusted to be mindful of its responsibility to the public will be a fresh stimulus to a body which is justly proud of its past history, and which has shown by its actions that it is aware that its status depends quite as much on its exhibition of public spirit as on its capacity to promote and defend the interests of the medical profession and its members.

Running through the whole of the address is the belief that the use of what may be called nature's remedies can and should be put on a more scientific basis: that the old empiricism which has too long been associated with this group of remedies is out of date. And it is very useful to have the President's comprehensive definition of climate as "all the solar and terrestrial factors and influences which affect animal and vegetable life, including sunlight, atmospheric temperature, humidity and pressure, movement of the air, and prevailing winds—the factors which make our climate what it is; and . . . also embracing waters and

places." Here, indeed, is a wide field for research, comparatively untilled, which should attract the attention of local workers, for they alone can provide many of the necessary data and help to draw the conclusions which should prove useful to all doctors who have to advise as to choice of a health resort.

The President's interesting, but necessarily rapid, review of the value attached by the fathers of medicine to climate and waters will serve to remind us that there is nothing new under the sun, and also that there were wise men in a generation even more empirical than our own. His passing allusion to the influence of environment on mental reactions is all too brief, and well deserves further elaboration; and the remarks on the influence of climate on national character may give food for thought to those who see in our climate mainly a subject for sardonic humour or idle "grousing." Even our national genius for self-depreciation cannot obscure the fact that the very changeableness and relative absence of extremes of the climate of Britain has bred one of the hardiest and most self-reliant races in the world. There is a real topical interest in the remarks on the dangers of over-radiation. It is possible to have too much of a good thing, and the medical profession knows that the fashionable cult of the sun is not without its drawbacks. All means of treatment that are potentially useful are potentially dangerous if abused, and it is to be hoped that the President's remarks on this subject will reach a wide public. Many holiday-makers spend too much of their time trying to persuade themselves that roasting, however painful, is good for them, and return, from what should be a period of renewal of health and vigour, irritable, enervated, and disappointed.

There are many other parts of the address which deserve careful study, especially by those—and they include nearly every practising member of our profession—who are asked to advise the place in which an invalid or a convalescent can best get what only a change of environment can give. It is certain that the present craving for noise and excitement will pass, and that the reaction will greatly favour those resorts which have preserved their individuality and have not become mere seaside replicas of busy cities. Dr. Watson Smith is no perfervid nationalist; he realizes that there are persons who should be prescribed that complete change of environment which can only be got abroad, but he rightly points out what a wealth and variety of resorts we have at home, in no way inferior to those on the Continent. His suggestion that this great national asset (largely undeveloped, as the Minister of Health recently said) should be cultivated and promoted by public authorities, is well worthy of the attention of our profession, from which the impetus should come; and the same remark applies to his demand for more convalescent homes for all classes of the community.

The President's graceful tribute to his predecessor in 1891, Dr. Roberts Thomson, will be welcomed not only by the older citizens of the town for which he did so much, but by those senior members of the British

JULY 28, 1934]

COMPILATION OF PHARMACOPOEIAS

[THE BRITISH
MEDICAL JOURNAL] 173

Medical Association who remember him both as a dignified President of the Association and as a devoted and very efficient Chairman of Council. We trust it will not be considered an impertinence if we supply two omissions in an admirable address. In the enumeration of the things which contribute to the happiness of the mind which all well-ordered health resorts should supply the President surprisingly did not mention music. Bournemouth has a very honourable record in this matter, for during many years, at great expense, it has created and generously supplied real music which has been a source of happiness to large numbers of its grateful visitors. And is it not desirable that at this time it should again be put on record that it was at Bournemouth that a celebrated seeker after health, Robert Louis Stevenson, wrote one of the finest tributes ever offered to our profession in the dedication of his volume *Underwoods*?

COMPILATION OF PHARMACOPOEIAS

The chairman's address to the British Pharmaceutical Congress this year, which was delivered by Dr. C. H. Hampshire, contains a very interesting comparison of the national pharmacopoeias of European countries. The occasion was opportune because no fewer than eight countries, including our own, have published new pharmacopoeias during the last four years. Dr. Hampshire pointed out that the character of pharmacopoeias has altered essentially during the last two centuries: whereas they were originally collections of recipes, to-day they are books of standards. The contents of pharmacopoeias also have changed fundamentally during the last half-century, since the number of crude organic drugs or galenicals has decreased, while synthetic drugs, hormones, and sera have been introduced in steadily increasing numbers. The aim of a modern pharmacopoeia was stated to be to "reflect the best knowledge of the time in the medical, pharmaceutical, and chemical fields." This definition will meet with general approval, but the attainment of this standard is beset with certain difficulties.

A consideration of the history of drugs shows extraordinary waves of fashion in their mode of use and their popularity, and the problem is how to keep abreast of modern methods and yet to avoid introduction of substances which enjoy an ephemeral popularity and then fall into disuse. Fortunately violent revolutions in therapeutics are becoming less frequent because the subject is more and more based upon scientific evidence instead of upon authoritative statements. On the other hand, the technical and literary efforts of pharmaceutical manufacturers have introduced a new disturbing element. It is, however, satisfactory to learn that there is a very fair measure of agreement between different countries in regard to the compilation of pharmacopoeias. An interesting comparative analysis of the eight recent national pharmacopoeias presented by Dr. Hampshire shows that although some countries

are more conservative than others, yet on the whole the pharmacopoeias have been compiled on fairly uniform principles. Curiously enough the Swiss Pharmacopoeia contains the largest number of monographs (1,148 as compared with 587 in the *British Pharmacopoeia* of 1932), and also contains a high proportion of crude vegetable drugs, galenicals, and compounded preparations. On the other hand, the Spanish Pharmacopoeia is mentioned as being one of the most satisfying and instructive of the modern pharmacopoeias. This contrast is remarkable, since Switzerland is the special home of the synthetic drug trade. The virtual correspondence between modern pharmacopoeias naturally raises the question of the practicability of an international pharmacopoeia. This project was started in 1874, and a pharmacopoeia was actually prepared in 1885, but the book never came into use in any country, and was forgotten. Since then attention has been concentrated on obtaining international uniformity regarding the more potent drugs, and a large measure of success has been attained by the two international congresses, in 1902 and 1925. Unfortunately, however, no permanent machinery has been evolved. It was hoped that the League of Nations would take over such work, but this has not yet been arranged.

The substantial agreement that occurs in practice between the pharmacopoeias of different countries is a gratifying proof of the international character of modern medical science. Many and obvious difficulties stand in the way of establishing an international pharmacopoeia, but there is no doubt that unification of standards would be greatly accelerated if there were any form of permanent international organization which interested itself in this work. The international conferences on vitamin standardization have proved how much can be accomplished in the unification of standards, and we may hope that before very long the Health Organization of the League of Nations will find it possible to set up a permanent organization to encourage and facilitate international agreements regarding pharmacopoeial preparations in general.

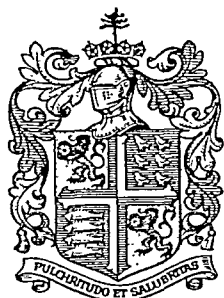
SIR ROBERT MUIR

The current issue of the *Journal of Pathology and Bacteriology* (July, 1934, xxxix, No. 1) is published in honour of Sir Robert Muir, on the occasion of his seventieth birthday, and is composed entirely of papers by his former pupils. This admirably conceived tribute gained even further by the circumstances of its appearance, for every member of the Pathological Society received his copy on July 5th, the day of this anniversary, and we understand that for Sir Robert Muir himself its arrival on his birthday morning was the first intimation that the next issue of this journal was to contain any unusual feature. The career which this volume is designed to honour is one without any exact parallel among British pathologists in this generation. During his thirty-five years' tenure of the chair of pathology at Glasgow Sir Robert Muir has raised this

school to a commanding position. He has himself made notable contributions to knowledge, particularly in studies of immunity and of the metabolism of haemoglobin and bile pigments. His influence has contributed largely to securing due recognition and independence for the study of pathology, and to according it a proper place in the medical curriculum. But it is as a teacher that his greatest work has been done. The surest tribute that can be paid to a teacher in any branch of medicine is that his pupils, after graduation, should return to that branch as their life's work. If they are then encouraged and inspired to embark on the difficulties of original research and an academic career, the achievement on the part of the man shaping their destinies is greater still. It is to this that the school of pathology in Glasgow owes its present unequalled reputation. The pupils of Sir Robert Muir have carried the influence of Glasgow far and wide, and they are to be found as teachers of pathology in many places. It is because the careers of his pupils represent their teacher's highest achievement that the present tribute to him is so singularly appropriate. Of the authors of the twenty papers which it contains, ten are occupants of chairs of pathology or bacteriology in medical schools in Great Britain. We congratulate the editors of the *Journal of Pathology and Bacteriology* on a happy epitome of one of the great careers of this generation, and wish Sir Robert Muir many more years in which to enjoy the honoured position he has reached.

"THE BOOK OF BOURNEMOUTH"

Every member attending the one hundred and second Annual Meeting of the British Medical Association this week has received a copy of the *Book of Bournemouth*,



edited by the President-Elect, Dr. S. Watson Smith. This is a very handsome and well-produced volume, reflecting great credit on the editor and his able fellow contributors, and on the publishers, Messrs. Pardy and Son of Bournemouth. For many years past it has been the custom to publish a book on the town in which the Association meets, and all who turn its pages will agree that the *Book of Bournemouth* is one of the best of a long series. For this result due praise must be given to the Bournemouth County Borough Council, which has generously borne the cost of production. The blue binding, with gold crest and lettering, is most attractive, and within the covers are delightful maps drawn by Dr. E. G. R. Grant. The frontispiece is a portrait of the President-Elect, and this and the many other illustrations form a notable feature of the book. Indeed, all the photographs, sketches, and old prints are admirably reproduced, so that apart from the interest and literary merit of the letterpress this volume will be treasured as a memento of the Annual Meeting of 1934. "Each article," writes Dr. Watson Smith in his preface, "is

an individual piece of descriptive writing; together, the various essays picture one of the most naturally beautiful and historically interesting parts of England." Each of the twenty-two essays, as well as the "index of places of historical interest and natural beauty in the neighbourhood," deserves individual notice, but space permits brief mention of only a few. The geology, geography, and natural history of the Bournemouth area are attractively described by local experts, and the editor himself writes on climatology, on hospitals and benevolent institutions, and on Bournemouth in 1934. The history of "the queen of watering-places" is sketched by the borough librarian, and the development of Bournemouth as a health resort by the medical officer of health, Dr. H. Gordon Smith. Mr. Herbert Druitt contributes learned notes on early Christchurch, and Dr. Le Fleming conveys the spirit of Wimborne within less than two pages. Mr. Clive Holland writes on the literary associations of Hampshire and Dorset, and Mr. Stanton on the place names of the two counties. Other articles are devoted to Cranborne and Cranborne Chase, to Poole past and present, to the New Forest and the Hampshire Avon, and to the Purbecks and the lakeland of Dorset. Altogether a charming book, of much historical interest.

ANNUAL REPRESENTATIVE MEETING

Gorgeous skies and inviting beach were not able to seduce the representatives from their hard labour in the Town Hall at Bournemouth. The Representative Body sat more closely to its business than at any meeting of recent years, its programme being a full nine-hour day, with two very brief intervals. Yet in spite of this full pressure, the state of the agenda on Saturday evening caused the chairman some anxiety. Whenever a speaker had begged an extension of time this had readily been accorded by the meeting, until at length the chairman, Dr. Le Fleming, said that he would be compelled, in the interests of the important matters yet to come forward, to overrule such generosity. It can safely be claimed that no other professional or technical body at its annual conference allows itself so little relaxation or sits so continuously to its task. Moreover, some of the best debating this year has taken place during the later stages of the meeting, when passing from preliminary and domestic matters to subjects of wider concern, such as medical education and public health. Indeed, one representative was so exhilarated that he proposed that the Representative Meeting should sit on Sunday, a proposal which found no favour. At the Representatives' Dinner the chairman remarked on the fact that although there were nearly a hundred representatives attending the meeting for the first time, very few fresh voices so far had been heard. It was certainly true that the honours of debate remained with the seniors, and in particular with a former Chairman of the Representative Body, Dr. Hawthorne, who won fresh laurels for platform mastery. Whether he appeared as Chairman of the Ethical Committee, pressing recommendations in face of not a little dissent, or, having doffed that mantle, as the principal dissenter against other recommendations of the Ethical Committee, he was equally persuasive as an orator and formidable as an opponent. As a little example of his readiness in repartee one

July 28, 1934]

THE BOURNEMOUTH MEETING

incident which convulsed the meeting may be quoted. He was in the midst of a speech when he heard an ejaculation below him which he at first took to be a question or challenge to his statements. Realizing after a moment that what was taking place had nothing to do with the debate, he remarked, in all good humour, "Oh, I am sorry to have intruded into a private conversation!" The impression remains that, with Dr. Hawthorne's dialectical skill, Sir Henry Brackenbury's logic, and Sir Robert Bolam's incisive argument, they have been days of triumph for the elders. With this meeting Dr. Le Fleming reached the end of his period of office, and we may be allowed to add a word to the many said at Bournemouth in praise of his admirable conduct of the business of the Representative Body during the past three years.

THE REPRESENTATIVE BODY RELAXES

It is perhaps a truism to-day to say that each Annual Meeting is unique. But this quality of uniqueness depends as much as anything else upon the locality of the meeting. The doctor is always a good host because he understands the psychotherapeutic value of benevolence, and to his own colleagues he gives the outward semblances of benevolence—good food and wine, good company and entertainment—without stint and with both hands. At the end of a hard Saturday's work in the Annual Representative Meeting, during which chiropody had its full share of attention, he forgot the penalties of dancing in ill-fitting shoes in the pleasant entertainments offered by the Bournemouth Medical Society at the Burlington Hotel, Boscombe, and by the British Dental Association at Branksome Towers Hotel. If corns and bunions were to develop, there was always the comforting assurance that his fellow representatives, who had refused a measure of recognition for the chiropodists, would offer him expert advice and treatment. On the Sunday the civic authorities of Poole showed that in the matter of hospitality they could meet the medical profession on its own ground, and the representatives and their wives enjoyed to the full the delightful excursion round Poole Harbour arranged by the Mayor and the Corporation of Poole. Some 400 guests went by motor-coach by way of the lovely Canford Cliffs—pausing to inspect the Sandbanks Bathing Pavilion—to the municipal buildings of Poole, where they were welcomed by the Mayor, Councillor W. C. J. Shortt, J.P. After a lunch, at which both appetite and calories were admirably provided for, the Mayor toasted the British Medical Association in a brief and gracious speech. Extending them that the Romans had used its waterways some 2,000 years ago, and that since then it had played an important part in naval and military history. Replying to the toast the Medical Secretary, Dr. G. C. Anderson, having classified succinctly—and, to judge from the laughter, not inaccurately—the various ways in which the Annual representatives attended to the business of the Annual Representative Meeting, paid a handsome tribute to the *Book of Bournemouth*. After Dr. Anderson had concluded his speech by expressing thanks for the hospitality of the Corporation of Poole, Dr. Le Fleming proposed the toast of "The Borough." Poole, he

said, had suffered many invasions in the course of its history, but this visit of the British Medical Association must be counted as one of its major incursions.

INCREASED MORTALITY FROM DIABETES

A statistical study of diabetes mellitus has recently been published in the *American Journal of Medical Sciences*,¹ in which the physician Joslin co-operates with two statisticians from the Metropolitan Life Insurance Company. In this way a really important and balanced picture of the incidence and mortality of diabetes has been produced, essentially based on a study of American and international statistics, but leavened and weighed by the experience of matured clinical judgement. The conclusion to be drawn is clear from their facts—namely, that diabetic mortality is increasing all over the civilized world. The authors offer no explanation of the phenomenon. The first article, on characteristics and trends of diabetes mortality, clearly reveals how diabetes is becoming more and more prevalent throughout the world. As a cause of death in the United States registration area it has advanced from twenty-seventh in rank in 1900 to ninth in 1932. In practically every European country there is a comparable increase, and countries of European descent, like New Zealand and Australia, share in it. There is a clear tendency in Europe for Teutonic peoples to suffer more frequently from diabetes than the Latins. In England the recent death rate are the highest on record, that of 1931 being 29.5 per cent. higher than in 1925, and 45 per cent. higher than in 1920. This rise in the registered diabetic death rate is nothing new, and has been progressing fairly uniformly since at least 1900. It shows two periods of war, and, secondly, during the early years after the general use of insulin. But of late years, in which the employment of insulin has been more efficient and widespread, the mortality rate has been higher than ever. Does this mean that insulin is at least statistically ineffective, or is there some other explanation of the mounting death rate? The authors supply further statistics of interest and importance on these questions. The increase in diabetic mortality is only in the latter decades of life, from 45 years onwards. Below this age the death rate has actually declined. It is certain that the previously most fatal and quickly progressive types of diabetes—in children and in early adult life—have been definitely checked and diminished by insulin. The death rate in young diabetics has fallen by more than half. Still more striking is the difference in sex mortality. Some twenty years ago more men died from diabetes than women, and the death rate in males has risen very little. In women under 35 there is also no recent increase, but in later life a very substantial rise has taken place, until at the age of 65 the number of female deaths is twice that of males. This is true in America of both white and coloured people, and in England and in most of North-West Europe. As regards countries, America has been in the most "civilized" countries. America where trustworthy statistical evidence is available, this indicates that the greatest increase in diabetic deaths

¹ *Amer. Journ. Med. Sci.*, December, 1933, p. 753, and April, 1934, p. 433.

leads the race, and on the present figures it is computed that over 2.5 million persons, or 2.1 per cent. of the population, will eventually succumb to diabetes. It is again apparent that the death rate among Jews is much higher than among Gentiles. But this is true only of ages over 55; in the young there is no difference between the two groups. It is interesting to note that in Ireland the diabetic death rate is low, whereas in the American Irish it is unusually high: the standard of living of the latter is better, and an unusually large proportion are engaged in the liquor trade. The statistics on occupational incidence are clear and interesting. The labourer and the manual worker have the lowest death rate; that of the professional man and the mental worker is much higher; and the list is headed by persons occupied in the distribution of food and drink. The mortality of hotel keepers and publicans is the greatest recorded for any occupational group (England and Wales). A discussion by the authors on the factors influencing the incidence of diabetes will be awaited with interest.

A NEW DIAGNOSTIC TEST FOR CANCER

Laboratory tests with which it is claimed that cancer can be diagnosed are usually performed with the patient's blood. That proposed by Aron¹ employs the urine, a material which was chosen on the assumption that the abnormal metabolism, or alternatively the degeneration of malignant tissue, should liberate bodies which may be excreted by the kidney. The indicator chosen for demonstrating the presence of these hypothetical bodies is the adrenal gland of the rabbit, the argument here being that this organ is highly susceptible to toxic influences of many kinds. The precipitate obtained when about a litre of urine is treated with alcohol is redissolved and injected into a rabbit in divided doses on several successive days, the animal being killed on the day following the last of these. The "cancer reaction" consists in the partial or complete disappearance of lipoids from the cortex of the adrenal, and was obtained in all but two of a series of cases of malignant disease when a sufficient amount of urine was used for the test; earlier attempts with smaller volumes were not always successful. Control urines from normal individuals, pregnant women, and patients with a variety of other diseases gave negative results. As a diagnostic test it would appear from this information that the procedure is of some service, though one would like to know the extent of the growth which must exist before the test becomes positive: a method which is only reliable in the advanced stages of cancer can be of little value. Since urine is so much more readily obtainable in large amounts than blood, it is perhaps also permissible to suggest that some attempt might be made to fractionate the material obtained from it, with the object not only of concentrating the active substance in it but of gaining some idea of its nature. Some such extension of Aron's observations seems all the more necessary because he goes altogether beyond proposing what is, after all, a purely empirical test. Apparently the serum of a rabbit previously treated with urine from a case of cancer will prevent the cancer reaction in the adrenal of a second rabbit treated with the same urine. This pro-

tective effect can also be exerted by the serum of the patient from whom the urine is obtained. These observations, and the (tentative) use of the term "antibody" in connexion with them, place the whole matter on an altogether different footing, and it is clearly necessary to inquire further into the basis of these phenomena. An early step which we think should be taken is to study the nature and mechanism of the change in the adrenal cortex, and the possibility of eliciting it with other reagents. There appears to be no reason why any material from a patient suffering from malignant disease should have this particular type of effect, and, assuming that Aron's observations can be elucidated in this sense as well as verified, the results might be of interest in directions other than that to which his work owes its origin.

CO-OPERATION IN MEDICAL EDUCATION

Our readers will be interested to learn that the Governing Bodies of St. Bartholomew's Hospital Medical College, St. Thomas's Hospital Medical School, and Guy's Hospital Medical School have decided to establish a closer co-operation for the advancement of medical education. The medical schools of London have grown rapidly during the last century and a half. They originated in a system of apprenticeship, under which the students became attached to individual members of the staffs of the various hospitals. Later this system came to an end, and organized schools were established. Early in the present century these schools became constituent colleges of the University of London. The range of medical education has now become so wide, and the subjects included in the training of a doctor so complex, that the problems of the teachers are growing more and more difficult. It is to meet this difficulty that the co-operation between the three schools mentioned has come about. The first steps must necessarily be slow. An executive council has been formed, consisting of the dean and four other members of the teaching staff of each school. Meetings, at which subjects of educational importance will be discussed, will be held throughout the year. The decisions reached will be referred to each school for consideration and such action as may be agreed. In order that the co-operation may be as close as possible the dean of each school will be invited to attend the council meetings of the other two schools when subjects of general interest are being reviewed. A further step has been taken. Certain courses of study are being organized for which it is difficult to cater in an individual school, but which can be arranged without difficulty when the students of more than one school will benefit. Further, the students of each school will be permitted, under an arranged scheme, to avail themselves of the clinical facilities of the other schools. In order to allow the scheme to develop gradually, in some instances the arrangements for an interchange of clinical teaching will be restricted for an initial period to St. Bartholomew's and St. Thomas's. When, after some preliminary experience, the organization has become stabilized, similar facilities will be extended to students of Guy's. It is hoped that co-operation on these lines will be of great value to the cause of medical education, and it is felt that the wider outlook thus made possible for the students must be of real benefit to them.

¹ *Presse Méd.*, 1934, xlii, 833.

JULY 28, 1934]

MEDICAL INSURANCE AGENCY

[THE BRITISH
MEDICAL JOURNAL 177

PROLONGATION OF PREGNANCY

Several workers have shown that it is possible to induce ovulation in the rabbit by a single injection of the anterior pituitary substance extracted from the urine of pregnant women. F. F. Snyder¹ has recently reported that ovulation may be caused in this animal in a similar manner during pregnancy. By injecting intravenously into rabbits 40 R.U. per kilo of body weight of antuitrin-S on the twenty-fourth to the twenty-sixth day of pregnancy, it was found possible in the majority of cases to delay parturition until fifteen days after the date of the injection. The foetuses remained alive for three days beyond the normal period of gestation and became post-mature. Their death did not, however, lead to the onset of labour, which was delayed until the end of the life-span of the induced corpus luteum. In some cases the foetuses were retained for several months, and this phenomenon was invariably associated with damage to the uterus caused by their gross over-development. Pituitrin injected at term failed to induce parturition, although 1,000 times the dosage normally follows coitus, employed. In the rabbit ovulation follows coitus, except during pregnancy. In this series of animals ovulation did not follow coitus until fourteen days had elapsed after the injection of antuitrin-S. The author concludes that in rabbits the onset of parturition is governed by the corpus luteum. In women the corpus luteum commences to degenerate during the fifth month of pregnancy. The significance of these results can best be appreciated if the question, Why does an animal go into labour after a fixed interval of time following conception? be changed to, Why does a hollow muscular organ like the uterus retain the products of conception? In the rabbit the corpus luteum hinders expulsion of the ovum, and in every other animal some inhibitory influence must be at work.

"BRITISH JOURNAL OF TUBERCULOSIS"

Dr. L. S. T. Burrell has succeeded Dr. T. N. Kelynack as editor of the *British Journal of Tuberculosis*. This periodical came into being in January, 1907, and has been conducted ever since by Dr. Kelynack. In the past it has endeavoured to cater for the requirements of lay as well as medical students of this disease, providing articles and discussions on sociological topics as well as on medical subjects. The new editor has had a distinguished career, having been physician to the Brompton, Royal Free, and Royal National Hospitals; he is also consultant physician to the Papworth Village Settlement, Benenden and Midhurst Sanatoria, and an examiner in medicine for the University of Cambridge and the Conjoint Board. Dr. Burrell brings to his new task, therefore, a wide outlook, as well as an exceptionally deep knowledge of tuberculosis in its various manifestations. It is announced that among new features to be introduced into the next volume of the journal, the first issue of which will appear in January, 1935, is the inauguration of discussions of problems of special importance and controversial character. Topics under consideration for this purpose include: the endogenous or exogenous nature of adult infection; why surgical tuberculosis is more common

in the child and the pulmonary form in the adult; the tendency in only some cases for the development of laryngitis and enteritis; why the most virulent type of pulmonary tuberculosis is seen in women during child-bearing age; and cognate veterinary questions. Attempts are to be made to encourage research, and readers are invited not only to send letters for publication, but to suggest problems which might be tackled. Another new feature which will be introduced into each number is a consultation. A hypothetical case will be described, the past history, treatment, present physical signs, and symptoms being given in detail, followed by a discussion of the prognosis and future treatment. Surgical tuberculosis will receive special consideration. The July issue contains a survey of tuberculosis in Wales, with special reference to certain prevailing adverse influences. This is followed by a general review of influences adverse to tuberculous patients, based on an investigation carried out in the county borough of West Bromwich, and bringing into clear relief the importance of the problem of locality in delaying the start of treatment and militating against subsequent maintenance of health. There are also notes on Alpine climate in connexion with laryngeal tuberculosis and a report on gold treatment of the pulmonary form. Dr. Kelynack, to whom the *British Journal of Tuberculosis* owes so much, is continuing his association with it as consulting editor.

MEDICAL INSURANCE AGENCY

A meeting of the committee of management of the Medical Insurance Agency Limited (by Guarantee) was held at the House of the British Medical Association on July 12th, when the report of the Agency's work during the year 1933 and the corresponding balance sheet were adopted. The accounts showed satisfactory progress in the business transacted on behalf of members of the medical profession during the year. In life assurance—an important part of the Agency's work—the results attained in 1932 were surpassed, while in motor car insurance the position was maintained, notwithstanding heavy competition. Fire, household, and miscellaneous insurances have kept at a steady level, both on renewals and in new business. Of the available surplus of £3,297 the sum of £2,937 10s. was distributed to medical charities, as set out below, making a total contribution to the cause of medical benevolence, since the foundation of the Medical Insurance Agency twenty-seven years ago, of £35,625.

	£	s.	d.
Royal Medical Benevolent Fund...	1,460	0	0
Royal Medical Benevolent Fund Guild ...	315	0	0
Epsom College—			
For general purposes ...	£210		
Dawson Williams Memorial Fund ...	£600		
		810	0 0
		300	0 0
		52	10 0
Girls' Education Fund ...			
Royal Home for Incurables, Putney ...			
	£2,937	10	0

By noon on Wednesday, July 25th, about 1,100 members had registered at the Reception Room of the British Medical Association's meeting in Bournemouth.

¹ Bull. Johns Hopkins Hosp., 1934, liv, 1.

ROBERT JONES NATIONAL MEMORIAL

MEETING AT MANSION HOUSE

A meeting, presided over by the LORD MAYOR, who was accompanied by the Lady Mayoress and attended by the Sheriffs, was held at the Mansion House, London, on July 18th, in support of the Robert Jones National Memorial, inaugurated to perpetuate the life-work of the creator of modern orthopaedic surgery. The memorial proposes to establish (1) a Robert Jones professorship in the Royal College of Surgeons of England, (2) a Robert Jones travelling fellowship, to be elected alternately by the Royal College of Surgeons and (jointly) by the University of Liverpool and the Liverpool Medical Institution, and (3) a Robert Jones national trust, to ensure financial aid for orthopaedic centres or institutions, as and when most needed. The office of the National Memorial is at Quadrant House, 55, Pall Mall, S.W.1, and the appeal secretary is Mr. Charles Steuart.

Messages in support of the appeal were read from the Duchess of York, the patron, the Earl of Derby, the president, and the following among other vice-presidents: the Earl of Athlone, Mr. Stanley Baldwin, Lord and Lady Gladstone, the Earl of Lonsdale, Viscount Leverhulme, and Sir William Wheeler.

LORD MOYNIHAN, chairman of the executive committee of the memorial, said that he was voicing the feeling of the whole medical profession that a national memorial should be created to perpetuate the name and achievements of Robert Jones. His services to humanity were of outstanding merit, otherwise a merely local and temporary reminder would have been adequate. The gifts of Robert Jones not only to the science of surgery but to the art of surgery had been of a character that had surely rendered his name and work immortal. Immortality attached only to the things of the spirit, and it was the gift of Robert Jones to the spirit of surgery, and in particular to that very considerable—perhaps most important—department of it known as orthopaedic surgery, that the national memorial was designed to commemorate. Robert Jones's services throughout the war, when he was—perhaps not very easily—appointed Inspector of Military Orthopaedics, A.M.S., were familiar to everyone. He was one of the two great scientific heroes of the war, and it was the barest truth to say that hundreds of thousands of men owed not only their recovery but their restoration to physical health to the skill which he was able directly to exercise.

"The great thing about a member of my profession," Lord Moynihan continued, "is not his immediate work, but the craft he teaches, the spirit he inspires among those who come after. The lessons taught by Robert Jones throughout the war are now part of the heritage of surgeons all over the world. I may arrogate to myself for the moment a wider responsibility, and in the name of my colleagues across the Atlantic say that they will ever bear the name of Robert Jones in proudest remembrance. He was, in a sense, one of them as he was one of us. His work will go forward in every clinic in the world. There are a few men in my profession for whom we may claim immortality—Harvey, and Hunter, and Lister, the greatest of all. But among those whose names are written in letters of everlasting gold that of Robert Jones will certainly find a place. For the crippled children it was he who opened the gates of mercy and of relief."

THE DUCHESS OF ATHOLL, M.P., spoke of the pathos of crippleddom. Although the Royal National Orthopaedic Hospital was founded nearly a hundred years ago, she believed that with the advent of Robert Jones came a new stimulus and the beginning of an enormous development. She remembered well the first time she ever heard of him. It was a year or two before the war, and she recalled the wonder and enthusiasm with which a sister at some centre where he visited the children spoke of his work and of the cures he had been able to bring about. But in those days his work was scarcely known outside the medical profession, and his county scheme existed only in Shropshire, the pioneer county in that respect. When the war came it was a very different story, and

the tragic need for the development and extension of his work became evident. She was proud to think that for a year or two she was commandant at a tiny outpost of the hospitals embracing 33,000 beds, of which Robert Jones was the head and the inspiration. After the war schemes were established in one county after another, generally taking the form of a central hospital building, with clinics in various parts of the county, which clinics were visited from time to time by an orthopaedic surgeon and a trained nurse to see the children who had been returned to their homes from the central hospital and adjust appliances or prescribe massage as might be necessary. Of the proposals for the form of the memorial she welcomed most of all the national trust, out of which would be furnished financial help to the many counties in England and the many more in Scotland, which had no scheme.

SIR JOHN MARTIN-HARVEY, who also spoke in support of the appeal, mentioned some personal aspects of Robert Jones—his smile which was so reassuring to his child patients, his great kindness, and his skill which amounted to genius. When the idea of the first military orthopaedic hospital occurred to him he went to the higher command, and on being asked how many beds he wanted, said, modestly, about 250. Before the war was over Sir Robert Jones and the surgeons working with him and under him were responsible for considerably more than a hundred times that number.

MR. EDWARD HUGHES, chairman of the Rhyl Urban District Council, promised the utmost effort on the part of Rhyl to honour and perpetuate the work of its most illustrious townsman. He mentioned that not only was Robert Jones a native of Rhyl, but that in the hospital there Dame Agnes Hunt, who was so closely associated with him in the work for the cripples, started her career as a pupil nurse.

SIR HAROLD FAWCUS proposed and Mr. ROWLEY BRISTOW seconded a vote of thanks to the Lord Mayor, who, in reply, spoke of his great satisfaction that the Mansion House should take part in furthering the appeal for national recognition, in the form he would have loved, of the work of this great benefactor of humanity.

BRITISH INDUSTRIES HOUSE

SECTION FOR DISPLAY OF HOSPITAL EQUIPMENT

On July 19th the Earl of Derby opened a Medical Centre at British Industries House, Marble Arch, London. The purpose of British Industries House, for the development of Empire trade, has already been described in these pages. The Medical Section includes a complete hospital, occupying 10,000 sq. ft. of floor space, with a 12-bed ward, two operating theatres, a clinical laboratory, an anaesthetic department, sisters' rooms, and the usual accessories. The equipment is complete down to the semicircular sun balcony, the special window glass, the shadowless operating lamp, the taps which turn at the touch of the elbow, the instrument sterilizer, and, in the clinical laboratory, the standard bench and fume cupboard, the balances, calorimeters, centrifuges, and the general material for bacteriological and clinical work. What is claimed to be the most up-to-date hospital in the world is unique in one respect—that it has no patients. It is intended to afford to those interested in the purchase of hospital equipment the opportunity of inspecting modern furnishings and other commodities under one roof instead of having to visit scattered centres of manufacture. The hospital has been constructed from the plans of the architects (Adams, Holden, and Pearson) who are responsible for the new Westminster Hospital. In addition to the hospital there is in the Medical Section a wide range of British-made requisites for medical and surgical work, as well as articles needed on the lay side of hospital maintenance.

At the opening ceremony, which was attended by several hundreds of people, the chair was taken by Mr. H. M. TROUNCER, the chairman of the directors, and among those on the platform were Lord Dawson of Penn, Sir

Humphry Rolleston, Sir Holburt Waring, Sir Crisp English, Dr. E. P. Poulton, and Dr. Alfred Cox, who is chairman of the Advisory Council of the Medical Section.

The EARL of ELGIN briefly described the purposes of British Industries House in general and of the Medical Section in particular. The house itself, he said, consisted of three departments: (1) publicity and propaganda, (2) exhibition and advertisement of industry, and (3) club and meeting place in which the buyers of the world could be put in contact with the Empire manufacturers. The institution would serve as a clearing-house for inquiries and demands. Only a few days after the negotiations for the section took shape an inquiry was received from an authority which wished to set up a hospital as to where a full range of the necessary equipment was to be seen. The authority could only be informed that it was hoped in course of time that this would be available at the Marble Arch, but it was not to be found elsewhere at present. It was afterwards discovered that the inquirer was charged with the disposal of a contract amounting to about £25,000. In addition to the hospital described above, the Medical Section included showcases and show-rooms with a wide range of drugs and instruments.

The EARL of DERBY said that the organization appealed to him in the first instance as the head of a travel association, because he was sure that nine-tenths of the people who came from abroad to England for pleasure could be induced, if opportunity offered, to do business here as well. He felt that the excellence of home products was not appreciated by many, including those concerned with hospital provision. When it came to a question of ministering to the sick and suffering they must always give them the very best that could be obtained, independently of the country from which it came, but the object of the present exhibition was to suggest that although many of these articles had hitherto been obtained from abroad they could as a matter of fact be obtained in this country equally cheaply and of equal merit. Lord Derby went on to say that he had been connected, more or less as a figurehead, with many hospitals, but years ago he had a closer connexion with the London Hospital, and he knew from experience how difficult it was for anybody who desired to equip a department of that hospital to know exactly where to go to get any particular commodity. He felt that the new department would be of the greatest assistance to all concerned in hospital management, and he had great pleasure in declaring the Medical Section open. The thanks of those concerned were expressed to Lord Derby by Mr. TROUNCER from the chair, and afterwards the guests were conducted by stewards to the hospital block and to the club and inspected the exhibits.

Sir Hilton Young, the Minister of Health, who was accompanied by representatives of the various departments concerned, received a deputation, on July 17th, from the British Association and the Institution of Civil Engineers. The object of the deputation was to invite the Government to give favourable consideration to the institution of a complete and systematic survey of the water resources of the country, a subject on which a committee of the British Association had recently published a report. The deputation suggested that the existing records both of surface water, including river run-off, and of underground supplies were very incomplete. It urged that systematic records comparable with those of rainfall were much to be desired and that a national survey was necessary in order to obtain statistics of this nature. The Minister, in reply, thanked the British Association and the Institution of Civil Engineers for the consideration which had been given to the matter, and said that their suggestions would receive the most careful consideration of the Government. Sources of information were available through the Ministry of Health, the Geological Survey, and the Catchment Boards. It was for consideration whether the progress which was to be desired in the collection of statistics could not best be achieved by improving the existing means of gauging the flow of rivers and by improvements in the method of collecting and presenting returns.

Scotland

New Glasgow Professor

The vacancy in the chair of midwifery at the University of Glasgow, created by the retirement of Professor J. M. Munro Kerr, has been filled by the appointment of Samuel James Cameron, M.B., F.R.F.P.S.Glas. The appointment lies with the Crown, and the King has approved of this selection. Professor Cameron is the son of the late Professor Murdoch Cameron, who occupied the same chair for many years until he retired in 1927. He is a graduate of Glasgow University, and has held numerous obstetric appointments in that city, being obstetric surgeon and gynaecologist to the Glasgow Maternity Hospital, and consulting obstetric surgeon to the Lanark County Council's Hospital at Bellshill and to the Motherwell Maternity Hospital, as well as consulting obstetrician to the Maternity Hospital in Perth. He is one of the gynaecologists to the Western Infirmary, Glasgow, and examiner in obstetrics to the University of St. Andrews. Professor Cameron has published the results of much research work in *The Manual of Gynaecology*, which went into a third edition in 1928, and in numerous contributions to the medical journals.

Edinburgh Medical Graduation

At the medical graduation at Edinburgh University, on July 18th, Principal Sir Thomas Holland, who presided, handed the Cameron prize in practical therapeutics to Emeritus Professor Sir E. Sharpey-Schafer, in recognition of the advances in therapeutics that had arisen from his discoveries in endocrinology. Professor A. J. Clark, in his address to the 128 new graduates whom he had presented for the degree of M.B., Ch.B., discussed the rapid development of modern medical science and its influence on the future of the profession. It had been their privilege, he said, to study medicine during a period of intensive growth, but this had carried with it the penalty of receiving a medical education which was somewhat of a makeshift, hurriedly adjusted to a rapidly changing body of knowledge. It was to be hoped that medical science would make as great advances in the immediate future as it had done in the recent past, and that the necessity for post-graduate education would be adequately realized. During the last century the death rate had fallen steadily, and the popular standards of health had risen in a remarkable fashion. The public was beginning to expect the medical profession to teach it how to maintain a condition of physical fitness, and the prevention of disease was becoming one of the chief functions of the doctor. This tended to make the practice of medicine both more difficult and more interesting. The change in the nature of the services demanded by the public increased the importance of treatment, since diseases would be seen more frequently at an early and curable stage. It was possible to estimate, with a fair degree of certainty, the composition of the population ten or twenty years hence, and it was clear that that population would be one with relatively fewer children than in the past, and with an ever-increasing proportion of old people. The fewer children there were the more precious would they be, and the more dependent would be their parents upon professional advice. On the other hand, the steady rise in the number of persons over 65 was bound to have a marked effect on medical practice, for the human body, as the result of the wear and tear of life, would require increasing attention in old age. The degree of Doctor of Medicine was awarded to sixteen graduates, and that of Master of Surgery to one. Three candidates received the degree of Doctor of Philosophy in medicine, and one in

180 JULY 28, 1934]

SCOTLAND

science; while eight diplomas in public health, five in tropical medicine, one in psychiatry, two in radiology, and three in tropical veterinary medicine were awarded.

Research in Animal Diseases

At the annual general meeting of the Animal Diseases Research Association, held at Moredun Institute, Gilmerston, Edinburgh, Dr. J. Russell Greig, director of the institute, said that the results obtained from the investigation of animal disease were important to those who studied the diseases of man, and there was close collaboration between the medical and the veterinary research worker on the staff and the committee of the institute. During the short time that the institute had functioned control had been obtained over such diseases as lamb dysentery, braxy, louping-ill, milk fever, iron deficiency, pine, and lactation tetany. The institute had a wide programme of research, but promising lines of work had often temporarily to be laid aside, because other urgent problems arose which required immediate study. Among the latter was grass-sickness, which claimed the whole of the institute for a certain period of the year when acute cases occurred. This disorder must be regarded as a national scourge, and it was proposed to allocate to it the whole time of a trained worker. The institute needed more staff and further accommodation. An adequate extension would involve a capital expenditure of £10,000, which might be regarded as a small sum in relation to the losses suffered by agriculture through animal disease and death.

Pathology in Scottish Mental Hospitals

Changes have been made in the administration of the Scottish Mental Hospitals' Pathological Scheme, closer association having been effected with the University of Edinburgh, and especially with the departments concerned with the teaching of clinical psychiatry, neurology, and clinical medicine. Accordingly, Dr. A. Murray Drennan, who is professor of pathology in the University, became director of the scheme at the beginning of last year, and in the following October Dr. J. Henry Biggart was appointed pathologist. In the thirty-sixth report of the scheme, covering the years 1932 and 1933, Professor Drennan describes the working of the various specimens, a new method of filing and indexing the collection of a permanent collection of slides, and case reports will be correlated. Eventually, various series of the different diseases affecting the brain will be obtained, and with the correlation of symptoms and pathological knowledge of provide an opportunity for increasing changes will cerebral function. A filing cabinet for demonstration slides for teaching purposes has been built up: as material accumulates a complete demonstration of the various cerebral lesions will become available. It has also been thought desirable to build up a few demonstration collections, which could be lent to those wishing to take examination for the diploma in psychiatry. A course of lectures and demonstrations on the pathology of the nervous system for the M.R.C.P. was begun last January. In the task of improving the teaching material in the laboratory the pathology departments at the University and the Royal Infirmary have co-operated effectively. Since last October thirty brains have been submitted to histological examination, several tumour specimens investigated, and necropsies performed in other institutions. Professor Drennan suggests that at least one necropsy should be undertaken in each mental hospital by the pathologist of the scheme, or, alternatively, that the various assistant medical officers of these hospitals should attend one or more necropsies at some centre so that the

technique should be thoroughly mastered by them. Research work is at present being conducted on the anterior and posterior lobes of the pituitary body and the hypothalamus; material is also being collected for study of the pathological basis of the Argyll Robertson pupil. Professor Drennan appeals for a constant supply of necropsy material from the various mental hospitals; with the present staff it would be possible to examine about 200 brains each year at the laboratory, and from this work various lines of further research would be indicated with later benefit to the clinician. Mental hospital staffs are therefore asked to supply full clinical accounts when sending such material for examination, and to make suggestions for investigations which would seem to be desirable. Assistance is promised to any medical officers in mental hospitals associated with the scheme who will make themselves responsible for the simple pathological work in these institutions. The hope is expressed that in time each mental hospital will have one of its staff interested and instructed in the pathological aspects of mental disease. There would thus be brought into being a group of workers in touch simultaneously with the clinical problems and the central laboratory of the scheme, and real co-ordinated research work could be undertaken.

Ireland

The Rotunda Hospital, Dublin

The annual report of the Rotunda Hospital for the year ending October 31st, 1933, is the last one to be issued by Dr. Bethel Solomons, whose seven years as resident Master have now terminated. His swan song, he writes, must needs be both glad and sad, yet he endorses the provision of Benjamin Mosse that there should be a series of years' rulership only, for thus it can be assured that fresh ideas shall be forthcoming periodically, and that no stagnation be allowed to creep in. During Dr. Solomons's term of Mastership there were nearly 4,000 more women admitted to the hospital than in the previous seven years. He believes this increase will continue in the future, and especially its nurses. In August, 1933, the then record number of 243 women were delivered, but this figure has since been exceeded. In the twelve months under review there were 2,650 admissions to the maternity side of the hospital, of whom 2,376 were delivered. The prenatal departments were particularly busy, and the need for a new out-patient department is more than urgent, both for the comfort of the patients and also for facility in teaching this highly important branch. The ampoule or capsule system of chloroform administration has been given careful trial, with very satisfactory results. Dr. Solomons's views about the danger of chloroform are well known. His considered opinion about the ampoule method is that it fills a want; that, although it can be given during the late first stage in labour, it seems to cause delay if administered then; and that it is convenient and apparently foolproof. In spite of this, he does not agree that it should be put into the hands of the unqualified—namely, midwives—without supervision. In a large number of cases analgesia in the first stage of labour was satisfactory with a mixture of hyoscine and sodium amylal. There were 132 stillbirths in the year, and twenty-eight of these foetuses were macerated. These figures are considered satisfactory, for of the 104 recent stillbirths no foetal heart beat was perceptible on admission in twenty-four, and thirty were toxæmic. The number of albuminuric patients was 549, as compared with 810 in the previous year, but it is hard to say how far this diminution may be due to better prenatal supervision.

There were ten possible eclamptics, but it is doubtful whether four of these should be thus described. Only three cases of severe vomiting classifiable as hyperemesis occurred; treatment by gastric lavage, starvation, colonic lavage, and rectal and intravenous glucose brought about successful results. There were eighteen cases of placenta praevia without mortality, bringing Dr. Solomons's series up to 138 with two deaths. He maintains that this condition, properly treated, should never be fatal. Only fourteen cases of inertia were recorded, although there were many other slow labours. Spontaneous labour occurred in six, and forceps were applied in eight cases. Caesarean section was never necessary. The treatment consisted of long hot vaginal douches, given twice daily if necessary, much watchfulness, and rest by means of hypnotics. Dr. Solomons repeats his precept that it is dangerous to give pituitary extract to this type of case in a teaching hospital. Of the thirty-one Caesarean sections performed without mortality the classical operation was employed five times, in three for absolute disproportion. The lower segment route was chosen on fourteen occasions; it is described as the ideal operation for the obstetrician who understands the mechanism of labour, and the pronounced semi-elliptical incision is regarded as the best type. There was no death from puerperal sepsis during the year. Dr. Solomons deprecates the wearing of masks in extern work in private houses, and even in hospitals, on the grounds that the unskilled, and even some of the skilled, may be led to overlook the important principles which favour a clean delivery. To the gynaecological wing there were 686 admissions during the year, operation being required in 533. Diathermy continues to be used with benefit in parametritis, but it is remarked that patients also get on very well with the old-fashioned treatment of vaginal douches and tampons of ichthyol in glycerin.

Vital Statistics for the Irish Free State

The birth rate for the first quarter of 1934 was 19.3 per 1,000, representing 14,538 births registered. This was 0.3 above the average of 19 for the first quarter of the five years 1929-33. For Dublin City the birth rate was 27; for Dun Laoghaire, 17.5; Cork, 21.9; Limerick, 25.7; and Waterford, 24.2. The corresponding birth rate for Northern Ireland was 20; for England and Wales, 15; and for Scotland, 18.7. The birth rate for Belfast was 24, for Londonderry, 26.4, for London, 13.3; for Glasgow, 19.7; and for Edinburgh, 16.6. The rate in respect of deaths registered (in number 11,634) was 15.4, being 2.5 below the average of 17.9 for the first quarter of the preceding five years. For Dublin City the death rate was 16.5, Dun Laoghaire, 19.1; Cork, 19.7; Limerick, 17, and Waterford, 15.2. In Northern Ireland the death rate for the quarter under review was 15.9 per 1,000; in England and Wales, 14.7, and in Scotland, 14.3. In Belfast the rate was 18.5, in Londonderry, 16.8; in London, 15.8; in Glasgow, 14.8, and in Edinburgh, 14.7. Deaths from the principal epidemic diseases afforded an annual rate of 0.5 per 1,000, which is 0.1 below the average for the first quarter of the five years 1929-33. The mortality from influenza was equivalent to a rate of 0.4 per 1,000, which is 0.7 below the average for the corresponding quarter of the preceding five years. The rate for deaths from all quarters from tuberculous diseases was 1.2 per 1,000, being 0.2 below the average rate for the first quarter of the preceding five years. Deaths from principal causes gave a rate of 4.8 per 1,000. Births registered comprised 19 for parturient women and 20.1 for still-born children, as compared with 1.2 and 1.4 for the first quarter of 1933. The infant mortality rate was 84, as against an average of 85 for the first quarter of the five years 1929-33.

CORRESPONDENCE

The Scottish Health Services

SIR.—The Scottish Committee deserves whole-hearted congratulation on the very able memorandum of evidence for submission to the Departmental Committee on Scottish Health Services, which was printed in the *Supplement* of July 7th. It is regrettable, however, that the memorandum was not submitted to meetings of Scottish Divisions for consideration, as had at one time been suggested.

The memorandum, I believe, represents very accurately the views of Scottish general practitioners in regard to many matters which have been occupying the attention of the profession in recent years. This is creditable alike to the general practitioner members of the committee and to the others. Other sections of the profession can present their views to the Departmental Committee through agencies that are representative solely of sectional interests—for example, the Royal Colleges representing consultants and the staffs of teaching hospitals, and the Society of Medical Officers of Health. One hopes, therefore, that the Scottish Committee will maintain general practitioner views as strongly as possible in the oral evidence to be submitted to the Departmental Committee.

The community in general and the medical profession in particular are confronted by an appalling increase of bureaucratizing tendencies, especially since the Local Government (Scotland) Act of 1929. These bureaucratizing tendencies have been responsible for many of the difficulties of the general practitioner, particularly in urban areas, and a recognition of this fact is the basis of much of the evidence in the Scottish Committee's memorandum.

Extensions and improvements in the health services of Scotland will involve an increase in the number of administrative and medical officials. The problem before the profession is how to safeguard the community and itself against bureaucratic encroachments. The presence of elected representatives of the profession on the Department of Health and on local public health committees would be such a safeguard.

Administrative convenience and uniformity appear to override in the official mind the truer interests of the community. All the infectious cases of a large Highland county have to be concentrated in a single hospital, and a smaller county has its isolation hospital merged in another hospital outside its boundaries against the unanimous opposition of its representatives.—I am, etc.,

Dundee, Scotland, July 16th.

W. HAMILTON, M.B.

Ligation of Thyroid Arteries in Toxic Goitre

SIR.—My friends Sir T. Dunhill and Professor Wilkie are, I gather, comparatively recent converts to preliminary arterial ligation in thyrotoxicosis, and in testifying to their changed opinions show that breadth of view which we expect from surgeons of their high skill and mature judgment. I was not only brought up in the faith, but for twenty years have proudly practiced the operation, yet I believe that the effect of your correspondents' letters would be to produce, in the minds of those less experienced than themselves, too optimistic a view of the value of the procedure.

Such benefit as accrues is independent of anything but the resulting diminution of blood supply, for there appears little to justify the assumption of ligation of associated lymphatics or nerves. If, then, the superior thyroid arteries carry a large percentage of the total arterial blood of the thyroid it is probable that, as in

CORRESPONDENCE

so often the case, the inferior arteries are the larger, the result is often disappointing; there is little or no clinical evidence of a fall in the activity of the toxic process or of favourable changes as estimated by basal metabolic and impedance angle tests. It must not be forgotten that, minor operation as it is, it has an appreciable mortality, and there is a by no means negligible minority in which the operation either aggravates the progress of the disease or at any rate entirely fails to check it.

The main value of ligation of the superior thyroid arteries is, I believe, as a test of the patient's susceptibility to surgical trauma, particularly in primary thyrotoxicosis associated with a large, intensely vascular goitre and great nervous excitability. If, as may happen, this trivial operation, conducted under local anaesthesia and occupying less than ten minutes, is followed by an intense post-operative reaction, then it clearly indicates that the major procedure would have been too hazardous.

At the Annual Meeting of the British Medical Association held in Edinburgh a few years ago, I heard the facile statement made that pre-operative iodine therapy had solved the problem of mortality in thyrotoxicosis. I did not believe this, nor do I believe that it can be solved entirely by the preliminary ligation of arteries.—I am, etc.,

London, W.1, July 21st.

Principles of Gynaecology

SIR,—I shall be grateful if you will allow me, on behalf of my collaborators—Mr. Datnow and Mr. A. C. H. Bell—and myself, to express our appreciation of the thoughtful and interesting review of the recent edition of *The Principles of Gynaecology*, which appeared in the *British Medical Journal* of July 14th (p. 65).

A textbook, your reviewer realizes, should be more than a sudden repetition of former views and methods, for science does not stand still: it should be not only a comprehensive and digested summary of moving events, but also an analysis and cinematograph of moving events. But what difficulties face those who undertake the task of incorporating intelligibly settled facts in a large tract of partly explored and ever-expanding territory! We feel, therefore, that, in saying our work will beneficially influence gynaecological thought, teaching, learning, and practice, your reviewer has said all we could wish him to say, for that has been our object from the first.

Your reviewer is curious to know why in this edition Part II (examination methods—previously Part III) is interposed between Part I (anatomy) and Part III (physiology—previously Part II). This is easily explained. Many functional conditions (Part III) require examination methods (Part II) for their elucidation. The anatomical phenomena (Part I) require chiefly dissectional methods.

To one knowing, as I do, the improvements which could be made, and which will be made in the next edition, your reviewer's choice of subjects for comment is a little surprising. Moreover, he seems sometimes to think that too much has been given, yet he asks for more! He writes:

"Here and there, however, broad principles are lost in detail. Thus the meaning and implications of the reduction of chromosomes during maturation are lost in describing the manner of their reduction. Neither among the possible causes of abortion nor under 'selective sterility' is there any reference to lethal gametic combinations, well recognized as cause of loss of zygotes in breeding experiments."

As a matter of fact, "the manner of their reduction" is not described at all, and brief mention only is made of reduction in respect of maturation of the ovum, and

of the relation of sex-chromosomes to sex differentiation in *Drosophila*. It is presumed that the subject of genetics, which is of such fundamental concern not only to gynaecology but to all branches of medicine, is taught earlier in the curriculum. On the other hand, in regard to the clinical implications to which reference is made, I would point out that special attention is drawn to malformation of the embryo as a cause of early abortion; so, as everyone knows that this may be ascribed to "lethal gametic combinations," it can hardly be said that there is no mention of them. Besides, to have discussed selective sterility in the human subject in relation to the same factors would probably have been erroneous; we should have to go back to Ciona for a possible biological (but not chromosomal) explanation, with which I need not trouble your readers. The one given is not unsound, and is of sociological importance.

With regard to the word "ponation," to which exception is taken, it is generally conceded that language given to us to express not only our thoughts but also the facts of the physical universe, in which removal of the whole uterus from one place to another is an event well known to gynaecologists. It has no other name; yet it is of diagnostic importance. Why should it not be so identified to avoid confusion, not to create it? Anyway, "ponation" has appeared in every edition of *The Principles of Gynaecology*, including the first (1910), and has never before been challenged. We all know, of course, the past participle of *pono*, but are reluctant abstractly to "depose" the uterus. The Americans have, however, gone one worse, for they have quite recently introduced the horrid term "cession"; they speak of "retrocession" in this connexion.

Last, concerning the beginner's sense of proportion, in all seriousness I would ask whether he is likely to boggle at three pages only (excluding illustrations) on the important subject of hermaphroditism, or at one and a half pages on lead therapy? We hope that your reviewer's remarks, generous though they are, will not discourage the student from taking advantage of the high opinion we have of his desire to learn.—I am, etc.,

W. BLAIR-BELL.

West Felton, July 17th.

Tuberculin

SIR,—May I endorse Dr. Camac Wilkinson's request for an impartial investigation into the tuberculosis problem. Almost every day there is evidence in the medical journals pointing to a grave lack of co-ordination between the organizations dealing with the disease, and there would seem to be apathy prevailing at the centre of control. I understand that there is a department of the Ministry of Health which has the right of inspection of such organizations. If this is so such a department will presumably collect a good deal of valuable and irrefutable evidence of the value of certain methods of attack. Surely it should pass on this information to all local centres.

Two topical instances will illustrate my point. (1) The list of experts and others who, as the result of *ad hoc* research, give tuberculin a high value in their armamentarium grows more and more formidable, and yet after forty years there are Government centres for tuberculosis which ignore its use. (2) We are indebted to Dr. Hope Gosse and Dr. Erwin for recording the valuable advice that sunbathing may be prejudicial to the tuberculous diathesis (*British Medical Journal*, July 7th). This fact would appear to be contrary to public opinion as educated by the daily press, etc. I think it is pertinent to ask whether the appropriate department at the Ministry of Health has seen this article, whether it believes the

CORRESPONDENCE

JULY 28, 1934]

conclusions drawn, and, if so, does it intend to pass on the advice to all tuberculosis centres under its control so that public opinion may be enlightened?

Apart from Royal Commissions, eulogistic conferences of voluntary associations, and personal opinions, it is easy to appreciate that we must have more co-ordination of official work if further progress is to be made in the conquering of the disease.—I am, etc.,

ALISTAIR R. FRENCH.

Greenford, Middlesex, July 16th.

SIR,—As Dr. Bardswell is, and has been for many years, one of the best-known tuberculosis experts, it would be absurd of me to offer an opinion contrary to his. I was his senior assistant at King Edward VII Sanatorium in 1909-10 when the work on tuberculin was being done, and I remember how disappointed I was when we stopped giving it. I had got most enthusiastic about it, and thought it a mistake to give it up. When at Benenden Sanatorium I used* it extensively, and as tuberculin officer for Essex I carried about four or five different tuberculins to the dispensaries and sanatoria under my care. The doctors were surprised that, as Dr. Bardswell had condemned it, I should go contrary to his teaching. Now I—like, I suppose, 90 per cent. of my colleagues—never use it. Why? Simply because I now believe with Dr. Bardswell that it has proved of no use. Imagination and tuberculin are good bedfellows. For Dr. Camac Wilkinson take no trouble to work at the size we other specialists take no mind, quite absurd. It is, if my surmise is correct, putting him and his few followers on an unjustifiable pedestal, and letting his genuine enthusiasm run an academic riot. Before artificial pneumothorax became popular we all, only too willingly, would have tried and continued to use anything to help our patients, and there must be a very large body of able and conscientious tuberculosis men who worked as hard as Dr. Camac Wilkinson did and yet never use tuberculin now. Its diagnostic value is practically nil, and therapeutically it is, in my opinion, as valuable as Dr. Bardswell dramatically described it the other day.—I am, etc.,

J. D. MACFIE.

Lexden, Colchester, July 18th.

SIR,—When I was in the West of England last January a friend of mine was lamenting the fact that all his pulmonary tuberculosis cases died, and made this remark: "I feel that something is being withheld from the public which they ought to have." He was perfectly right. Dr. Opie of America said tuberculin dispensaries should be opened in this country. Dr. Bredeck, in the *American Review of Tuberculosis*, April, 1933, writes:

"The Schilling blood count, together with the subcutaneous tuberculin test, constitute, in my experience, our most delicate and most accurate methods in the diagnosis of early manifest and induced focal activity."

To this should be added a medical history, taken with laborious care and by doctors with several years' experience in general practice. The solution of the triad—diagnosis of pulmonary tuberculosis lies in the triad—tuberculin, blood picture, and history of the patient. No other method will detect the first results of allergic tissue activity, caused by the action of the bacillus.

In Wingfield's *Textbook on Pulmonary Tuberculosis* (p. 342) is the following statement:

"The patient must be under close and skilled clinical supervision during a course of tuberculin treatment. It must not, for instance, be undertaken by the ordinary physician unless he has made a special study of the disease and treatment. A complete temperature and pulse record must be kept, with weekly weighings. There must be constant supervision of symptoms, none of which must be ignored."

The Local Medical Committee of the London Insurance Committee has decided that the administration of tuberculin "requires no special skill or experience." The Minister of Health has agreed with this decision.—I am, etc.,

H. S. BURNELL-JONES.

Hayes, Kent, July 13th.

Thrombosis of Internal Saphenous Vein

SIR,—I attended a strong, healthy man whose history was that on the previous day he had been helping to unload a lorry, a crate had slipped, and he had felt some pain over the inner side of his left knee-joint. On examination it was seen that he was suffering from traumatic phlebitis with thrombosis of the internal saphenous vein as it was passing over the joint. The clot was about three-quarters of an inch long. He was kept in bed exactly three months; the clot had diminished down to the size of about a split-pea, and felt hard. I thought that this must be fibrous tissue and that it would be safe to allow him to get up, so his wife got out all his clothes ready for the morrow, which was his birthday. At midnight she heard a gurgle, etc., in his throat, and on examination he was found to be dead. He was such a strong, healthy-looking man that this tragedy gave me cause for reflection, and I formed the opinion that in cases where it is possible to ligature the vein proximal to the clot this procedure appeared desirable. When it is impossible to reach the healthy vein above, then it should be cut down upon at the site of the thrombosis; its contents being thus freed from tension the production of embolism would be less likely. The cutting down on a clot becomes inevitable should there be the slightest suspicion that secondary infection has occurred.

In the following patients proximal ligation without incision over the thrombosed area was performed, and gave me an additional sense of security throughout their favourable convalescence.

The first case was that of a lady over 65 years old. The same vein became suddenly thrombosed from no apparent cause. After consultation, Mr. R. Kennon of Liverpool agreed to cut down on the internal saphenous vein in the thigh, ligature it in two places about two inches apart, and remove the portion of vein in between: uninterrupted recovery; stitches removed on tenth day; patient was up the fourteenth day, although the thrombus seemed just about the same. She gradually got about, although it was months before the thrombus had all disappeared; in the meantime she went about her daily work as usual.

In another case a lady, aged 46 years, had been shopping in town during a cold winter's day, and felt pain on the inner side of the knee-joint and just below. When she got home it was found that part of the vein was thrombosed. Mr. Kennon advised that a pad should be placed over the proximal part of the vein and strapped firmly round the thigh. A few days later, whilst she was being visited, she suddenly collapsed; all blood left her face, which turned ashen grey; breathing was irregular and jerky, and she lost consciousness. Deep and vigorous cardiac massage, accompanied with upward pressure under the left costal margin, was immediately begun, fortunately with good results. Mr. Kennon repeated the same operation as before: the patient was up in a fortnight, and gradually got about her usual duties in spite of the thrombus, which was eventually absorbed.

Other cases operated upon in the same way have invariably done well—up in a fortnight and walking about in three weeks. These cases would not have been reported, but in a recent book on surgery it is stated that very prolonged rest is required for these patients. The author quoted a case that he had had at rest for a considerable time, but for domestic reasons it was advisable for the patient to be nursed downstairs. The patient

was very carefully carried down, and all seemed well, but he suddenly dropped back dead.

I hope that these few remarks may be of service to others.—I am, etc.,

Hastings, July 17th.

A. STANLEY PARKINSON.

A Case of Angular Pregnancy?

SIR,—In view of Professor Munro Kerr's article upon "Angular Pregnancy—A Clinical Entity," and his request for details of any such cases, which appeared in the *British Medical Journal* of June 23rd, I venture to publish the following brief account of a case which I encountered in hospital practice. I feel that publication of this case may be excused on the grounds of its own interest, but, what is more important, it may elicit further records.

A young married woman, aged 24, was admitted to the Royal Berkshire Hospital on November 28th, 1932, as an "acute appendix." She had been in sound health till the morning of the day of admission, when she developed pain in the abdomen, at first vague but later becoming increasingly severe and situated in the right side. There was no vomiting, and the bowels were open normally. There were no symptoms suggestive of urinary disorder.

On admission the patient did not look gravely ill, but was obviously having pain. Temperature 98.4° F.; pulse 96. Tongue slightly coated but moist. The abdomen was normal in contour, with fair respiratory movement. She was very tender in the right iliac fossa, with definite resistance to the palpating hand, but not true rigidity. The chest was clear and the urine examination revealed no abnormality.

Only upon close questioning did she admit that she had missed two menstrual periods; the second of these had been due a few days prior to admission. In the interval between the visit of her own medical practitioner and her removal to hospital she had had a slight loss from the vagina, which she took to be the onset of her period. Previously the menses had always been regular and unaccompanied by pain. Examination per vaginam revealed only a slight loss. The cervix was closed.

In view of the tenderness and defensive tightening it was decided to operate upon a diagnosis of acute appendicitis. The abdomen was opened through a median sub-umbilical incision. There was no blood or free fluid in the peritoneal cavity. The appendix was innocent and the intestines normal, with no enlargement of abdominal glands. The stomach and gall-bladder were normal. The uterus was enlarged to about the size of a two-months' pregnancy, but was quite asymmetrical. There was a definite, tubular, elongated swelling at the right upper pole of the uterus just immediately proximal to its junction with the right Fallopian tube. Tubes and ovaries were normal. The abdomen was closed without any further operative procedure.

The patient aborted completely two days later, but the specimen was not kept. Recovery was thereafter uneventful, and she was discharged from hospital well.

—I am, etc.,

Middleton-in-Teesdale,
Co. Durham, July 9th.

WILLIAM H. GOSSIP.

Cyanide Poisoning: Rasputin's Death

SIR,—In connexion with the letter on this subject from Dr. Frederick Dillon in the *Journal* of July 14th (p. 88), I think it is unnecessary to suppose that Rasputin's apparently miraculous survival after partaking of many lethal doses of cyanide was due to the powder administered to him not, in fact, being cyanide at all. Prince Youssouppoff's account of the drama includes a description of Rasputin's symptoms after taking the poisoned cakes and wine—for example, bitter taste, attempts to swallow an apparent obstruction in the throat, drowsiness, headache, extreme thirst, and finally a burning sensation in the stomach and a dull appearance of the eyes (occurring about an hour and a half after the beginning of the meal). This account (by a layman) agrees quite well with the

symptoms of cyanide poisoning as detailed in books on pharmacology.

It is a well-established fact that cyanides will combine with the keto and aldehyde groups in the simpler carbohydrates to form cyanhydrins (Kiliani's reaction). De Saint Rat (*Presse Méd.*, 1926, xxxiv, 34, 1268) showed that when potassium cyanide was added to port to the extent of 2 per cent., three-quarters of the cyanide had disappeared as such from the wine after three hours, and no trace could be detected after nineteen hours; the wine contained 8.5 per cent. of reducing sugar. The cakes into which powdered cyanide was inserted by Rasputin's murderers contained "chocolate cream"—that is, included sugar and milk—and there is little doubt that some of the cyanide would likewise be chemically bound in them.

Various investigations (Vielle: *Bull. de l'Acad. de Méd.*, 1926, xcv, 644; Forst: *Arch. Exper. Pathol. u. Pharm.*, 1928, cxxviii, 1) have shown that cyanide intoxication can be largely avoided by the previous administration of glucose to animals; and a case has been recorded of an individual who, by mistake, drank some sweetened tea containing two to three lethal doses of cyanide without suffering more than slight indisposition an hour later. Some experiments which I carried out a few years ago in collaboration with Dr. A. W. Forst indicated that it is possible to protect animals from many lethal doses of cyanide by previous administration of certain carbohydrates, or by previous admixture of carbohydrate with the cyanide, and that various carbohydrates differ markedly from one another in their capacity to protect. These differences do not depend entirely on the rate and extent to which the carbohydrates combine with cyanide *in vitro*, and can only be fully accounted for by some biological peculiarity as well.

I would not contend that Rasputin's survival after taking the poisoned food and wine was due solely to the protective action of the sugar contained in them; although, as the preparation was carried out some hours beforehand and conditions were thus suitable for the detoxication of the cyanide, it must surely have been an important factor. A pre-existing gastritis, as suggested in your quotation from Leschke, would no doubt assist in the protection against cyanide poisoning, and there may have been other factors which have not yet been investigated.—I am, etc.,

University of Bristol, July 16th. R. J. BROCKLEHURST.

SIR,—We are told that on December 29th, 1916, Rasputin was shot and his body flung into the Neva. A few hours before the fatal shot Rasputin is said to have eaten three chocolate cakes heavily charged with potassium cyanide. This deadly stuff, which was swilled down with three glasses of poisoned wine, appears to have had no effect on Rasputin. Two hours later he was in vigorous health, and, like the man in the gum-boots, who bounced for a fortnight, he had to be shot to end his activities.

Before we assume that the debauched and unsavoury body of Rasputin was protected against large quantities of cyanide of potassium by natural immunity, alcoholic gastritis, or supernatural agency, we must be sure that he consumed and retained the poison. Of this there is no certain evidence. The uncorroborated statement in Prince Youssouppoff's book quoted by Dr. Dillon would not be accepted by a conscientious detective. The most reasonable explanation of Rasputin's escape from cyanide poisoning is the one suggested by Dr. Dillon—that the powder in the cakes was not cyanide of potassium at all. If Dr. Lazover tried to poison Rasputin he bungled his job.—I am, etc.,

Birmingham, July 16th.

G. A. WILKES.

JULY 28, 1934]

OBITUARY

THE BRITISH MEDICAL JOURNAL 185

"Use Less Water"

SIR.—The gravity of the water shortage in the United Kingdom encourages me to give a mere medico's impressions culled on leave during the initial stages of the drought. To one accustomed to very careful preservation of water in Palestine, particularly in Jerusalem, the wastage of water in and about London seemed criminal, and two aspects are prominent in my mind.

1. In most of the operation theatres I had the honour of visiting water was allowed to flow *ad lib.* for no cleansing reason, it seeming to be taken for granted that hospitals had a special liberty in this respect. I have seen in one theatre more water running away to the drain through an unstopped basin (the tap left running by a surgeon or nurse) during one morning's operations in Jerusalem. This could be obviated by notices over basins, such as "Use water more carefully" rather than "Use less water"; also, if a slow-action spring were put on some of the lever-controls of taps, the latter would automatically shut.

2. The general use of sprays in houses hardly exists. If it were only realized that less water is used in a spray, either overhead or hand, a flexible connexion to ordinary taps could be used, even on a geyser. On the other hand, most people do not appreciate a spray. The Arab considers we are probably a dirty race, as we need so many baths; but what puzzles him is why "Inglese" prefer a soaking in their own dirty water, rather than a gentle, fresh stream all the time and no dirty water to dry off! Sprays do this, but in Great Britain they are conspicuous by their absence—at least to one who toured in quite a normal manner both England and Scotland. I can assure you there is nothing quite so refreshing after a long journey as a spray, rather than a tub.—I am, etc.,

W. E. THOMPSON.

Jerusalem, July 8th.

Agranulocytic Angina

SIR.—I must apologize to Dr. Bulmer for having over looked the report of his case. I should also, perhaps, have mentioned that in the case I reported the patient had not previously taken amidopyrine or a barbiturate or any combination containing them.—I am, etc.,

A. DALY BRISCOE.

Woolbridge, Suffolk, July 22nd

The Services

DEATHS IN THE SERVICES

Lieut. Colonel Jeremiah Pennv. Madras Medical Service (ret.) died at sea, on the voyage home from India, on July 7th, aged 70. He was born on July 5th, 1864, the son of William Pennv. of Langport, Somerset, was educated at King's College Hospital, where he was Warneford scholar, and took the M.R.C.S., L.R.C.P. Lond. in 1887, and the D.P.H. Camb. in 1891. After filling the posts of house-surgeon, house-accoucheur, and resident house physician for women and children at King's College Hospital, and of house-surgeon at St. Peter's Hospital, he entered the I.M.S. as surgeon on July 28th, 1891, became lieutenant-colonel after twenty years' service, and retired on September 25th, 1921. He served in the Chin Hills campaign, on the North-East Frontier of India, in 1892-3, receiving the Frontier medal with a clasp. Most of his service was spent in civil employ in Burma, and after retiring he settled at Rangoon, near Rangoon. He leaves a widow.

Surgeon Lieutenant (R) John Wade Robinson, L.D.S. R.N., of H.M.S. *Deception*, was shot by Turkish snipers while battling with two other officers at Tiberias on the island of Samos. One of the other officers was wounded at the same time. The officers apparently mistook the officers in their boat for snipers. The Greek snipers.

Obituary

MARMADUKE STEPHEN MAYOU, F.R.C.S.
Senior Surgeon, Central London Ophthalmic Hospital

The death, on July 20th, of Marmaduke Stephen Mayou has prematurely removed from the world of ophthalmology one of its most forceful and prominent figures.

Born at Monmouth on May 4th, 1876, the son of George Mayou, M.D., he was educated at Hereford Cathedral School, and chose King's College and the London Hospitals for his medical studies, winning there the Warneford Scholarship and Jeff Medal in 1896, and qualifying M.R.C.S., L.R.C.P.

He held the Hunterian Professorship of the Royal College of Surgeons in 1905, thus entering brilliantly a distinguished scientific career. The list of Mr. Mayou's appointments, though long and varied enough to make formidable reading, by no means covers his vast activities. The breadth of his interests is shown by the number and diversity of the papers, devoted to pathology, comparative pathology, and clinical ophthalmology, he contributed to the *Royal London Ophthalmic Hospital Reports*, *Ophthalmoscope*, *Transactions of the Ophthalmological Society of the United Kingdom*, *Proceedings of the Royal Society of Medicine*, *British Journal of Ophthalmology*, *American Journal of Ophthalmology*, *British Medical Journal*, *Lancet*, *Practitioner*, and *Archives of Roentgenology*. Among his most notable publications are "The Changes Produced by Inflammation in the Conjunctiva" (Hunterian Lectures), *Diseases of the Eye* (which has run into four editions), and, in collaboration with Treacher Collins, *Pathology and Bacteriology of the Eye*.

His association with Mr. Treacher Collins was not limited to authorship, since, in 1927, he followed him in his post of visiting ophthalmic surgeon to the White Oak Hospital, Swanley, and shared his keen interest in the study of eye diseases in children; he was tireless in furthering the important work done at this hospital. Mr. Mayou's work in this direction was of the widest possible nature, and his experience was vast. He was appointed consulting surgeon to St. Margaret's Hospital, Kentish Town, at its opening in 1918, and to the Foundling Hospital, and he fully recognized the importance of the former as a teaching centre for medical students and midwives. At the time of his death he was also ophthalmic surgeon to the Bolingbroke Hospital, the Ear, Nose and Throat Hospital, Golden Square, the Infants Hospital, Vincent Square, and the Charterhouse Rheumatic Clinic. Among former appointments were those of ophthalmic surgeon to the Children's Hospital, Paddington Green, to the Hospital for Epilepsy and Paralysis, Maudsley, and to the Seamen's Hospital, Greenwich.

The hospital with which his main energies have been associated, and to which his name will be best directed, is the Central London Ophthalmic Hospital, King's Cross, of which he was senior surgeon. He was appointed to the hospital as pathologist and radiographer



in 1906, became assistant surgeon in 1907, full surgeon in 1911, and succeeded Mr. Ernest Clarke as senior surgeon in 1913. Until the day of his death Mayou was unremitting in his efforts for the improvement and perfection of this hospital. No detail was too small for his attention, and his enthusiasm and ambition for its welfare and efficiency were boundless. It was mainly owing to his instrumentality that private wards for patients of limited means were added to the hospital, under the name of the Princess Marie Louise Wing, and he personally supervised each step in the fitting and furnishing of these rooms. On committees, executive and consultative, Mayou was always definite in his views, and his presence was recognized as of the greatest value. After serving first on the council and then as vice-president he was chosen as president of the Ophthalmological Society of the United Kingdom, and he was holding this important office at the date of his death. He was an original member of the Section of Ophthalmology of the Royal Society of Medicine, treasurer of the Council of British Ophthalmologists, and a member of the editorial and executive committee of the *British Journal of Ophthalmology*. He was a representative of the Council of British Ophthalmologists on the Ophthalmic Committee of the B.M.A. Other activities in the British Medical Association included that of the Association's representative on the National Ophthalmic Treatment Board in 1930. An active Freemason, he was Master of the Captain Coram Lodge, and ophthalmic surgeon to the Royal Masonic Hospital, first at Fulham and then at Ravenscourt, and to the Masonic Schools at Weybridge and Clapham Junction.

It is impossible here to do more than touch lightly on Mayou's manifold activities, but even from what has already been said some small idea can be gleaned of his limitless energy and unflinching interest in the branch of medicine which he had made his life's work. His patients—private and hospital—reaped the benefit of his extensive experience, and their absolute confidence in his opinion and treatment was shared by his colleagues, while his well-recognized skill in operating earned him the respect of those privileged to watch him. His interest in the mechanical side of ophthalmology is demonstrated by the numerous instruments he invented, the most notable of which are the Mayou operating lamp and the Mayou slit-lamp.

Thus far the ophthalmologist, who concealed the man himself. Broad in his views and far-sighted, he was primarily a sportsman. In spite of the incessant calls upon his time Mayou was an enthusiastic fisherman, spending some time of each year in Scotland, Norway, or Ireland in this pursuit, and enjoying nothing better than talking "fish" with others of the same cult. Indeed, the beginning of his last series of illnesses might be attributed to his over-enthusiasm in fishing in the chill waters of an Aberdeenshire river. A keen golfer, he fostered the yearly golf match between the Central, Moorfields, and Westminster Eye Hospitals with a jealous and paternal care. He was an ardent horticulturist, full of wise and helpful advice. His practical-mindedness was as evident in his private life as in his work, and his opinion on antiques was as interesting as it was instructive. A kindly and delightful host, always ready with counsel for those who sought it, either on private or professional grounds, his knowledge and experience, and the rapidity and clarity with which his mind worked, did not permit him to suffer fools gladly, and when he had made up his mind as to the right and proper course to pursue nothing would turn him aside from his purpose.

He is survived by a widow and three daughters.

[The photograph reproduced is by Elliott and Fry.]

CHARLES J. HEATH, F.R.C.S.

Mr. Charles Joseph Heath died at his house in York Terrace, Regent's Park, N.W., on July 13th. He was well known as an aural surgeon, as a sportsman, and as an inventor—showing a versatility which is not unusual in members of the medical profession, but which in his own case covered an unusually wide sphere. As aural surgeon he correlated the best points of many operations on the ear, tested them by experience, and produced a method which his friends always spoke of as "Heath's operation." He was somewhat vain of the method, and spoke of it in season and out, sometimes to the weariness of his auditors. The operation is a good one, is likely to be lasting, and was worthy of his praise. He designed, or modified, too, a large number of instruments for use in the surgery of the ear. As a sportsman Heath was a first-rate shot, and was equally good as a salmon fisher. He shot wildfowl on the Shannon and in Essex, and fished in Galway. As an inventor he designed and improved an anti-gas helmet of which large numbers were supplied to the British Army during the Great War, and introduced a chamberless wildfowling gun. He also defined the principles essential in the design of Army boots for the Army Hygienic Advisory Committee.

Born at Totnes, South Devon, on Christmas Day, 1856, he was the third son of John Heath, land agent, and Rachel Pulling, his wife. His elder brother, William Lenton Heath, F.R.C.S., who died in 1912, was well known and very popular as a general practitioner in South Kensington. Charles Heath was educated at the King Edward VI Grammar School at Totnes and at St. Bartholomew's Hospital. At the latter he early showed his delicate manipulative skill by gaining, in successive years, and at a time when there was very keen competition, the junior and senior prize for the best dissection. He was subsequently appointed Prosecutor at the Royal College of Surgeons, where it was his duty to make the dissections upon which candidates for the Membership and Fellowship of the College were afterwards examined. He was admitted M.R.C.S. in 1884, served a term of office as house-surgeon at the Preston Royal Infirmary, and was elected F.R.C.S. in 1886. Two years later he joined the British Medical Association, for which he afterwards did good service as secretary of the Section of Laryngology. Having determined to practise a specialty, he became assistant surgeon to the Central London Throat, Nose and Ear Hospital, and afterwards to the Throat Hospital in Golden Square, where at the time of his death he was a vice-president. Aural surgery attracted him more than the treatment of diseases of the throat, and he was for some years the consulting aural surgeon to the Downs Hospital for Children under the Metropolitan Asylums Board. He was a Fellow of the Hunterian Society, and was a frequent speaker at the British Oto-laryngological Society and at the Oto-laryngological Section of the Royal Society of Medicine.

He wrote little, his chief contributions to the literature being: *Diagnosis and Treatment in Cases of Otitis Media*; *The Cure of Chronic Suppuration of the Ear Without Removal of the Drum or Ossicles or Loss of Hearing*; *The Nature and Causes of Catarrhal Throat or Hereditary Deafness with a New Method of Treatment*; *The Prevention of Deafness and Mortality which Results from Aural Suppuration*.

He married Agnes Frideswide, daughter of Colonel J. J. Wilson, who died in 1930, and is survived by two daughters. Heath was a true sportsman and a loyal friend. He suffered of late years from increasing deafness, which led him last year to resign his position as a member of the House Committee of the Governors of

OBITUARY

- JULY 28, 1934]

- JULY 28, 1934]

St. Bartholomew's Hospital, a position he greatly valued. The funeral service was held at St. James's Church, Piccadilly, and he was buried at the Greenwich Cemetery, Shooter's Hill.

IV. STEEL of Bournemouth died on July 14th 1934, aged 67. He was born at Dundee and educated at the University, he graduated at Bolton.

Dr. JAMES W. STEEL of Bournemouth died on July 14th, in his early forties. Born at Dundee and educated at the Morgan Academy and Edinburgh University, he graduated M.B., Ch.B. in 1913. After acting as house-surgeon at Bolton Infirmary he was assistant in private practice in Preston before joining the R.A.M.C. in 1916. He held the rank of captain, and suffered severely from malaria and dysentery in Salonika. For his war services in Batum and South Russia he was awarded the Order of St. Stanislaus. Mr. R. Saunders Melville, F.R.C.S.Ed., writes: "I was touched to read recently in a book of war reminiscences by a much travelled member of the medical profession numerous references to "Jimmy" Steel. He mentions his charming smile, his universal popularity, his skill as a pianist, which gave pleasure to so many during those arduous days, and he refers to him as the most conscientious man he had ever met. That is no exaggeration. The charm of James Steel's personality lay in his simplicity, and his modesty. Therein lay his goodness of heart, and his modesty. He loved life and strength. His was a sunny nature, and he loved life and happiness. He settled in Bournemouth after the war, rapidly built up a large practice. He was by nature the ideal family doctor, and his abilities were far in excess of his very modest estimate of them. His devotion to his profession was absolute, and he carried out his duties until within a few days of his death. When told that he was suffering from leukaemia and advised to go up to London for x-ray treatment, it was typical of him to say that he really could not go at that time as he had a "confinement coming off." He knew that there was no prospect of cure, and his one anxiety seemed to be that it should make "no difference." He refused to submit to invalidism. He carried on his practice with the help of an assistant, went on holiday with all his old enthusiasm, and it says much for his strength of character that he was able to forget and almost able to make his friends forget that he was fatally ill. He met the remonstrances of his doctor brothers and professional friends with obvious indignation, and argued with a whimsical wit that invariably brought the laughter that he loved so much, but he submitted to spare them anxiety—not for his own sake. Last winter he confounded the critics by dancing an eightsome reel with all the grace and skill inherited from his Highland forebears. Dr. Steel was unmarried, but he was fortunate in being a member of a devoted family. His mother, to whom he was deeply attached, predeceased him about two years ago, spared the knowledge of her son's illness. Children loved him; he was fond of saying that he was honorary uncle to numerous small patients. His last days were brightened by the company of a small nephew, who frequently went with him on his rounds and whose quaint sayings were of far more interest to him than his own symptoms. And now he is gone, dying as he had lived, a very gallant gentleman. We his friends, in extending our sympathy to his family, share very humbly in their pride in him.

The death of Dr IRENE CLARKE (née Higgie) has removed a zealous worker from the British Medical Association, as well as an energetic and devoted servant of the community. Irene Higgie graduated M.B., Ch.B.Glas. in 1923, and joined the Association immediately. She obtained the D.P.H. in 1928. In the next year she married Dr T. W. Clarke of West Acton, and thereafter was prominent in the social life of Acton and Ealing, and a strong supporter of various charitable causes. One of her chief interests was the Acton Hospital, to which she rendered exceptionally valuable assistance. She became honorary secretary of the West Middlesex Division of the British Medical Association in 1930, and was a Representative at the annual meeting in 1931 at Eastbourne. Until her last illness she had been very active in work for the Division, interesting herself in all sides of medical progress. She was a life member of the British Association

for the Advancement of Science, and a Fellow of the Royal Institute of Public Health. To a real devotion to scientific knowledge she added a great ability for organization and genius for hospitality. What had promised to be a brilliant and happy career was cut short by a lingering illness, and it is hoped to commemorate in some useful way a life which, though short, had been full of inspiration and encouragement for others.

Universities and Colleges

UNIVERSITY OF OXFORD
Scholarship in Physics
St. H.

UNIVERSITY OF OXFORD

The Theodore Williams Scholarship in Physiology, 1934, has been awarded to Miss D. C. Peckley of St. Hilda's College.

UNIVERSITY OF LONDON

UNIVERSITY OF LONDON
to was held on July
(Eilon) in

UNIVERSITY OF LONDON

A meeting of the Senate was held on July 18th, with the Vice-Chancellor (Professor L. N. G. Filon) in the chair. Professor J. H. Gaddum was appointed to the University Chair of Pharmacology (University College) from July 1st, 1935, and Dr. J. R. Marrack to the University Chair of Chemical Pathology (London Hospital Medical College) from October 1st.

ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE

WOMEN

for 1934-5

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE
FOR WOMEN
of scholarships for 1934-5
E. J. Fair, A. R. C. S. D.

LONDON (ROYAL FREE HOSPITAL) SCHOOL
FOR WOMEN

The following awards of scholarships for 1934-5 are announced: St. Dunstan's Exhibition: E. J. Fair, A. M.
Bird Entrance Scholarship: J. Avame, Sir Owen Roberts
Memorial Scholarship: E. W. Town, A. M. Bird Clinical
Scholarship: V. Sykes, Alfred Langton Scholarship: E. M.
Drown, Ellen Walker Bursary: M. T. Collins, G. E. Reed,
Flora Murray Bursary: D. J. Perkins, School Jubilee Bursary:
K. M. French, Mabel Sharnan-Crawford Scholarship: M. L.
Taylor, Special A. M. Bird Scholarships: B. Clark, M. G.
Ernst, H. M. Kennedy, I. M. Lamey, A. A. Medley, S. J.
Spencer, A. M. Bird Post-Graduate Scholarship in Pathology:
J. C. Drury, M.B., Ch.B. Mabel Webb and A. M. Bird
Research Scholarship: U. Shelley, M.D., B.S., M.R.C.P.

(renewed).

UNIVERSITY OF MANCHESTER

VICTORIA UNIVERSITY OF MANCHESTER

VICTORIA UNIVERSITY OF MANCHESTER

Dr. J. W. Bride has been appointed lecturer in clinical obstetrics and gynaecology; Dr. F. R. Ferguson, lecturer in neurology; and Dr. John Gifford, lecturer in mental diseases.

UNIVERSITY OF EDINBURGH
 was held in the M.F.
 degrees and

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the McEwan Hall on July 18th. The following medical degrees and diplomas were conferred:

J. Candlish, J. R. Davidson, F. A. Duffield, Phyllis M. J. Ferguson (née Webster), W. H. Gillespie, J. G. Macgregor (in Law in absentia), W. V. Macpherson, J. I. Milne, W. E. ...

[illegible]

A. J. Rhodes, S. G. Roberts, J. Ronald, S. Rosner, A. I. Ross, J. A. Ross, G. D. Rowley, A. H. Saleh, J. Sandusland, Jane A. M. Shepherd, C. H. Smith, Maud I. Smith, T. Sommerville, J. M. M. Steven, Janet P. Stewart, J. K. Sutherland, Muriel A. W. Swainston, G. H. Taylor, Mary W. Taylor, J. F. Thomson, R. N. Traquair, D. G. Waddell, Patricia S. Warren, E. S. Watson, A. J. Webster, J. O. Westwater, H. I. Whitelocke, Molly B. Wilson, R. H. Winfield, I. U. Young, J. Young, Katharine M. Young.

DIPLOMA IN PUBLIC HEALTH.—M. U. Ahmad, W. Aitchison, A. Armit, M. W. M. de Silva, I. Gordon, Ellen M. Hegarty, R. Woodrow, Aileen E. Mathers.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—H. Bayliss-Stokes, V. E. M. Lee, A. W. Rose, G. J. Smit, G. Watt.

DIPLOMA IN PSYCHIATRY.—Laura M. D. Mill.

DIPLOMA IN RADIOLOGY.—F. M. Gordon, A. R. Sahy.

* Highly commended for thesis. † Commended for thesis.
‡ Passed with honours.

The following prizes were presented: *Cameron Prize in Practical Therapeutics*: Professor Emeritus Sir Edward Sharpey-Schafer, D.Sc., M.D., LL.D., F.R.S., P.R.S.E., in recognition of the advances in therapeutics arising out of his discoveries in endocrinology. *Ettles Scholarship and Leslie Gold Medal*, and *Beane Prize in Anatomy and Surgery*: R. W. Armour. *Scottish Association for Medical Education of Women Prize*, and *Dorothy Gilfillan Memorial Prize*: Molly B. Wilson. *Stark Scholarship in Clinical Medicine*, *Annanvale Gold Medal in Clinical Surgery*, and *Royal Victoria Hospital Tuberculosis Trust Gold Medal*: D. L. C. Bingham. *Mount Scholarship in the Practice of Physic*: J. M. M. Steven. *Buchanan Scholarship in Midwifery and Gynaecology*, and *Murdoch Brown Silver Medal in Clinical Medicine*: K. M. Morris. *James Scott Scholarship in Midwifery and Gynaecology*: A. J. Rhodes. *Pattison Prize in Clinical Surgery*: R. H. Winfield. *M'Cosh Bursary*: M. M. Parker. *Gunning Victoria Jubilee Prize in Surgery*: R. J. Kellar. *Gunning Victoria Jubilee Prize in Pathology*: C. E. van Rooyen. *Milner Fothergill Medal in Therapeutics*: D. M. Dunlop. *Thomson Memorial Medal in Child Life and Health*: H. T. H. Arnott. *Wrightman Prize in Clinical Medicine*: J. du T. le Roux. *Wellcome Medals and Prizes in the History of Medicine*: Gold Medal, R. Scott, Silver Medal, D. H. Lees. *Cunningham Memorial Medal and Prize in Anatomy*: H. Milne-Redhead. *Whiteside Bruce Bursary*: J. M. Barkla.

An address was delivered to the new graduates by Professor A. J. Clark, M.D., F.R.S.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M.D.—J. W. Craig, H. B. F. Dixon, Anna M. E. McCabe, H. Runtun, W. A. Robinson.

M.Ch.—D. S. P. Wilson.

FINAL MEDICAL EXAMINATION.—*Part I, Materia Medica and Therapeutics, Pathology and Bacteriology*: *D. T. Bardon, *C. Mushatt, M. Toohy, P. Delap, Isabelle M. V. Elliott, H. A. Daniels, Catherine T. M. Franklin, F. MacD. Byrn, G. B. Jackson, R. C. O'Grady, J. R. Sides, E. T. M. Cartney, Eileen D. Maunsell, A. J. Reeves, J. C. Gaffney, S. B. Sachs, C. W. Greene, G. H. B. Roberts, E. R. N. Cooke. *Part II, M.B. (New Regulations)*: D. S. Quill, Marie J. S. O'Toole, Eileen M. H. Scott, F. M. Hanna, E. B. M'Entee, P. A. M'Nally, A. C. Pilkington, I. A. Walsh, C. M. T. Adamson, H. D. M'Gorry, J. F. O. Conolly, A. F. J. Delany, W. G. B. Halliden, J. F. Harbinson, N. Weinstein, F. P. E. Smith, D. J. O'Shaughnessy, R. C. Tyner, R. F. Lurring. (*Old Regulations*): T. A. Cunningham, H. L. Connor, B. E. W. Aldwell, M. H. Cosbie, A. D. Egan B.C.I., *F. M. Hanna, N. Weinstein, Eileen M. H. Scott, E. E. O'Malley, P. B. Hafner, M. H. Cosbie, H. D. M'Gorry, H. F. T. Deane, R. C. Tyner, R. F. Lurring, W. G. B. Halliden, K. O'Toole, E. B. M'Entee, P. A. M'Nally, H. L. Connor, C. J. Vaughan, F. P. E. Smith. B.A.O.: *H. D. O'Brien, A. R. S. Jessop, J. J. Talbot, L. Fridjohn, A. E. Fannin, Eva E. Moore, H. A. Wells, P. Cutron.

DIPLOMA IN PUBLIC HEALTH.—*Part II*: A. J. O'Connor, Anna M. E. McCabe, R. A. J. Holmes-Jevers, I. G. M'Intyre

* Passed on high marks.

The following prizes have been awarded: *FitzPatrick Scholarship*: F. M. Hanna. *Medical Scholarships*: Physics, Chemistry, Botany, and Zoology, G. E. Nevill; Anatomy and Physiology, J. H. A. Jewell. *Stewart Medical Scholarships*: Physics, Chemistry, Botany, and Zoology, S. Sevvit; Anatomy and Physiology, G. N. MacFarlane. *John Mallet Purser Medal*: J. E. Gillespie. *D. J. Cunningham Memorial Medal and Prize*, G. N. MacFarlane. *Begley Studentship*, D. K. Stewart. *O'Sullivan Memorial Scholarship*, J. N. P. Moore. *Adrian Stokes Memorial Fellowship*: G. C. Dockeray, E. S. Duthie. *De Renzy Centenary Prize*: Anna M. E. McCabe. A. J. O'Connor. *Agnilla Smith Prize*: D. T. Bardon, C. Mushatt. *Walter G. Smith Prize*: G. B. Jackson.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week voted all outstanding estimates. The *Cattle Industry (Emergency Provisions) Bill* was passed.

The *Domiciliary Nursing Services Bill* was read a second time without debate in the Commons on July 20th, and was sent to a Standing Committee.

In the House of Lords, on July 23rd, the Commons Amendments to the *Shops Bill* were accepted, and consequential amendments were made.

Parliament will adjourn for the long recess on July 31st, and probably reassemble on October 29th to complete the work of the present session, including the Betting and Lotteries Bill.

During the latter part of the recess Sir HILTON YOUNG will visit large towns in England and Wales to explain the Government's plans for preventing overcrowding, and to inspect the progress made in slum clearance. This action is independent of the discussions proceeding on the provisions of the forthcoming Overcrowding Bill with the London County Council and the accredited associations of local authorities.

The House of Commons, on June 20th, ordered a return of licences granted under the Act 39 and 40 Vic., cap. 77, showing the number of experiments on living animals performed under the Act during 1933, and the registered places at which such experiments may be performed.

Houses for Wage-earners

In the House of Lords, on July 18th, Lord BALFOUR OF BURLEIGH moved a resolution declaring that, in addition to the slum clearance proposals of the Government, 1,000,000 houses should be provided to let at weekly rentals inclusive of rates of 10s. and under, and that the Government should consider setting up a Housing Commission to secure the erection of such houses by local authorities and public utility societies on a national plan. Lord AMULREE, supporting the resolution, said it was estimated that the next census would show an increase of 668,000 in the number of families in England and Wales compared with 1931. He argued that a similar number of houses would be required for them. The plea for a housing commission was supported by the Archbishop of Canterbury and other Peers. The Earl of CRAWFORD drew attention to the infestation of vermin in new housing areas in London. One group of students of the subject, he said, had estimated that 2,000,000 of the inhabitants of London were within the area of infestation, and the area was rapidly extending. Medical men who worked in these areas agreed that the bug produced a troubled form of sleep, resulting in debility and weakness, which was a source of general ill-health. It had been proved that the bug could get through the party wall of an average new residential house and take advantage of every nook and cranny and oversight on the part of the builder. He urged the Government not to rush the housing programme until it had an assurance that the new houses would not be infested in a year or two, and also not to begin to rebuild immediately upon cleared slum areas. Lord JESSEL said it was not the case that enormous numbers of workers in this country earned less than 50s. and so required very cheap houses. Moreover, the increased number of families included single persons, who, for census purposes, were reckoned as families.

Viscount HALIFAX said this was the fifth debate on housing which the House of Lords had held within seven months. The danger of the bed-bug was present to the mind of the Ministry of Health, and the proposals made on the subject by Lord Crawford would be brought to the attention of the Minister. The motion moved by Lord Balfour proposed a Housing Commission largely or partly to supersede the Ministry of Health. Such a body would be a barrier between the local authorities, who were immediately responsible for housing, and the driving force of the Minister and the Ministry. Direct contact with the Ministry gave the best

nothing to justify this suspicion. On the whole, the Department of Education was satisfied with the menu of school meals, which was mainly supervised by medical officers of the local authorities. The discussion then closed.

Noise from Motor Car Exhausts

The Road Traffic Bill was again taken in committee of the whole House by the House of Lords on July 19th. Lord ELTON, in the absence of Lord HORDER, moved to insert, after Clause 33, words making it unlawful to sell, to offer for sale, or to supply a motor vehicle for use on the road if such use would be unlawful under Section 3 (1) of the principal Act. The object of the amendment was to reduce the dangerous public nuisance of the excessively noisy exhaust of the motor car or motor cycle. To use on the roads a motor vehicle with an inefficient silencer was already illegal, but it was not illegal to supply such a vehicle. Under the Road Traffic Act, 1930, regulations provided that motor vehicles should be equipped with efficient silencers, but these regulations were openly and deliberately flouted because users of vehicles with illegal silencers satisfied the court that they had bought in good faith the standard production of a well-known firm exhibited for sale without restriction. The MARQUESS OF SALISBURY said that when a distinguished physician had told the public and the House of Lords that this evil was really antagonistic to public health the time had arrived to do something. The EARL OF PLYMOUTH, for the Government, appealed to the House not to press the amendment. The matter had been referred to the scientific committee, which the Minister had asked to report at the earliest possible moment. Despite Lord Plymouth's plea the House agreed to the amendment. Lord ELTON then moved a consequential clause making it unlawful to alter any motor vehicle or trailer in such a manner that the use thereof on a road would, by reason of such an alteration, be unlawful under the provisions against noise. The House also agreed to this amendment. Further amendments, chiefly of a drafting character, were made in subsequent clauses and schedules.

Veterinary Officers under the Milk Bill

The House of Lords, on July 19th, went into committee on the Milk Bill. On Clause 9 (payments for securing pure milk supply) Lord STRACHAN moved that at least half the sum provided under the clause should be allocated for making grants to county councils for the provision and maintenance of a whole-time veterinary service. He said the amendment was put down on behalf of the County Councils Association. The object of the clause should not be merely that a certain number of persons should produce pure milk to get an extra penny. All the herds of the country should be in such a condition that milk was always pure and free from infectious disease.

Earl DE LA WARR replied that a misunderstanding had arisen because there were two distinct schemes for cleaning up herds. The one which was affected by the finance of this Bill was the Ministry's scheme for building up tubercle-free herds. To enter it a herd-owner would have to satisfy the Government that he had had two successive tests at intervals of six months which showed his herd to be completely free. The Ministry would thereafter, within sixty days, carry out its own test through its own central service. The Government estimated the cost of the premiums on milk produced from herds so tested at approximately £450,000 over a period of four years. There was a further scheme which did not come under the Bill at all. This was the accredited herds scheme, to be prepared and administered entirely by the Milk Marketing Board. This would be approximately on the line that every herd should be open to clinical inspection twice a year, and that the milk produced should come up to Grade "A" standard. No expense would fall on a county council under the Ministry's scheme. Under the Board's scheme the counties might find it necessary to provide more veterinary officers, but all new expenditure for that purpose would have to be carried by the county until the block grant was next revised in 1937 or 1938. Under the Bill not a single county veterinary officer would have to be appointed.

The proposed amendment was defeated by 41 to 23. Subsequent clauses of the Bill were then carried with minor amendments.

In the House of Lords, on July 24th, the Milk Bill passed the report stage.

Poor Relief in Scotland

In the House of Lords, on July 23rd, the Poor Law (Scotland) Bill was considered in committee. On Clause 7 (which provides that an able-bodied person may be required by the local authority to perform work on a certificate of the medical officer that he is physically fit to perform the work) Viscount GAGE, for the Government, moved an amendment, allowing that the certificate might, in the case of a person who had a regular medical attendant, be given only after consultation with that medical attendant, whenever there was a reasonable opportunity of consulting with him. The purpose of the amendment, he said, was to ensure that the medical officer of the local authority should become aware of the applicant's medical history before granting a certificate. The amendment was accepted.

On Clause 11, which governs the granting of outdoor relief to members of friendly societies, Viscount GAGE moved an amendment to secure that the normal maternity benefit of 40s. should be disregarded. He said that this provision was agreed to in principle in the House of Commons on the clear understanding that the words he was now proposing should be added. In the case of an insured married woman authorities would be required to disregard the normal benefit, and it would be within their discretion in an individual case to ignore any increased or second maternity benefit. The amendment was agreed to, and the Bill passed through committee.

On July 24th the Bill passed the report stage.

Tarred Roads and Lung Cancer

On July 23rd Mr. SHAKESPEARE, replying to Mr. CLARRY, said that the Minister of Health was advised that a relation between the inhalation of dust from tarred roads and cancer of the lung had not been established; it was, therefore not possible to say whether any deaths from this disease could be attributed to this cause. Sir A. SAMUEL asked if the Minister had any record or information to show why there was a great increase in the number of recorded cases of cancer of the lung. Mr. SHAKESPEARE: I would not put it as high as that. The percentage of cancer of the lung is very small. Sir F. FREMANTLE asked if the Minister was aware that the number of deaths from cancer of the respiratory organs was only 90 per 1,000,000 compared with 1,500 altogether from cancer generally. He also asked if the so-called statement of correlation was only a chance suggestion made by a layman without any qualifications, and that medical opinion considered it unwarranted. This question was not answered.

Artificial Teeth: Increased Import Duty

In the House of Commons on July 24th Dr. BURGIN moved that the House approve an Order imposing additional duties on imported artificial teeth. Mr. RHYDS DAVIES said he believed that the duty would amount to about 1½d. per tooth, and he would like to know whether a request for the duty had come from the dentists or from the manufacturers of teeth in this country. Dr. BURGIN said that there were about 30 million artificial teeth used each year in the United Kingdom. Ten millions of these were manufactured at home and about 20 millions were imported. The British industry was in a position to meet the whole of the requirements of modern dentistry in this country, and to supply all United Kingdom users with teeth of home manufacture. The imported teeth came from the United States of America, Palestine, Germany, France, and recently Japan. The highest duty payable on a single tooth was just under 1½d. The lowest price payable for an operation which involved the supply of a single tooth under national health insurance was 5s., and a duty which could not in any circumstances amount to more than 1½d. a tooth would not increase the cost of

MEDICAL NEWS

JULY 28, 1934]

a denture to the consumer. Mr. DAVIES asked whether an agreement had been come to with the dentists to that effect. Dr. BURGIN said that the committee which had examined this matter was of opinion that the increase in duty would not affect the price paid by the consumer. The motion was carried.

Fee to Hospitals for Road Casualties

In the House of Lords on July 24th the Road Traffic Bill passed the report stage. On Clause 13, which deals with payment and insurance in respect of emergency treatment, the EARL OF PLYMOUTH moved amendments providing that where emergency treatment is first effected in a hospital, the payments of 12s. 6d. in respect of each person, and of 6d. for every mile or part of a mile in excess of a distance of two miles, should, as far as possible, be made to the hospital. He said that it was quite obvious that the hospital could not travel to the scene of an accident, and therefore this mileage provision would not apply. The amendments were agreed to.

Economy Cuts.—Mr. SHAKESPEARE, replying on July 24th to Mr. D. G. Somerville, who asked what arrangements had been made to restore in part to doctors and chemists the losses suffered by them as a result of the economy measures of 1931, said a circular had been issued by the Ministry of Health to Insurance Committees on June 20th. This set out the arrangements for giving effect to the decision of the Government to restore, from July 1st, one-half of the deduction made from the remuneration of insurance practitioners and chemists, as a measure of economy, from October 1st, 1931.

Increased Importation of Surgical Appliances.—Dr. BURGIN told Sir C. Fox, on July 19th, that he was aware that imports of dental, surgical, medical, and veterinary instruments and appliances (except optical) had increased from £163,813 in the first half of 1932 to £215,250 in the first half of 1933, and to £247,022 in the first half of 1934. Any increase in the duty on these goods must be dealt with by the ordinary procedure under the Import Duties Act.

Notes in Brief

Sir Hilton Young stated that the interim report from the Advisory Committee on the Disposal of London Refuse will be received before the end of July.

Medical News

The next lecture-demonstration arranged by the Fellowship of Medicine and Post-Graduate Medical Association (1, Wimpole Street, W.1) will be given at 11, Chandos Street, Cavendish Square, on July 31st, at 2.30 p.m., on sciatic pain. There will be no lecture on August 7th, but the series will continue on August 14th, with a lecture-demonstration on hysteria. On August 11th, at 3 p.m., at the National Temperance Hospital, Hampstead Road, Dr. H. V. Morlock will give a demonstration on chest cases. Mr. Alan Gairdner will give a short course on the treatment of recent and old fractures at the St. George-in-the-East Hospital, at 2.30 p.m. each afternoon from August 13th to 17th. Throughout August, daily instruction in various branches of medicine and surgery is provided by the panel of teachers.

The twentieth International Congress on Alcoholism will be held at the Imperial Institute, South Kensington, from July 30th to August 3rd, under the presidency of Lord Astor. The following papers, among others, will be read: "Licensing Legislation in Europe," by Dr. R. Hercood of Lausanne; "Legislation on Inebriety," by Dr. E. Gabriel of Vienna; "Alcohol Consumption and Specific Male Mortality," by Dr. R. Bandel of Nuremberg; "Alcohol in the Treatment of Disease," by Dr. J. D. Rolleston of London; "Alcohol and Eugenics," by Professor H. Gachot of Strasbourg; and "The Causes and Treatment of Inebriety," by Dr. A. E. Carver of Caldecott Hall. National surveys covering the present

position of the alcohol problems from educational, economic, medical legislation, and other points of view will be contributed by various speakers, and special addresses will be delivered by Sir William Willeox on the toxicological aspects of alcohol and drug addiction; by Sir George Newman on the teaching of hygiene in schools; and by Dr. H. M. Vernon and Dr. R. Cove-Smith on alcohol in relation to motoring and sport. Membership tickets, price 10s., can be obtained from the Secretariat, Room H, Imperial Institute, S.W.

The first international congress of gastro-enterology will be held at Brussels under the presidency of Dr. J. Schoemaker of The Hague from August 5th to 7th, when the subjects for discussion will be gastritis, and others, by Drs. A. F. Hurst, W. Zweig, Konjetzny, and others, and severe non-amoebic colitis, introduced by Drs. Gallart-Mones, Snapper, Lardennois, Donati, and others.

The eleventh annual conference of the Association of Special Libraries and Information Bureaux is to be held at Somerville College, Oxford, from September 21st to 24th. On the first evening with Sir Charles Sherrington in the chair, Sir Richard Gregory, president-designate, will give an address on "Science in the Public Press." The main discussion will be on "Book Selection for Special and General Libraries." The general secretary of the association is Miss E. M. R. Dittmas, M.A., 16, Russell Square, W.C.1.

The following German congresses will be held in the third quarter of the year: Ophthalmological Society, August 6th to 8th, at Heidelberg; 50th Congress of the Society for Children's Diseases, September 14th to 16th, at Brunswick; 93rd Congress of Natural Scientists and Doctors, September 16th to 20th, at Hanover; Society of Neurologists, September 27th to 29th, at Munich; Society for Industrial Diseases and Accidents, end of September, at Würzburg.

The Minister of Health has appointed an Advisory Committee to consider general questions relating to the administration of town and country planning in England and Wales, and any other related matters which may from time to time be referred by the Minister to the committee, and, as occasion may require, to make recommendations to him. The chairman of the committee is Mr. E. J. Maude, deputy secretary of the Ministry.

The Privy Council, in pursuance of the Pharmacy and Poisons Act, 1933, has appointed Sir Ernley Blackwell, K.C.B., to be chairman of the Statutory Committee of the Pharmaceutical Society.

The American Association for the Advancement of Science has awarded its annual prize to Dr. Reuben L. Kahn, assistant professor of bacteriology at the Michigan Faculty of Medicine and inventor of the reaction which bears his name.

The June issue of *Le Sud Médical et Chirurgical*, the monthly periodical published at Marseilles, is devoted to the surgery of childhood and orthopaedics.

The issue of *Paris Médical* for July 7th is devoted to diseases of nutrition.

Dr. Walter F. Richards of Reading, a member of the British Medical Association, and Mr. Reginald Droop, a medical student at St. Thomas's Hospital, are included in the crew of the *Endeavour*, challenger for the "America's Cup."

The Minister of Health has appointed Mr. C. F. Roundell, C.B.E., of the Ministry of Health, to be a member (vice Mr. N. B. Batterbury) of the Departmental Committee appointed in July, 1933, on the cost of hospitals and other public buildings.

The Italian Red Cross offers two prizes of 2,000 and 500 lire respectively for a monograph on morbidity and mortality from malaria in children in an endemic zone. The work should be sent to the Direzione della Croce Rossa, via Tuscania 12, Rome, before December 31st.

Dr. Friedrich von Müller, professor of internal medicine at Munich, has been nominated doctor *honoris causa* of the Geneva faculty of medicine.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

Senile Pruritus

"VRACH" (Cornwall) writes: Can anyone suggest a fruitful line of treatment for an old lady, aged 76, pestered with senile pruritus? All the described remedies have been tried, more or less without result.

Tennis Elbow

"WESSEX" writes: Can anyone advise me on the treatment of the above condition, which I developed last May after a hard game of tennis? There is swelling and tenderness over the radio-ulnar joint, and pain on flexing forearm, and marked pain on taking a back-hand stroke. Treatment has consisted of firm bandaging over the affected part and the application of iodine.

Spermatorrhoea when Bathing

"M.D., D.P.H." writes: A friend has consulted me regarding his son, aged 21 years. This young man, who is in splendid health and excels at athletics, is unable to bathe, for immediately on entering the water he has an emission of semen. This is the first time I have met such a condition, and I should be grateful for any information as to cause and treatment.

Book Wanted

"W. G. R." would be most grateful if any reader would be prepared to dispose of a copy of Sutherland's *Dispensing Made Easy*. Leading medical booksellers state that the book is out of print.

Income Tax

Motor Car and Rent Allowances

"Glasgow" bought a car for £383 in June, 1929, and sold it in March, 1934, for £52, buying another for £115. He acquired a new practice on July 1st, 1933. The house is assessed at £80; one room is entirely set aside for consulting, and another large room and the hall are used two and a half hours a day. What deduction is due?

* On a 20 per cent. basis the car bought for £383 in June, 1929, will have depreciated to £157 at July 1st, 1933, and the allowance for the nine months to April 5th, 1934, will therefore be nine-twelfths of 20 per cent. of £157—that is, £23. For the year to April 5th, 1935, the depreciation allowance will be 20 per cent. of £115—that is, £23. As an expense of the twelve months to July, 1934, "Glasgow" can deduct the balance of the written-down value (£157—£23=) £134, less the amount received (£52)—that is, £82. With regard to the proportion of the assessment to be treated as a professional expense, one-half seems a little high—possibly £30 would be fair, but of course a lot depends on the actual circumstances.

General Expenses—Proportion

"M. S. R." explains that there is whole-time use of a consulting and a waiting room, and casual use of a drawing room; in addition, a garage has recently been erected—though it is not stated whether the Schedule A assessment has been increased to cover the addition. One maid is kept, and in her absence the practitioner's wife has to assist.

** It is always difficult to suggest a reasonable ratio where so much depends on circumstances. One-half of the general expenses and one-third of the heating and lighting would seem to be a maximum, and would perhaps be somewhat generous. No deduction can be claimed for the wife's services unless she is actually paid for them.

LETTERS, NOTES, ETC.

Asthma in Childhood

Dr. A. W. DOCKAR (Birmingham) writes: I note with interest the letter by "G. P." (Surrey) on this subject (July 7th, p. 48). I do not think he has cause to be too much dismayed by the result of his treatment. Factors, little understood, still confront us. The results of autogenous vaccine, in my experience, have not been too convincing. They would seem to increase the patient's resistance to infection, but their effect on the "asthmatic diathesis" is questionable. From a series of investigations over a number of years I find that, in the differential leucocyte count, the eosinophil percentage tends to fall during the winter season and to rise during the summer, and more so if the summer be warm and dry for long periods such as we are experiencing now. These variations seem to take place in spite of medicinal and autogenous vaccine therapy, and the inevitable result of a rise in the eosinophil percentage is increased liability to an asthmatic attack. It would seem to me that, in these cases, one is dealing with constitutions biochemically imbalanced and incapable of normal self-adjustment to certain internal and external influences. From investigation of family blood readings I am convinced that this fundamental state is congenital, not acquired—that is, the child derives a familial tendency which, unfortunately, is not often recognized clinically till typical asthma has developed. Perhaps a little more attention to this pre-asthmatic aspect of the subject, with a view to adopting preventive measures early, would prove of inestimable value. In the case of children the asthmatic attack has often prodromata, such as languor, gastric disturbance, etc., readily recognized by intelligent parents. To aid in aborting an attack I immediately recommend an effective purge, followed by total restriction of food for twenty-four hours. Copious draughts of water are given during that period. This seems to give the child a chance of regaining its "metabolic balance," if I should dare to use such a term. Afterwards diet is gradually resumed. I am indebted to Dr. James Adam of Glasgow for much valuable help gleaned from his book on asthma.

A Warning

Messrs. E. H. WEEDON AND CO. (Bow Road, E.3) inform us that an agent recently in their employ, aged about 55-60, has been calling on medical practitioners and veterinary surgeons asking for loans of money (usually 2s. or 2s. 6d.). At present his activities are mostly confined to East and South-East London and Essex.

Corrigenda

In last week's issue, under the heading "Test for Live Birth" on page 142, the word "Fagerlung" should have read "Fagerlund."

The review of *Modern Treatment in General Practice*, published last week at page 118, stated that this book consists of fifty-three chapters; there are in fact fifty-six chapters.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, 34, 35, 38, and 39 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 84.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, AUGUST 4th, 1934

ARE WE SATISFIED WITH THE RESULTS OF ANTE-NATAL CARE?*

BY
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CONSULTING OBSTETRIC PHYSICIAN, ST. THOMAS'S AND GENERAL LYING-IN HOSPITALS

The question forming the subject of this discussion comes at an opportune moment, although it can admit of a negative answer only, as finality in progress is unthinkable. At the same time we have no grounds for complacency. For twenty years or more ante-natal care has been vaunted as the sovereign remedy for the static maternal death rate, which, however, obstinately refuses to respond to treatment. Hence, I take it, our object is to review our ante-natal work and to see where its weaknesses lie, and the task I have set myself is to re-state its aims, the attitude of mind in which it should be approached, and the principles underlying its practice. Clinical details I leave to my obstetrical colleague.

Midwifery a Branch of Preventive Medicine
The ante-natal clinic deserves much of the credit for the impulse leading up to a general recognition of "midwifery as a branch of preventive medicine," a slogan that had a wide vogue for a time, although it is clear that all it implied was not understood and certainly not acted upon. My interpretation of preventive medicine translated into clinical practice is that the promotion of health and normal working in all systems of the body becomes the primary objective. In midwifery, where the reproductive function in women is our charge, our first and chief duty is to learn what can be done by constructive physiology—that is, the adoption of measures tending to promote normal function throughout the processes of reproduction. After this comes the "preventive" part, strictly speaking, the removal or correction of possible causes of interference with physiological action. Lastly comes the watch for early evidence of disordered function and the effort to restore the normal before more serious or permanent trouble arises—for example, the testing of urine to discover albuminuria and the conditions underlying it.

Thus in successive stages we pass from constructive physiology through prevention to what may be termed, by antithesis, "destructive pathology." My point is that the first and constructive stage has not been fully understood and accepted as the primary purpose of the supervision of the expectant mother; often the two later stages are alone considered. About a year ago I noticed a letter in the *Lancet* in which this aspect was put so clearly that I venture to quote the words most appropriate to ante-natal clinics, for the letter was not prompted by them, but by a proposal for the periodic examination of women to discover the early stages of uterine cancer before symptoms arose. The writer of the letter, in setting out his objections to that suggestion, said:

"Our own generation, however, seems to have more fear of disease than love of health; we ourselves are not free from

the belief that it is our sole function to search out abnormalities, to declare them and to correct them if we can, and we are still far from the day when the reproach of having imagined a pathological condition will be esteemed as great or greater than the reproach of having overlooked one."

This quotation sums up the incorrect perspective in which much of our ante-natal work is viewed. The search for trouble is too much in the foreground, and constructive hygiene too far in the background. Hunting for signs of the abnormal results in the most being made of minor deviations from the mean, and often without proper consideration being given to the reserve power of mother nature. Here will be a misfit that must be beyond the natural powers, or there a cardiac or other medical complication that must prove fatal unless Caesarean section is performed or abortion or premature labour induced. It is generally accepted that intervention for hypothetical trouble has been grossly overdone, and a material proportion must be ascribed to misunderstanding the purpose of, and to misdirected zeal in, the conduct of ante-natal supervision.

More than lip-service is needed before midwifery is, in fact, "a branch of preventive medicine." The whole practice of midwifery, and particularly ante-natal work, must live up to the principle that its primary aim is the attainment of normal function. Once this ideal permeates completely the ante-natal period it will leaven the whole.

Study of the Individual

The next point I will emphasize is the importance of full consideration being given to the individual woman, mind as well as body, her circumstances, and her reactions to them. She is too frequently regarded as if she were a cow, and had no thought of what pregnancy, labour, and the rearing of her progeny involved. There is too much veterinary practice in obstetrics as well as in general medicine and surgery, and, in these days particularly, when there is much more talk in the vulgar tongue of problems of sex and reproduction, the reaction of the expectant mother to pregnancy and all it means to her is given too scant attention. In the textbooks there is a learned discussion of her biochemical reactions, normal and abnormal, but little or nothing of her mental responses. She may be distracted by an unwelcome pregnancy and desire its interruption, or she may be overjoyed that a long-hoped-for pregnancy has come but obsessed with fears of its premature ending or of disaster to the foetus. Or again, she may be full of dread of what is before her, or terrified by stories of what she has heard from others; or she may, like the cow, have given no thought and worried not at all as to what is in front of her. But all women should not be treated alike, as if they were cows and without imagination. Our ante-natal supervision has not as yet enabled us to predict a natural delivery for a healthy well-formed

* Read in opening a discussion at a joint meeting of the Sections of Obstetrics and Gynaecology and Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

woman with a normal presentation and position. She may take a day or more, and in the end be delivered artificially. This result may be accepted as next door to a natural delivery, but surely we should not be satisfied with second best, but should seek some means of improving the final expulsive efforts whereby the frequent resort to artificial methods may be avoided. This problem has scarcely entered into the philosophy of ante-natal care, although it is now generally agreed that the largest factor in the failure to complete expulsion is the emotional effects of anxiety and fear and the early fatigue that follows in their train. More attention is now being paid to this aspect of ante-natal work, but by general practitioners rather than by professed obstetric specialists, and several books⁴ and papers have recently appeared stressing the importance of the psychic factor during pregnancy and labour.

In the individualization of the pregnant woman must be included also the social and educational work that forms an essential portion of the ante-natal care in all classes of the community, and calls for modification to suit the character and special circumstances of each patient. It is well done in the public ante-natal clinics, and in those hospitals with a social service department, in both of which there are officers specially detailed for the duty of home visiting and inquiry; but it is liable to be overlooked in private practice⁵ and in smaller institutions.

Thoroughness and Continued Observation

The next point to be emphasized is that the supervision of the pregnant woman must be thorough and continued. The fault does not seem to me to lie so much in the medical and obstetrical examination as in the less obvious aspects already referred to, and in the failure to resort to continued observation in hospital or nursing home of cases showing slight or early signs of departure from the normal. The gravity and meaning of slight losses of blood during pregnancy, of vomiting that does not yield to simple remedies, of minor degrees of albuminuria or rise of blood pressure, and of many general diseases complicating pregnancy cannot be accurately estimated unless the woman is under medical observation and watched by competent nurses. Occasional visits to a clinic or medical attendant do not afford a satisfactory basis for a prognosis or judgement on the effect of treatment. But either from lack of facilities or failure to recognize the need for closer observation many disorders in an early stage are allowed to become serious before correct treatment is begun.

Unity in Purpose and Method

Reference to those sadly overworked words "co-ordination" and "co-operation" cannot be avoided, because ante-natal care calls for varied forms of service from various types of worker and for close contact between all of them, and unity in purpose and method are largely contributory to its effectiveness. Ante-natal supervision is so integrated with the rest of midwifery practice that it cannot be separated off without the efficiency of both the part and the whole suffering greatly. Its segregation in the public ante-natal clinics has been open to obvious criticism on this score, though the policy was more or less forced on the local health authorities by the Act of 1918. The result has been that the country has never received a proper return for the money expended on these clinics, a fact which seems to have struck the officials in Whitehall, judging by their memoranda advocating a co-operation so effective as to overcome all drawbacks to an ante-natal supervision exercised by those who have no concern with the mother during labour and lying-in. The merit of team work and a certain degree of uniformity in practice, our large maternity hospitals are not free from a lot of criticism: there is one member of the staff for the pre-

natal, another for the intra-natal, possibly a third for the post-natal care of the mother, and certainly another for the mother and infant in the infant welfare clinic. Reports between these different members of the staff cannot wholly compensate for the personal touch, and the influence that goes with it, when the woman is throughout under the same charge. The effort should be made to maintain responsibility for each patient in the same hands at least from pregnancy until mother and infant are passed to the infant clinic.

For these reasons the family practitioner is the ideal supervisor of the mother and her infant throughout reproduction, but, if he is to fulfil his part adequately, he must have assistance from a midwife, working under his direction to undertake the observational, educational, and mothercraft services given by health visitors, social workers, and other officers in hospitals and public clinics. The British Medical Association scheme to delegate this part of the work for insured patients to the public clinics does not appeal to me because of the division of responsibility and the loss of personal influence thereby entailed.

In conclusion, I trust the emphasis I have laid on the attainment of the physiological as our primary aim will not be taken as lessening the need for observing signs of departure from the normal. I have tried only to correct the perspective.

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ARE WE SATISFIED WITH THE RESULTS OF ANTE-NATAL CARE?*

BY

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Dr. Fairbairn has referred to the influence of the emotions in pregnancy and childbirth, and we shall probably all agree that in our enthusiasm for the development of the preventive side of obstetrics we have occupied ourselves too exclusively with mechanistic conceptions of the physiology of labour and with mechanical measures for meeting the difficulties encountered. It is worthy of note, also, that the late Dr. Ballantyne, in his last address in 1923, in which he set out clearly the benefits that he expected would follow ante-natal care, put in the forefront "the removal of anxiety and dread from the minds of expectant, parturient, and puerperal patients; and the removal of much discomfort amounting in many cases to suffering."

It is a matter of some historical interest that Ballantyne was originally led to advocate ante-natal care, not for the sake of the mother at all, but in order that we might be enabled thereby to discover the causes of, and to prevent, monsters. This we can easily understand when we recall that his two volumes on *Ante-natal Pathology* had been published in 1904, and that all his work and interest up to that time had been concentrated upon foetal pathology. It was only much later that he came to see that other gains might follow, such as reduction of the maternal death rate and of the number of stillbirths and neo-natal deaths.

* Read in opening a discussion at a joint meeting of the Sections of Obstetrics and Gynaecology and Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Effect of Ante-natal Care on Maternal Mortality

TABLE I.—Incidence of Maternal Deaths from Puerperal Albuminuria and Convulsions

It will be seen that while up till 1930 the death rate from eclampsia remained unchanged, in the last two years for which figures are available there is a distinct reduction. Yet, considering that eclampsia is almost entirely a preventable disease, the incidence and death rate are still far too high. One county medical officer writing to me recently confirms this. After saying that it is the exception now for the expectant mother in his area not to receive ante-natal care, he continues:

"Yet it must be admitted that it has not so far resulted in any reduction in the maternal mortality in the area . . . one conspicuous cause has been eclampsia. It is strange that the operation of a scheme which might have been expected *par excellence* to have eliminated or at any rate substantially reduced the incidence of eclampsia has not so far done so."

I may say here that it would be an important step forward if eclampsia were made a notifiable disease. We should then have valuable information as to its geographical distribution, regarding which we know next to nothing at the present time.

This, then, is what ante-natal care has accomplished. All will agree that we cannot be satisfied with the results so far obtained. The remainder of this paper will be occupied with an inquiry into the reasons for this comparative failure.

TABLE II.—Percentage of Primiparae and

Increased Frequency of Primary Births

If it could be shown that there has been in recent years an increase of primary as compared with subsequent births, such increase might be assumed to have a more or less important influence in neutralizing any improvement in mortality rates that would otherwise have followed ante-natal care. We should, of course, expect such an increase in primary births because of the fall in the birth rate, but apparently no statistics on this matter exist. I have therefore tried to collect information from the Ministry of Health, county medical officers of health, and other sources, but with one or two exceptions the replies were to the effect that they possessed no information. The chief exceptions were the West Riding of Yorkshire, Monmouthshire, and the City of Manchester, and Table II shows the figures obtained from these and one or two other sources.

These figures, I think, leave no room for doubt that the frequency of primary births has been steadily increasing for twenty years. As eclampsia is a difficult labour

These figures, I think, leave no room for doubt that the proportion of primary births has been steadily increasing during the past twenty years. As eclampsia and accidental haemorrhage, as well as difficult labours, are more common in primiparae it may be assumed that here we have an important factor in maintaining the high death rate. It is to be noted, however, that the mean age of marriage in females is the same now as forty years ago—namely, 26.

Much Ante-natal Care Inadequate and Ineffective

About 42 per cent. of all parturients in England and Wales are looked after at State-aided clinics. Midwives, too, who attend about half of all the labours in the country, are required by the Central Midwives Board to give ante-natal care to the patients booked by them, and to keep records. Then there is the care given by hospitals and by private doctors. Taking the country as a whole it is probably correct to say that quite 80 per cent. of expectant mothers now receive ante-natal care of some kind or degree. Many of the most elaborate schemes, however, have only been in existence for a year or so, and could not therefore have yet affected mortality returns. In one county, for example, there are now thirty-four clinics as compared with six three years ago. Judging as these figures are I believe that much ante-natal care is inadequate and ineffective. All who have

or so, and could not therefore have been so effective. In one county, for example, there are only four clinics as compared with six three years ago. Imposing as these figures are I believe that much antenatal care is inadequate and ineffective. All who have to do with this work know how easy it is to become slipshod because abnormalities are comparatively rare. In no department of medicine is one so liable to drift into careless ways and thus miss the occasional abnormality or the occasional early sign of impending danger, and against this the ante-natal worker needs to be constantly on guard. Munro Kerr¹ has emphasized this. He says: "It is watchful care that is essential. . . . The constant watchfulness on the part of those in attendance tends to slacken as in so many cases nothing abnormal occurs."

[illegible]

Area	1913	1915	1920	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	Total Cases Analysed
West Riding Works (midwives' practice)	17.4	20.3	27.3	27.2	23.3	26.7	27.9	26.1	26.6	28.7	28.5	30.9	31.2	31.7	33.3	23,857
City of Manchester (all cases)						26.3	23.7	29.4	30.1	30.1	32.5	34.1	34.0	34.5	34.8	115,593
East End Hospital (all cases)					19.0		24.0	26.5	28.1	30.0	32.3	32.7				16,284
Finsbury B.C. (all cases)	13.0												34.1	32.0		
Monmouthshire C.C. (all cases)			25.0												27.0	9,655
Poplar (all cases)			37.6		35.4										36.0	12,000
Queen's Institute of District Nursing														44.1	22.3	65,700

Much of that which now passes under the guise of ante-natal care is unworthy of the name. Examinations are too infrequent, perfunctory, and unskilled to accomplish anything useful. I have previously shown,² for example, that many clinics in teaching hospitals are doing nothing to reduce eclampsia among their own cases, for its incidence in the booked patients attending is as high as in the general population, and yet we know that eclampsia is almost entirely a preventable disease, and that in a few clinics it is being prevented. If this is happening in our training schools can we expect better at the hands of the general practitioner or midwife? Writing to me on this matter one medical officer said: "I am of opinion that the ante-natal work at the institutions with which I am acquainted is extremely badly done. Far too much is undertaken by the resident medical staff, and the consultants are rarely called in."

It is time we realized that ante-natal work calls for experience and skill, that patients must be individualized in regard to diagnosis and treatment, and that in ante-natal work there should be no such thing as mass production. The success of a clinic should be judged, not by the numbers passing through its books nor even by the number of attendances registered by each patient, but by its effect in reducing maternal mortality. It would be a great advantage if all medical officers gave such information in their annual reports as some already do. None of us are exempt from mistakes and failures, but each failure or mistake ought to be an occasion for self-examination and possibly for an overhaul of present methods.

Concerning the quality of the work done by midwives it is difficult to get information. Some of it may be fairly good, especially as they have to keep records and their work is more or less supervised. The standard of entry to the roll of the Central Midwives Board is, however, deplorably low, and only 10 per cent. of those entering for the qualifying examination are rejected. Surely the lowest standard of any examination in this country! Besides, they are handicapped by their inability to estimate blood pressure, a rise of which is often the earliest sign of pre-eclamptic toxæmia, and may precede the appearance of albumin in the urine by several weeks. Is it too much to hope that all the midwives of the future may be trained in the estimation of blood pressure, and that public health authorities may consider it worth while to provide them with a simple form of blood-pressure recording apparatus? One medical officer writes me that his council provides midwives with callipers with which to take pelvic measurements. I believe the callipers to be a useful and necessary instrument, but even more necessary is a manometer. I might add that some medical officers sent me copies of the record forms which they had drawn up, and which the practitioners working under the local scheme were required to keep. None had any place for recording blood pressure, and this in spite of the fact that in the minimum scheme for ante-natal examination circulated by the Ministry of Health the importance of such a record was clearly pointed out.

It is the custom nowadays to belittle the whole-time clinic officer. It is usually laid down that the person responsible for the delivery should look after the woman in pregnancy, and there can be no doubt that, other things being equal, this is desirable. Yet there is much to be said for such officers. They are usually extremely keen, and nowadays they must have had post-graduate experience of maternity work, though judging from advertisements still appearing in the medical press this regulation is more honoured in the breach than in the observance. They are less likely to be hurried than the general practitioner; they can devise a follow-up system to ensure

regular attendance, and as they see more patients than any individual practitioner they should become more highly skilled in diagnosis. Their work suffers, however, both in interest and in usefulness, from the fact that they are not allowed to give treatment, and one medical officer expresses the opinion that attendances at clinics would be much higher if treatment were given. Of course, effective ante-natal treatment often means institutionalization, but since much greater facilities for this are necessary it should be possible to arrange for the patient to be admitted under the care of the medical officer who has looked after her in the clinic. This would mean the addition of facilities for delivery, but I believe that these will in future be found to be a necessary provision, for the time is surely coming when none but normal midwifery and, perhaps, low forceps cases will be undertaken in the patient's own home.

Keen and competent whole-time clinic officers are often discouraged by the indifference of practitioners to whom they refer patients for treatment, and I know personally of cases of this sort. One county medical officer states that the ante-natal clinics were at first run by general practitioners,

"but they were so indifferent we had to appoint whole-time officers in charge. The whole-time system is becoming increasingly popular with midwives and mothers. It has been our custom to inform the doctor of the proceedings at the clinics and to invite co-operation, but it is so infrequent that my officers get any replies to their notes that I can only assume that general practitioners are not interested in this work."

This gap between diagnosis and treatment is to my mind a very serious one, and calls urgently for consideration.

Unnecessary Intervention in Ante-natal Care

Induction of premature labour and Caesarean section at term for disproportion are good examples, and no one will deny that much of this intervention is unnecessary or that in most cases delivery would have taken place without trouble had the patient been left alone. It would be a simple matter did space permit to prove this from the reports of leading hospitals, and Wrigley,³ in a recent paper, has already done so. This intervention would not matter if these operations were always safe, but we know they are not. I need only mention that in their last published reports eight teaching hospitals in this country record forty-four deaths among their own booked cases, and of these twelve (27 per cent.) followed Caesarean section in originally "clean" patients, the most frequent cause of death being general peritonitis. I believe I am justified in saying that ante-natal care has often simply transferred mortality from one column to another. Deaths from obstructed labour are now comparatively rare, but we have replaced them to some extent by deaths from preventive operations. The remedy lies in the realization that even the best ante-natal care does not abolish the need for good obstetrics, and that it may even be dangerous unless supplemented by wise conservatism in treatment.

Increased Demand for Intervention, Anaesthetics, etc.

Fairbairn⁴ has pointed out that in 1924 and 1925 there was evidence of an increasing tendency on the part of the Queen Victoria Jubilee Midwives to send for medical aid during labour. During 1924 in 13 per cent. of cases the doctor had been called in on account of difficulty or delay. In 1925 the frequency had risen to 17.9 per cent. I have obtained the figures for 1931, 1932, and 1933, and they are 20.1, 22.1, and 21.5 per cent. respectively. Are we to put this down, as Fairbairn does, to the midwife

AUG. 4, 1934]

ARE WE SATISFIED WITH RESULTS OF ANTE-NATAL CARE?

THE BRITISH MEDICAL JOURNAL 197

becoming less self-reliant, or may it not be due to a decreased capacity to bear pain and to an increasing demand for rapid termination of labour and especially for anaesthetics?

Finally, we should not forget that there is a certain proportion of obstetric complications that ante-natal care is so far powerless to prevent. These have been recently analysed by Strachan,³ and to his paper I shall refer those interested.

I would end on a note of hopefulness. Disappointing as have been the results hitherto we are in the mood for self-criticism, and this may be the prelude to a fresh advance. A conference such as this between two of the Sections most nearly concerned in the success of ante-natal work cannot but result in a fresh integration of effort. And in the words of Walt Whitman: "It is provided in the nature of things that from any fruition of success shall come forth something that shall make a greater effort necessary."

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ARE WE SATISFIED WITH THE RESULTS OF ANTE-NATAL CARE?*

BY

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There is a deceptive simplicity about this question to which we have been asked to furnish a reply. It seems at first sight to require little more than a confirmatory "Yes" from those of us who have been enthusiastic advocates of the provision of ante-natal care. Further consideration, however, shows that the question covers a very wide field, and no such simple confirmation is quite possible. It becomes necessary, indeed, to put two further questions: (1) What is meant by ante-natal care? ; and (2) What results can be expected from it?

It is only by defining in some measure what ante-natal care has meant that we can judge the results which have been obtained. It is obviously useless to feel disappointed with a remedy which has never been properly applied. There is actually an official standard for ante-natal clinics set out in the circular 145/M. & C.W., issued by the Ministry of Health in 1929. This standard was not put forward as an ideal but as a practical minimum for effective usage, and I feel sure there will be fairly general agreement when I say that a high proportion of women receiving ante-natal care, whether at ante-natal clinics or elsewhere, do not receive it at this minimum standard. This may be due in part to faults of administration or to faults in doctors or midwives, but it is also, to a great extent, undoubtedly due to the women themselves, since even when facilities are available and are freely offered full advantage is not taken of them.

Ante-natal Care in Birmingham

We have, I believe, reached the point at which a demand for a high standard of ante-natal care can and will be met, and I feel sure—indeed, there can be little

* Read in opening a discussion at a combined meeting of the Sections of Obstetrics and Gynaecology and Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

doubt about it—that such a demand will shortly become universal. This suggestion is supported by the rapidly increasing number of women who present themselves at the ante-natal clinics, and in this connexion the records of Birmingham are of interest. Birmingham first formally opened its ante-natal clinics in 1916. During that year 250 were held, and 561 women attended. Eight years later, in 1924, the clinics had increased to 931, and 4,043 women attended. In 1932 the figures were 1,892 clinics and 8,174 women attending. Meanwhile, the births had fallen from 21,347 to 17,219. A very high proportion of the births are visited by health visitors, and taking these as representing those women who are invited to ante-natal clinics, it will be seen from the table supplied that in 1932 no less than 50 per cent. had attended the clinics.

TABLE I

	1916	1924	1932
Number of ante-natal clinics at child welfare centres	250	931	1,892
Number of mothers attending ...	561	4,043	8,174
Total attendances made ...	No record	10,395	25,933
Births (including stillbirths) ...	21,347	18,934	17,219
Births visited (not including stillbirths)	8,143	15,957	16,180
Percentage of mothers attending from the visited class (approx.)	6 per cent.	25 per cent.	50 per cent.

This represents only a portion of the amount of ante-natal care given and received: taking into account the work of the family doctor, the midwife, and the maternity institutions, it is obvious that the total must be considerable. There can also be little doubt that the standard is as high as anywhere in the country, though space does not permit of a detailed description. As regards the ante-natal clinics, the arrangements for following up and co-operation are fairly complete, and the work is carried out by experienced medical women with every facility for consultation and with sufficient available ante-natal beds.

And yet one is forced to believe that the standard is not sufficiently high in a large proportion of cases. The average attendance per patient in 1932 was three, and when one considers that many women pay from five to eight visits it is clear that numbers pay only one visit. The midwives, although informed when their patients cease to attend ante-natal clinics, cannot, as a general rule, give really effective supervision at the standard laid down in the Ministry's memorandum. They have not the facilities, and the patients are often not very amenable. The lack of sufficient ante-natal care is frequently recorded in relation to stillbirths, deaths in childbirth, and puerperal sepsis investigations.

Ante-natal supervision might be expected to affect maternal mortality in childbirth, neo-natal mortality, and the stillbirth rate. There has been no material improvement in these rates since 1916.

TABLE II

Birmingham	1916	1924	1932
Maternal mortality ...	3.4	3.91	3.73
Neo-natal mortality ...	34.4	41.9	32.7
Stillbirths ...	3.5	2.9	3.6

During the last five years every maternal death in childbirth in Birmingham has been investigated as carefully as possible and an attempt made to assess the influence of ante-natal care (Table III). In the deaths from intercurrent disease in this group fifty-seven out of eighty-

TABLE III.—*Maternal Mortality Inquiry: Causes of Death*

Year	Intercurrent Disease			Abortions			Sepsis			Toxaemia			Other Causes
	No.	Ante-natal Care		No.	Interference	Probable Interference	No.	Deaths Due to Failure of Ante-natal Care	Ante-natal Care None or Insufficient	No.	Ante-natal Care		
		None	Insufficient								None	Insufficient	No.
1929... ..	30	9	15	15	5	5	19	2	18	23	5	14	6
1930... ..	20	4	7	15	5	2	17	10	11	17	1	14	10
1931... ..	21	4	9	9	3	2	21	4	14	18	3	7	11
1932... ..	9	0	4	9	2	2	26	1	10	17	1	16	15
1933... ..	7	3	2	14	4	5	15	2	8	13	2	7	19
Total ...	17	20	37	62	19	16	98	19	61	88	12	52	61

Total deaths = 396.

seven women had not received adequate ante-natal care. In fatal abortions thirty-five out of sixty-two were probably associated with "interference." In nineteen of the ninety-eight deaths from sepsis ante-natal care had failed to give the help that should have been given, and in sixty-one it was insufficient. In the toxæmias no fewer than sixty-four out of the eighty-eight cases had had too little ante-natal care or none at all. In the group collected as "other causes," including ectopic gestation, Caesarean section, etc., no assessment has been attempted. The general inference to be drawn from these figures is that in a large proportion of cases, while death could not directly be considered as due to failure of ante-natal care, there was no doubt that the standard and amount was altogether insufficient for the minimum of efficiency.

Findings in a Maternity Home

I have endeavoured to show, then, that if ante-natal care has not succeeded in lowering maternal mortality in Birmingham it has not had a fair chance of doing so. In the history of the fatal cases its absence or insufficiency is prominent. The consideration of what happens where the standard is satisfactory is worth studying in contrast, and for this reason the findings at one of the city maternity homes are recorded:

The ante-natal work in this home is of the highest standard, and the women are required to submit to every requirement of the medical officer, or their "booking" is cancelled. Therefore it can be taken that the results reflect the best that intensive ante-natal care can secure. The only selection from the medical point of view is that Caesarean section cases are not booked, and that inevitable early inductions are excluded. The figures have been taken from 1,000 consecutive booked cases delivered in the home, of which 56 per cent. were primiparae and 44 per cent. were multiparae. Seven hundred and thirty-nine patients, or 74 per cent., were normal throughout pregnancy and confinement, and the remaining 261, or 26 per cent., were admitted for treatment to the ante-natal ward. Some of the conditions found, such as heart disease, pyelitis, and toxæmia, required prolonged treatment.

We have here a very low maternal mortality rate, 1 per 1,000, which was the same as in the previous 1,000 cases delivered in this home, but it must be remembered that abortions, intercurrent disease, and the group classed as "other causes"—that is, ectopics, etc.—are excluded. The stillbirth rate remains practically unaffected as compared with the city as a whole. The neo-natal mortality is improved, but this is undoubtedly due to intensive and highly skilled care of the premature infants, the proportion of which is increased by the frequent inductions. The city neo-natal mortality for the first fortnight of life is

TABLE IV.—*City Maternity Home (1,000 Consecutive Booked Cases)*

(Primiparae = 56 per cent. Multiparae = 44 per cent.)

Normal throughout, 739 = 74 per cent.

Complications of pregnancy—admitted to ante-natal ward, 261 = 26 per cent.

Maternal mortality = 1 per 1,000.

Stillbirth rate = 3.3 per cent.

Neo-natal mortality = 1.6 per cent.

Complications	No. of Cases	Results	
		Mother	Baby
Heart disease	18	Good	Good
Hyperthyroidism	4	"	"
Chorea of pregnancy	2	"	"
Severe varicose veins	5	"	"
Profuse vaginal discharge (not V.D.)	3	"	"
Threatened premature labour	17	"	1 premature stillbirth; others good
Placenta praevia—central ...	4	"	All stillbirths
" " lateral	6	"	Good
Ante-partum haemorrhage (other than toxæmia or placenta praevia)	18	"	"
Breech in primiparae for version	11	"	1 stillbirth; others good
Pyelitis (3 + toxæmia)	31	8 still had pns at 14th day	1 stillbirth; others good
Slight disproportion or post-maturity (for induction)	30	23 normal delivery.	3 stillbirths; others good
Hydramnios	1	2 forceps Good	Good
Diabetes and toxæmia	1	"	"
Dysentery	1	"	"
Red degeneration of fibroid ...	1	"	"
Toxæmia of pregnancy (with albumin)	108	1 died (obstetric shock after twins). 1 mania; 12 still had albumin at 14 days; 94 had no albumin at 14 days	9 stillbirths; 4 died later. Others good
Total	261	—	—

28.3 per 1,000 births in comparison with 17 per 1,000 births in the home. At the same time, no one can study this table without realizing the importance of ante-natal examination and treatment from the point of view of the 26 per cent. abnormal cases.

Present Position Reviewed

It seems clear from the conditions found that not only is ante-natal care essential, but also that the obstetrician making himself responsible for it should be as much a physician as a surgeon. The tendency to combine obstetrics and gynaecology has led to the importance of the physician's point of view in the care of the expectant mother being overlooked to some extent. If that happens ante-natal diagnosis and treatment will never be satisfactory. A great deal is heard of the importance of the

AUG. 4, 1934]

ARE WE SATISFIED WITH RESULTS OF ANTE-NATAL CARE?

THE BRITISH
MEDICAL JOURNAL 199

ante-natal clinician knowing what happens at the confinement, but it is even more important for him to recognize what is happening to the patient before the confinement. Until ante-natal care includes the careful study of the patient as a whole and throughout pregnancy it will be impossible to say that we are satisfied with the results it gives.

At present one is far from satisfied, but that simply means one remains dissatisfied with the amount and standard of ante-natal care. As far as can be judged, where the standard is satisfactory, one can hope to obtain a marked decrease in maternal morbidity, with an incalculable improvement in the health of the mothers, and a definite reduction in maternal mortality when combined with really skilled obstetrics. The effect on the stillbirths and neo-natal deaths remains in doubt. Fewer cranial injuries, certainly, but probably more premature babies from inductions, may result. This suggests that skilled and prolonged treatment and care of the infant is essential, and ante-natal care may benefit the mother even more than the child.

At the same time not ante-natal care alone, but all the influences at work to raise the health standard of the nation must benefit women and ultimately their infants. With the disappearance of rickets, and with better nutritional standards for children and adolescents, pregnancy and childbirth should become less dangerous to both mother and child. Among the helpful factors is the universal realization of the importance of prevention and the value of careful medical supervision during pregnancy. There are factors, however, which delay progress, and among these the inadequate training of the medical student and midwife in all that concerns obstetrics and infant care is the most serious. While there has been great progress in recent years, this has not gone far enough, and there can be little doubt that the best use is not being made of the available teaching material. The teachers are frequently too few, and only too often overworked. Expediency and improvisation are still advocated before efficiency. Ante-natal care will not fail to give satisfactory results when knowledge, careful observation, and unceasing vigilance are used to benefit every expectant mother.

The final position of the ante-natal clinic at the child welfare centre is problematical. It is generally agreed that the routine care of the pregnant woman should be in the hands of those who will attend her during labour. Whether the present tendency to enter institutions will go further, or whether the district midwife and the general practitioner will retain their present predominance in this field, remains to be seen. In either case, with the progress of medical education and the better training of midwives, the position of the clinics must alter. They may become consulting clinics, or they may serve as outlying clinics for central institutions. Their present role is that of pioneers, and their task predominantly educational. While the position to-day is not altogether satisfactory, we can say of ante-natal work, in the well-known phrase, that it is progressing as well as can be expected!

The Child Guidance Unit at the West End Hospital for Nervous Diseases (73, Welbeck Street, W.1) began work in October, 1932, and a report for the year 1933 by the honorary director (Dr. Emanuel Miller) has lately been issued. The special feature of this unit is that it is established in a voluntary hospital, and makes provision for in-patient observation and treatment, as well as for sessions held in special quarters in the out-patient department. All cases are seen in the first instance by a neurologist on the staff of the hospital, thus eliminating organic diseases and other unsuitable cases.

ARE WE SATISFIED WITH THE RESULTS OF ANTE-NATAL CARE? *

BY

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Ante-natal care was begun in this country about the beginning of the present century. It is now generally accepted as an integral part of the care of maternity, but no standard is yet in universal operation. The Maternity and Child Welfare Act was passed in 1918, and since that time ante-natal work has considerably expanded. Nevertheless, the general maternal mortality rate per 1,000 live births does not show any material change since that date. Maternal mortality is in part due to lack of ante-natal care, and the absence of any fall in the rate probably means that the ante-natal care given in many places is still insufficient.

Ante-natal care has the following objectives: (1) to maintain the health of the pregnant woman; (2) to secure delivery with the least possible disturbance to the pregnant woman; (3) to secure for the child an adequate supply of breast-milk during the normal period of lactation. The questions that arise are: (1) how can we secure these objectives; and (2) to what extent do the methods generally in use fall short of the best? Ante-natal care, so far as the mother is concerned, includes the problem of the maintenance of her general health and nutrition, and her obstetric state.

Attention to the general health and nutrition of the mother involves a knowledge of her home surroundings, food, habits, work, and recreation, as well as a careful and systematic physical examination. These two factors—namely, the environment of the patient and her general physique—have to be carefully correlated, and advice should be given by a medical practitioner competent to do so as to any measures, social or medical, which are necessary to improve the patient's general hygiene. The home environment should be reported not only by the doctor but also by a health visitor. In order that the patient may be in a position to safeguard, and to improve if necessary, the mother's health, one consultation during pregnancy is not enough. This supervision should be carried out at regular intervals at appointed times. The failure of the mother to attend on any specified occasion should be followed up immediately by an inquiry at the home as to the reason for her non-attendance. This provision for ante-natal care is important, since it is not infrequently the case that the pregnant woman has failed to keep her appointment on account of her physical condition, which may urgently require treatment.

Ante-natal Work and Subsequent Confinement

The next point that arises concerns the obstetric state of the patient. A special physical examination of the mother is required to ascertain the condition. The Ministry of Health, in its regulations of 1930, has laid down that medical officers in charge of ante-natal clinics are required to possess special experience in practical midwifery and ante-natal work. The importance of the association of practical midwifery with ante-natal work is thus recognized, and I am convinced that, if the best results are to be obtained from these obstetrical examinations, they must be linked up with the subsequent confinement. It is impossible for an ante-natal medical officer

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materially to enhance his experience unless he is in a position to check his diagnosis and prognosis by the happenings at the confinement itself. A paper report by another practitioner is insufficient for this purpose, and is an unsatisfactory alternative to attendance at the confinement.

Having thus secured the ante-natal care of the pregnant woman it is necessary to consider the confinement, so that there may be a minimum of disturbance to the patient. The obstetrician who has been responsible for the ante-natal supervision should take charge of the confinement. I am aware that there are different schools of thought as to the management of different varieties of complicated labour. It is not my province to discuss these, but it is my concern to know that the practitioner undertaking the management of the labour should be fully aware of its possibilities, and fully equipped and experienced to deal with any eventuality.

In order, therefore, that the foregoing conditions may be met, the following propositions are submitted:

1. That the general health of the expectant mother should be under the care of a medical practitioner competent to carry out not only medical examination, but also to advise as to the hygiene of pregnancy from both the social and the medical aspects.
2. That these consultations should take place regularly throughout pregnancy, and failure to keep an appointment should be inquired into without delay.
3. That the obstetric examinations made during the ante-natal period should be carried out by the obstetrician who will be in charge of the confinement, and who should have sufficient experience to cope with any abnormality, whether foreseen or not.
4. That hospital beds should be available for all ante-natal cases requiring such accommodation.

Where Present Methods Fail

These being the conditions which, in my opinion, should govern ante-natal care, it is necessary next to ask how far the present methods of ante-natal supervision comply with the propositions here set out. I think it may be fairly said that, so far as the work of local authorities is concerned, attention to the general health of the pregnant woman is given by a doctor, generally speaking, competent to do so from both the medical and the social aspects, although it may be doubtful if sufficient emphasis is always laid on the basic need for the adequate nutrition of the patient. Unfortunately, it is not always the case that women who fail to keep their appointments are immediately followed up to ascertain the reason for their non-appearance. If the reason is not connected with their health, it may be that no harm is done, but in many cases, especially towards the later weeks of pregnancy, failure to keep an appointment is often due to the physical state of the mother, which may require immediate attention, including her removal to hospital.

It is true that where the general health of the mother reveals some abnormality associated with the pregnancy—for example, albuminuria, or a complication of her general health—as, for example, heart disease—a hospital bed is not always available. Further, she may be unable to leave her home because she cannot make provision for its continued care during her absence, which in some cases may be prolonged. Ante-natal beds are also needed during the ante-natal period on account of the obstetric condition, and these again are not always available.

It is further the case that in only a limited number of instances is the obstetrician responsible for the confinement associated with the ante-natal work of local authorities. To my mind, where this association does not exist, the value of ante-natal care is very materially diminished. No matter how expert an ante-natal medical officer may consider himself to be, it is necessary that

he should be in a position to verify his findings by the actual experience of the confinement. This linking up of ante-natal obstetric work with the confinement is the only means whereby ante-natal care can be put on a sound and scientific basis and the true meaning of the ante-natal conditions can be properly understood and emergencies avoided.

I have confined my remarks to the ante-natal work of local authorities, but the principles on which ante-natal care, in my opinion, should be founded are not altered because the confinement is to be carried out under private auspices. Such confinements include: (1) those conducted at home by midwives; (2) those conducted at home by general medical practitioners; (3) confinements in private nursing homes or wards by general medical practitioners. In these cases either the ante-natal supervision as here envisaged is inadequate, or the obstetrician has not such experience or equipment as to enable him to cope with every obstetric condition or emergency. The fact that a consultant obstetrician is at call is not sufficient. A consultant is usually called in after an emergency has arisen. If there is a practitioner of experience in these matters at hand it seems to me essential, if the best results are to be obtained, to make use of his services from the beginning, and not wait until it is evident that special and perhaps extreme measures are required.

Ante-natal Care and the Child

I have not dealt with the effects of ante-natal care on the child. This is a subject to which I have given consideration, but in respect of which I cannot submit any satisfactory information. The fact that the mortality rate of children under 4 weeks has undergone little change since 1918, while the mortality rate of children under 1 year has been considerably reduced since that date, would seem to indicate that our present methods of ante-natal and possibly intra-natal care have not effected any material change in the healthiness of the offspring. Here it would appear to me that the obstetrician has to extend the scope of his work to include the child under 4 weeks, and to correlate his ante-natal work and the nature of the confinement with the condition of the child at birth.

How to Obtain the Best Results

Much has been achieved in respect of the establishment of ante-natal centres by the Ministry of Health, and although it is impossible to assess the value of these centres at the present time I have no doubt that their work will prove to be the most valuable of any that is done for the national health. In order that we may get the full advantage of ante-natal work, discussions like the present are of great value. Their value would be considerably enhanced if local authorities and practitioners would keep a detailed record in every case of the following among other facts:

1. The nature and the amount of ante-natal supervision.
2. The general health and state of nutrition of the patient during pregnancy.
3. The obstetric state as recorded ante-natally.
4. Noteworthy features of the ante-natal period—for example, the co-operation of the patient, the presence of some abnormality, or the need for a period of hospital treatment or the like.
5. The anticipated course of the labour.
6. The actual course of the labour.
7. Noteworthy features during the puerperium.
8. The general health of the mother and the state of the pelvic organs at some later period, say three months after confinement.
9. The condition of the child at birth as anticipated ante-natally.

AUG. 4, 1934]

SODIUM EVIPAN

10. The actual condition of the child at birth.
11. The health of the child some time after birth, say at three months.

In the foregoing I have set out the best methods of ante-natal supervision as they appear to me in the present state of knowledge. As these are not in general use, and as no standard method has been laid down or applied, it is practically impossible to assess the value of ante-natal care from the gross results which are available. If, however, the different authorities and practising physicians could be persuaded to keep records such as I have indicated, we should shortly have the necessary information to enable us to arrive at such a valuation, and to decide how best we can achieve satisfactory ante-natal supervision.

The history of medicine shows that obstetrics in the limited sense has always been regarded as a special art. The present discussion raises a wider problem than the art of obstetrics, because the nation to-day is interested in the rearing of a healthy race. The care of the mother and the child is therefore all-important. Indeed, it seems to me that this should be a division of medicine for special study and practice. A new kind of specialist is required: one whose functions would be first, ante-natal care in its wide sense, having regard to both the mother and the unborn child; secondly, the confinement of the mother; and, thirdly, the care of the mother and child for a period after the birth. A wider specialism on these lines would, I believe, secure better results in the rearing of healthy children than specialisms limited, as at present, to the much narrower fields of obstetrics and gynaecology on the one hand and paediatrics on the other.

PHARMACOLOGY AND THERAPEUTICS OF SODIUM EVIPAN

WITH SPECIAL REFERENCE TO ABNORMALITIES
UNDER EVIPAN ANAESTHESIA

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Sodium evipan has now definitely established itself as an anaesthetic both in medical and in dental practice, and the purpose of this article is to give a short account of its pharmacology, and the pathology of such cases as have come under the authors' notice.

Sodium evipan is the soluble salt of a new barbituric acid derivative: *n*-methyl-C-C-cyclo-hexanyl-methyl barbituric acid. It is not a volatile anaesthetic, but is rapidly detoxicated by the liver, and it is stated upon its decomposition within the narcotic dose within thirteen minutes.¹ Kennedy has also shown that detoxication of sodium evipan in mammals is very rapid.² Another characteristic of this drug is its high therapeutic quotient. In a cat this is represented by the figure 4, since 25 mg. generally gives full anaesthesia, while 100-110 mg. is the lethal dose.³ In the dog the quotient is 3.3. It may fairly be inferred, therefore, that only 20 to 30 per cent. of the lethal dose is used to produce clinical anaesthesia, and this factor must be noted when criticism of the unreversibility of evipan is made. Traces of the unchanged substance are found in the urine, but it is mostly eliminated in the form of urea.

During narcosis the blood pressure may fall by not more than 20 mm. Hg. and respirations are depressed both in rate and in amplitude.⁴ Overdose causes the cessation of respiration, the heart continuing to beat until secondary heart failure occurs, due to anoxaemia. Kennedy and Narayana have shown that the depressant action of sodium evipan on the frog's heart is very rapidly removed by washing, and is antagonized by adrenaline. The obtained complete recovery in a few seconds. The ventricle, apparently, is affected before the auricle; when the beats had completely ceased excitability still remained.⁵ Even while suffering from overdose, some animals have been kept alive by artificial respiration until enough of the drug had been excreted to allow the respiratory centre to resume normal function.

Technique of Administration

The technique of administration is well known, and consists of the intravenous injection of a 10 per cent. solution in sterile distilled water. This solution is made up immediately prior to injection, and is run in at rates which vary with different operators. An average figure would be about 1 c.cm. in ten seconds, although we, personally, deliver the first 2 c.cm. with greater rapidity. A common indication of the dose is to instruct the patient to count aloud, to note the volume given before unconsciousness supervenes, and to give the same volume again, or more, according to the duration of anaesthesia required. The symptoms produced by the injection are dramatic. While the first 2 c.cm. are entering the circulation the patient counts aloud with great confidence, but during the administration of the third c.cm. he usually begins to hesitate; a surprised look comes over his face, rapidly followed by a vacant stare, the counting becomes disordered and whispered, and finally with a deep sigh or yawn he drifts into anaesthesia. Unconsciousness usually occurs about the time of "hesitation," and is immediately preceded first by a feeling of intoxication and then by intense drowsiness. Respiratory and circulatory changes have been mentioned above, and the problem of "twitchings" will be dealt with later.

Duration of Anaesthesia

It is sometimes difficult to estimate the time during which anaesthesia occurs, since with identical doses different patients have remained anaesthetic for as little as five minutes and as long as an hour, but in most cases as five minutes and as long as an hour, but in most cases fifteen to twenty minutes can be promised with certainty. For recovery, four hours or longer is the general rule, varying according to the dose and the constitution of the patient. In neurotic people the recovery period is frequently accompanied by emotional crises, but people of stable temperament usually recover quite quietly. The patient generally remembers nothing either of anaesthetic or recovery period, except the fact that he has slept well. Abel and Jarman rightly point out that with "minimal doses" (that is, injecting 2 c.cm., waiting thirty seconds, and giving the third c.cm. cautiously until unconsciousness occurs, and then discontinuing the anaesthesia lasts from five to fifteen minutes; the patient then wakes, is quite rational, and after half an hour's rest, or sleep, is often able to walk home.⁶ It must be stressed that until recovery is complete the usual tests for sobriety are not satisfied, and the patient should be allowed to rest in quiet until feeling fit. We only know of one case of nausea or vomiting after recovery; this was in a man who was sent home on a tram, having previously had a large draught of black coffee. In a few cases headaches have been recorded (always after large doses), and these are usually likened to the aftermath of alcoholic excess.

In order to lengthen, deepen, and stabilize evipan anaesthesia some workers, Abel and Jarman,⁷ have recommended injection of an ampoule of omnopon 2/3 grain and scopolamine 1/150 grain one hour before operation. On the other hand, the Anaesthetic Committee of the Medical Research Council⁸ decided that it was inadvisable to give any sedative. In our practice we have found that the combination of sedative premedication and evipan has never given the slightest anxiety in adults of moderate health.

Difficulties under Anaesthesia

The first difficulty that occurs is at the onset of anaesthesia, when the muscles attached to the jaw become relaxed and the patency of the airway is imperilled. To prevent this, an assistant should be at hand to turn the head to one side and lift the jaw if necessary. If neither of these manœuvres is successful it is better to insert a Hewitt's airway.

Muscular twitchings are another nuisance, both to anaesthetist and to the surgeon, for they may either jerk the needle out of the vein or hinder the operative procedure. These movements are independent of stimuli, although they are accentuated and become vaguely purposive during skin incisions. Sedative premedication diminishes this trouble, however, and a further injection of a few centimetres of evipan completely abolishes the movements.⁹

We have had one case where 10 c.cm. of evipan produced amnesia but no signs of anaesthesia. The patient, however, was also in attendance at a mental hospital near by. This man took the usual four hours to recover, in a delirious manner. We have also first-hand knowledge of another case (also that of a mental patient), who showed merely drunkenness after 20 c.cm. was injected into a large vein. One of us (G. S.) has had two cases, both in men, in which the full dose of 10 c.cm. of the 1 per cent. solution was given without any kind of anaesthesia being produced nor any apparent change, either physically or mentally. Witnesses of all these inductions were fully satisfied that the injection was intravenous.

In our experience one difficulty has been that of respiratory spasm, which sometimes involves the glottis and occurs early in anaesthesia. The patient goes a blue colour, has sighing respirations, and the condition may become an alarming one; it clears up readily, however, with the passage of an intratracheal catheter. We have also had patients who stopped breathing for a time, but who, fortunately, started with artificial respiration or intubation. One or other of us has had experience with the following cases.

CASE I

A woman, aged 65, attempted suicide by cutting her throat. The larynx was exposed and opened, and evipan 3 c.cm. was injected for the purpose of induction. Unconsciousness was immediately followed by inhibition of respiration; the pulse was normal in rate and volume. Breathing recommenced on the introduction of an intratracheal catheter, and an inhalation anaesthetic was continued through it. The patient recovered consciousness about an hour after the operation ceased. The repair was successful, but the patient died five days later. Post-mortem examination revealed that bronchopneumonia was the cause of death.

CASE II

A man, aged 62, was admitted after two days' unsuccessful treatment for severe epistaxis. He had a large aortic aneurysm, and was chronically bronchitic; his weight was about 15 st. Nine c.cm. of evipan was administered for the thorough packing off of the nose. Respiration ceased; the pulse was good but the colour bad. On the introduction of an intratracheal tube respiration recommenced, and about half a pint of gastric contents containing altered blood was regurgitated. The packing was completed and the patient recovered consciousness. Two days later 10 c.cm. evipan was administered

for repacking without any untoward effect. Three days after the second operation the man died, and post-mortem examination revealed the existence of diffuse meningitis.

CASE III

In this case, that of a man aged 70, an operation for the insertion of radon into an extensive lingual carcinoma was performed. The patient was toxic, and was suffering from chronic bronchitis. Omnopon 1/3 grain and scopolamine 1/150 grain were injected an hour before operation, when 8.5 c.cm. of evipan was given intravenously. Breathing became progressively more shallow, and ceased about ten seconds after the completion of the injection. The face was cyanosed and the pulse became imperceptible. The insertion of an intratracheal catheter was followed by a sigh, and artificial respiration, which had been commenced before intubation, was discontinued. Breathing was irregular at first, but became rhythmic by the time carbon dioxide and oxygen were insufflated through the tube. Owing to the return of the cough reflex the tube was soon withdrawn, without any ill effect.

At the end of the operation the corneal reflex was brisk, and an hour later the pharyngeal reflex was also active. Six hours later the pulse became poor in volume, and the patient's colour unsatisfactory. Intravenous coramine 2 c.cm. produced a temporary improvement, which was maintained for a short while with carbogen inhalation. The pulse and respiration rates steadily rose, however, to 40 and 140 respectively (even after temporary discontinuation of carbogen) and the temperature to 101°. Breathing was bubbly, and some oedema at the lung bases was detected. Atropine 1/100 grain and digitaline 1/100 grain were injected intravenously, but the condition steadily declined. The patient died sixteen hours after operation, never having recovered consciousness. At post-mortem examination the chief pathological changes were: (a) carcinoma of the tongue; (b) fatty myocarditis; and (c) oedema and congestion of the left lung. Microscopical section showed (a) congestion of the spleen, (b) cloudy swelling of kidney and of heart muscle, and (c) a few necrotic areas in the lung.

CASE IV

A man, aged 56, of plethoric type, who had sustained several injuries through riding, was admitted complaining of sciatica. An epidural injection of novocain and manipulation was contemplated. The injection of evipan to secure anaesthesia was started in the usual way, and after 5 c.cm. the patient went an intense plum-blue colour, and after two or three sighing respirations ceased breathing. The injection was stopped immediately, the tongue was pulled forward, and some frothy mucus, which had collected in the mouth, was removed. Artificial respiration was begun, and in about half a minute the spasm of the glottis passed off and a normal evipan anaesthesia supervened. The patient was unconscious during the time of the cyanosis, and remained so for a period of about ten minutes.

CASE V

A woman of slight build, aged about 40, also suffering from sciatica, as in Case IV, was admitted to hospital for similar treatment. She also ceased breathing after about 5 c.cm. had been administered, and went a deep blue colour. An intratracheal catheter was not available, as the operation was being performed in the ward. The airway was cleared and artificial respiration started, and after a period of three or four minutes the spasm passed and she again breathed normally. Pituitrin and adrenaline were administered immediately without any obvious result. During the spasm the pulse was perceptible but very feeble. It is clear that the condition was one of glottic spasm and failure of the respiratory centre without involvement of the cardiac centre.

The following complication is recorded by Drs. Landau and Wooley¹⁰ in a patient of 23, who was admitted for a minor operation. The patient complained of headache following the operation, which became severe on the third day, when the heart rate dropped to 40 and drowsiness supervened. No other abnormality was detected. The urine was normal. The patient was treated with atropine, adrenaline, and hypertonic intravenous glucose, which

SODIUM EVIPAN

AUG. 4, 1934]

caused the attack to become less severe. The pulse gradually rose to normal, and he made an uninterrupted recovery.

In two of the preceding cases direct laryngoscopy revealed that the vocal cords were in abduction, while in Case I a Magill's tube (passed transnasally) entered the larynx with the greatest facility, and could be seen *in situ* during operation. Artificial respiration demonstrated the patency of the airway in Cases I, II, and III, as the recommencement of respiration was immediately consequent upon laryngeal intubation and occurred before the catheter could be connected to the gas-oxygen machine. Cases IV and V, although not viewed by a laryngoscope, appeared to be conditions of glottic spasm which eventually yielded after prolonged artificial respiration. The fact that the cough reflex returned so rapidly once breathing recommenced seems to suggest that a temporary inhibition of the respiratory centre occurred rather than any undue depression. Furthermore, stimulation of the vocal cords seems to have overcome this inhibition, and so enabled normal respiration to reappear in a perfectly satisfactory manner. In Case III death was partly due to respiratory failure, but several other factors contributed to this besides the previous administration of eviphan.

Fatalities under Anaesthesia

A number of cases are on record of death following eviphan anaesthesia, and for details of some of these we are indebted to Dr. G. H. Morrison.

CASE I

A man, aged 67, with extensive disease of the kidneys, myocardial degeneration, and bronchitis, was given 7 c.cm. of eviphan for the excision of a growth of the knee. He died under the anaesthetic, and the verdict at the inquest was that "Death was due to chronic heart and kidney disease, accelerated by eviphan anaesthesia."

CASE II

This was a case of a young woman, aged 27, who was in hospital for appendicectomy. She was given 10 c.cm. of eviphan, but died during the operation. The post-mortem examination showed a persistent thymus, and the verdict was "Death by misadventure."

CASE III

A man, aged 64, had chronic myocarditis, circulatory failure, oedema, and hydrothorax. Because of the toxæmia derived from his mouth, he was given 10 c.cm. of eviphan for the extraction of eight teeth. The operation was decided upon in the faint hope that the extraction might keep the patient alive for a few more weeks. He died shortly after the teeth were taken out, and the verdict at the inquest was "Death by misadventure due to syncope while under anaesthetic, to wit, sodium eviphan."

CASE IV

A woman, aged 50, received the anaesthetic prior to an operation on the jaw for removal of some septic teeth. Respiratory and heart failure, which followed the injection, was obviously due to a far advanced pathological condition of the heart. The verdict was "Death by misadventure."

CASE V

A woman, aged 60, had very severe rheumatoid arthritis. She was given 5 c.cm. of eviphan before she fell asleep, whereupon a further 1 c.cm. was given in order to extract three very septic and painful teeth. She died at the conclusion of the operation, and a post-mortem examination showed extensive myocardial degeneration and a very advanced state of rheumatoid arthritis. The coroner's verdict was "Death by misadventure due to syncope while under eviphan anaesthesia."

We are indebted to the Westminster Hospital for the report of the following case:

CASE VI

A woman, aged 42, with four years' history of bronchitis and asthma, was admitted to hospital three weeks before death with cardiac failure, which was secondary to her lung condition. Her physical signs on admission were dyspnoea, oedema of the ankles, liver enlargement, and dilated right heart. She improved considerably under treatment, and was due to be discharged on the day following her death. She had gross dental sepsis, and the physician in charge of her case decided that a clearance was necessary. Previous local injection of cocaine had prompted an alarming attack of asthma, so the anaesthetist decided to give her eviphan, as there was now no palpable enlargement of the liver.

Three c.cm. of eviphan was administered into one of the antecubital veins, the patient being in bed in the ward. She gave a typical yawn and then immediately showed signs of obstruction, with rapid and marked cyanosis. The injection was stopped, her airway cleared, and when her head was hung over the edge of the bed another breath was taken. By this time, however, she was pulseless, and in spite of carbon dioxide and oxygen, artificial respiration, intracardiac adrenaline and cardiac massage, she did not recover. Dr. John Taylor, at the post-mortem examination, found marked bronchitis, right-sided enlargement of the heart, and a nutmeg liver. A piece of tartar the size of a tooth had got lodged in the glottis, and in his opinion the inhalation of the tartar, presumably during the eviphan yawn, had caused the spasm, and the effort at inspiration had proved too much for the already diseased heart. The condition here does not seem to have been caused primarily by eviphan in view of the small dose and the direct incitation to glottic spasm by the presence of a foreign body.

Cutaneous Idiosyncrasies

Although some papers state that a cutaneous wheal in animals has caused no irritation, in one case in our experience, where eviphan was administered to a fat patient (and some must have escaped from the vein during injection), the arm became swollen and a local abscess developed not unlike that which one experiences after leakages during the use of N.A.B. We have had experience of another case of the same sort where actual suppuration did not occur, but the arm was tender and swollen for four or five days. The pain was readily relieved by antiphlogistine poultices and aspirin. These have been the only two instances in a large series, and it is interesting to note that in a batch of asthmatics, who were anaesthetized for the purpose of dental extractions, we have had no difficulty of this kind.

Dr. G. A. Grant Peterkin¹¹ reported the case of an anaesthetist who came to him with an intermittent rash on his hands and fingers. It took the form of a papulo-vesicular eruption. From the history this was thought to be a contact dermatitis, and, after several cutaneous tests, was found to be due to contact with sodium eviphan solution. The anaesthetist remembered cutting himself while making up the solution from the glass ampoules. So far as we know this is the only case of the sort that has occurred.

Miscellaneous Uses

We have used eviphan therapeutically in cases of chorea, and one of us has reported an instance in the *Lancet*.¹² The patient is usually a child, and the doses are given daily up to 5 c.cm. We have had no untoward experience with this condition; 1½ c.cm. produces drowsiness but not sleepiness in a child of 8, while 1 c.cm. usually effects temporary anaesthesia.

Eviphan was also used by one of the authors (G. S.) under the following circumstances.

A patient, about 45, who suffered from a severe head wound contracted during the war, was constantly liable to attacks of Jacksonian epilepsy. He was well known to the ambulance men of the hospital, and these attacks frequently lasted for

over an hour, and were associated with great emotional disturbance, shouting, and other evidence of cerebral irritability. On one occasion, while we were doing out-patients, this man was brought into hospital in a typical state of epilepsy; four attendants were necessary to hold him down, and he was very violent and twitching all over. He was given 10 c.cm. of evipan intravenously and his condition quieted at once into normal evipan sleep; on recovery, about an hour later, he was far less excited and almost normal.

This is the only case so far in which opportunity has occurred of using this drug in this way, but it would seem to indicate further possibilities for exploration. Doses of 5 to 10 c.cm. have also been used with success in cases of renal and gall-stone colic.

Conclusions

Sodium evipan in the majority of cases can be considered a safe anaesthetic. It should not, however, be administered single-handed, in view of the possibility of respiratory spasm, or of obstruction of the airway, which may occur while the doctor's attention is engaged elsewhere. Evipan can be repeated on several occasions without ill results; it is not advisable to follow the injection with chloroform; gas and oxygen being the ideal or, where thought necessary, ether.

Premedication with omnopon and scopolamine is a useful adjunct to anaesthesia, and, owing to the high therapeutic quotient of the evipan, and its rapid detoxication, does not carry with it the usual dangers so popularly ascribed to the clandestine association of morphine with the other barbiturates. As Moncrieff¹³ points out, however, the double depression produced by the combination of morphine and drugs of this type may cause respiratory failure, and we strongly deprecate preliminary sedation in patients who are bad anaesthetic risks. It would appear that the most valuable treatment in cases where respiratory depression has supervened would be the inhalation of a mixture containing oxygen and 7 per cent. carbon dioxide,¹³ though in a case above described this proved of no avail. Artificial respiration of itself is unlikely to be useful because carbon dioxide is washed out of the lungs; in combination with the above-mentioned inhalation, however, this difficulty is remedied. Although we have as yet had no experience with alpha-lobeline, we have not been impressed with the efficacy of stimulants. In those cases where we used coramine, it produced at most a temporary improvement, although given by the intravenous route. It is significant to note that, in the fatalities reported, the patients have been extremely ill, and most of them have died of respiratory failure.

Four practical points that seem to be evolved are as follows:

1. To avoid using the drug in cases of severe liver embarrassment, because detoxication cannot occur efficiently.

2. Where there is any question of depression of the respiratory centre—for example, in operations for cerebral tumour, or severe lung conditions—evipan would seem to be contraindicated.

3. In cases where evipan is contraindicated, but after careful weighing of risks it is thought to be the safest method of anaesthesia, it should be given alone without reinforcement by other drugs; the dosage should be cautious, and a preliminary injection of atropine should be administered with a view to counteracting the tendency to oedema of the lung.

4. Facilities should be at hand to administer oxygen and carbon dioxide mixtures ("carbogen") containing a minimal proportion of 7 per cent. CO₂ either by mask or, where necessary, via an intratracheal catheter in cases which are considered to be bad anaesthetic risks.

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INJECTION TREATMENT OF COMPLETE RECTAL PROLAPSE

WITH REPORT OF TWO CASES

BY

ARTHUR S. MORLEY, F.R.C.S.

The treatment of ordinary haemorrhoids by submucous injection of carbolic acid in almond oil has become a well-recognized and ordinary procedure, and since I introduced this particular technique into England in 1928¹ it has been very extensively adopted. I notice, however, that many writers upon the subject still emphasize the importance of a very careful selection of cases, and many of them have said that cases of haemorrhoids with marked prolapse requiring digital reposition are unsuitable for any treatment short of operation, except as a palliative. I have always dissented from this view, and have treated a very large number of such cases by submucous injection with gratifying success.

I describe below some cases of *complete prolapse of the whole rectal wall* which I have treated by means of injection, and I urge that a conscientious trial of this method should be made by other rectal surgeons before submitting patients to one of the ordinary operations for rectal prolapse. All operations for rectal prolapse are severe, and all are very liable to failure. It follows, therefore, that if there is a less dangerous and less drastic method of treating patients suffering from this distressing condition it is worthy of trial, even if the relief it gives is only temporary. One of the greatest advantages of treatment by injection is that it is an *ambulatory* method—that is, it does not necessitate any confinement to bed.

Of operations for rectal prolapse one of the most generally employed is that of Lockhart-Mummery. In describing his operation² Lockhart-Mummery writes:

"*Treatment After Operation.*—The wound is dressed twice daily and fresh dressings applied, but the packing is not removed for a week. At the end of this time an anaesthetic is given and the packing removed, and a fresh lot of gauze introduced. . . . The wound should not be allowed to heal under three weeks; in fact, the more slowly it heals the better the result. The bowels are kept confined until the seventh day after operation, when they are relieved by an enema before the removal of the packing; after this they are opened daily with an enema, a slipper bed-pan being used. The patient is not allowed out of bed for six weeks, and not allowed to sit up for an action of the bowels for two months at least. It is most important, in view of the large area of cellular tissue opened up, that there should be no sepsis at the time of the operation, but sepsis later is almost certain to occur after the removal of the packing, and is of no consequence" [sic]. "The slower the wound heals, and the more fibrous tissue involved, the better the result. Out of a total of thirty-two cases there have been only five failures" [that is, a recurrence rate of over 15 per cent.], "and two of these were permanently cured by repeating the operation."

INJECTION TREATMENT OF RECTAL COLLAPSE

AUG. 4, 1934]

Most people will not look forward with pleasure to such a programme as this, and, if one can tell a patient honestly that there is any hope of avoiding such a prospect by means of injection, I doubt whether one is to be found who would not cheerfully accept the risk of recurrence in order to do so—more especially if he is told that there is at least some risk of recurrence even after the most skilfully performed operation.

Of the other methods of operation for prolapse—by means of linear cauterization of the rectal wall, Whitehead's operation, sigmoidopexy and excision of a portion of the bowel with end-to-end anastomosis—all have the same grave objections from the patient's point of view. All involve long confinement to bed, all have a very definite mortality rate, and all have quite a high percentage rate of recurrence and failure. In elderly patients most surgeons would hesitate to recommend such operations, because for them the risk is very real.

Case Records

Case 1.—In October, 1929, I saw a lady, aged 58, who had suffered from rectal trouble for eighteen years. It had commenced with the ordinary symptoms of haemorrhoids—bleeding after defaecation, followed shortly by prolapse, at first after defaecation only and then by prolapse on walking, exertion of any sort, and even on sneezing. Gradually a condition of complete incontinence of faeces had developed. When I saw her she was in a wretched condition; her clothes were always stained with faeces, mucus, and blood, there was considerable emaciation, and she was extremely depressed. Perhaps fortunately for her, there was considerable constipation. On examination, the sphincter was quite lax, and it hardly contracted when she was asked to grip the examining finger. The anus looked almost as if a Whitehead's operation had been performed upon it. On straining, about 3½ in. of the whole bowel wall prolapsed completely. The speculum, when introduced, practically "dropped in." She had some extremely large internal haemorrhoids, extending for some two inches up the rectum. The mucous membrane was ulcerated and inflamed from friction against her clothing.

She absolutely declined to submit to operation, so with considerable hesitation I consented to see what I could do for her by means of injection. When she came for her second injection at the end of a week she reported that though there was still slight prolapse, there was marked improvement, that she had much more control over defaecation, and that she had had no inconvenience from the treatment, excepting slight pain for four hours after it. After the second injection she reported that there was no further prolapse at all, in spite of some exercise, but she still had some loss of control if the motions were liquid. She had five injections at weekly intervals, and after that she reported that she felt better than she had done for years, and there had been no prolapse from after the second injection, although there was still slight incontinence for liquid motions. Her constipation was being regulated by means of Kaylene-Oil, and she had been told to endeavour to adjust the dose so as to keep the motions formed. In this way she was able to control about in comfort, but she was not able always to control flatus. I found that all the piles were quite hard and small, the rectal wall was holding up perfectly, but the sphincter was still very lax.

She returned in September, 1930—eleven months later—reporting that up to the previous May and June she had been perfectly comfortable. Since then there had been a return of the lack of control of flatus, and, to a less extent, of liquid faeces, and more recently there had been slight prolapse on defaecation. Her weight was steady and satisfactory. I found no definite haemorrhoids, but the rectal mucosa was again lax and voluminous. She had four more injections, after which she said that she was "extraordinarily better," and that there was no prolapse or leakage even during an attack of diarrhoea. She came again in May, 1931, complaining of slight return of incontinence of flatus and liquid faeces, and I found that there was still no trace of piles, but that the anterior rectal wall prolapsed slightly on straining, and the sphincter remained very lax. She had one injection then and another on her next visit to London a

month later. I urged her to undergo a plastic operation to repair the sphincter and to narrow the anus, but she would not consent to do so.

Her next appearance was exactly a year later, when she said that she had remained well again for six months and that after that the prolapse had reappeared and had been gradually increasing; she had been a little incontinent again for the past two months. I again found a complete absence of haemorrhoids, but the mucous membrane was again loose and voluminous. I gave her three further injections. After that she remained well until March, 1933, again reporting a slight relapse after six months of complete comfort. She had three further injections. I had a satisfactory report from her in June of that year.

I fear that she is likely to have further relapses, but she is prepared to face these and to have further injections, rather than even to undergo a somewhat unimportant plastic operation to narrow the anus. Throughout the whole series of injections the only trouble and complications that she experienced were occasional pain for four to six hours after injection, and on two or three occasions some pyrexia for twenty-four hours after treatment.

Case 2.—An unmarried woman, aged 75, had had rectal trouble for seven or eight years—gradual loss of control over the bowel, considerable mucous discharge, very occasional bleeding and prolapse, the onset of which coincided with the appearance of the incontinence. She had been previously diagnosed as "colitis and prolapse," and advised that she was too old for any radical operation. Colonic irrigation produced some temporary benefit, but never real relief, either to the prolapse or to the incontinence.

On April 20th, 1933, I found the sphincter extremely lax, but fairly active. There were some moderate-sized internal haemorrhoids, and a huge prolapse of the whole bowel wall when she strained. I injected this all round as high up as the lower six inches. I injected her haemorrhoids. At her next visit she reported that she was "greatly relieved." There was no prolapse after walking, but still a little after it extended, and also injected her haemorrhoids. At her next visit she reported that she was "greatly relieved." There was no prolapse after walking, but still a little after defaecation; the mucous discharge had ceased, and the incontinence was less. After her third treatment the prolapse had entirely ceased, even after defaecation, but there was still slight lack of control. At her fifth visit she reported herself quite comfortable, and stated she had spent three hours at a flower show without discomfort or fatigue. After that she went to stay in Scotland for three weeks, but I saw her again in June and gave her two more injections. She had no return of the prolapse, her bowels were acting less erratically, and she had less incontinence. I saw her twice again in August, and there was no return of the prolapse, but still incontinence of liquid faeces. On November 8th the patient wrote to me from South Africa that she was keeping perfectly well. She added: "The control is very much better. I have recovered from a pretty severe cold and cough, but now coughing does not trouble me at all."

It is too soon after six months to claim this case as a "cure"—indeed, I rather anticipate that there will be a recurrence sooner or later. However, if there is any tendency to relapse, she will have a few more injections, and, I hope, another year's relief.

Discussion

In both of these cases there was quite definite prolapse, not merely of internal haemorrhoids, but of a considerable length of the whole rectum. Both had toneless sphincters with obliteration of the anal canal, and both of them complained chiefly of incontinence of faeces. I do not suppose that complete relief will be permanent in either case—indeed, the first of these patients has been coming annually since 1929.

The technique differs slightly from the method of injection of internal haemorrhoids with phenol in almond oil which I described in 1928, in that for the high injection in true rectal prolapse one aims at inserting the needle slightly deeper than the submucous tissue. It should be introduced deeply enough to reach the muscular coat. If this is done successfully the swelling produced by the oil in the submucous tissue does not appear to the same

extent, and the "striation sign" that enough has been injected at any particular spot does not occur. One is reduced to guess at the correct amount. I have usually injected 2 to 3 c.cm. at each puncture. The aim is to inject all round the rectal wall. After two or three treatments, if one feels the rectum from the vagina, the whole bowel feels hard, and the sensation closely resembles that produced by an annular carcinoma of the rectum when felt from the vagina. All this thickening disappears some three or four weeks after the completion of the treatment. This inflammatory process results in close adhesion of the mucous and submucous coats to each other and to the muscular coat. This in itself prevents the bowel wall from prolapsing, and, moreover, the submucous space being more or less obliterated, the main haemorrhoidal vessels which feed the piles are compressed and the haemorrhoids are cured in that way.

This method of treating true prolapse, like the submucous injection of haemorrhoids, was first carried out in the United States. Considering how unsatisfactory the treatment of this condition by operation has proved, I hope that others will give their patients the option at least of trying injections before resorting to more drastic operations, with their discomforts, dangers, and uncertainties.

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ADDISON'S DISEASE DUE TO MALIGNANT INVOLVEMENT OF THE SOLAR PLEXUS

BY

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It is generally stated in textbooks that one of the rarer causes of Addison's disease is the involvement of the solar plexus and semilunar ganglia by malignant growth. Rolleston¹ says:

"There are cases in which symptoms like those met with in Addison's disease are found in association with alteration of the semilunar ganglia or abdominal sympathetic, the suprarenals appearing healthy. Thus the solar plexus and semilunar ganglia have been surrounded by lymphadenomatous growth, whilst the suprarenals were found to be intact."

However, very few such cases have been recorded in the literature. Addison's tenth case was probably of this nature, but after the collection made by Lewin,² who found healthy suprarenal glands in 12 per cent. of cases reported in the literature up to 1892, I have not been able to find such a case. Rowntree and Snell,³ after reviewing the work of the Italian clinicians Pende and Varvaro,⁴ state: "One may infer that there is a possibility of functional suprarenal insufficiency depending on interference with secretory nerves to the gland; however, we have not observed such a case in our series." Neither was any such case reported by Conybeare and Millis.⁵

The following case, besides the fact that the symptoms were presumably due to involvement of the solar plexus, and not the capsule, by malignant growth, is also of interest as regards the darkening of the hair and the high blood sugar.

Sir W. Wilkes⁶ stated that only one or two cases were recorded where the hair had darkened in Addison's disease, and though it is stated⁷ that "the hair often becomes darker," this is not a symptom which I have found recorded in any individual case. The fasting blood sugar is usually low or well within normal limits⁸; not, as in our case, as high as 0.137 per cent.

Case Record

The patient, a man of 50, was first seen at the end of August, 1933. His family history was entirely uninteresting, and his own past history was uneventful. He only remembered having measles, and becoming very freckled as a child in the summer. During the war he served in France, and since then had been a caretaker.

History.—Some time in 1930 he began to get epigastric pain after his meals: this pain was relieved by alkalis, and did not seriously worry him, although it never completely disappeared. In April, 1933, he noticed that he was more sunburnt than usual, and at the same time his abdominal pains became more severe and different in character. He got steadily worse until the end of August. His face, hands, and forearms grew progressively darker in colour; his body as a whole did not become pigmented, save to a slight degree over his abdomen. The whites of his eyes and carunculae he noticed remained normal. His nipples and genitalia became a deep black. His hair and moustache, which had been turning grey, became much darker, "as if he were becoming younger." There also appeared small discrete dark spots over his trunk and arms. Periodically the pigment grew much more intense, and then lighter again, so that "his face was copper-coloured, or like a negro." These sudden increases in pigmentation were always associated with severe abdominal pains, lasting about half an hour, relieved by bringing up wind, and not related to food or exercise. He also became progressively weaker, so that by August he had to stay in bed. He quite lost his sense of taste and smell—chicken, fish, and bread all tasting the same—while everything appeared to have an earthy smell.

Progress.—In September he began to feel much better. He was becoming almost normal in colour, his abdominal pains were less, and he felt he could work. An x-ray, taken at this time, showed a small lesser-curve ulcer. He returned to work for a week, but had to stop, as he began to have severe pains and vomiting. The pain became much less, but the vomiting continued, generally preceded by nausea, but leaving him feeling quite well afterwards. It had no relation to his meals. Late in November he was admitted to hospital.

Examination.—He was well covered, in spite of having lost 2 st. in the last six months. His skin was of a uniform dark yellow-brown, with darker discrete spots. The palms of the hands were pale, with the creases dark brown. The nails were normal. Pigment began sharply at the wrist. His hair was a mixture of black and grey. His moustache and axillary hair were dark brown. He stated that originally his moustache had been grey. There was a dark line on the buccal mucosa opposite the crowns of the teeth. Pigmentation was most intense over the arms, face, and genitalia. A biopsy on a piece of his pigmented skin showed no free iron. His cardiovascular system was normal. His blood pressure was 144/98 mm. Hg on admission, falling to 96/57 mm. two weeks before his death. His blood count was 3,760,000 red cells, with a colour index of 0.5; 13,000 white cells, 87 per cent. polymorphs, 10 per cent. lymphocytes, 3 per cent. large hyalines. In the epigastrium a mass of indefinite outlines could be palpated: it was thought to be a gastric carcinoma. His gastric juice contained blood, and no free HCl until after an injection of histamine, when 0.168 per cent. of free HCl was present. The faeces contained large quantities of occult blood. The x-ray of his stomach suggested a neoplasm. An x-ray of the suprarenal areas was negative. Clinically and by x rays his chest was normal; his nervous system and urine were normal; the blood urea was 42 mg. per 100 c.cm., and the Wassermann reaction was negative. Fasting blood sugar was 0.137 per cent. While in hospital the patient's condition steadily deteriorated.

Asthenia was pronounced from the date of admission, and became so marked that he could scarcely move or speak. Vomiting was incessant. He died on December 30th, 1933.

Post-mortem Findings.—I am indebted to Dr. J. L. Edwards for the following report on the necropsy. The patient showed emaciation and extreme pigmentation of a brownish type, mainly of exposed parts. The adrenals appeared normal. There was no evidence of malignancy, tuberculosis, or atrophy, but a large mass of carcinomatous glands pressed directly on to the coeliac plexus. The brain appeared normal.

CLINICAL MEMORANDA

AUG. 4, 1934]

The lungs showed confluent bronchopneumonia, with recent pleurisy on each side. The stomach showed a large ulcer, about 2 in. in diameter, immediately on the stomach side of the pylorus, which was clearly malignant, with large masses of secondary glands and many secondaries over the whole abdomen. The liver and spleen showed no secondary deposits. The kidneys appeared normal for the age. The heart showed slight ventricular hypertrophy. The parotid on the left side showed suppurative parotitis.

I wish to express my thanks to Sir Maurice Cassidy for permission to report this case.

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Clinical Memoranda

VARICELLA COMPLICATED BY TETANISM

During recent years attention has been drawn by P. Bérède,¹ J. Hallé,² F. M. Fry,³ P. Mühlkamp,⁴ Laignel-Lavastine,⁵ and other investigators to the occasional incidence of nervous symptoms as complications of chicken-pox. As a rule, however, the disease runs so mild a course that even practitioners with experience of numerous epidemics have never encountered manifestations of this character. For that reason alone I feel that the following case is worthy of description.

The patient, a boy aged 4½, was brought to my surgery on April 14th, 1934. Chicken-pox was then epidemic in this area, and, after inspecting the typical eruption which the child exhibited, my colleague had no difficulty in reaching a diagnosis. On the following evening I was sent for urgently, because the patient lying with his back arched to my surprise I found him lying with his anxious over a pillow, which was being supported by his parents. The muscles of the neck, spine, and limbs were in a state of tonic spasm, and the whole posture was truly opisthotonic as that encountered in tetanus or strychnine poisoning.

When lifted he remained as rigid as a board, and when set upon his heels he was able to stand with the spine hyperextended. Without encouragement he even walked a few steps in a shuffling spastic fashion. During temporary relaxation of the spasm I found that his knee-jerks were equally increased, and that there was a bilateral knee- and ankle-clonus. In addition, he exhibited marked trismus, and the angles of his mouth were drawn down. There was no elevation of the eyebrows, however, to complete the picture of a risus sardonicus.

The child was perfectly rational, he was not unduly alarmed by his condition, and no aggravation of symptoms followed my examination.

On the third day of the illness lumbar puncture was performed, and although a manometer was not used, increased tension was obvious from the spouting of the cerebro-spinal fluid. The specimen was examined under the auspices of the Welsh National Memorial Association; it was sterile, and no abnormalities were detected. On the seventh day of the illness, as little or no improvement had occurred, lumbar puncture was repeated, and the fluid was still found to be under pressure. Twenty thousand units of antitetanic serum were administered intrathecally. Again laboratory investigation gave no hint as to any causative factor. On the ninth day of illness fluid was once more withdrawn and a further injection of antitetanic serum made.

On the eleventh day the pressure of the cerebro-spinal fluid was distinctly lessened, and in view of the following report which had been obtained no serum was administered: "Clear colourless fluid, in which nine cells per cubic millimetre were counted. Seven of these were lymphocytes and the remainder monocytes. On centrifuging the fluid yields

a very small, granular sediment, films from which show a few lymphocytes and occasional monocytes. By Ziehl no acid-alcohol-fast bacilli were seen. Globulin and sugar content were normal. The slight increase of cells may possibly be due to meningeal irritation as the result of serum therapy."

On the tenth day of illness smoky urine was voided, and haematuria gradually increased entirely by the fourteenth day. Muscular spasm commenced to diminish on the twelfth day, and from then onwards recovery was rapid. Throughout the illness there was a complete absence of oculomotor disturbances and of changes in the fundi. The child did not vomit or suffer from constipation. At the present time he is in normal health and, mentally, as alert as before his illness.

This case is no exception to what appears to be the general rule in such complications of varicella—that in spite of the alarming initial features complete recovery almost invariably occurs. It differs from the bulk of those already described in that the symptoms were essentially tetanic rather than meningitic or encephalitic.

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CONCURRENT EXTRAUTERINE AND INTRA-UTERINE GESTATION

The following case is considered worthy of record because of its rarity.

A woman, aged 30, was admitted under my care to the General Hospital, Barbados, on April 15th, 1934. She complained of great swelling of the lower extremities and said that she was nearly five months pregnant. She had had one child eight years ago, otherwise her history was negative. On examination she was found to be rather pale, and greatly swollen from the pelvic girdle downward. Blood pressure, 145 systolic, 95 diastolic; temperature, 99.6° F.; pulse, 100; respirations, 20. The heart was normal. The urine was clear, and contained a mere trace of albumin.

The abdomen was about the size of a seven months pregnancy, hard and lobulated. Examination per vaginam showed a smooth, painless tumour filling the pouch of Douglas and extending down to within two inches of the vulva. The cervix could not be felt either per vaginam or per rectum. Bimanually two tumours could be felt in the abdomen, one in the midline up to the umbilicus and the other in the left upper quadrant of the abdomen.

At laparotomy, on April 18th, the bladder bulged into the wound as high up as an inch below the umbilicus, and was adherent to the anterior abdominal wall. A catheter was passed with some difficulty, and 60 oz. of foul-smelling ammoniacal urine was drawn off from two large loculi in the bladder.

The uterus was found lying below the spleen, freely mobile, about eighteen weeks pregnant, and perched upon a large pelvic hæmatocoele, which filled the pelvis and contained a foetus of about eighteen weeks' gestation, complete with umbilical cord and placenta. This foetus had been aborted through the fimbriated end of the right tube. The hæmatocoele and foetus, etc., were removed, together with the right tube and ovary, and the abdomen closed. The patient is making an uninterrupted recovery.

The points of interest appear to be: (1) Failure of repeated catheterization with a metal catheter to empty a bladder which was chronically distended and loculated. (2) The practically normal character of the urine passed naturally or obtained by a catheter before operation. (3) The extreme degree of swelling of the lower extremities due to pressure on the pelvic veins. (4) The rare association of intrauterine and extrauterine pregnancies of approximately the same period of gestation.

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Reviews

TREATMENT OF SYPHILIS

The Modern Treatment of Syphilis,¹ by Dr. J. EARLE MOORE, gives a very full account of the methods and drugs in current use; the text is supplemented by a number of tables, in many of which brief statistics are clearly set out showing the reader at a glance what the author intends to convey; a particularly valuable one is Table VIII (p. 29), where the author gives the prognosis of adequately treated syphilis in all its various stages. The question of immunity is discussed very ably, though the author admits that its mechanism is not understood thoroughly; and great stress is laid on the necessity of continuous treatment in early syphilis up to the point of complete sterilization.

The four types of anti-syphilitic drugs—arsphenamines, bismuth, mercury, and iodides—are reviewed, and an admirable account is given of the reactions which may be caused by the first-named; jaundice is said to represent probably "an acute infectious disease in a patient whose liver function is subject to the added strains of syphilis and of metabolizing arsphenamine." In early syphilis a strong preference is shown for the original "606" over the "neo" group: in late syphilis this is not stressed; sulpharsphenamine has been discarded except for young patients and those with difficult veins, on account of its tendency to cause dermatitis. Of the bismuth preparations the insoluble are recommended, and more particularly the salicylate. The intramuscular injection of mercury is deprecated: where this drug is used the inunction method should be employed.

Dr. Earle Moore regards the treatment of early and late syphilis as two very different problems. In the former, one may treat the disease—in the latter, one must treat the patient. With adequate treatment 90 to 100 per cent. of cures may be obtained in the former; in the latter it is rather a question of checking the progress of the disease. There is a full discussion of the relative merits of "continuous" and "intermittent" treatment; the author holds strongly to the former, and in general treats his patients with alternating series of injections of arsphenamine and heavy metal; in the case of early syphilis, however, he has been driven to modify this owing to the high incidence of neuro-recurrence, and uses arsphenamine and heavy metal concurrently at first. The real point at issue is—which is the more continuous form of treatment, alternating courses of arsphenamine and bismuth with no rest periods, or a series of arsphenamine and bismuth injections given concurrently with rest periods? On reflection it is clear that the latter is the more continuous if the rest periods are not prolonged, because all or nearly all the arsphenamine is eliminated some days before the next dose is given (when the interval is, say, a week), whilst the excretion of an insoluble bismuth salt extends over a very long period.

It is in the management of late syphilis—including latent, benign, neuro-, cardiovascular, visceral, and ocular syphilis—that the author is at his best. The purpose of treatment is first symptomatic relief and secondly consolidation of the gain to maintain the patient in good health. In such cases the type and amount of treatment must depend on a number of factors—the part or organ involved, the age and condition of the patient, and the presence or absence of complicating diseases such as tuberculosis. For neurosyphilis the three methods of choice are tryparsamide, fever therapy,

and subdural treatment. The author considers that malaria is far and away the most efficient fever-producing remedy (especially in paresis) and that other methods should only be adopted when there is some definite contraindication to it; he deprecates the fashion of exhibiting over-enthusiasm for each new method, such as diathermy, till it has been proved superior to malaria. He is a great advocate of subdural treatment in certain types of neurosyphilis—notably primary optic atrophy and intractable lancinating pains—using arsphenamized serum prepared somewhat according to the technique of Swift and Ellis.

A chapter on the interpretation of serologic tests is included. If others would take as sensible a view as the author less would be heard about the fallibility of reactions and discordance of results, and criticism of the Wassermann reaction and flocculation tests would be more intelligent. In general the teaching is thoroughly sound, but many syphilologists, in this country at any rate, will strongly disagree with the so-called continuous treatment, preferring the concurrent use of arsphenamine and heavy metal; whether the advantages of using the original "606" outweigh its disadvantages is a moot point. The book is a mine of information and is well produced, but there are far too many grammatical errors. There is a representative bibliography.

A KEY TO MODERN RESEARCH

Up to within comparatively recent times the progress of physical science related in the main to matters with which everyone was familiar, such as energy, heat, and movement. To-day the general reader has few points of contact with the entities with which physical science deals, and if he is to assimilate the results of modern research at all it is necessary that he should obtain some insight into these entities themselves, without much assistance from common knowledge. Such works, therefore, as Mr. J. G. CROWTHER's *Progress of Science*,² in which the reader is directly introduced to these entities in language divested as far as possible of technical terms, are now almost indispensable to those aiming at even a moderate degree of general culture.

Mr. Crowther gives a topical interest to some of his subjects by connecting them with the various institutions at which they are studied, such as the Cavendish Laboratory at Cambridge, the Institute of Theoretical Physics at Copenhagen, the Physico-Technical Institutes at Kharkov and Leningrad, adding to his descriptions details concerning the scientists who work at those institutions. The author describes many of the most important recent discoveries in physics, astronomy, chemistry, and biology, together with the steps that have led up to them. In the physical section are included the discovery of the neutron (the neutral elementary particle consisting of proton and electron in close contact), the discovery of the means of disintegrating atoms by artificial methods without the employment of radioactive substances, and the discovery of cosmic rays and the positron or positive electron. In the astronomical section are discussed the theories of the expansion of the universe and stellar evolution; in the chemical section, heavy hydrogen, its properties and importance.

Of more direct interest to the pathologist are the chapters describing mitogenetic radiations, Spemann's studies on the organizing power of embryonic tissue, and the chapter on heredity. The Russian scientist Gurvitch discovered that vegetable cells undergoing mitosis emit rays resembling those of ultra-violet light; these possess

¹ *The Modern Treatment of Syphilis*. By J. E. Moore, M.D. London: Baillière, Tindall and Cox. 1934. (Pp. 535; 41 figures. 2s. 6d.)

² *The Progress of Science: An Account of Recent Fundamental Researches in Physics, Chemistry, and Biology*. By J. G. Crowther. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1934. (Pp. 304; 31 figures, 11 plates. 12s. 6d. net.)

REVIEWS

AUG. 4, 1934]

the remarkable power of stimulating the rate of division of the cells in neighbouring vegetable structures, and hence have been called "mitogenetic." What significance they may have in biological processes has yet to be ascertained, but it has been suggested that they may possibly have the important property of causing gene-mutation. The chapter on human heredity deserves careful study from those who advocate selection and sterilization as a means of eradicating hereditary disease. According to the author, policies for the social control or sterilization of persons of moderate degrees of mental defect cannot at present be founded on solid scientific knowledge; and while there is good evidence for the desirability of the compulsory sterilization of some few persons suffering from certain extreme and very definite disorders, there is no good scientific evidence for the sterilization of large social groups. A chapter on pernicious anaemia is added as affording a good example of the value of animal experimentation in the advancement of medical science.

URINARY INFECTIONS

Mr. CLIFFORD MORSON had a difficult task in compressing a description of urinary infections into the space of a pocket monograph.³ He has succeeded in getting round the whole subject, though this involved a considerable loss of detail. He has wisely avoided alternative methods of treatment, and has thus been able to give more space for symptomatology.

After describing the method of taking and examining a specimen of urine, the author enumerates the more common organisms found, and then discusses the paths by which infections spread within the urinary tract. The following chapters are devoted to acute colon bacilluria, chronic colon bacilluria, urinary tuberculosis, genital tuberculosis, coccal infections, infection and renal function, stone, urinary infections in childhood, and prevention and treatment of post-operative infection. It is almost impossible to discuss these varied topics adequately in a book of 76 pages, and the author has rather handicapped himself by attempting to cover so large a subject within so small a compass.

FRENCH PAEDIATRICS

With volumes iv and v, now published,⁴ the new French treatise on diseases of children, edited by Professor P. NOBÉCOURT and Dr. L. BABONNEIX, is complete, and the high standard set by the earlier sections has been well maintained. The fourth number of the series begins with the concluding sections on disorders of the digestive apparatus, and apart from this is mostly occupied by sections on the genito-urinary system, on affections of bone, of the skin, eyes, and one on psychiatry. There is also an interesting section on poisoning, including a surprising ten pages concerned with alcoholism in childhood! The various disorders of bones are particularly well described, and are the best feature of this volume. The concluding book deals with neurology and with therapeutics. Dr. Pichon describes "pink disease" under the usual French name of "infantile acro-dynia" and puts forward a claim that the disorder was first described by Selter of Solingen in 1903. The section on treatment is very comprehensive, and includes, besides a description of drugs (where national differences decrease the utility), biological methods, physiotherapy, climotherapy, and spa treatment. An index of over forty

pages, in double columns, concludes the whole work, and is very much better than we commonly find in French publications. Now that the whole five volumes are available it is possible to confirm what was said about the first—namely, that this is a worthy achievement by the French school of paediatrics, clear in expression, beautifully produced, and full of clinical wisdom.

Dr. ADDISON'S DIARY

In the *Journal* of February 24th last (p. 333) we reviewed the first volume of the Right Hon. Christopher Addison's personal diary, published under the title of *Four and a Half Years*. In the second volume⁵ now published some of the less satisfactory features recur. It was not, of course, to be expected that there would be any change in the general format of the book to make it more attractive, but the inattention to the correctness of proper names still persists. The inaccuracies which we noted are all perpetuated in the index to the diary at the end of the second volume, and in addition it is a little disconcerting to find Sir William Glyn-Jones described as Sir Glyn Jones, and to have to seek for references to Sir James Smith Whitaker under the name of Sir Thomas Whitaker Smith. A curiosity, too, is the repeated reference to the "Con-Joint Committee" of the Royal Colleges of Physicians and Surgeons.

This volume carries Dr. Addison's record from January, 1917, when he had just become Minister of Munitions, to January, 1919, when, after having been Minister for Reconstruction, he became President of the Local Government Board with a view to his early appointment as the first Minister of Health. It thus covers the last two years of the war, and the period of preparation, such as it was, to deal with matters immediately upon its conclusion. Although the author, apart from his praise-worthy and indispensable work as an excellent Minister of Munitions, had but little direct responsibility for the conduct of the war, he was closely associated with the Prime Minister and others who had this direct responsibility, and, as Minister for Reconstruction, he had a predominant part to play in many of the problems which would, after the cessation of active hostilities, become of the most urgent importance. Here, one would have supposed, was material which could not fail to be of intense interest, yet we fancy that most readers will find the diary too long, unnecessarily detailed, and not very illuminating. This volume is free from the trivialities which marred the first, but it is of uniform solemnity, sometimes rising into patches of relative interest and now and then falling into definite dullness. It is relieved by no light touches until, at page 567, we are given, at second hand, the delightful extracts from letters received by Pensions Committees from the wives of soldiers. Two of them we may quote: "Sir, I am sorry not to have answered your letter sooner, but I have been in bed with the Doctor for three months now and want a change"; and, "Sir, Please send my money quick or I shall have to lead an immortal life."

The passages which will be of most interest to readers of this *Journal* will probably be those relating to the project to establish the Ministry of Health. They will enable readers to realize the remarkable difficulties which this project encountered, and the gratitude and praise which are due both from the medical profession and from the public to Dr. Addison for his wisely directed and persistent efforts to this end, which happily was at length achieved. Some knowledge there has been of the obstinate opposition and obstruction of the old Local Government

³ *Urinary Infections*. By Clifford Morson, O.B.E., F.R.C.S. London: John Bale, Sons and Danielsson, Ltd. 1933. (Pp. 76, 2s. 6d. net.)
⁴ *Traité de Médecine des Enfants*. Tomes iv and v. Edited by P. Nobécourt and L. Babonneix. Paris: Masson et Cie. 1934. (Broche, 150 fr., relié, 170 fr., each volume.)

⁵ *Four and a Half Years. A Personal Diary from June, 1914, to January, 1919*. By the Right Hon. Christopher Addison, P.C., M.D., F.R.C.S. Vol. ii. London: Hutchinson and Co., Ltd. 1934. (Pp. 305-629; 32 illustrations. 18s.)

Board, especially of Mr. Walter Long and Mr. Hayes Fisher, as also of the ill-directed activities (at least in the earlier stages) of approved societies, but Dr. Addison emphasizes the troubles so caused. The author makes acknowledgement of the helpful services of the British Medical Association and of Lord Dawson in this matter, but he scarcely does justice to the initiative which the Association and the profession had taken in this direction long before, or to the persistent pressure which they exercised over a number of years and throughout a difficult period. He remarks that: "It is a great comfort that Morant is heart and soul for this enterprise"; and it is pleasant to find him saying, in contrast to some references in his first volume: "In the afternoon there was a deputation from the British Medical Association. It seemed like old times. I found them thoroughly sympathetic." A further entry, which it may be useful to quote, is the following: "I had dinner with some doctors, and we discussed the question of medical men being candidates for Parliament. . . . We badly need more medical men of good standing who are helpful, level-headed citizens first and experts afterwards, and who will not pose in the House or lecture it."

The whole diary, in spite of some heaviness and of some unattractive features, gives us a record of strenuous work, conscientiously and honestly performed, and of wise influence exerted in several spheres of political activity, not untouched by signs of personal antagonisms and disparagements, which to some readers will seem unnecessarily emphasized or even unjust, but with a commendable absence of intrigue and self-seeking to which there must, at times, have been no small temptation.

Notes on Books

In the foreword to his work on *Human Sex Anatomy** Dr. R. L. DICKINSON remarks that gynaecology has been too much busied with operative work to give proper time to certain fundamentals, which include normal functions, life adjustments, and certain sex problems. It is with the object of filling up these gaps that the present work, which is issued under the auspices of the United States Committee on Maternal Health, has been undertaken. The book is divided into two main parts, the text and commentary being separated from a series of 175 figures, which form a topographical atlas, by a copious bibliography of Anglo-Saxon and foreign literature. The following subjects receive detailed consideration: (1) conditions favourable or unfavourable, for conception; (2) conditions favouring or handicapping ideal sexual intercourse; (3) physical conditions productive of painful intercourse and frigidity in women; (4) conditions bearing on coitus during pregnancy; (5) anatomical conditions affecting (a) contraceptive devices, (b) abortion, (c) operative sterilization; and (6) anatomical findings in autosexuality. The text consists of nine chapters, dealing with the bony pelvis, the female organs of generation, male genital anatomy, the anatomy of coitus, and the anatomy of control of conception.

In an article "Physicochemical Aspects of the Photochemical Transformation of Estosterol to Vitamin D" Professor NICOLA of Buenos Aires gives an account of a series of researches, the result of which has been, in general, to confirm and amplify the results obtained by previous workers.⁷ The author has made quantitative studies of the effects of ultra-violet irradiation on ergosterol, and has determined the influence of wave-length, nature of solvent, and other variables. He also discusses the physical properties of the products, other than vitamin D, that derive from the irradiation of ergosterol.

* *Human Sex Anatomy*. By Robert Latou Dickinson, M.D. F.A.C.S. London: Baillière, Tindall and Cox. 1934. (Pp. 145; 191 figures, 45s.)

⁷ "Consideraciones fisicoquímicas sobre la transformación fotoquímica del Ergosterol en Vitamina D." By Dr. A. F. F. Nicola. Publicado en la *Revista Médica Latino-Americana*, Año xix, Enero y Febrero de 1934, Nos. 220 y 221. Buenos Aires: Imprenta Mercatali, Avenida Acayte 271.

In his book on the Dualism of the Heart Beat* the late Professor HENRIJEAN of Liège went deeply into the question of the physiological properties of the cardiac muscle, allied as it is to normal muscular tissue by its power of contracting and to nervous tissue by its ability to conduct the impulse to contract. It is not possible to summarize the many arguments and experimental observations with which the authors' theses are supported: the book is one for physiologists, biologists, and specialists in cardiac disease, and to them it may safely be recommended.

* *Le Dualisme de la Contraction Cardiaque*. By F. Henrijean. Paris: Masson et Cie. 1933. (Pp. 350; 97 figures. 50 fr.)

Preparations and Appliances

A RAILWAY STRETCHER

A Great Western Railway carriage cleaner at Taunton has designed a stretcher which will provide a "bed-to-bed" service for invalids or stretcher cases passing from town to town or home to hospital throughout the company's system. The standard stretcher in general use in hospitals, etc., is too wide to pass through railway carriage doors, so that in the past invalids have had to be lifted into and from the compartment, or conveyed in the guard's van. The new stretcher overcomes this difficulty. It is slightly narrower than the standard stretcher, and can be lifted straight in or out of the compartment from or to the platform or ambulance without the patient being disturbed, and, by fitting along one seat, it leaves the other side of the compartment free for those accompanying the patient.

The stretcher is fitted with a removable "shock absorber" bed, has an attachment for holding an adjustable bed-rest, and handles that slide in flush with the ends when it is not being used as an ordinary stretcher, so reducing its length to a minimum. It can also be quickly fixed to or removed from any standard stretcher fitted in ambulances or those used in hospitals, and a cross rail at each end serves as an extra means of carrying short distances and in confined spaces, or negotiating passage corners.

The "Parrott" stretcher, as it is named (after the designer), has been patented on his behalf by the G.W.R., which, during the last twelve months, has subjected it to exhaustive tests. So satisfactory have been the results and so marked the comfort afforded, especially in cases of paralysis, broken limbs, or severe surgical operations, where the invalid must remain flat, that the company proposes to provide these stretchers at Paddington, Bristol, Exeter, Plymouth, Gloucester, Cardiff, Swansea, Birmingham, Chester, and other key points throughout the system, from which they may be obtained by any station for any journey.

PROSTIGMIN

Prostigmin is a synthetic drug (Hoffmann-La Roche) which has a pharmacological action similar to physostigmine, but superior to the latter in certain respects. The chemical title of prostigmin is dimethyl-carbamate ester of 3-hydroxy-phenyl-trimethylammonium-methyl sulphate. Pharmacological investigations showed that it has a powerful action in stimulating intestinal peristalsis, but has a feeble action on the heart and circulation, and also a feeble miotic action. These properties suggested the use of the drug for the prevention and treatment of post-operative distension. Clinical investigations, arranged by the Therapeutic Trials Committee of the Medical Research Council, have shown that prostigmin, combined with pituitary extract, gives favourable results in this condition. Prostigmin is an example of a synthetic drug obtained as the result of a long series of researches, and it appears to possess certain specific properties of considerable therapeutic value.

CHLORINATING OUTFIT FOR BATHS

The need for keeping the water of swimming pools "sweet" has led to the adoption of various chlorination processes, but the operation is often conducted in a haphazard manner, and an excessive amount of chlorine in the water has resulted in painful conditions of the eyes, nose, mouth, and throat.

The British Drug Houses Ltd., Graham Street, City Road, N.1, have issued a pamphlet describing an outfit and a new reagent for the accurate determination of residual chlorine in water which has been purified by chlorination. One of the advantages of the method is that it can be operated by a swimming-bath attendant without difficulty. Attention was directed to the B.D.H. "chlorotex outfit" by Professor P. S. Lelean, at the annual meeting of the British Waterworks Association (*Lancet*, June 30th, 1934, p. 1428).

Aug. 4, 1934]

LONDON MEDICAL SCHOOLS AND L.C.C. HOSPITALS

CO-OPERATION IN TEACHING

The Hospital and Medical Services Committee (the successor to the Central Public Health Committee) of the newly constituted London County Council was appointed on March 30th, 1934, with Mr. Somerville Hastings, F.R.C.S., as chairman. It is responsible for the whole of the L.C.C. hospital service (except mental hospitals), comprising about 40,000 beds. At an interview on June 7th between this committee and representatives of the London Voluntary Hospitals Committee, of which Lord Riddell is chairman, a friendly discussion took place as to the relations between the two bodies. The need for early exchange of information about proposed alterations and extensions was fully recognized, and it was agreed that closer co-operation between the municipal and voluntary hospital authorities is desirable in the public interest; hospital requirements in various districts should be jointly envisaged and joint arrangements made for supplying them.

LINKING-UP ARRANGEMENTS

Arrangements for the linking up, for educational purposes, of certain municipal hospitals with the London medical schools, foreshadowed in the London Voluntary Hospitals Committee's last report, have been established. The undergraduate teaching hospitals of the metropolis are now associated with one or more of the London County Council's hospitals as follows:

- Charing Cross, with St. Charles's (Ladbroke Grove).
- Guy's, with Lewisham (S.E.), St. Allege's (Greenwich), and St. Olave's (Rotherhithe).
- King's College, with St. Giles's (Camberwell) and Dulwich (East Dulwich Grove).
- London, with St. Peter's (Stepney) and Mile End (Bancroft Road).
- Middlesex, with Archway (Highgate).
- Royal Free, with Highgate (Dartmouth Park Hill), St. Mary, Islington (Highgate Hill), and St. Pancras (Pancras Road).
- St. Bartholomew's, with Hackney (Homerton) and Bethnal Green (Cambridge Road).
- St. George's, with St. Mary Abbots (Kensington).
- St. Mary's, with Paddington (Harrow Road).
- St. Thomas's, with Lambeth (Brook Street).
- University College, with St. Mary, Islington.
- Westminster, with St. Stephen's (Fulham Road).

The arrangement is that clinical demonstrations are given at the linked hospitals as shown in the accompanying sketch map. Special facilities have been provided for instruction in obstetrics. Students at voluntary hospitals are now enabled to reside for a fortnight at municipal hospitals, during which period approximately ten cases are allotted to each student. Arrangements have been made between St. Thomas's and St. James's;

the London and Mile End; St. George's and Lewisham; and St. Bartholomew's and St. Giles's, Camberwell, and St. Andrew's, Bow. These arrangements are subject to review. The London County Council hopes in time to extend facilities for this class of teaching.

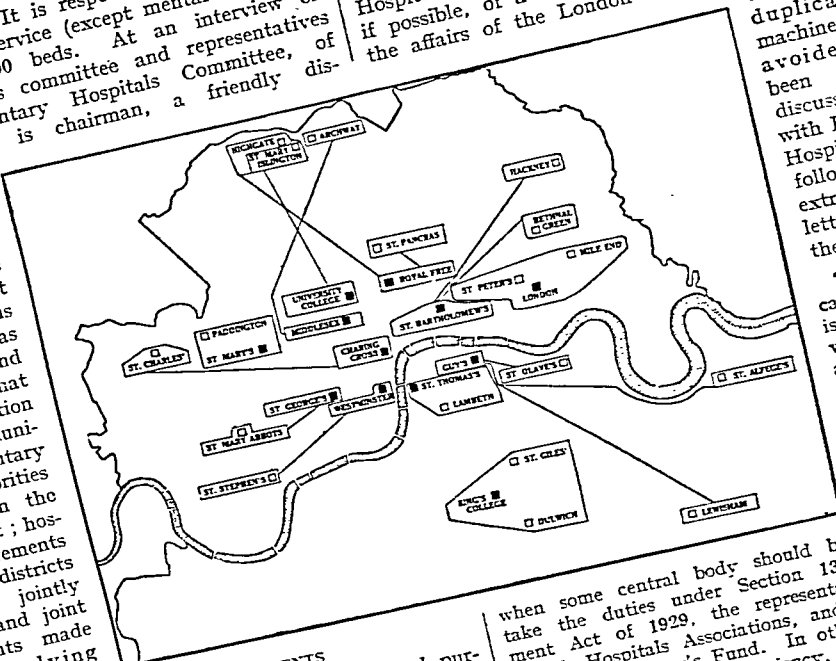
A CENTRAL COMMITTEE FOR VOLUNTARY HOSPITALS

The report issued on July 27th by the London Voluntary Hospitals Committee, from which the above information is extracted, refers also to conferences that have taken place lately between representatives of that committee and the London Regional Committee of the British Hospitals Association, with a view to the establishment, if possible, of a strong central committee to deal with the affairs of the London voluntary hospitals, in order that the present duplication of machinery may be avoided. It has been decided to discuss the proposal with King Edward's Hospital Fund. The following is an extract from a joint letter addressed to the King's Fund:

"The present duplication of machinery is inefficient and involves waste of time and effort. There is a strong feeling among members of both committees that, in view of the development of municipal hospital services, the time has arrived when some central body should be established to undertake the duties under Section 13 of the Local Government Act of 1929, the representation of London on the British Hospitals Associations, and other work not already done by the King's Fund. In other words, it is felt necessary, in the interests of efficiency, that the voluntary hospitals should be represented by an elected executive committee to take the place of the two existing bodies, and comprising adequate medical representation."

It is hoped, the report states, to present a scheme in due course for consideration by the two committees.

The first meeting was held on July 27th of the Departmental Committee appointed by the Minister of Health to report on materials and methods of construction suitable for the building of flats for the working classes, with special reference to efficiency and cost. Mr. Geoffrey Shakespeare, the Parliamentary Secretary, greeted the members, and said that their work would be of great importance in relation to the new housing proposals of the Government. Under the Bill to be introduced in the autumn, encouragement would be given to the building of flats for the replacement of slums and the relief of overcrowding. He expressed the hope that the committee would present an interim report before Christmas, so that an authoritative review of the terms of the Bill of construction would be ready when the terms of the Bill became effective. Sir George Humphreys (chairman) and all the members of the Departmental Committee were present. A programme of work was decided upon, and several subcommittees were set up to deal with particular aspects.



British Medical Journal

SATURDAY, AUGUST 4th, 1934

THE BOURNEMOUTH MEETING

Annual Meetings come and go, but the enthusiasm of those who take part in them never flags, and it is the boast of many a member that he has not missed one since his first attendance. Such a tribute to the popularity of B.M.A. Meetings must be gratifying to the presidents and local honorary secretaries who have made these yearly assemblies such an outstanding feature of the scientific, political, and social life of the medical profession, and doubly so to those who made the present gathering such a happy combination of work and festivity. Bournemouth was lavish in its hospitality, and the civic authorities vied with the Bournemouth Division in providing for their guests every variety of entertainment, from mannequin parades and cocktail parties to Bernard Shaw and Shakespeare, from excursions by road and water to Sir Dan Godfrey and his orchestra. Our thanks are due to the energetic committees and their officers whose preparatory spade-work made the machinery of organization so little visible. If we deeply regret the unfortunate circumstances that prevented Mr. F. W. Ramsay from accepting the post of President, we can at least congratulate ourselves on the man who at a relatively late hour took upon himself the arduous responsibilities of this office. Dr. S. Watson Smith, ably seconded by his charming wife, proved to be the ideal host, always attentive to his guests but unobtrusive himself: his reception at the Pavilion on Tuesday night was the most enjoyable of many magnificent entertainments, and will long be remembered by those who were fortunate enough to be present. To mention by name all those who gave the President such generous support in making the Annual Meeting of 1934 a brilliant success is not possible, but we would like to record here our appreciation of the services of Dr. O. C. Carter, the local general secretary, of Dr. E. Burstal, the science secretary, of our new Chairman of Council, Dr. E. K. Le Fleming, and of the Mayor of Bournemouth, Alderman J. R. Edgecombe.

A native of Bournemouth was asked what he thought of the procession to the church: "Fine," he replied; "but if you'd only had a band you'd have had the whole town out to watch it." This naïve conception of the significance of medical pageantry nevertheless throws a sidelight on the significance of Bournemouth. Bournemouth is first and foremost a health resort, famed for its airs, waters, and places. It is, however, in the minds of many, a town of the utmost decorum, and inhabited largely by sedate and grave people who promenade its streets in Bath chairs. This conception is erroneous. We are not suggesting that Bournemouth has "gone gay," but, like the native, it has realized

that gaiety is compatible with dignity, and that airs and waters are best served with some of the lighter but none the less valuable adjuncts to a health cure. At a time when British health resorts are beginning to come into their own, and when some critics express doubts whether Britain is so good at providing for the lighter side of life as some of our more mercurial friends on the Continent, it was most opportune that Bournemouth, whom some have looked upon as the maiden lady of seaside resorts, should have had this opportunity of showing her paces. Boredom is not mentioned in the indexes of medical textbooks, but as a chronic complaint it is as devitalizing as the other long-continued maladies we discourse about so learnedly. Bournemouth has a remedy for this no less effective than its therapies for catarrhs, rheums, and windy spasms. Nor must we forget Poole and Christchurch, the former with its feet firmly planted in the past but its head busy with modern ideas of development; the latter preserving ancient memories of Roman and Saxon invasions and recording in the walls of its church the noble history of Gothic architecture.

There were, of course, away from the main stream of this steady flow of hospitality, a few quiet backwaters in which men worked and manoeuvred their craft with varying degrees of skill. The representatives, stimulated no doubt by the airs and waters of Bournemouth, showed such a zeal for work that time was apt to take its flight on the wings of eloquence, until brought to earth by a neatly barbed bolt from the cross-bow of the Chairman, who on more than one occasion had to say, "The hopeless word of never to return, breathe I against thee." Nevertheless, those who were new to the procedure of the Representative Body were impressed by the amount of work got through and by the representative nature of its decisions. *Vox populi* may at times have shown its disagreement with *vox dei*, but as an example of democracy in the working the Representative Meeting of 1934 was instructive. The fresh influx of visitors on the Tuesday reminded one that remedies new and old were once more to be discussed, and that the Scientific Sections were again meeting to report on the year's harvest of medical knowledge. Those who had slept little during the previous four days gained some comfort from Lord Horder's dictum that most people sleep too much, while those who had headaches did not hesitate to put them down to eye-strain. It is significant that the best-attended Section meeting was that of Neurology, Psychological Medicine, and Mental Diseases, and the choice of the subjects for the Wednesday and Friday meetings—on narcotics and on pain respectively—shows quite clearly why this was so. The alleviation of mental distress and physical pain is still the chief concern of the practising physician, for these are the two symptoms most dreaded by the patient. The preventive side of medicine was well to the fore, and the discussions on ante-natal care and immunization against the specific fevers gave evidence of a lively concern in these matters.

Aug. 4, 1934]

EMERGENCY TREATMENT FOR ROAD ACCIDENTS

[THE BRITISH
MEDICAL JOURNAL] 213

One Annual Meeting leads to another, and already the bookings for the passage to Australia next year are mounting up. A tour on the grand scale awaits those who are wise enough to take such a unique opportunity of seeing the world on their way to the other side. Those who are not so fortunate will be able to dwell on happy memories of Bournemouth.

EMERGENCY TREATMENT FOR ROAD ACCIDENTS

For a number of years the medical profession and the hospitals have borne a considerable, increasing, and in many cases thankless, burden in rendering emergency treatment for those injured on the roads. It is to be hoped that now, with the Royal Assent signified to the Road Traffic Bill of 1934, the enforcement of Clauses 13 and 14 will, in securing the proper remuneration of doctors for such services, achieve an object for which the British Medical Association has long laboured in vain. As far back as 1920 the Representative Body fixed a scale of suitable fees—10s. 6d. for a night call and 7s. 6d. for a day call—payable to practitioners who were called by the police to provide emergency treatment for road accident cases. Since that time there has been a threefold increase in the number of such cases examined, and the pressing nature of the problem caused the Association to obtain, in 1930, statistics from a large number of doctors as to their experience in dealing with these cases. The figures revealed a regrettable state of affairs. Practitioners, who were morally, if not legally, bound to answer these calls for assistance, were receiving payment for their services in as little as one out of every five cases—one doctor reported 100 cases dealt with in a year with only four fees paid.

It is obviously difficult after a road accident to assign responsibility; often the unfortunate doctor who, in the emergency, has done his best for the injured party, finds himself unpaid and perhaps abused when the question of a fee is raised. Furthermore, he may be out of pocket in respect of splints, bandages, and dressings supplied, while the aftermath of cases brought to his surgery may comprise damage to furniture, and carpets and floors stained with blood, dirt, and debris. Again, emergency calls may involve relatively long journeys at night, often in inclement weather, and sometimes on feeble pretexts. Finally, on Sundays in the summer when, throughout the country, or at all events near the great arterial trunks, road massacre reaches its peak, the medical practitioner is often afraid to leave his home for fear of missing accident calls. Such is the doctor's case.

Although on Home Office instructions the local police authority is justified in paying a fee where an officer has called a practitioner to attend a road accident case, not only is such an arrangement recognized by only a small proportion of police authorities, but it often happens that the doctor is summoned by someone other

than a police official, and consequently has no redress as regards fees. In 1930 the British Medical Association approached the Ministry of Health with the suggestion that road accident cases should be regarded as "necessitous persons," and as such should require the assumption of liability on the part of county and county borough councils in respect of payment of fees to doctors attending them. This was refused. Subsequently the Association approached a representative group of accident insurance companies to point out a common ground of interest in securing adequate and immediate medical examination after motor accidents as a guarantee against subsequent claims of an avoidable character. This again was unsuccessful. The Association's work was continued in 1933, when it submitted a memorandum outlining the doctors' and hospitals' case to a select committee of the House of Lords in reference to Lord Danesfort's Road Traffic (Compensation for Accidents) Bill, and when its representatives gave evidence before the select committee on Lord Moynihan's Road Traffic (Emergency Treatment) Bill.

We are here concerned, however, with the results which have been obtained with the introduction of the emergency treatment clause into the present Act—the Road Traffic Act of 1934. On November 9th, 1933, the select committee of the House of Lords reported for a second time on Lord Moynihan's Bill for payment of fees to doctors for emergency treatment, the Bill being the outcome of co-operation between its introducer and the B.M.A. Early in 1934 the Parliamentary Medical Committee discussed with Lords Moynihan and Dawson the question of compensation to doctors and hospitals for treating motor accidents, and a deputation waited upon the Ministry of Transport to discuss this question. The substance of Lord Moynihan's Bill was eventually incorporated into the Road Traffic Bill, 1934, and, with one or two minor amendments, was reported to the House of Commons and passed to the Lords. On July 10th Lord Plymouth indicated the Government's acceptance of this emergency treatment clause, and the report stage was concluded on July 24th.

Briefly, the relevant clauses of the present Act—Nos. 13 and 14, the emergency treatment clauses—enforce the following conditions. Where medical or surgical examination is immediately required as a result of injury to a person caused by, or arising out of, the use of a motor vehicle on the road, the person using the vehicle must pay the doctor first rendering emergency treatment a fee of 12s. 6d., plus travelling expenses of 6d. a mile or part of a mile over the first two miles travelled. The liability of a person using the vehicle stands even if the accident resulted from "the wrongful act of another person." The police are to assist in the identification of the vehicle and its user. Claims by a practitioner or hospital for fees due can be made orally at the time when treatment is rendered, or in writing served on the user of the vehicle within seven days. The application must be signed by the claimant or the executive officer of the hospital, must

state the circumstances in which the treatment was rendered, that it was effective, that it was rendered by the claimant or in the hospital, and that the claimant or hospital was the first to carry out the treatment. The claim in writing can be delivered to the user of the vehicle or sent to him in a prepaid registered letter at his usual or last known address. The sum is recoverable as a simple contract debt, and its payment operates as a discharge of liability on the part of the vehicle user to pay any (further) sum in respect of emergency treatment.

To what extent the enforcement of the Road Traffic Act of 1934 will ensure fair recompense for doctors and hospitals expending their time and energy in giving emergency treatment for road accident cases remains to be seen. We can at all events hope that the labours of the British Medical Association and the profession have not been in vain. It may not be out of place to indicate that the success attending the movement to remunerate doctors for road accident services has been largely due to the unremitting efforts of the Association during the last decade, and to record the thanks of the Association to the Parliamentary Medical Committee, with particular reference to its chairman, Sir Francis Fremantle, and its secretary, Dr. A. B. Howitt.

SIR HENRY BRACKENBURY

Among those engaged in the central work of the British Medical Association it has long been an open secret that Sir Henry Brackenbury would not seek re-election as Chairman of Council at the Bournemouth meeting. Their regret will be shared by every member who knows anything of the political and administrative work of the Association since the war. Sir Henry has given time and energy to its service without stint. When he entered the inner circle of the Association he had behind him long experience in municipal and educational affairs. In the course of twenty years' membership of the Council he has held office as Chairman of the Insurance Acts Committee for nine years, Chairman of the Representative Body for three years, and since 1927 Chairman of Council. During his long tenure of the chair of the I.A.C. Dr. Brackenbury was the chosen spokesman for the medical profession before the arbitration tribunals which settled the insurance doctors' capitation fee, and his brilliant advocacy on those occasions will long be remembered. When he was in full professional harness it was always a marvel how he managed to get through so much public work of high importance while carrying on the exacting duties of general practice. His grasp of a subject and his rapid analysis of the points involved, his logical mind and power of marshalling facts in order to present a case, have been combined with an unusual capacity for work and a natural gift of leadership. All will be glad to know that Sir Henry Brackenbury's services will continue to be at the disposal of the Association, and with him they will welcome the Council's choice of his successor. Dr. E. K. Le Fleming has graduated with the highest honours through two major chairmanships—that of the Panel Conference for five years, and that of the Representative Body for the past three years.

THE PATHOLOGICAL MUSEUM AT BOURNEMOUTH

The Pathological Museum, arranged in connexion with the Annual Meeting of the Association at Bournemouth, was conveniently housed on the lower floor of the Municipal College, the building in which the Sectional meetings were held each morning. A rare collection of pathological specimens were arranged on benches round each room, with a large number of microscope preparations on tables in the centre. The pathological specimens were grouped on an anatomical basis, and consisted chiefly of unusual lesions and "curiosities," many of which excited considerable interest. The nature of each specimen and the name of the exhibitor were announced in the catalogue. The Museum Committee expressed its appreciation in particular to the following colleges and hospitals which lent material for the museum or were responsible for exhibits: the Royal Army Medical Corps, the University of Edinburgh, Bethlem Royal Hospital, St. Mark's Hospital, St. Bartholomew's Hospital, Westminster Hospital, St. George's Hospital, the South Devon and East Cornwall Hospital, and the Cancer Hospital, London. The Museum included also a number of special exhibits, some of which were intended to illustrate subjects discussed in the Scientific Sections. These comprised a series of specimens and photographs arranged by Dr. C. Lovell from the Bethlem Royal Hospital, London, showing progressive pancreatitis in relation to mental states. Workers at the Cancer Hospital, London, had on view a series of malignant tumours of skin and connective tissues of mice and rats produced by methylcholanthrene, a transformation product of the deoxycholic acid of bile, and a number of specimens demonstrating the effects of oestrin in the genito-urinary system of mice. Dr. Haddow, from Edinburgh University, arranged a series of sections showing cellular transplantations of fowl sarcoma. Amongst items of more general interest may be mentioned a series of ophthalmological colour drawings, instruments, and books exhibited by Mr. Arnold Sorsby; the clinical picture gallery arranged by Dr. S. Watson Smith; the pedigree charts of families affected by polyposis intestini, shown by Dr. Cuthbert Dukes; and a series of pulmonary specimens of surgical interest lent by Mr. George Mason of Newcastle-upon-Tyne. The excellent selection and disposition of the specimens in the Museum was commented on by many of the visitors who came to look round, and it was obvious that the Museum Committee had given to this undertaking a great deal of thought as well as hard work.

ORGANIZED MEDICAL CARE

Medical politicians and publicists in this country who are free from *Schadenfreude*—and that, we hope, means all of them—will read with sympathetic interest a leading article in the *Journal of the American Medical Association* for July 14th on "Organized Medicine and Medical Care." Its subject is the attitude of the organized profession in the United States towards proposals "to put over a system of social medicine"—that is, to introduce a scheme of national health insurance. Its main purpose is to disabuse anyone of the idea "that the American Medical Association, representing 100,000 physicians in the United States, is

opposed to all change in the nature of medical practice or to properly controlled experiments in providing medical service that may be set up in any city, county, or State." A subsidiary purpose is to deprecate the action taken by the American College of Surgeons at Chicago on the eve of the annual session of the A.M.A. in Cleveland, at which the whole profession proposed to consider this matter. Remembering the events of 1911-12 in Britain we can well understand the alarm felt lest the medical profession of the United States should come to grief through divided counsels. On June 12th last the House of Delegates of the A.M.A., following a long executive session, set forth ten principles to guide medical practice and to form the basis for any experiment that might be contemplated. These principles have been published by our temporary in its issue of June 30th (p. 2200). So far as we can judge at this distance, nine of the ten principles could be made to fit into a State system of national health insurance or into any scheme for a public medical service organized by the profession itself. They were planned, we read, "to circumvent the interest of politicians, commercial promoters, and propagandists whose activities in relationship to new forms of medical practice are not wholly unselfish. . . . They will maintain the personal relationship between physician and patient, which keeps medicine a profession. On the principles adopted by the House of Delegates the American medical profession must stand, and in their favour it must speak with a united voice." Then follow some general remarks not wholly flattering to "socialized medicine" in European countries, and the article ends with this exhortation: "Let us consider carefully, act with caution, reserve judgement, and speak with one voice for the truth."

PERIOD OF ISOLATION IN SCARLET FEVER

Following on the decline in severity of scarlet fever in past years, and the demands on fever hospital beds for the admission of cases of measles, whooping-cough, pneumonia, and puerperal fever, it has become necessary to consider whether the most economical use is being made of the accommodation now at our disposal. The various problems arising out of these cognate subjects are not new, and progressive medical officers of health have not hesitated to apply the Ministry of Health recommendations set out in the 1927 report, No. 35, on the administrative aspects of scarlet fever. Many authorities have effected considerable savings in bed accommodation by the selection of cases of scarlet fever for admission to hospital and by shortening the period of minimum detention of "clean" cases to four, and even in a few cases to three, weeks. The matter has, however, not been allowed to remain at this point, and on page 1047 of our issue of June 9th we reported some observations by Dr. H. S. Banks, who claimed that by the early intravenous administration of an adequate dose of scarlet fever antitoxin it was practicable to shorten the period of isolation in hospital to two or three weeks in the great majority of cases. As a safeguard he suggested that patients should be seen once at least at an out-patient clinic before returning to work or school. The question of the period of isolation in scarlet fever has recently also been the subject of

consideration by J. E. Gordon and G. F. Badger¹ of Detroit, but from a somewhat different and perhaps less heroic angle. Dr. Gordon has been interested in all aspects of the administrative control of scarlet fever for several years, and a series of thoughtful and painstaking papers testify to the care and thoroughness with which he has approached the problem. Administrative practice in the U.S.A. with regard to that applied scarlet fever corresponds fairly closely to that applied in Great Britain, although there greater emphasis is laid on home isolation, but, as the authors point out, this has largely been built up empirically with general rules for all patients irrespective of individual variations in severity of attack or probable degree of communicability. In order to make our policy more scientific, they urge concentration on the individual case; and in order to evolve a system which will render this more logical have made a careful study of the factors which determine the persistence of infection in those persons who have become responsible for return cases. In common with others they believe that little is to be gained by laying down bacteriological standards of freedom from infectivity, and find that the incidence of secondary cases depends on the age of the original patient, the presence or absence of complications, and the season of the year. In Detroit, during 1929, in which a minimum period of four weeks' isolation was maintained for all patients, the infecting case rate for persons over 15 was 0.5 per cent., and for children under that age 5 per cent. Since that time various minimal periods of isolation have been tried, modifications being introduced to allow for season and the age of the patient, and in the last complete year—1933—persons under 15 years were detained for four weeks from January 1st to June 30th, and for three weeks from July 1st to December 31st. Those over 15 years were kept in hospital for three weeks in the former half-yearly period, and only two weeks in the latter. The infecting case rate did not increase, and the relative frequency as between adults and children was not disturbed. During the whole of 1934 adults are to be retained for only two weeks and children for three, and the results of this departure will be awaited with interest. Gordon and Badger are fully aware that the purely preventive necessities of the case may not coincide with those involved in its medical management, but the decrease in the period of isolation resulted in no deleterious effect from either standpoint. The economic saving was appreciable, approximately 9,000 isolation days being saved for all scarlet fever patients in 1933, a reduction of 30 per cent. Modification of the detention period, as the authors are careful to emphasize, must be correlated with the type of scarlet fever present, and when the disease is severe in character longer periods of isolation may become necessary. The time may have arrived in this country when a careful trial might be made in selected areas of this progressive policy. Scarlet fever has been unusually prevalent over the whole of Britain during the past year, and the resulting mass immunity may render the near future an exceptionally favourable time for the experiment. It is certain, however, that, to overcome the psychological inertia induced by the observance of long-established principles, a considerable amount of educative work would require to be carried out

¹ Amer. Journ. Pub. Health, May, 1934, p. 438.

among the public, both lay and medical, to prepare the way beforehand. In Drs. Gordon and Badger's paper the whole question of isolation as a measure of control in scarlet fever, both in hospital and in the home, is considered in detail. In their opinion, and as far as their experiences in America are concerned, any further improvement in the control of scarlet fever by isolation will be the result of earlier isolation, and in cases kept at home more rigorous standards, especially during the first week of the disease. The authors reveal themselves strong advocates of the policy of home isolation, and mention the interesting fact that, while an irreducible minimum of cases will always require hospital accommodation, in American cities this will not often exceed a quarter of the whole. Medical officers of health in this country, confronted with the present-day standards of housing, will read this with envy.

CARDIAC HYPERTROPHY IN ANAEMIA

Severe anaemia is one of the less common causes of cardiac hypertrophy; it is rarer still since the discovery of an effective treatment for Addisonian anaemia. In an interesting discussion of this problem L. Boucut and R. Froment¹ point out that very low haemoglobin levels have been most often seen in pernicious anaemia, and necropsy has shown in such cases that heart weights are often moderately increased—for example, to 400 or 500 grams, and occasionally more—the hypertrophy involving both ventricles. The cardiac hypertrophy appears to vary directly with the severity and duration of the anaemia; and although the change has been most often seen in the pernicious type, any secondary anaemia, provided it is severe and prolonged enough, may give rise to it. Gross heart failure with oedema, effusions into the serous sacs, congestion of the lung bases, and a rapid regular pulse has been seen in the course of the disease; it is reported as occurring in one of the author's cases in which liver therapy failed, the symptoms of failure being temporarily relieved by digitalis. Commenting on the mechanism of the cardiac enlargement of high-grade anaemia, the authors agree with those who have regarded it as a work hypertrophy. Several observers have demonstrated that when the oxygen-carrying capacity of the blood is low, as in marked anaemia, the cardiac output and the speed of the circulation are considerably increased. It has been shown, however, that there is no appreciable increase in the output until the haemoglobin falls below 50 per cent. Of the two possible ways in which an increased volume of blood can be pumped by the heart—namely, an increase in rate and a greater output per beat—it is thought that the latter is much the more important, acceleration in rate being usually moderate. The compensatory increase in circulation rate makes life, and even some degree of effort, compatible with a greatly reduced oxygen-carrying capacity of the blood. For example, acute reduction of this capacity (say to 30 per cent.) in carbon monoxide poisoning leaves no time for compensatory mechanisms to develop, and death quickly supervenes. The authors consider that the anoxaemia of chronic lung disease may similarly increase the output of the heart and therefore its work: this explains the cardiac hypertrophy sometimes seen

in these conditions, especially when the hypertrophy affects both sides of the heart. In support of this are the fast circulation rates which have been reported in chronic lung disease. Another disorder of the heart associated with anaemia is angina pectoris. Lewis and his co-workers have brought forward convincing evidence in support of the theory of myocardial ischaemia as the cause of angina, and K. Paschkis,² alluding to their work, suggests that if relative local anoxaemia or ischaemia can cause angina, then a severe anaemia, with diminished capacity of the erythrocytes for conveying oxygen, may be expected, in combination with other factors, to favour the occurrence of anginal attacks. Varying reports have been given concerning the frequency of angina in pernicious anaemia: Lewis states it to be common, and others have reported it in from 2.7 to 8 per cent. of cases. Paschkis describes four cases of angina in severe anaemia: in three, efficient treatment of the anaemia led for very considerable periods to disappearance of the angina. One patient had pernicious anaemia and auricular fibrillation; another, pernicious anaemia with little objective cardiopathy; the third, secondary anaemia from menorrhagia, with syphilitic aortic disease.

THE FIRST PARATHYROIDECTOMY

J. Bauer and R. Kienböck,² in a combined clinical and radiological study, give a further account of the patient in whom Mandl in 1925 removed, for the first time in bone disease, a parathyroid adenoma. At that date the diagnosis of (Recklinghausen's) generalized fibrocystic osteitis was made; the patient, a male aged 39, had deformity of the left half of the pelvis, the left femur and foot, and the right knee. Very considerable improvement followed parathyroidectomy, and in many countries removal of parathyroid tumours has apparently led, in similar as well as dissimilar cases of morbid bone conditions, to equally favourable results. In their contribution Bauer describes a recurrence of disabilities in Mandl's patient, and Kienböck maintains that the condition was one of Paget's disease (osteitis deformans). The patient became worse six years after the operation, and was unable to walk: he had calculi in the right renal pelvis and a negative calcium balance, with greatly increased urinary calcium excretion and diminished muscle and nerve excitability. In view of the renewed hyperparathyroidism the gland was given therapeutic irradiation, and later another adenoma was sought but not found. An excised portion of thyroid, however, contained two microscopical foci of normal parathyroid tissue, and the continued presence of hyperfunctional but inaccessible areas of parathyroid was inferred. Among the reasons assigned by Kienböck for diagnosing this case as one of Paget's disease are: the characteristic radiological findings of diffuse thickening and malacia, with a characteristic admixture of porosis and sclerosis; the chronic course, with preservation of good general health; the affection of the parts near the ends of the long bones; and the normality of the skull and certain other bones. He admits that the finding of a parathyroid adenoma in Paget's disease is very rare. The

¹ *Klin. Woch.*, May 26th, 1934, p. 767.

² *Brunn's Beitr. z. klin. Chir.*, 1934, clix, 553 and 597.

AUG. 4, 1934]

NEW AND NON-OFFICIAL REMEDIES

patient's sister suffered from the same disease in a typical form: familial incidence has not been described in Recklinghausen's disease. Kienböck does not agree with those who consider Recklinghausen's and Paget's diseases as identical. For Paget's disease he suggests the name multiple (osseous) scleromalacia, while conceding that occasionally the skeleton is affected in solitary foci. Recklinghausen's disease he would call multiple (osseous) cystofibroma, with generalized and, occasionally, solitary forms.

UNDULANT FEVER IN AUSTRIA

V. Russ has lately published a table¹ which covers the period 1929-33 (up to July 1st), during which altogether 7,403 sera were sent him for examination. All were examined for agglutination of Bang's bacillus. Some of the sera had been sent to the laboratory with a specific request for examination for undulant fever alone; and in this category there were sixty-two positive and 916 negative sera. Among the sera sent in for the diagnosis of fever of the typhoid group, there were sixty-eight in which only Bang's bacillus was agglutinated, and thirty-four in which it was more easily agglutinated than other bacilli. Thus, with a total of 164 positive sera, the proportion of Bang-positive cases was 2.2 per cent. In a second table the author publishes the findings of various investigators in Germany, Denmark, Estonia, Norway, and the U.S.A., with regard to the proportion of human positive samples of milk; and he notes that, considering how great this proportion is, the susceptibility of human beings to this infection must be comparatively slight in view of the paucity of definitely established human cases. In Germany, for example, only 626 cases were notified in 1929, 428 in 1930, and 498 in 1931. In the absence of compulsory notification in Germany, these figures do not, however, tell the whole story. Although pasteurized milk has been convicted of still harbouring Bang's bacillus, this finding does not reflect on pasteurization itself, but on the carelessness of the persons handling the milk in question. The author is sceptical as to contact infections, from one person to another, and he considers infected animals as the main and practically exclusive source of the disease in human beings.

NEW AND NON-OFFICIAL REMEDIES

We have received from the American Medical Association two of its annual publications—namely, *New and Non-Official Remedies, 1934*,² and the report for 1933 of the Association's Council on Pharmacy and Chemistry.³ The latter volume contains the findings of fact upon which changes in the former are based. In recent years the policy has been adopted of grouping together a number of articles having a similar action and introducing the group by a general discussion. The effect of these changes is to increase the value of *New*

¹ *Wien. klin. Woch.*, March 9th, 1934, p. 289.
² *New and Non-Official Remedies, 1934*. Containing Descriptions of the Articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association for 1934. Chicago: 535, North Dearborn Street.
³ Annual Report of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1933. With the Comments that have appeared in the *Journal of the A.M.A.*

and *Non-Official Remedies* as a work of reference, and it constitutes an excellent guide to reputable extra-pharmacopoeial preparations. The report of the Council on Pharmacy and Chemistry consists chiefly of short articles explaining the reasons for the refusal of new preparations. Some of these make amusing reading, and help to explain how clinical evidence in support of new remedies is obtained. For example, an article "On examination, a large part of this article was found to be identical, word for word, with a section of an advertising booklet issued by the English firm . . . ; the remainder of this uncritical effusion is devoted to completely uncontrolled clinical evidence of the same sort as that presented in the advertising material." The volume also includes some interesting reports on important problems regarding which the evidence is still obscure. The most important of these is a twenty-five-page review of the therapeutic effects of oestrogenic substances. The Council concluded that the future of sex hormone therapy appears promising, but that at present clinical practice has far outrun scientific information, and that the subject is unlikely to advance until the basic facts are more firmly established.

RADIOLOGICAL TREATMENT OF CANCER: LEAGUE OF NATIONS CONFERENCE

On the occasion of the fourth Radiological Congress, now being held in Zurich, the Health Organization of the League of Nations has convened an expert conference to advise on the further prosecution of the international inquiry into the results of the treatment of uterine cancer by radium and x rays which was put in hand at Geneva in consequence of the report made by its Radiological Commission in 1929. At this conference, which met from July 21st to 23rd, Sir George Buchanan and Dr. Boudreau represented the Health Committee of the League, and the experts attending included Sir Comyns Berkeley and Colonel A. B. Smallman (England), Professor Lacassagne (France), Professor G. Forssell and Dr. Heyman (Sweden), Professor van Roooy and Dr. Jansen (Holland), and Professor Murdoch (Belgium). The conference recommended that statistical statements with commentary should be annually issued, beginning with 1936 and relating especially to survivals for a minimum period of five years after the initial treatment. The principal object of these statements is regularly to present statistical information regarding the results obtained by the application of radiotherapy to patients suffering from cancer of the cervix at different stages when certain agreed rules for the preparation and compilation of the data have been observed. It is proposed to obtain the data through special correspondents in different countries, and to have the annual statements prepared under the advice of a small expert advisory council appointed by the Health Committee of the League.

We have to announce with regret the sudden death, at Oxford, of Dr. M. S. Pembrey, F.R.S., late professor of physiology in the University of London at Guy's Hospital Medical School.

ONE HUNDRED AND SECOND ANNUAL
MEETING

of the

British Medical Association

HELD AT BOURNEMOUTH, JULY, 1934

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL the opening papers communicated to the Scientific Sections of the Annual Meeting at Bournemouth. The reports of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE

Wednesday, July 25th

CLINICAL IMPORTANCE OF ACHLORHYDRIA

With Professor LANGDON BROWN, the President, in the chair, Dr. ARTHUR F. HURST opened a discussion on the clinical importance of achlorhydria.

Dr. Hurst first discussed the various functions of the gastric juice. The most obvious was the secretion of pepsin and its activation by hydrochloric acid; this was a useful but not an essential function. More important was the antiseptic action of the acid; not only was this effective in the stomach itself, but it had an action lower down, for diminished acidity in the small intestine (a condition to which achlorhydria predisposed) favoured the growth and spread of *B. coli* from the colon. Evidence was accumulating to the effect that many symptoms hitherto ascribed to the stomach or colon were really due to disorders of the small intestine. Gastric juice also had important functions in connexion with haemopoiesis. Achlorhydria was frequently associated with failure to deal adequately with the iron in an ordinary diet, with a resulting microcytic anaemia, and there was the more definite failure to produce the intrinsic factor which was the fundamental fact in pernicious anaemia. It also produced an enzyme which he called "neuopietin," absence of which led to degeneration of the posterior and lateral columns of the spinal cord. Ten per cent. of people secreted less hydrochloric acid than their fellows, and the majority of these developed achlorhydria and its associated troubles: this was generally due to chronic gastritis as the result of prolonged mechanical or chemical irritation. Dr. Hurst then discussed the effects of gastritis on the gastric juice, attributing to excess of mucus a large share in the production of achlorhydria. Post-operative achlorhydria following gastro-enterostomy was usually caused by gastritis antecedent to the operation, or in some cases to a severe gastritis set up by an excess of bile in the stomach. The association of achlorhydria with carcinoma of the stomach was again really the result of gastritis present before the growth developed, and he knew of no case in which free acid, if present when the growth was discovered, had been observed to disappear with the growth of the cancer. He had long believed that cancer never developed in a healthy stomach, and that in 75 per cent. of cases it began in a chronically inflamed mucous membrane, usually associated with achlorhydria. If his views were correct, it was clear that the main effort in achlorhydria must be to remove the gastritis, and in his hands 82 per cent. of patients, when treated with this end in view, resumed their acid secretion. Dr. Hurst concluded by picturing a future

in which, with prophylaxis of gastritis or its adequate treatment in the early stages, carcinoma of the stomach would no more be seen. Dr. KEITH SIMPSON demonstrated specimens illustrating Dr. Hurst's points, dealing particularly with the pathological aspect. He said that post-mortem material was useless owing to the extremely rapid autolysis occurring after death.

Dr. JOHN F. WILKINSON (Stockport) said that many cases of achlorhydria were only apparent, and when investigated with histamine showed free hydrochloric acid. In contradistinction to American workers, he had demonstrated that histamine stimulated enzyme as well as acid production, pepsin and haemopoietin being more important than acid. The main symptoms associated with achlorhydria were flatulence, nausea, and diarrhoea. In a series of 135 cases of chronic diarrhoea, 32 per cent. had achlorhydria. Sore tongue was also a common complaint, and of forty-seven cases 25.5 per cent. had achlorhydria. It was important to treat these cases, as carcinoma and pernicious anaemia might develop. Of cases resembling pernicious anaemia, but with free acid in the gastric juice, some showed a persistently high reticulocytosis and did not respond to liver treatment, and the prognosis was unfavourable. Haemopoietin production was more important than that of acid and pepsin, and normal people with achlorhydria, when placed in circumstances unfavourable to haemopoietin production, might then develop pernicious anaemia.

Dr. C. C. UNGLEY (Newcastle-on-Tyne) dealt with the defects in gastric function connected with absorption of food factors associated with achlorhydria. Such defects were responsible for the production of pernicious anaemia, subacute combined degeneration of the cord, and idiopathic hypochromic anaemia. Autolysed yeast had sometimes been found to produce a haemopoietic response in pernicious anaemia; this, however, only occurred if it were given by mouth, and so it owed its efficacy presumably to a content of "extrinsic" and not "intrinsic" factor. Cases giving such a response to yeast must therefore be considered to have retained the power to form some "intrinsic" factor, although they showed a histamine achlorhydria. Clinical analysis suggested that pernicious anaemia and subacute combined degeneration were really due to a lack of different substances. In idiopathic hypochromic anaemia achlorhydria was present in over 50 per cent. of cases, and there was frequently an associated defect in the secretion of pepsin, chloride, and neutral red. The nature of the defect was obscure, but as iron was utilized much more completely if injected intravenously it was probably a defect in absorption. Administration of hydrochloric acid alone had no effect. Dr. J. H. ANDERSON (Ruthin) stated that there was a mistaken tendency to think of achlorhydria merely in terms of cancer and pernicious anaemia. His method was to give an ordinary test meal, and, if no free acid appeared at the end of the first hour, to inject histamine. Of 225 cases so investigated, thirty-six received histamine, and complete achlorhydria was found in twenty of these. He reviewed the symptomatology of these twenty. Little alcohol or tobacco was taken by more than a small proportion; in very few were the symptoms complained of referred to the stomach. Acute infection was present in two cases, but chronic infection of some kind had been noted in eighteen. There was no anaemia in thirteen cases, secondary anaemia in five, and pernicious anaemia in two. No evidence supported the view that achlorhydria had any effect on the rate of emptying the stomach. Further research was needed into the incidence of achlorhydria in a large number of healthy young people, with the follow-up of the medical history for at least a generation. This would provide adequate evidence for or against the importance of achlorhydria. Dr. J. R. GILLESPIE (Belfast) recalled the beneficial effect he had seen in a cholera epidemic from giving drinks of dilute hydrochloric acid. Dr. G. W. GOODHART pointed out that in the production of achlorhydria the muscle as well as the mucous membrane played some part. He criticized Dr. Hurst's views on the effect of mucus. Mucus was a protective secretion, and produced its maximum effect at the end of digestion; it was quite powerless to neutral-

AUG. 4, 1934]

THE SECTIONS: SUMMARY OF PROCEEDINGS

ize the acid in a freely secreting stomach. He protested against the growing tendency to use histamine alone as a routine test-meal stimulant. Dr. ALISON N. MACBETH asked whether there was sufficient evidence of the difference neuro- and haemo-poietin, and suggested that the difference might be in the individual susceptibility of the neural and blood systems. Dr. DOROTHY HARE asked whether any useful information could be obtained by measurement of the volume of acid secretion in ten-minute periods after histamine.

SECTION OF SURGERY Wednesday, July 25th

TREATMENT OF ARTERIAL EMBOLISM

With the President, Professor G. GREY TURNER (Newcastle-upon-Tyne), in the chair, Mr. GEOFFREY JEFFERSON (Manchester) read a paper on "The Surgical Treatment of Embolism of the Peripheral Arteries."

Mr. Jefferson said that arterial embolism was a grave emergency calling for intervention even earlier than a perforated viscus. A successful operation averted gangrene by restoration of the circulation. Carrel's experimental work on the surgery of the blood vessels, by showing that vessels could be incised and sutured without thrombosis occurring, a suitable technique being used, had paved the way for successful embolectomy. A standardized and useful addition to surgery had now been made. This in great measure due to the Swedish surgical school, led by Einar Key. In recording his own successful case in 1925 he had been able to collect from the literature seventy-three cases, of which twenty-eight had done well. Since then the literature had grown prodigiously, culminating in Danzis's detailed analysis of all cases reported up to 1933. Because of this last paper he did not propose to make a new survey, but to give an account of his personal experiences in embolectomy. Mr. Jefferson then detailed his six personal cases. Two of these were completely successful. Of these two, one was a case of embolism at the junction of the axillary and brachial arteries after operation for umbilical hernia. The other was a case of embolism at the bifurcation of the common iliac artery in a patient with auricular fibrillation. One had limited post-operative gangrene following subclavian embolectomy, whilst another had a slight degree of ischaemic contracture following embolectomy at the division of the brachial artery. The two remaining cases, both suffering from auricular fibrillation, were failures. In one of these the embolism was femoral, in the other brachial.

In the discussion that followed, Dr. MAX DANZIS (Newark, N.J., U.S.A.) stated that, as knowledge of the good results obtained by Scandinavian surgeons had spread through the United States, not only had the operation of arteriotomy for peripheral embolism become more common, but the time interval between lodgement of embolus and operation had diminished, with corresponding good results. It was important to differentiate between immediate and end results, since although 41 per cent. of cases operated upon obtained immediate post-operative circulatory restoration, about one-quarter of these patients died from subsequent secondary emboli. None the less, this showed a distinct superiority over non-operative treatment, in which 87 per cent. of patients died one to fourteen days after the onset of the disease. The causes of death in patients suffering from severe emboli leading to gangrene, cardiac decompensation, cerebral emboli, and pneumonia. He did not think operation was indicated in patients suffering from severe exacerbations of subacute endocarditis or from grave embolus of the axillary artery at the site of a previous successful operation. He favoured regional or block anaesthesia as against local infiltration, because the former allowed of a wider exposure and clearness of the operative field.

Dr. G. J. LANGLEY (Manchester) said the first duty of the physician in these cases was to decide whether operative intervention was called for, and in determining this difficult question it was necessary to be sure that a sufficiently large vessel had been occluded, that the vessel was healthy enough to permit of surgical stitching, and that the general state of the patient would admit of immediate operation. If the site and the cause of the mother thrombus could be determined a big step had been taken towards choosing cases for operation. He thought that some apparent general contraindications to operation could be dealt with adequately for its performance. High-speed auricular fibrillation could be quickly controlled by intravenous strophanthin or rectal digitalis, and diabetics made safe for operation in a few hours by glucose and insulin.

Mr. ERNEST FINCH (Sheffield) referred to the use of Key's probe for removing the embolus at a distance. His experience bore out Neuhof's statement that return of circulation did not necessarily mean that a through passage had been obtained at the site of impaction, but might mean simply the establishment of the collateral circulation. He described a successful case in which he had removed an embolus in the brachial artery by means of Key's probe through an opening distal to the site of lodgement. Immediately the clot was ejected there was free bleeding from both ends of the vessel, showing how the collaterals had become freed. The artery was then tied on both sides of the incision and divided. An exactly similar case occurred in the practice of a colleague, but in this instance the distal end of the artery did not bleed after removal of the embolus, and an unsuccessful result followed the identical surgical procedure, thus illustrating the value of unblocked collaterals.

Mr. G. E. LARKS (Plymouth) mentioned his experiences in four cases of embolism, one completely successful, the others impracticable for reasons of multiple emboli or of delay before advice had been sought. Post-operative cases were the most straightforward, and presented the greatest possibilities. He considered that embolism in auricular fibrillation occurred at the stage when normal rhythm was being restored, and that this gave hope that such cases would be given an early opportunity for surgical intervention. Finally, he discussed possible surgical procedures in cases where the operation was performed at a stage when it was likely not to prove wholly successful, and instanced ligature of the corresponding main vein.

Mr. A. G. BANKS (Ipswich) recapitulated a published successful case of brachial embolectomy in which operation was performed four hours after the onset of symptoms. The patient had since had a hemiplegia, probably of embolic origin, and had almost completely recovered from this. He considered interrupted stitches sufficient in a short wound of the vessel. Dr. BERGESTROM (Sweden) referred to the successes in the field of pulmonary embolism. Mr. E. M. COWELL (Croydon) gave an account of a case of traumatic thrombosis of the common femoral artery with no pulsation in the limb. He had removed a white clot from the vessel, and a long worm of red clot from the superficial femoral artery. The circulation returned, and the artery remained patent long enough for the collateral circulation to be established. A useful limb resulted. Mr. L. O'SHAUGHNESSY spoke of the abdominal limb successful cases of embolectomy in the abdominal aorta, and in particular of a case not operated upon in which, in addition to the usual symptoms, there was suppression of urine. Necropsy revealed that impaction had taken place at the level of the renal arteries. He suggested that in such a case embolectomy might suitably be carried out through an incision in the descending thoracic aorta. Professor A. W. SHEEN (Cardiff) related a case of double embolectomy of the common femoral arteries. The patient suffered from tertiary syphilis. Gangrene was only limited. He was unwilling to accept that aseptic thrombi would form in relation to a septic focus. Mr. ROCK CARLING said that the drawback of the cases associated with auricular fibrillation was the multiplicity of the emboli. The number of cases of paradoxical

embolism was quite considerable, and this type held out good prospect of complete success. Since emboli were associated with extensions of clot both above and below the site of impaction, on the whole it was easier to cope with such clot through a distal rather than a proximal incision. Some of the results were due to spasm of the arterioles as much as to the embolus. He thought control of the vessel at operation was best achieved by elastic or tape bands passed behind the vessel above and below the site. It did not matter much if the suture passed through all coats of the vessel. The President stressed the importance of what might seem to be a highly technical subject to the practitioner, since only by early attention could a successful outcome be hoped for.

Mr. JEFFERSON, replying, agreed that cases with active endocarditis were unsuitable for operation, and that the artery was better opened below the site of impaction. Referring to clot on the far side of the embolus, he said that in one instance, not his own, 125 cm. of clot had been removed in two portions. Such clot, he considered, did not form at once, but was not long in appearing. He always tried to put in his stitches very superficially, but agreed with Mr. Carling that it did not seem to make any difference if the suture presented a little on the interior of the vessel.

THE SEPTIC HAND

Mr. R. KENNON (Liverpool) in a paper on "The Problem of the Septic Hand," stressed the importance of the organization of special clinics with access to beds at general hospitals for treatment of cases of infected hands. The problem was threefold: prevention, diagnosis and early treatment, and the avoidance of subsequent stiffness and deformity. Regarding prevention, he considered that punctures by small objects were the commonest cause, and that such should be treated at once by removing the surface epithelium over the punctured area with a razor blade. This relieved tension, whether infective or only simple traumatic inflammation was present, and allowed egress of the products of inflammation. The pricked finger should then be kept dry or have a spirit dressing applied, and in the case of a surgeon it would be well to have a splint applied at this stage. Prevention, again, found scope in the rational treatment of trivial affections of the nails, and in this connexion he urged the retention of any part of the nail which could be conserved. These lesser conditions could assume alarming proportions if treated wrongly, by squeezing for non-existent pus and by the use of antiseptics and boiling water. Immersion of the hand in very hot water led to devitalization of avascular structures, caused cracks in the nails of the other fingers, and was a source of great pain. In the early treatment of the streptococcal finger, so common in doctors and nurses, he thought removal of the surface epithelium at the site of puncture and a subsequent hypertonic salt dressing the best local treatment. Serum therapy must be employed when rigors occurred. Mr. Kennon then dealt with the various forms of whitlow. He had found the best indication of tendon sheath involvement to be the presence of maximal tenderness at a point where the sheath ended or narrowed. No force should be employed to remove sloughing tendons; these took about a fortnight to separate. In the operative treatment of a septic hand general anaesthesia and the use of a tourniquet were essentials. Hot fomentations had their highest value after operation. Prevention of stiffness could only be done by careful timing of removal of the splint and institution of voluntary movement. The speaker reviewed the assessments for compensation in cases where stiffness had supervened in industrial cases. Amputations, apart from cases with suppurative arthritis or loss of tendon, should be delayed until at least three months had elapsed since healing. At that interval it could be determined exactly how much should be sacrificed for the patient's particular needs. Amputations were necessary in only 2 per cent. of cases.

In the discussion which followed, Mr. P. H. MITCHNER advocated the admission of all patients with septic hands to hospital, and deprecated the use of tourniquets on the

upper limb. While splintage was valuable in the early stages, it was not wise to continue this after evacuation of the pus. Early active movements were more valuable. Mr. E. M. COWELL (Croydon) thought the use of iodine as a first-aid measure should be discouraged because of its harmful action on the tissue defences. Mr. H. W. S. WRIGHT recommended liq. aluminii subacetatis (*Extra Pharmacopoeia*) as a suitable lotion for a moist dressing. Dr. GOUGH (Watford) considered splintage the primary treatment, and deprecated too early massage and movements. Mr. KENNON, replying, pointed out that evidence of decalcification of bone in the x-ray photograph of a septic hand should not be interpreted as osteomyelitis. He did not advise early massage, but was very much in favour of early active movements. He was in entire agreement as to the great advantages of having such cases treated as in-patients.

COMBINED SECTIONS OF OBSTETRICS AND GYNAECOLOGY AND PUBLIC HEALTH

Wednesday, July 25th

RESULTS OF ANTE-NATAL CARE

The opening sessions of the Sections of Public Health and of Obstetrics and Gynaecology took the form of a combined meeting to discuss whether satisfaction could be felt with the results of ante-natal care. The obstetrical standpoint was presented by Dr. J. S. FAIRBAIRN and Professor F. J. BROWNE, and that of public health by Dr. ETHEL CASSIE (Birmingham) and Dr. G. F. BUCHAN (Willesden). These four papers are printed in full in the opening pages of this issue.

Professor J. M. MUNRO KERR (Glasgow), President of the Section of Obstetrics and Gynaecology, who was in the chair, welcomed the presence of the members of the Section of Public Health as a significant act of courtesy, indicating the promise of fruitful co-operation in the future as well as in the present. In Dr. Buchan's unavoidable absence, his paper was read by Dr. T. CARNWATH, President of the Section of Public Health.

Dr. E. H. T. NASH (M.O.H., Hounslow) said that public health administrators were in a difficult position, since general practitioners were losing their experience of midwifery, and it was doubtful how far their services would be utilizable in the future, as their knowledge of how to deal with emergencies was diminishing. Nevertheless, to take work away from them would be doing a disservice to the community. Much more co-operation was needed in the future between ante-natal clinics and practitioners.

Mr. ALECK BOURNE said that when ante-natal care was first instituted too much had been expected from it. Too many minor pathological conditions were being dealt with as though of major significance and requiring more serious treatment than was really necessary. Not enough consideration was being given to the management of labour without intervention, whenever possible. More confidence should be induced in the patient.

Dr. C. E. GAUTIER-SMITH (Bournemouth), speaking as a private general practitioner, regretted the insistence in the general press and in conversation upon obstetrical dangers. Many cases of primary inertia were of psychological origin. Parturition should be represented as an athletic feat, and ante-natal care be regulated accordingly. The capacity of the skull to mould was often forgotten. The private practitioner could do much to instil in the patient during ante-natal supervision that confidence which would ensure a happy issue. Dr. R. A. WELSH (Northumberland) asked how practitioners might hope to be remunerated for the work required of them in ante-natal supervision.

Dr. W. H. F. OXLEY (Poplar) referred to the coincident rise of maternal mortality and the increase in the number of ante-natal clinics, as shown by Dr. Cassie's figures. This might be attributed to the disappearance of the general practitioner in this connexion, and to the terror instilled in the prospective mother by the emphasis laid on maternal abnormalities. The importance of this

Aug. 4, 1934]

THE SECTIONS: SUMMARY OF PROCEEDINGS

THE BRITISH MEDICAL JOURNAL 221

psychological factor had not been stressed enough. Ante-natal work could not stop eclampsia, which might occur without previous albuminuria. Public health authorities should do more to get midwifery ante-natal work back into the hands of the general practitioner, who should have better access to hospital accommodation. Mr. L. C. RIVETT commended Dr. Oxley's system, with its stress on the work of the midwife, seconded by the general practitioner, and with the specialist in the background ready to help. Dr. JANE TURNBULL (Ministry of Health) said that the ante-natal clinic was an excellent co-ordinating agency, linking up local treatment with general subsidiary organizations. There could not be satisfaction with the results of ante-natal care in its present undeveloped state. Dr. W. P. GRIEVE (Ipswich) asked if eclampsia was always preventable. Dr. J. S. LOGAN (Swindon) said that while the number of births was increasing the demand for treatment was increasing. There was thus a loss of material for the purposes of training medical students and midwives. Dr. A. B. MURRAY (Banff) pointed out that conditions varied much in different parts of the country. Schemes too often began at the wrong end. The doctor should be in at the end. Even a good scheme was not universally applicable. Obstetrical specialists could not be utilized in widely scattered rural communities; the general practitioner was usually the vital factor, and should be the first concerned in consideration of schemes. But his training was usually inadequate, and his lack of experience was lamentable. Professor MUXRO KERR said that the stage of satisfactory with generalities had been passed. The establishment of normal pregnancy and labour, the creation of an obstetric conscience, the physical effect of pregnancy and labour, and other similar expressions were excellent catch-phrases for public addresses and good copy for the lay press, but the medical profession must get down to concrete proposals and well-defined details for improving the obstetric services of the country. The ante-natal service suitable for large urban areas, which must necessarily have a general-practitioner-midwife service, the best for rural and small urban areas, which must necessarily have a general-practitioner-midwife service. For densely populated industrial areas the only solution was the employment of midwives by local authorities. Properly paid and housed they should form an integral part of the local health service. Each midwife should be made responsible for the ante-natal care of 100 to 110 patients annually, operating from the local clinic and doing as much as possible of her work in it. The clinic would be open night and day, and house the obstetric outpatients as well as the clinical notes. Ancillary medical services should also be directed from the clinic, which should be in close liaison with the patient's health visitor. The midwife should be the patient's health visitor during pregnancy and the puerperium, as had been demonstrated by Dr. J. Buchan of Bradford, the only medical officer in this country. It had been very successful in Iceland and other Continental countries. Three other agents remained, less easy to adjust—namely, the midwife practising on her own account, the medical officer of the ante-natal clinic, and the local general practitioner. The midwife practising thus needed a large number of confinements to make a living, and could not adequately supervise her patients during pregnancy. She would have, therefore, to carry on her work in that part of the community which could pay higher fees, but would there be competing with the general practitioner. The clinic medical officer was too often inadequately trained, and under the present arrangement took no part in actual obstetric practice; the midwife, in cases of difficulty, summoned a general medical practitioner who might never have seen the patient before. The family medical practitioner would find it difficult to carry on the general required at a clinic, owing to the exigencies of general practice. He could only tie himself down to definite hours if there was established a general medical service for all insured persons and their dependants, and for all ailments. Such a service would operate from a general

welfare clinic, ante-natal work being then only a part of the general routine work of the medical practitioner. The speaker hoped that this solution would materialize. Medical practitioners would have to agree to conduct treatment of this kind in respect of insured persons in and from the clinics. Failing such agreement this line of medical work would be removed from the general practitioner as tuberculosis had been. In rural areas ante-natal work must be carried out by district nurses and general practitioners, for the clinic could not be utilized in sparsely populated districts. The results shown by the service of the village nurse-midwives of the Queen's Institute of District Nursing in England were wonderfully good, but there must be a greater supply of maternity beds localized in carefully selected towns. Dr. A. S. GARDEN (Southport) did not see how general practitioners could undertake ante-natal work. Dr. S. GORDON LUKER (Poole) entirely favoured doctors maintaining contact with ante-natal work and the subsequent confinements, but few had time to do so, or the keenness. The best results were obtained by keeping in touch with hospitals. Primigravidae were in their first pregnancies from multiparae. All women in their first pregnancies needed a medical adviser. Dr. T. G. STEVENS said that medical practitioners did not take the opportunities offered for examination. Teaching was not inadequate in the medical curriculum; any deficiency resulting was the fault of the medical students, who, as a class, were too often indifferent as regards obstetrics. Dr. FAIRBAIRN, replying, recalled a similar discussion at the Portsmouth meeting, which had been described as querulous. The general practitioner had done much to instruct teachers in obstetrics, and to instil confidence into patients. The study of the natural forces concerned was the important thing in ante-natal work, and the personal factor had to be definitely considered. The general practitioner was the ideal person to ensure natural physiological functioning before and during parturition. When he worked happily and closely with midwives the best results might be expected. The speaker referred to the Queen's Institute system, the figures of which indicated that the best results were obtained when preliminary work was carried out by the midwife, the doctor being called in secondarily when required. Dr. CARNWATH felt that preconception, or even ante-natal care was almost more important than ante-natal care. The best hope of progress lay in those agencies which were dealing with the health of growing girls, particularly in the years after leaving school. He thought that ante-natal clinics might have been better organized in the past, and there was more hope in the future of reducing the maternal mortality rate. Professor BROWNIE, in reply, agreed that very few cases of eclampsia could not be prevented, especially if our knowledge of the early signs of toxæmia was improved. Why should not the measurement of blood pressure become a routine? Dr. CASSIE said that ante-natal clinics had definitely reduced maternal morbidity.

SECTION OF PAEDIATRICS Wednesday, July 25th

With the President, Dr. F. JOHN POYNTON, in the chair, Dr. W. G. WYLLIE opened a discussion on encephalitis. He first classified the condition into suppurative and non-suppurative groups, and proceeded to review in particular the various types of the latter, dealing first with encephalitis lethargica and polio-encephalitis. After reviewing the clinical features of these varieties, Dr. Wyllie spoke at greater length on the group of encephalopathies associated with the acute fevers, exanthemata, and vaccination, all of which had been intensively studied in recent years. He described the family likeness of these forms of encephalitis, mentioning their abrupt appearance at least a week after the onset of the acute specific fever.

Meningeal symptoms and drowsiness occurred at the onset, leading to coma, and as the patient recovered consciousness various types of paralysis became obvious. Discussing the relative frequency of such complications of the exanthemata, Dr. WYLLIE drew attention to the raised incidence of recent years. Pathologically these forms of encephalitis fell into two groups—one with acute toxic changes and the other with demyelination. Finally, he gave an account of the type known as spontaneous acute disseminated encephalomyelitis. Here the condition arose spontaneously, but both clinically and pathologically it was again possible to recognize two varieties: one with toxic changes, with good eventual prognosis when the initial stages were safely over; the other, a demyelination type. In conclusion, he stressed the value of examination of the cerebro-spinal fluid, and briefly mentioned methods of treatment.

Dr. NEILL HOBHOUSE said that the impression he had got from personal experience was that encephalomyelitis secondary to exanthemata was remarkably rare, while the spontaneous form was extremely common. This was possibly because the relative benignity of the latter type allowed it to escape notice. He thought the diagnosis should be based not so much on symptoms as on the course of the disease. The characteristic points about this were the shifting of the symptoms, fresh ones developing when the earlier ones were clearing up, and that except in the comparatively few fatal cases the patients recovered completely without any lasting ill effects. Dr. Hobhouse spoke of the differential diagnosis, mentioning the two disorders for which acute encephalomyelitis was most likely to be mistaken. These were tuberculous meningitis and poliomyelitis, and in the former the most helpful point was the chloride content of the cerebro-spinal fluid, which was unaltered in the encephalitis cases. As regards poliomyelitis, he mentioned the fact that some active movements of apparently paralysed muscles could be obtained, even though the child was reluctant to move them, in the encephalitis as distinct from the infantile paralysis patients. Affection of the sphincters was common in the encephalomyelitis cases. In conclusion, Dr. Hobhouse spoke of acute hemiplegia, maintaining that this was more likely to be of vascular origin, and, this being venous rather than arterial, there were differences in behaviour from most cerebral vascular complications.

Dr. W. H. BEST (Bournemouth) dealt with the question of whether there were any controllable factors in cases of encephalitis which predisposed to infection, stressing the fact that specific treatment during the acute stage was futile at the present time. In the absence of precise knowledge it was necessary to fall back upon general prophylactic measures. He thought it of great importance that the mouth, nose, and throat should be kept as healthy as possible, and equally important was the thorough ventilation of class rooms and dormitories. Attention must be paid to the presence of vitamin A in the diet and the provision of pure, fresh milk for children. In addition, it was necessary to maintain a stable condition of the nervous system, eliminating as possible predisposing causes to encephalitis all forms of nervous exhaustion and emotional strain. Extra hours of sleep were also of value. Finally, Dr. Best mentioned the possibility of post-vaccinal encephalitis being related to a virus in the skin, and he stressed the importance of adequate measures to secure disinfection of the skin and of the instruments used.

Dr. T. R. HILL described his experience with children suffering from chronic or post-encephalitis lethargica. There were two broad groups: one with Parkinsonism and one with mental symptoms showing themselves as behaviour disorders. Although there were some mixed types, the fully developed cases tended to fall into one or other group. The symptoms of the behaviour disorder might appear during the acute attack, consisting of restlessness and wakefulness combined with impulsive and destructive. Dr. Hill discussed in detail the way in which the instincts and emotions in such cases appeared to have undergone exaggeration, emphasizing the fact that this was not due to loss of inhibition by the higher centres. He concluded by referring to the possibility that nervous or difficult children might suffer from constitu-

tional abnormalities of the same part of the nervous apparatus as was damaged in encephalitis lethargica. The PRESIDENT referred to cases of post-vaccinal and lethargic encephalitis which he had seen, and he mentioned the question of the relation of chorea to encephalitis. He regarded the former as a rheumatic meningo-encephalitis. Dr. G. M. FINDLAY spoke of viruses in relation to the central nervous system, dividing them into strictly neurotropic, those which can be rendered neurotropic, and non-neurotropic. He stressed the fact that no known virus by itself was capable of producing demyelination. Dr. H. CHODAK GREGORY asked for more information on prognosis. The parents of a child with encephalitis always wanted to know, first, if the child was going to recover, and, secondly, if the brain was going to be affected. Dr. B. E. SCHLESINGER mentioned the curious incubation period between the onset of the acute specific fever and the occurrence of encephalitis as a complication. He wondered whether allergy played a part in view of such a latent period. He asked, in conclusion, whether public bodies were not out of date in insisting upon vaccination before children could be admitted to convalescent homes. Antidiphtheritic inoculation seemed more logical at the present time. Dr. R. D. CLARKSON (Larbert) spoke of the similarity between chorea and some cases of lethargic encephalitis. He thought that a very long period was necessary after an attack of encephalitis before the final prognosis could be made with certainty.

SECTION OF NEUROLOGY, PSYCHOLOGICAL MEDICINE, AND MENTAL DISEASES

Wednesday, July 25th

THE USE OF NARCOTICS

With the President of the Section, Dr. LIONEL A. WEATHERLY (Bournemouth), in the chair, Lord HORDER opened a discussion on the use of narcotics in the treatment of nervous and mental patients.

Lord Horder distinguished between pain killers and sleep producers, although, he said, the two groups overlapped. The key to the successful treatment of insomnia was to find the cause or causes. These included psychological causes, especially anxiety (that is, mental pain) in various forms, and notably anxiety about not sleeping. They required psychological treatment. Most people, in fact, slept more than was necessary. Over-stimulation of the mind, over-fatigue of the body, dyspepsia, fever, circulatory and respiratory lesions, the psychoses—any or all of these might result in sleeplessness. As to remedies, all possible general measures should be considered first. The next approach was by way of drugs; alcohol and its derivatives as a hypnotic must be considered. Opium and its derivatives were indicated only where sleeplessness was due to severe pain. Hyoscine and the older hypnotics had long been used. The newer group—the barbiturates—marked a great advance because of exactness of dosage and constancy of effect. The ideal hypnotic unfortunately did not exist. It was not the drug, however, but the development of a drug habit that called for condemnation. Sedative drugs formed a means of escape from life. A definite scheme should be adopted for each patient. He was convinced that the ill effects attributed to hypnotics were considerably exaggerated.

Dr. R. CUNYNGHAM BROWN (Bournemouth) stated that in an inquiry instituted by the Board of Control it had been found that there was great variation in the kind and amount of sedatives used in mental hospitals. It seemed clear that the order and tranquillity of mental hospitals had little relation to the extent to which sedatives were employed. His own view was that for mental patients they played a valuable part in relieving feelings of anxiety and distress; in alleviating excitement; and in reducing violence. As pure hypnotics they were comparatively infrequently employed; insomnia *per se* seldom arose in mental hospitals or among psycho-

THE SECTIONS: SUMMARY OF PROCEEDINGS

AUG. 4, 1934]

Dr. JAMES COLLIER spoke of the actual effect of the barbiturates on the nervous system. These drugs, he said, tended to concentrate in the cerebro-spinal fluid, and thus acted specially upon the nervous system. Removal of cerebro-spinal fluid most effectively relieved cases of barbiturate poisoning. In some cases poisoning occurred without overdosage, probably due to abnormal retention: symptoms might suggest tumour of the quadrigeminal region. He considered the barbiturates safe and valuable drugs, and had not found any ill results from controlled medicinal administration. They might, however, be very dangerous where vitality was low and oxidation processes slow, and would therefore be absolutely contraindicated in pneumonia.

Dr. HAROLD SIMMONS (Bournemouth) said that from the point of view of general practice the relief of immediate symptoms was a preliminary necessity. Hypnotics were therefore often necessary as a first-aid measure. For nerve-racked patients he used bromide combined with some tasteless form of valerian, often replaced by small doses of luminal or chloralamide. Barbiturates, however, were usually needed to obtain sleep. The doctor's place as confidant often enabled great psychological help to be given by a general practitioner. In thirty-five years' experience he had never seen a case of habit from the use of barbiturates.

Dr. MARGARET VIVIAN (Bournemouth) stated that her experiences in her own nursing home for mental patients was that narcotics should be regarded as emergency measures and not as remedies likely to lead to cure. Of all forms of restraint drug restraint was the least desirable. Patients suffering from serious insomnia were never easy to deal with. Drug addicts suffering from withdrawal symptoms were also a very grave problem. Dr. Modinos in Egypt had treated such cases by auto-serotherapy: that is, he blistered the patient and re-injected the blister fluid. She had had a dramatic success with a doctor who was a morphine addict. This might also prove a valuable treatment for alcoholism. Dr. EDGAR MARTIN (Salisbury) thought that, although narcotics multiplied, sufferers from mental illness were increasing. It was not the drug that was to be considered but the use made of it. Each patient must be considered individually and the narcotics carefully chosen to suit individual needs. Dr. R. EAGER (Exminster) spoke of the lack of guidance in the use of narcotics which existed even to-day. Paraldehyde, for example, was given in some 90 per cent. of cases in mental hospitals in this country because it was regarded as safe and non-habit-forming. Its excretion through the lungs, however, made it a dangerous irritant of the mucous membrane. Attention to general health and to the way in which the day was spent by the wise use of occupation therapy, which was greatly encouraged in his own hospital, should go far to remove the necessity of narcotics for mental patients.

Sir ROBERT ARMSTRONG-JONES referred to the essential need for sleep, and stressed the danger of noise to the nervous system. Dr. T. A. WILLIAMS (Bordighera) mentioned Pavlov's definition of sleep as an inhibition. It was a form of escape from exhaustion. It was important otherwise would lead to exhaustion. It was important to remember this when dealing with cases of insomnia. He stressed the psychological factor, especially anxiety. He stressed the importance of a full inquiry into all the circumstances of the child's life. Psychological difficulties could not be cured by drugs alone. The results of the experiment he had carried out with Dr. Mary Barkas, at the Maudsley Hospital, on the treatment of dementia praecox by prolonged narcosis with somnifaine had been very disappointing. Dr. EDWARD MAPOTHER said that he had tried morphine on depressed and melancholic patients with unsatisfactory results. Somnifaine was useful on

account of its persistent effects, but it was of considerable danger when used to produce twilight sleep. Dr. DORIS ODLUM (Bournemouth) stressed the value of ammoniated tincture of valerian as an adjuvant to bromide, especially in the treatment of the psychoneuroses. She had found that the ordinary B.P. drug was more effective than the proprietary odourless preparations.

Lord HORDER, summing up, agreed that the adolescent was better for too much sleep rather than too little, but after the age of 20 over-sleeping was nothing but a bad habit, and represented an attempt to escape from the realities of life; it should be resisted strenuously. Daylight saving ought not to interfere with the sleep of children merely from the point of view of going to bed by daylight. Darkness should not be essential to sleep. In regard to Leduc's treatment by the galvanic current, he thought the effects might be largely attributed to suggestion, but if it succeeded in soothing the patient it was by no means to be despised on that account.

SECTION OF ANAESTHETICS Wednesday, July 25th

CLOSED ANAESTHESIA WITH CO₂ ABSORPTION
With Dr. C. F. HADFIELD, President of the Section, in the chair, Dr. W. B. PRIMROSE (Glasgow) opened a discussion on closed anaesthesia with CO₂ absorption. Dr. Primrose described a single-phase apparatus known as the anaesthetor M.7, in which expired carbon dioxide is absorbed by a solution of caustic soda and the essential feature of this system, he said, was the necessity for obtaining a gas-tight joint between the apparatus and the patient. This was effected by means of a pharyngeal tube carrying an inflatable rubber collar at its distal extremity. There was no necessity for proportioning the percentage of gases accurately, and oxygen was therefore supplied direct to the patient as his condition demanded. The apparatus was compact and light, easily handled, and simply constructed: there were no fine adjustments to become deranged. The working costs were the lowest possible, as the consumption of anaesthetic gas was independent of the duration of anaesthesia.

Dr. T. A. B. HARRIS gave an account of a two-phase apparatus in which carbon dioxide was absorbed by soda-lime incorporating a colour indicator. Anaesthetic gases were inspired from and expired into a bag fitted with a lever system, so that any predetermined pressure could be kept at a constant level. In this way the depth of anaesthesia could be automatically maintained. Dr. Harris believed that the absorption of carbon dioxide in a closed system of anaesthesia constituted a means of employing three physiological principles: (1) oxygen regulation based on the metabolic requirements of the patient; (2) the control of alveolar air; and (3) a regulating its partial pressure in alveolar air. He considered that the dead space should be as small as possible, and consequently he favoured a two-phase system. He considered that the dead space should be as small as possible, and consequently he favoured a two-phase system. He considered that the dead space should be as small as possible, and consequently he favoured a two-phase system.

Dr. FRANKIS EVANS, in an account of a two-phase apparatus designed as far as possible from standardized parts, said that soda-lime was employed in order to absorb carbon dioxide. He had found the proportion of this gas in the bag to be 0.45 per cent. after one hour, 1 per cent. after two hours, and 2 per cent. after three and a half hours' anaesthesia. Dr. Evans considered that, when using the single-tube method, the tube connecting the patient to the absorber should not exceed eight inches in length, otherwise the dead space constituted a decidedly adverse effect. In this respect he disagreed with Dr. Primrose. Apart from economy in use, carbon

THE SECTIONS: SUMMARY OF PROCEEDINGS

[THE BRITISH
MEDICAL JOURNAL]SECTION OF PATHOLOGY, BACTERIOLOGY,
AND BIOCHEMISTRY

Wednesday, July 25th

PATHOLOGY OF CORONARY OCCLUSION

With Professor JOHN S. YOUNG (Belfast), a vice-president, in the chair, Dr. R. T. GRANT opened a discussion on the pathology of occlusion of the coronary arteries.

Dr. Grant said that atheroma and thrombosis stood first as causes of coronary occlusion. The general factors in atheroma were advancing years and hypertension. It was difficult to say exactly how important hypertension was. In Levine's series 40 per cent. were known to have had hypertension and 4 per cent. were known not to have had it; no evidence was available in 56 per cent. Coarctation of the aorta caused hypertension from birth, and in each of three cases Lewis found atheroma and in one myocardial infarction. Abbott, however, in 200 cases did not record any such association. Animal experiments had given little help, and at present hypertension must be regarded merely as an intensifying factor in atheroma. The importance of diabetes had been established, though the mechanism was obscure. The significance of local factors in causation was suggested by the irregular distribution and favouring of certain sites. Necropsy findings did not support the view that the incidence of atheroma in the coronary arteries was exceptionally high. The incidence in the coronaries was highest about the origin of the anterior descending branch of the left coronary. There was little definite knowledge concerning thrombosis, but the chief factor was a diseased vessel. As a rule, the more severe the atheroma the greater was the risk of thrombosis, but there were many exceptions. If occlusion was slow, atrophy occurred and gradual fibrosis; if it was rapid, there was acute necrosis, also followed by fibrosis. It was difficult to offer any explanation but spasm for the occasional cases in which at necropsy no complete obstruction was found. A possible alternative was that, where the vessel was already narrowed, necrosis might be produced by reduction of blood supply from external causes, such as myocardial failure or reduction in blood pressure from haemorrhage. In rabbits acute anaemia combined with work on a treadmill could cause necrosis of the myocardium. Dr. Grant then discussed the cases of gradual coronary occlusion in which the myocardium survived. Here, he said, there must be an alternative supply. He explained the difficulties in accepting the view that thebesian vessels might nourish the myocardium, and suggested that more attention might be paid to the possibilities of other anastomotic channels, such as branches of the internal mammary and bronchial arteries and the vasa vasorum of aorta and pulmonary artery. Professor J. B. DUGUID (Cardiff) put forward the view that arterial degenerations tended to widen the arteries rather than to narrow them. He claimed that ordinary histological preparations did not give a true picture of the size of the artery in life. The wrinkling of the elastic lamina in histological sections supported this contention. It had been shown by Dr. C. V. Harrison that perfusion with sodium fluoride solution enabled one to study arteries in a more natural state. Professor Duguid showed slides of a perfused and an unperfused kidney from the same patient. The dilatation of an artery with each pulse wave was passive, and its contraction an elastic recoil; the latter failed in degenerate vessels. The elasticity and the post-mortem contraction of the vessel depended on the integrity of the media, while atheroma was a lesion of the intima. The evidence of any association between coronary atheroma and myocardial disease was slender.

Dr. GEOFFREY BOURNE recognized two main factors in the causation of coronary thrombosis—local disease and a tendency to thrombosis. Most cases of coronary atheroma never developed thrombosis, and therefore general factors must be important. He described two cases in which coronary thrombosis was associated with thrombosis of the retinal artery, and found two

dioxide absorption had the following advantages: no smell of ether in the theatre; rapid induction, recovery, and control; and extreme portability. The patient experienced less heat loss, and was guarded from bacterial infections of the respiratory tract. A well-fitting face-piece was preferable to a pharyngeal tube.

The PRESIDENT stated that experiments conducted some time ago showed that the amount of carbon monoxide present in nitrous oxide was negligible. He pleaded for care in the use of a Clausen harness. Dr. W. J. PHILLIPS (Newcastle-upon-Tyne) expressed a preference for endotracheal anaesthesia. He inquired if closed anaesthesia in conjunction with an endotracheal tube was feasible. Dr. BRENNAN (Manchester) thought that Dr. Primrose's pharyngeal tube showed no advantage over an endotracheal tube.

Dr. PRIMROSE, in reply, said that in his apparatus provision was made for lessening the dead space. The apparatus was expensive. As premedication he recommended the use of omnopon 1/3 grain without atropine or scopolamine. He had never had difficulty with the airway. Both Dr. Harris and Dr. Evans stated that they did not hesitate to use an endotracheal tube with this method of anaesthesia.

SODIUM EVIPAN

Dr. H. J. A. SIMMONS (Bournemouth), in a paper based on his experience of sodium evipan in 100 cases, said that one of the great advantages of this drug was the rapidity of induction; in the majority of cases amnesia was such that the patient remembered nothing after the insertion of the needle. The method employed was to inject the solution at a standardized rate with the patient counting; the total dose was double the amount given at the time the patient ceased to count, and in practice was nearly 10 c.cm. for an adult. He had observed that after induction with sodium evipan the amount of ether necessary to maintain relaxation was remarkably small. He had used this drug with success in obstetrical, dental, orthopaedic, and ophthalmic work; in the latter, the absence of vomiting was a great advantage. He had given sodium evipan in small doses with success in psychological cases which were resistant to suggestion. Regarding premedication, he was not impressed by the use of morphine or its derivatives in this connexion. In one case, after the subsequent administration of 7 c.cm. of sodium evipan solution to a young and healthy girl, it was necessary to give carbon dioxide and oxygen for over two hours, in addition to other stimulants, in order to resuscitate the patient.

The PRESIDENT did not advocate the use of sodium evipan in midwifery. Dr. EVANS thought the employment of morphine and its derivatives as a premedicament for sodium evipan was not without danger. He asked if Dr. Simmons had met with any cases of post-operative liver damage. Dr. R. K. FOULKES (Exeter) was of the opinion that premedications should be given with caution in all forms of basal anaesthesia. Dr. J. BECKETT (Dublin) regarded sodium evipan as uncertain in its action. For dental work he believed that this drug should not be administered to a patient in a dental chair. Dr. E. W. STRANGE (Wolverhampton) stated that he had used sodium evipan as an anaesthetic for thoracic surgery. Dr. BRENNAN (Manchester) had had no trouble with this drug. Dr. J. C. A. NORMAN (Broadstone) had given 7 c.cm. of the anaesthetic in midwifery, and had experienced no difficulty. Dr. O'DOWD (Birmingham) asked if there was a remedy for the excitement which was prone to follow the administration of sodium evipan. In his experience many cases were uncontrollable for some hours afterwards. Dr. FALKNER HILL (Manchester) believed that the drug should be employed with caution.

Dr. SIMMONS, in reply, said that he did not advocate the use of sodium evipan in the dental chair. He had found morphine useful for post-operative restlessness. He was convinced that the drug was a respiratory depressant.

Dr. RONALD JARMAN showed a film demonstrating the technique of administering sodium evipan.

THE SECTIONS: SUMMARY OF PROCEEDINGS

Aug. 4, 1934]

cases in the literature in which there was associated thrombosis elsewhere—in one instance a symptomless left subclavian thrombosis. The absence of symptoms in the last case suggested that the association might be found to be more frequent if it were searched for. Dr. Bourne pleaded for the discontinuance of the term angina pectoris, and for the classification of cases as coronary thrombosis, angina of effort, and spasmodic angina. The angina of the first had been determined. The angina of effort showed a constant relation between pain and effort which was probably due to the narrowing of the coronary artery. Post-mortem findings in such cases needed investigation. There appeared to be a further factor in spasmodic asthma. Two or three anginal attacks a day might occur for years, and these could not all be due to thromboses. A spasmodic theory was debatable, but could not at present be ruled out.

Dr. T. F. COTTON dealt with the pathological relations of pain, dyspnoea, and syncope in coronary occlusion. Pain was due to inadequate blood supply to the myocardium. The pain of sudden occlusion was characteristic; its severity bore no necessary relation to prognosis, which remained uncertain for three weeks. Many patients survived and became anginal subjects, and one-third of anginal cases gave a history of coronary occlusion. Anginal cases might have no serious consequences, or angina might follow years later. Prolonged pain was very suggestive of occlusion. Vaso-constriction was also a cause of pain. Functional vaso-constriction, which was a common give rise to ventricular fibrillation, which was a common cause of death in angina. Vaso-constriction and occlusion were distinguished by their response to nitroglycerin. Ischaemia from occlusion might cause any type of arrhythmia. Dr. Cotton described a case of auricular fibrillation following angina, in which an aneurysmal dilatation of the right auricle suggested that there had been obstruction of the blood supply to the pain, and that breathlessness often developed with the pain. Dyspnoea without pain was a symptom of heart failure. In some cases breathlessness had the features of asthma; there was pulmonary congestion without congestion of systemic veins, and the breathlessness was perhaps due to left ventricular failure. Syncope following occlusion might be difficult to distinguish from shock due to other causes, while biliary colic might be difficult to distinguish from coronary thrombosis. The syncope of the latter was from coronary thrombosis. Dr. A. S. STRACHAN (Johannesburg) described a case supporting Dr. Bourne's views in which at necropsy, in addition to the renal arteries, and thrombosis was found in the aorta, the renal arteries, and in practically every organ. In Johannesburg atheroma was found at a relatively early age, usually associated with calcification. The incidence of calcification of interest in view of the excess of sunshine and of calcium in the water in Johannesburg. The high incidence found among Jews suggested a dietary factor, and Dr. Strachan had found only two cases of coronary thrombosis in 2,000 native necropsies. Dr. W. N. LEAK (Winsford) inquired as to the possibility of anticipating the thrombosis, and as to the time relation of the pain and minutes of onset in a case seen within five minutes of the thrombosis. He described a case seen within five minutes of the thrombosis, which a cardiac stimulant appeared to have aborted an attack. Dr. S. S. SEZMAN described cases of coronary thrombosis with a history of previous attacks of temporary blindness from vascular spasm. This suggested that spasm might also be a factor in causing the myocardial infarction. Dr. H. McPHERDAN (Toronto) drew attention to cases of syncope without pain, proved to be due to coronary occlusion. He stressed the importance of the teeth—as a causal factor, and described a case of cholelithiasis simulating myocardial infarction.

Dr. GRANT, in reply, put forward some criticisms of Professor Duguid's theories. He maintained that there was much evidence to support the current view that the lumen of atheromatous vessels was narrowed. In reply to Dr. Leak, he expressed the view that the onset of cardiac pain meant that thrombosis was already complete.

PATHOLOGICAL BASIS OF SPLENIC ANAEMIA
Dr. J. McMICHAEL, in a paper on the pathological basis of splenic anaemia, said that out of ninety-six cases sixty-two fell into the category of hepato-lienal fibrosis. He showed a series of photomicrographs illustrating the development of siderotic nodules in this condition; the nodules were present in 46 per cent. of the cases.

SECTION OF RADIOLOGY AND ELECTROTHERAPEUTICS
Wednesday, July 25th

TREATMENT OF GENITO-URINARY DISEASES

Dr. W. J. TURRELL (Oxford) opened a discussion on electrotherapy in the treatment of diseases of the genito-urinary system, the President, Dr. DOUGLAS WEBSTER, being in the chair. Dr. Turrell's paper appeared in full in the *Journal* of July 28th (p. 160).

Dr. F. HOWARD HUMPHRIS, speaking on electrical treatment of the enlarged prostate, said that the increasing incidence of prostatic enlargement was the main reason why he pressed the claims of a method which had existed for thirty years. The static wave current acted mechanically, and stimulated the prostatic muscle. After describing the technique of the method, X-ray treatment, and the efficacy of the method, gave good results, and it was neglected in this country, that such treatment made subsequent prostatectomy more difficult. X-ray therapy was in his opinion untrue that such treatment, where there was much residual urine, and when cystitis or renal contraindications were present. Diathermy treatment was invaluable in prostatitis because it destroyed the organism *in situ*, and it should be continued until the secretion was sterile. It was not suggested that prostatectomy should be superseded by physiotherapy, but that a combination of these electrotherapeutic measures was adequate in many cases. Dr. D. D. MALPAS (Bournemouth) agreed that there was little evidence of increased difficulty in prostatectomy after X-ray treatment. Dr. AGNES SAVILL, speaking of pruritus and eczema vulvae, stressed the importance of the existence of discharge which might be due either to cervical, uterine, or tubal infection. Ionization should be employed for cervical and uterine infection, and diathermy for pelvic inflammation. Dr. Savill described the technique, and instanced several cases. Dr. G. B. BATTEN (Dulwich) contributed to the discussion, quoting the work of Dr. Justina Wilson on the destruction of organisms by diathermic means.

Dr. TURRELL, in reply, demonstrated the use of diathermy by means of diagrams of Leyden jars. Dr. A. J. DURDEN SMITH, in a paper on the use of radium in carcinoma of the bladder, referred to the divergent views held by urologists about radium treatment, and said that it should now be possible to come to definite conclusions as to its efficacy. It must be admitted that surgical results were not good, and that radium had a great deal to offer. After reviewing early methods of treatment, the advantages of radon seeds were discussed. The speaker described methods of interstitial radiation by the suprapubic route, and by the cystoscopic method, stressing the limitations in operable cases. Dr. Durden Smith referred to the use of radium in the inoperable group—results of excision in operable cases—and quoted which formed 60 per cent. of the cases—and quoted three-year results in a series of cases treated at the Radium Institute, London, and at other centres. The sequelae of radium treatment were sometimes, but not always severe. Experience showed that operable infiltrating growths should be excised, but that the use of radium was resulting in a large measure of success in the treatment of case, and especially in papillary carcinoma. Described a technique for treatment of epithelioma of the penis by surface application. The results in ten cases, after a period of nearly two years, showed that in nine cases the patients

were alive and well, and five of these after radium treatment alone. In carcinoma of the bladder he thought that adequate treatment by the suprapubic route at the Manchester Radium Institute were very encouraging. Dr. ROY WARD said that radium treatment in carcinoma of the penis was the method of choice in carefully selected cases. Either surface or interstitial radiation could be used, and retention of urine was a rare complication. In carcinoma of the prostate, interstitial irradiation was the method of choice, and palliative relief was considerable in a large proportion of cases. Dr. WARD quoted results in treatment in both diseases treated at the Radium Institute, London, since 1929. Dr. DURDEN SMITH, in connexion with Dr. HUTCHISON's paper, asked why subsequent amputation was necessary in four of his cases of carcinoma of the penis. Dr. HUTCHISON replied that two were recurrent after radium treatment, and two were in a condition of post-radiation necrosis. Mr. BERNARD WARD (Birmingham) confessed that he was disappointed that the radium treatment of carcinoma of the prostate did not give better results. He had himself used all methods of radium treatment, and had found none satisfactory.

Dr. DURDEN SMITH, in reply, agreed with Dr. Hutchison that the cytoscopic method of radium treatment of bladder cancer was not ideal, and that further advances would come by the employment of the suprapubic route. Dr. G. HARRISON ORTON read a paper on *x-ray treatment of the genito-urinary system*. He first defined the unit skin dose given by him—a dose which was 25 per cent. less than that used by many. He then described various *x-ray* therapeutic methods—the fractional dose, the single massive dose, the saturation method, and Coutard's technique. Of these the split dose was, in his opinion, the best in the largest number of cases. Most radiologists assumed that the hardest possible ray should be employed in treatment, but he doubted whether the quality of the ray was as important as the fact that a more uniform depth dose was possible. In malignant disease of the kidneys *x-ray* therapy sometimes made matters better temporarily in inoperable or recurrent cases. In bladder carcinoma the results were disappointing. Simple enlargement of the prostate was often improved by treatment in suitable cases. Malignant disease of the prostate was often alleviated temporarily, but relapse was usually early. Urinary infection might be aggravated by *x-ray* therapy. Testicular growths should be removed surgically, and *x-ray* therapy reserved for carcinoma of glands. Tuberculous epididymitis should be treated with doses of *x* rays. Dr. Harrison Orton thought that both radium and *x* rays should be employed in carcinoma of the cervix, *x* rays being preferable, given six weeks before radium. In carcinoma of the uterine body *x* rays were superior to radium, and remarkable results had been obtained in many ovarian growths. Describing the treatment of menorrhagia, the speaker said that, as a sterilization dose he gave 40 per cent. of the skin erythema dose to each ovary. In certain types of sterility and amenorrhoea small doses of *x* rays had proved successful in Hospital. Carcinoma of the vulva should be treated by radium, and *x-ray* treatment given to the inguinal glands.

Dr. S. L. MUCKLOW (Cheltenham) said that his experience of *x-ray* treatment of enlarged prostate was more favourable than that of Dr. Harrison Orton. He described in detail the technique used by himself and Dr. Curtis Webb, the results of which had been satisfactory in 80 per cent. of cases. *X-ray* therapy was indicated in all early cases and in those without much residual urine or marked intravesical enlargement. Dr. BATTEN said that he did not think that two or three ounces of residual urine was very important as a contraindication to treatment. The PRESIDENT, referring to Coutard's technique, said that Coutard had never seen late necrosis after the epidermicidal dose, and that this must be a matter of technique. He himself had employed the massive dose method once, but had then given it up on account of the

marked constitutional disturbance. There was still much to be discovered about radiation treatment. It was difficult to explain why, for instance, extensive skin deposits of breast carcinoma should disappear after small doses of *x* rays had been applied to the whole body. He was trying out Todd's method of intravenous sulphur and selenium followed by *x-ray* therapy, and it seemed that better results were being obtained than by radiation alone. In prostatic enlargement it was important to follow up all cases treated by *x* rays, and 90 per cent. of the full dose should be given to such cases. Dr. ORTON, in reply, said that he was interested in Coutard's assertion that less fibrosis was induced by his technique. As for the use of sulphur and selenium, many such substances had been employed during recent years, and he personally was not yet convinced of their value.

SECTION OF OTO-RHINO-LARYNGOLOGY Wednesday, July 25th

MUCO-PURULENT TUBO-TYMPANIC INFECTION
With Mr. J. S. FRASER (Edinburgh), the President, in the chair, Mr. RITCHIE RODGER (Hull) opened a discussion on muco-purulent tubo-tympanic infection.

Mr. Rodger said that the question whether a middle-ear infection would be confined to the anterior part of the tympanic cavity might depend on the causative germ. There were three types of mucosa in different parts of the middle ear, and it was well known that certain organisms showed a predilection for certain types of epithelium. The virulence of the organism, no matter what its type, might also determine whether the otitis media was going to be of the mild anterior or the severe posterior type. Again, the Eustachian tube itself might suffer so badly that it remained a source of serious infection. But, in his opinion, the chief causes of tubo-tympanic infection were to be found in the nasopharynx and its adnexa. Adenoids in children and sinus infection in adults were the most frequent contributing factors.

Mr. C. P. WILSON recognized two entirely different conditions—mucoid and muco-purulent. The former was associated with (a) a generalized catarrhal condition, and should be treated "generally"—that is, by dietetics, vitamins, and reduction of carbohydrates; and (b) a localized catarrhal hypertrophy necessitating local operative measures. The muco-purulent variety was associated with nasopharyngeal sepsis, antral or ethmoidal infection, or infection of air cells situated in the anterior end of the tympanic cavity, which necessitated various forms of conservative treatment or even a radical mastoid operation. Mr. E. B. WAGGETT confined his remarks to cases in the adult of chronic muco-purulent discharge in the absence of attic and mastoid infection. He did not agree with the opener that these cases were kept up by causes situated below the Eustachian tube. Marked and even complete nasal obstruction was commonly found without any aural catarrh. Concomitant acute infections of the sinuses and of the ear were frequent, and if neglected might go on to chronicity. Numberless cases of chronic sinusitis existed, however, without any middle-ear complication, although a pus stream could be detected in close proximity to the Eustachian tube. He advised intratympanic syringing, which brought away masses of opaque debris besides muco-pus. Mr. Waggett stated that it was the trypsin produced by the disintegration of the pus cells which destroyed the ciliated epithelium.

Sir JAMES DUNDAS-GRANT recommended in obstinate cases treatment through the Eustachian tube—for example, the inflation of a few drops of 1/2 or 1 per cent. chloride of zinc solution through the catheter, or, if the perforation was large, the injection of a weak Liel intratympanic tube until it dropped out of the meatus. The recognition of the essentially tubal origin of the chronic discharge and the appropriate treatment might save unnecessary mastoid operations. Mr. M. VLASTO considered the term "infection" as inappropriate. He

AUG. 4, 1934]

favoured the French view that the condition was a blennorrhoea of the Eustachian tube; and that inasmuch as the condition was an infirmity and not a disease, and was damaging neither to the life nor to the health of the patient, it could quite well be left to take care of itself. Mr. E. D. DAVIS recommended thorough cleansing of the tympanic cavity followed by dry treatment. Mr. HERBERT TILLEY agreed that chronic tubo-tympanic catarrh was a low-grade infection derived from the nasopharyngeal regions. The essential in treatment was free drainage through the Eustachian tube, and this might often be improved by the occasional passage of a fine Eustachian bougie. Mr. T. B. JOHNSON said that in his opinion the persistence of the catarrh in spite of treatment was due to infection of the Eustachian tube alone. He quoted A. McCALL (Bournemouth) drew attention to the importance of suction in treating this condition. He quoted cases where polypi had been sucked through the perforations and had subsequently healed. Dr. STEWART considered that the condition was usually due to some nasal abnormality; he disagreed with Mr. Waggett's conclusions.

FOCAL INFECTION AS A PROBLEM FOR THE LARYNGOLOGIST

Mr. A. J. M. WRIGHT (Bristol) opened the discussion on this subject with the paper printed in last week's *Journal* at page 158.

Mr. HERBERT TILLEY had come to the conclusion that the correct definition of a septic tonsil was that given by Professor Hajek—namely, that a chronic septic tonsil was one that was subject to frequent attacks of tonsillitis. The fact that secretion could be expressed from a tonsil was no indication for its removal. Professor H. S. BIRKETT (Montreal) said that he admired the surgeon who had the force of character to say "No" when the practitioner urged removal of a patient's tonsils. He thought it was the present position upon us. Mr. T. H. JUST stated that, in his opinion, many cases of acute nephritis or subacute otitis media. Mr. C. A. SCOTT RHOUD (Portsmouth) considered that some such definition as Mr. Tilley's of a septic tonsil seemed necessary, because work in hospital was becoming overburdened by the large number of cases for tonsillectomy sent up by the physicians.

SECTION OF OPHTHALMOLOGY

Wednesday, July 25th

HEADACHES

With the President, Mr. LESLIE PATON, in the chair, Mr. A. D. GRIFFITH opened a discussion on headaches.

Speaking as an ophthalmologist, he said he found that 24 per cent. of his patients came to him for this symptom. In deciding whether a headache was of ocular origin the site and time of onset were of importance. Ocular headache was rarely temporal, and very seldom vertical, and only exceptionally did it develop other than towards the end of the day. Excessive accommodation was the usual mechanism for the production of error. Astigmatism, by inducing an unequal degree of contraction of the ciliary muscle, was another common factor. Whether illumination also played a part was an open question. Mr. Griffith held that, in attending to imbalance of the extraocular muscles, over-correction was a real pitfall. An uncommon source of headache was to be found in the occipital region from the pull on the occipital muscles through the frontales when patients habitually screwed up their eyes.

In the absence of Dr. Wilfred Harris the President summarized the contribution the former was to have made on the neurological aspect of the subject. Dr. HARRIS held that the conceptions that headache was due to a rise in intracranial pressure and that migraine was due

to irritation of the recurrent meningeal nerves were open to doubt, though there was considerable clinical evidence in favour of the former. Sudden rise in intracranial pressure, owing to a localized or generalized lesion, was certainly productive of headache. Migraine could best be explained as a consequence of spasm and subsequent throbbing and dilatation of the vessels of the occipital cortex, a view supported by ophthalmoscopic investigation of the retinal vessels. True migraine had some form or other of sensory prodromal symptoms. Speaking of ocular headache, he quoted recent work on inequality of retinal images as a factor. A variety of purely ocular lesions, as also cerebral arteriosclerosis, easily revealed by ophthalmoscopic changes, might give rise to headache. In conclusion, he pointed out that the condition he had named maxillary sinusitis required recognition, as treatment on physical lines was useless.

Dr. C. WORSTER-DROUGHT contributed a paper from the point of view of the general physician. He said that out of 158 cases referred to him for headache seventy-eight were of migraine. In sixteen cerebral arteriopathy or hyperpiasis without nephritis was present; in another sixteen no cause could be found; while the remaining cases were due to a variety of causes; cerebral tumour, eight; occipito-cervical fibrositis, six; gastro-intestinal disorders, four; effect of head injury, four; high myopia, three; diabetes, three; sinusitis, three; spontaneous sub-arachnoid haemorrhage, three; and other conditions. He doubted whether refractive errors were a factor in migraine. Speaking of cerebral arteriopathy he stressed the value of ophthalmoscopic examination, as general evidence might be lacking owing to the localization of the vascular lesion. The diagnosis of cerebral tumours was generally aided more by papilloedema than by headache. He considered that there was a characteristic type of headache associated with high myopia properly corrected. It was fronto-occipital in distribution, was present on waking in the morning, and got worse as the day advanced. Accessory sinus disease was not an important factor in his experience. Mr. MAURICE SORSBY, speaking as an oto-laryngologist, emphasized the significance of sinusitis. The presence of the sinuses greatly enlarged the area of irritation, transmitted along the fifth nerve. Sinus naked mucosa. In chronic affections this became an area of irritation, classified as originating from: (1) pressure, (2) vacuum, and (3) chronic irritation. The first headaches could be classified as originating from: (1) pressure, (2) vacuum, and (3) chronic irritation. The first was seen typically in the acute conditions, especially when the ostium became blocked. Toxic absorption was then also a factor. Vacuum headache was quite uncommon. Headache due to chronic irritation might sometimes be diagnosed by lipiodol radiography showing up thickened mucosa in sinuses otherwise negative. A pathognomonic type of headache was seen in frontal sinusitis. Most other types had no special features, except their presence on waking in the morning. In treatment, apart from radical operations, irrigation by the Proetz method and anaesthetizing the sphenopalatine ganglion should be considered. In conclusion, Mr. Sorsby pointed out that while in rhinology headache was a symptom, in otology it was a danger signal of intracranial complications.

The PRESIDENT drew attention to the diagnostic value of cocaine spray in cases of suspected vacuum headache. He held that the reason why such patients complained of eye symptoms, especially after reading, was that the downward movement of the globes in near work exerted a pull on the trochlea and so on the floor of the frontal sinus. Speaking of auto-intoxication headaches, he drew the analogy of toxæmia seen in the experimental condition of Eck's fistula; auto-intoxication headaches were typically supraorbital. He held that the suboccipital headache had an anatomical basis in the distribution of the nuclei of the fifth nerve, as he had shown a few years before. He asked for the opinion of the neurologists as to the mechanism of headache after lumbar puncture. In his experience a headache of particularly grave significance was that seen in people under 40, with hypertension and soft retinal exudates. Speaking of migraine from personal experience, he held that there was no true migraine except in which prodromal symptoms, and that vomiting was its work, associated with a special type. Mr. STENHOUSE

SECTION OF BALNEOLOGY AND CLIMATOLOGY
Wednesday, July 25th
British and Foreign Health
the President, Dr. E. P. POULTON
E. P. POULTON
Advantages

BRITISH AND FOREIGN HEALTH RESORTS
President, Dr. F. G. THOMSON
Poulton opened a discussion
of British and Foreign
health classification and the

Dr. F. G. THOMSON, in the chair, Dr. Poulton opened a discussion on "The Relative Advantages of British and Foreign Health Resorts." Dr. Poulton classified health resorts into (1) spas, (2) resorts at the seaside, and (3) resorts inland. He emphasized the over-scepticism of the medical profession in matters of environment and climatic influences, both tangible and intangible, and their physiological effect on the human body, and quoted in support of this view certain interesting experiments carried out recently by Dr. Poulton enumerated the desiderata of these three types of resort, both from the medical and the social points of view, and stressed the importance of the British Health Resorts Association as a medium whereby the needs of the public might be correlated from both aspects. Reviewing known facts of the "tonic" climate and the "relaxing" type of climate, he referred to the experiments into the factors determining these, the exception of Bath all British spas belonged to the former category; this was of significance, he said, after treatment, he referred to the necessity for necessary substitution of the necessary factors.

...or "relaxing" "tonic" climate and the
Hill's experiments into the factors determining these. Reviewing
the former category; this was of significance in so far as
patients could, after treatment, return direct to their
work without the necessity for the "after-cure" period
generally necessary subsequent to a visit to a foreign spa.
The fact that England possessed no mountain climate
which was available medically was a legitimate indication
for treatment abroad. Dr. Poulton next spoke of the
place of sea bathing in medical treatment, and stated
that it would seem, as the result of certain researches,
at the seaside might vie with the mountains as a blood-
generating agent: further accurate investigations on
lthy subjects were needed. It was desirable, he con-
sidered, that any municipality intending to introduce
cal baths should put their plans before a medical
committee in order that sole control might not
nents, as was at present the case in certain resorts.
In conclusion, Dr. Poulton stressed the need for
the teaching of a non-obligatory nature in
climatology and medical hydrology.
at these subjects should be
of physical medicine should
to be given.

...the apt to be somewhat overlooked, owing to the
that Coates (Bath) continued the discussion
dermicid/INCENT reference to inland spas. He contrasted the
technique. method once, the attitude of the medical profession towards

Dr. GEOFFREY HOLMES (Harrogate) stated that no central body in this country had sufficient funds to acquire the influence and importance of such bodies abroad. The pioneer efforts of the British Health Resorts Association as an unbiased medical body deserved the highest praise. The question of specialization depended upon two factors: (1) natural facilities, and (2) specialisation acquired by certain people in certain districts (e.g. of Nauheim). The general practitioner was in the position of a dilettante in the matter of specialisation with his patients, whereas the specialist was a dilettante in the matter of general practice.

The President invited discussion on health resorts.

Dr. HOLMES said, was

JOHNSON SMYTH

Dr. POULTON

Dr. COLLIS

Cox stated that the B. M. S. had present

Dr. VINCENT COATES thought it was a hand at all but first-class research for rest in rheumatic persons and by institutions. This was happening too frequently, merely for purposes of propaganda, both by Dr. E. P. POULTON, in reply, put the following of instruction to the meeting: "That regular be instituted in climatology and the University of Graduate Medicine granted."

The Ministry of Health has received the report of the county borough council on the subject of the proposed regular post-graduate courses in pathology and medical hydrology should be granted after examination." This was seconded by Dr. W. S. C. COPEMAN, and supported by several members present.

The Ministry of Health has forwarded to county and county borough councils in England and Wales copies of the report of a committee which was set up in 1931 by the Public Health Congress to explore the possibilities of the standardization of hospital equipment in this country. The more general aspects of the matter have also been dealt with in a report made by a committee on Standardization and Simplification of Requirements of Local Authorities, set up on the Minister's initiative by the Association of Local Authorities. This report will shortly be published through H.M. Stationery Office, and the Minister invites the attention of local authorities to the suggestions which it contains.

HEALTH VISITING IN AMERICA

HEALTH VISITING IN AMERICA

A NATIONAL SURVEY

Public health nursing in the United States took formal shape in 1912 with the coming into being of the national organization for that purpose. There are now in the U.S.A. some 5,000 agencies engaged in this work. They employ 20,000 nurses, as contrasted with 3,000 before 1912. Numerically, therefore, there has been a large expansion in the course of some twenty years. The expression "public health nursing" as used in America includes both morbidity and preventive services, or sick nursing and health visiting, as we should say in England. A survey of the present position has been carried out lately by the national organization with the aid of a grant from the Commonwealth Fund. Their report is now issued.¹

SCOPE OF THE REPORT

The field of investigation of the report is constituted by fifty-seven agencies in selected communities. Of these agencies twenty-one were voluntary nursing associations, eighteen were public health local authorities, and eighteen were local education authorities. Omitting the education authorities, which deal with a special group of the population, the services rendered by the voluntary associations and the local authorities are classified as: pre-natal care, post-partum care, infant supervision, pre-school child supervision, sick nursing, tuberculosis prevention, venereal disease prevention, infectious disease prevention, and conduct of labour. Of the voluntary associations 100 per cent. gave pre-natal care, 95 per cent. post-partum care, and sick nursing, and 52 per cent. infant supervision. Less than 50 per cent. provided the remaining services, but among these 38 per cent. undertook the conduct of labour. Of the local authorities 94 per cent. gave pre-natal care, 72 per cent. post-partum care, 83 per cent. infant supervision and pre-school child supervision, 61 per cent. tuberculosis prevention, 72 per cent. pre-natal care, and 61 per cent. post-partum care, venereal disease prevention, and infectious disease prevention. Twenty-eight per cent. offered sick nursing, but none undertook the conduct of labour. Considerable disparity is thus shown to exist in the commitments of the various agencies, and also, by comparison with this country, an apparent general narrowing of the fields of activity of local authorities.

PERSONNEL

Much of the substance of the report is concerned with questions relating to the quality of the nursing personnel—probably the most important single factor in determining the efficiency of any nursing service. All the ordinary nurses under the agencies regarding which information was obtained were registered State nurses, and only 25 per cent. had any experience of public health work before taking up duty. This means that in most cases a nurse entering the service of an agency itself. Where the agency possesses a staff qualified to teach, organizes adequate courses, and causes time to be made available for attendance upon them, the untrained nurses joining it may, by due diligence, reach an efficient standard. These conditions, however, do not appear to be fulfilled by most of the agencies. The arrangements made by them for teaching after appointment are described as "quite inadequate." The report notes further that the voluntary associations are meeting the problem better than the local health authorities or education authorities. It recognizes that such teaching after appointment must be the chief source of professional education for public health nursing in America, and one of its major recommendations is that every nursing agency should institute and maintain adequate educational courses.

¹ *Survey of Public Health Nursing: Administration and Practice*. By the National Organization for Public Health Nursing. New York: The Commonwealth Fund. London: H. Milford, Oxford University Press, 1934. (Pp. 282. 8s. 6d. net.)

NEED FOR CO-OPERATION

It is recommended also that nursing services should be at the disposal, not of the indigent only, but of the whole community, and to that end that it should be publicly announced in areas that the services are "available, at cost," to all who need them. It is urged, too, that every effort should be made to secure the good will and co-operation of the medical profession by establishing definite working relationships both with individual physicians and with organized medical groups. It is suggested that the voluntary agencies are focusing too narrowly on sick nursing, though some are creating members of the family health service for the conduct of labour the report recognizes that it is an expensive service and difficult to administer. Nevertheless, it ranks "high in importance," and the advice is given that all voluntary associations should assume responsibility for it, providing it either through a hospital or on a domiciliary basis. To the English reader it will appear remarkable that this advice is not extended, or even restricted, to the local health authorities, none of whom appear in the field of investigation as undertaking delivery care. Final pronouncements of the report are that the family must be the social unit for health work, and that each community should work out its own comprehensive policy with a view to a fully adapted health service, recognizing that of such a service public health nursing forms an integral part.

From the general sense of the report the view may perhaps be hazarded that public health nursing in the United States has, in some respects, advanced less far along the path of evolution than the corresponding services in this country, since questions which have been settled here seem there to be still open. In face of a document so outspoken and so obviously written for home edification it would be ungenerous to stress any discrepancies between American and English practice, which in any case owing to the differing conditions prevailing otherwise in the two countries may be more apparent than real. The report stands self-commended for the care with which its data have been secured and the competence with which they have been presented.

CHEMICAL RESEARCH AND INDUSTRY

In his recent presidential address to the Society of Chemical Industry Dr. J. T. Dunn spoke of the expansion of that industry during the past half-century. One of the influences which raised it from a comparatively lifeless state to the creative activity of to-day was the growth, hastened by the harsh experiences of the war, of the idea that the industry should be conducted by a chemist, or that the chemist should be consulted as to its conduct. "We learned something from the German chemical industry as to the importance of the chemist," he said, "and now we have realized that the chemical industry cannot be static; we must constantly be making investigations into the possibilities of improvements and developments." All the industries of this country were now staffed with chemists, whose business was not merely to check supplies and products and carry out routine testing, but to search out improvements in processes and new directions for advance. Perhaps the most striking feature of the change that had taken place was the importance that was now attached to research. Research workers should be given a free hand, and not forced to concentrate on commercial and industrial investigations only. Some of the most vital improvements in industrial progress had been due to discoveries made in the first instance by men who were simply under the urge of inquiry into the working of nature, with no industrial end in view. It behoved those who conducted industry not to confine themselves to the straight path of "directed" research, but to encourage "fundamental" research by those of their staff who had a flair for it. It might not yield anything for a time, but at any moment it might bring forth fruit of all directions. The chemical industry had branched out in all directions so that there was hardly any aspect of daily life in which people did not come into contact with the chemist.

CORRESPONDENCE

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THE BRITISH
MEDICAL JOURNAL

Increased Mortality from Diabetes

SIR.—The article published in the *Journal* of July 28th (p. 175) under the above heading is likely to set many speculating on the cause or causes of the increase in question. We are told that

"diabetic mortality is increasing all over the civilized world. In the United States registration area it has advanced from twenty-seventh in rank in 1900 to ninth in 1932. In practically every European country there is a comparable increase, and countries of European descent, like New Zealand and Australia, share in it. . . . In England the recent death rates are the highest on record, that of 1931 being 29.5 per cent. higher than in 1925 and 45 per cent. higher than in 1920."

How are we to account for this widespread increase in diabetic mortality? Two outstanding causes at once suggest themselves: (1) the increased consumption of concentrated sugar, and (2) the increased "rush," stress, and strain of modern life.

It is, I believe, generally agreed that excessive indulgence in concentrated sugar, by exhausting the cells which secrete insulin, tends to engender diabetes (sugar, curiously enough, being in this respect more potent than starch). Now, with the significant exception of the temporary fall in sugar consumption and diabetic mortality consequent of the World War, the yearly consumption of sugar in America and in many European countries has tended to rise during the present century.

Statistics show that, while a placid, unexciting life is associated with a low diabetic death rate, a life of excitement and strain has the opposite effect: "The labourer and the manual worker have the lowest death rate; that of the professional man and the mental worker is much higher." Now excitement and nerve strain have enormously increased within recent years owing to the introduction of the motor vehicle, the cinema, the wireless, and the aeroplane, to say nothing of the telephone and the gramophone.

These two factors, then—the increased consumption of sugar and the increasing tension of modern life—seem well calculated to aggravate a diabetic tendency. As to the age factor, it is significant that the increase of diabetic mortality is limited to the later decades of life. Below the age of 45 the death rate among diabetics "has actually declined." Indeed, in young subjects it has fallen more than half. No doubt this lowered death rate in early life is the result of insulin treatment. It is not surprising that, since the introduction of insulin, the death rate should have risen considerably among the elderly and aged: insulin does not actually cure the disease diabetes; it facilitates the assimilation of sugar and enables a large number of diabetics to survive the age of 45, and thus increases the diabetic mortality thereafter. The recent phenomenal change in the sex mortality of diabetes presents a difficult problem. It seems that "some twenty years ago more men died from diabetes than women, and the death rate in males has risen very little. In women under 35 there is also no recent increase, but in later life a very substantial rise has taken place, until at the age of 65 the number of female deaths is twice that of males."

What has happened in the lives of women to account for this anomaly? Women nowadays lead more vivid and exciting lives than formerly, they bear fewer children, and they often smoke immoderately; but I do not know that any of these innovations throw much light on the dermic question.—I am, etc.,

method on, W. 1, July 29th.

HARRY CAMPBELL.

The Swab in Diphtheria Diagnosis

SIR.—How much longer is the swab to be relied upon in the diagnosis of faucial diphtheria? It is surely common knowledge that negative cultures are often obtained in severe and fatal cases, and there must be room for improvement in a method of diagnosis which may result in one patient being admitted to hospital in a moribund condition, while the next unfortunate, with a clean or slightly inflamed throat, is labelled "diphtheria".

Of the last forty fatal cases of diphtheria admitted here, twenty-four were sent in on purely clinical evidence. Of the other sixteen, the swab was positive in four and negative in twelve. I suggest that in every doubtful case either (1) the opinion should be obtained of someone familiar with the diphtheritic throat, or (2) the patient should be sent to hospital for observation. If neither course is possible, a swab may be taken provided that not less than 20,000 units of diphtheria antitoxin are given intramuscularly at the same time.

If the policy of swabbing every sore throat were abandoned in favour of one such as I have indicated, the gain would be infinitely greater than the loss.—I am, etc.,

Isolation Hospital, Romford, July 26th.

E. JAMES.

Syphilis and "Cure"

SIR.—Dr. Henry MacCormac's paper (*Journal*, July 21st, p. 99) raises, I think, a most important and always present question—the meaning of the word "cured" as applied to syphilis, especially with regard to patients who are discovered to have syphilis at a V.D. clinic, are warned as to the terrible disease that they are possessed of, and are more or less definitely promised that if they are good and continue treatment for two years they will be "cured."

Dr. MacCormac tells us that early syphilis is curable, and he informs us that he is using the word "cure" in its literal sense, and this because we possess specific remedies and a specific test. From this he goes on, I think, to prove very ably that early syphilis is not curable, and that the "specific" test is not specific. With regard to the Wassermann reaction, is it not a test for the presence in the body of a reaction against the specific disease syphilis, or other diseases giving this reaction, rather than a test for those specific diseases? This is not merely putting the same thing the other way round. It puts the syphilitic patient with a negative Wassermann into line with any patient suffering from some specific disease with the body so enfeebled that it is putting up no resistance against it.

Dr. MacCormac goes on to quote a case of relapse (No. 1163) which had had two full years of treatment and a persistently negative Wassermann; he says that this, of course, merely a discrepancy such that one might expect to meet. We note, however, that this is merely in confidence ten, twenty, and even thirty years for the development of tabes and other late manifestations among the "cured" patients?

I have at hand the notes of a patient who presented himself at a London clinic with a secondary rash nine years ago. He received treatment for two full years, and I am told attended most religiously. His blood and cerebro-spinal fluid both showed a negative Wassermann, and this has remained negative ever since. Even now the Wassermann in both his blood and cerebro-spinal fluid is negative, but in spite of this he now presents definite signs of tabes dorsalis, and I am sure that cases of this kind are not at all uncommon. I think from all this that our outlook on patients who have had syphilis,

and have been treated, and have a negative Wassermann reaction, should be somewhat as follows. These patients fall into two groups: Group I, who have had the disease eradicated; and Group II, those who, though they have the disease lurking somewhere in their systems (it may be merely a few odd spirochaetes hiding somewhere in an aortic cusp, or in the neighbourhood of a posterior nerve root), are incapable of putting up any fight against the disease. That Group II exists, and forms a considerable proportion of the "cured" cases, cannot be doubted. As to the relative size of Group I, assuming that it exists, I think that we must yet wait many years for such a fact to become established.—I am, etc.,

Gateshead, July 23rd.

M. CHALK, M.R.C.S.

Asthma and Chronic Bronchitis

SIR,—Dr. Christopherson, in the *Journal* of July 21st (p. 139), ascribes to me the theory that asthma and chronic bronchitis are due to thyroid deficiency. I did not intend to suggest that this was the case, any more than he himself would attribute asthma to sodium iodide deficiency.

I should rather say that the sympathetic system, including the thyroid and suprarenal glands, fails to react to normally effective stimuli, not so much because of any inherent defect, but because the reflex paths concerned have not developed and "facilitation" has not occurred. The child who is unduly protected from his environment will not acquire an "emergency reaction" capable of clearing his bronchi. He is being asked to run before he has been allowed to walk.

I agree with his conception of chronic bronchitis and asthma as a manifestation of autonomic incoordination rather than a result of local bacterial action. Whether the actual "cause" of the asthma is "vagus spasm" or sympathetic defect is less certain, but some common findings in asthmatics support the latter hypothesis. The subnormal metabolic rate, low blood sugar, and low blood pressure point to abnormally low sympathetic tone.

It is known that certain acute infections—for example, influenza, measles, whooping-cough, and diphtheria—tend to be followed by a similar syndrome, and may be starting-points for asthma. What is not so commonly realized is that autonomic balance is the normal method of temperature regulation, and that undue restriction of heat loss by excessive clothing and indoor habits, or even by poulticing or steam inhalations, must tend either to sympathetic inhibition or to pyrexia. In the former case bronchospasm is likely to develop. We know in practice that the so-called allergic diseases tend to occur chiefly in the summer months. The obvious exception of winter bronchitis is accounted for by over-clothing and overheated rooms, combined with indoor habits.

In conclusion, I should like to refer to Sir Leonard Hill's paper in the *Journal* of June 24th, 1933 (p. 1096), in which he points out the connexion between overheating and nasal congestion, which is so often the precursor of more serious respiratory diseases.—I am, etc.,

Bradford, July 23rd.

H. S. RUSSELL, M.D.

Asthma in Children

SIR,—In view of recent correspondence on the above subject, I venture to claim consideration for treatment of such nasal abnormalities as may be present. Although this is only one element in the production of asthma it is a very important one, and should not be left out of account in any obstinate case. In a communication on "Asthma in Children Relieved by Intranasal Operation," published in the *Lancet* (February 28th, 1931, p. 468), will be found short notes of a series of cases of operative

treatment for intranasal conditions (chiefly enlargement of the middle turbinate body) in children suffering from spasmodic asthma. They were eighteen in number, and in only two was there failure to obtain relief at the time, while even in these freedom from asthma was reported later on. The difficulties inherent in such operations in children and the methods of dealing with them are there discussed.—I am, etc.,

London, N.W.1, July 30th.

JAMES DUNDAS-GRANT.

Non-specific Colitis

SIR,—Dr. Dorothy Hare's paper, though interesting, is not very convincing from a practical point of view. Quite recently I treated two cases of severe long-standing colitis with parathyroid and calcium tablets, taka-diastase after meals, and big doses of kaolin with astringents. At the same time carbohydrates were cut off, and the patients encouraged to eat more fleshy food. Both recovered rapidly. Colonic irrigation is of no earthly use.—I am, etc.,

Wigan, July 30th.

J. THOMSON SHIRLAW.

Occupational Therapy

SIR,—I was interested to read your report of the recent conference in London regarding this method in the treatment of psychical illness. The following sentences from that report ought to be read and re-read. Dr. Elizabeth Casson

"was convinced of the immense therapeutic value of the time-table of exercise, occupation, amusement, and rest in the treatment both of the psychoses and of the psychoneuroses. Nothing was worse for patients than to drift about aimlessly. The carrying out of such a regime required the loyal co-operation of every member of the staff."

And Miss Ruth Darwin of the Board of Control stated:

"Occupation to be really successful must not be confined to a special room or an hour two or three times a week, but carried on daily in the wards. It appeared to be a psychological necessity for all humanity, whether mentally sick or mentally sound, to have some occupation with an object."

Let me re-state this. Each patient ought to have a time-table or programme, carefully drawn up and individualized, as also susceptible of modification whenever necessary; stereotyped programmes, "the same for all," are useless, and often worse than useless. Aimless drifting about is pernicious. It is a "psychological necessity" for everybody to have a job. Occupation is not a secondary matter; it is the primary need of the individual's life. Finally, in a hospital, the whole staff must co-operate with whoever is in charge of the patient, whether he calls himself doctor or merely "occupational specialist." How true all this is, and how very much in accord with experience! One is, however, a little surprised to read the statement by the chairman, Sir Henry Gauvain, that occupation therapy is a movement "of recent development." Surely one doesn't need to be a psychological specialist to know that people tend to become nervously and even mentally unstable when they have nothing to do, and that they become quickly better when they find an intelligent job, suited to their special aptitudes; nor was this observation made yesterday! But possibly the chairman was referring to the "scientific" utilization of such common-sense methods by medical men. He may be right regarding the official hospitals, but it is only fair to say that quite a number of practitioners specializing in the treatment of neurasthenia and the like have been insisting on the value of occupational therapy since even pre-war days.

If a personal note may be allowed, I should like to say that I advocated similar methods in two letters to the

British Medical Journal in 1910 (June 18th and July 16th), elaborating my thesis still further in an article contributed to the *Edinburgh Medical Journal* in May, 1911 ("Ergotherapy in Neurasthenia"). Prolonged experience since then, including treatment of a large series of shell-shock cases during the war, has done nothing but strengthen me in the belief that occupation therapy is the treatment *par excellence* in at least the milder psychoses or psychoneuroses. Even the alienists, with their more inveterate cases, are apparently able to make considerable use of this method.

As with all good things, however, there is, I think, a danger of this therapy becoming over-systematized and hypercharged with verbalisms.—I am, etc.,
ARTHUR J. BROCK, M.D.

Garth Hill House, North Queensferry,
Fife, July 25th.

Thrombosis of Internal Saphenous Vein

SIR,—Dr. Stanley Parkinson's letter in the *Journal* of July 28th (p. 183) is one which will, in my opinion, cause unnecessary operations and alarm. I have always contended that superficial phlebitis, whether in varicose or normal veins, should not be treated by rest in bed or any ligation operation. The effect of rest in bed, with the patient in a "thrombosing frame of mind," will be to produce deep thrombosis in the tibial, femoral, or iliac veins, with clots large enough to cause a fatal or severe embolism. Surely Dr. Parkinson cannot imagine that a clot the size of a split-pea in the internal saphenous could cause a fatal embolism. The patient's death was probably due to massive embolism following thrombosis of iliac veins after three months in bed, or a coronary thrombus.

The rational treatment for superficial phlebitis of the legs is a firm compression bandage of elastoplast from the toes up to the level of the clot, with a firm pad of sponge rubber at this point to prevent the clot from moving. The patient is kept fully ambulant, and pain, induration, and temperature all disappear like magic, and no extension of the phlebitis occurs. I have treated a very large series of cases in this way, and there were no lethal gurgles at midnight or necessity for cardiac massage in any case, and not one patient has ever asked to go back to the old six to twelve weeks in bed.

As to ligation of superficial vessels for thrombosis, I need only say that I frequently do this operation to produce thrombosis in cases which do not respond to injections alone, and find it a very certain method of inducing thrombosis, especially *above* the ligature.—I am, etc.,

London, W.1, July 28th

A. DICKSON WRIGHT.

Inflammatory Dislocation of the Atlas

SIR,—I have read with much interest and instruction the paper by Mr. Duncan C. L. Fitzwilliams on "Inflammatory Dislocation of the Atlas," in your issue of July 21st (p. 107). In it he refers to a case which Dr. P. F. Frazer and I recorded in the *Lancet* in November last, but says of it that it "was an excellent example of tuberculous caries in a man of 30." The case we recorded was quite definitely, not tuberculous, and a reference to the full history given and to the radiographs by Dr. Harold Black will, I think, convince anyone on this point. Our case differs in a number of features from his two. Ours was a complete forward dislocation of the atlas, the anterior arch being markedly separated from the upstanding odontoid process, and the head remaining in the midline with the chin resting on the sternum: in both his cases there was a subluxation on the left side only, the first being associated with rheumatic pains in several joints, including the shoulders, and the second being associated with

septic glands of the neck, mainly left-sided, and a quinsy (side not stated). Like his, our case was essentially spontaneous, but, unlike any that we could find in the literature, was entirely apyrexial.

I am familiar with the unilateral subluxation between atlas and axis occurring in children with torticollis associated with cervical adenitis, x-ray pictures sometimes revealing a most disquieting and wholly unsuspected state of affairs. Through the kindness of Mr. Robert Milne I am also familiar with the subluxation, either unilateral or bilateral, occurring in children during acute rheumatism. But in none of these was there such complete bilateral dislocation, marked separation of odontoid process from the anterior arch of the atlas, or neurological evidence of the medulla being kinked over the odontoid peg by the forwardly displaced head, as our case exhibited. For these reasons I think the pathological processes at work in the complete forward dislocation must be different from those in unilateral subluxation, and while Grieg's hypothesis of ligamentous softening as a result of decalcification of hypervascular bone may explain these latter, I am concerned. Wittek's theory so far as the former are concerned. Wittek suggested that the bursa between the anterior arch of the atlas and the odontoid peg, and also that between the odontoid peg and the transverse ligament, became inflamed, and therefore distended, this distension stretching the ligament, and thereby allowing a complete forward dislocation. He refers to the condition as "dislocation luxation" of the atlas, and it appears to us as the right explanation.—I am, etc.,
Birmingham, July 25th.

F. A. R. STAMMERS.

Peripheral Neuritis Complicating Measles

SIR,—Dr. Urquhart, in the report of his case of measles and peripheral neuritis, published in the *Journal* of July 21st, states that he has been "unable to find in a fairly exhaustive literature any but a passing reference to the occurrence of multiple peripheral neuritis as a complication of this fever."

The occurrence was recognized last century: Morton,¹ writing in 1897, left a good account of it. From Allyn's² description it seems likely that the case described by Liégard³ in 1859 was another of this type. Greenbaum,⁴ in 1907, was able to find eight cases; of his series of 138 cases of non-diphtheritic multiple neuritis in children more followed measles than any other infectious fever. Nevertheless, it is an even more uncommon complication than is encephalitis. It seems probable that the following was a mild case of this kind.

A girl, aged 3 years, contracted measles in April, 1934, the rash appearing on the 20th of the month. She was in bed ten days; on the eleventh and twelfth days she walked a little in the bedroom. On the thirteenth day she got up again, and "fainted," her legs collapsing beneath her. She was put back to bed; she seemed unhappy, and had lost her appetite.

On the twenty-fourth day she was admitted to the Hospital for Sick Children, Great Ormond Street. On examination she was found to be fretful; she resented being touched, especially on the legs. She could speak intelligently, and was not drowsy. She would not sit up, and complained of pain if one attempted to move her into a sitting posture. There seemed to be some weakness of the neck muscles, but no obvious loss of power elsewhere, though she was averse to moving her legs. She had a left facial palsy, involving the orbicularis palpebrarum. Her pupillary reflexes were normal, superficial abdominal weak but equal, plantar flexor; biceps, triceps, and knee jerks could not be obtained. The fundi were normal; there was no definite muscle tenderness; sensation was difficult to test, but there was no obvious loss.

¹ Morton: *Arch. Paediat.*, 1897, xiv, 541.
² Allyn, H. B.: *Med. News*, 1891, lix, 617.
³ Liégard: *Gaz. des Hôp.*, 1859, 562.
⁴ Thomas, H. M., and Greenbaum, H. S.: *Journ. Amer. Med. Assoc.*, 1907, xlviii, 1397.

Nothing abnormal was found on examination of her chest and abdomen; her tonsils were large. The cerebro-spinal fluid was under normal pressure; it contained less than five cells per cubic millimetre, 0.07 per cent. albumin, 0.72 per cent. chlorides. The blood Wassermann reaction was negative.

On the thirty-fourth day she still could not sit up; she resented attempts to extend her knees, but four days later she was able to sit up and to smile, her facial palsy had almost disappeared, and her knee-jerks were still absent. On the sixty-second day she walked a little; her knee-jerks were still absent. Unfortunately she developed whooping-cough at this time and was sent home. She is now at the seaside, and her mother, ninety days after the onset of the rash, reports that the child can walk easily and seems very well.

I am grateful to Dr. Thursfield for allowing me to describe this case, which was in his care in hospital.—I am, etc.,

Hospital for Sick Children, Great Ormond Street, July 23rd.

P. R. EVANS.

Maternal Mortality in Maoris

SIR,—With regard to Dr. T. L. Paget's remark in the *Journal* of April 7th (p. 644) that the late Mr. Elsdon Best's statement concerning maternal mortality among the Maoris was obtained from a too limited knowledge of obstetric conditions, and was probably based on conclusions drawn from one or two easy cases of labour with which he was acquainted, it may be well to mention that Mr. Best obtained most of his information from the Maoris of the Tuhoe tribe. Because the Maori was intelligent, had an excellent memory, and was very anxious to preserve his tribal records, racial myths, and traditions, this information is of more value than it would be in the case of a race without these attributes. As an instance of their good memory, a case is given of an old Maori man who recited the genealogy of his sub-tribe for many generations, which necessitated the memorizing of 1,400 names. In cases of difficult childbirth, which sometimes did occur, a woman would get her husband to "wananga" her ancestral descent—that is, to repeat her ancestral descent from the period of Darkness, the beginning of things, down to herself.

The following sentences are taken from Mr. Best's work *The Maori*, and from his articles in the *Journal of the Polynesian Society*.

"All these natives concur in saying that formerly women were very seldom ill during or after parturition." "If a woman dies in giving birth to a child, an almost unknown occurrence, the child is given to a woman in milk to suckle and tend." "The following remarks were sent to me by Hori Rapaha of Waipawa in 1893, in a written communication: 'Women of the Maori folk did not die in childbirth [formerly]; although a native woman might give birth to many children, yet she would not in any case die. Maori women were of a fine type, robust and healthy, and wise in matters pertaining to childbirth, they did not succumb. In these times many native women die [in childbirth]; the women who so die in a single year may perchance amount to a hundred, or even as much as two hundred.'" (This remark is of interest.) "Some very singular traditions are retained by the Maoris in regard to the Caesarean operation having been performed in former times, but such are always located in some far-distant land, inhabited by primitive people, who are often unacquainted with fire, or if localized are relegated to times long passed away."

With regard to the teeth, the following may be quoted:

"Dr. Scott also notes the fact that the teeth in skulls examined by him had the whole crowns ground away, but that he never detected any signs of dental caries. The present writer has noted the same peculiarity in many old native skulls seen in caves and hollow trees, where they had been deposited after the exhumation of the tribal dead." "Judging from the teeth seen in many hundreds of old skulls, the Maori should not have suffered much from tooth-ache in olden times."

The same authority states that he has observed that the older natives are by far the most robust, much more so than the younger people and children, and also that the natives of the Tuhoe tribe say that their women have more trouble in menstruation than they had formerly, difficult and painful menstruation being very rare in former times, a fact which Mr. Best thought might be connected with the increasing lack of fecundity so noticeable among these tribes.

As to the custom of squatting instead of using seats, a Maori guide at Whakarewarewa, Rotorua, recently stated that squatting was common only among the old people. This was certainly true of a near-by group, the elderly grey-haired women squatting on the ground, while the younger people were seated. However, this relates to the habits of a comparatively few Maoris on the outskirts of a town, and may not be true of the race as a whole. With only our present-day conditions to judge from, it is difficult to imagine that there may have been, at some time, races in which childbirth was a normal process. For it is difficult not to agree with what Joseph DeLee writes in the introduction to his work on obstetrics.

"Is labour in the woman of to-day a normal function? I say it should be, but it is not. Can a function so perilous, that in spite of the best care it kills thousands of women every year, that leaves a quarter of the women more or less invalided, and the majority with permanent anatomic changes of structure, that is always attended by severe pain and tearing of tissues, and that kills 3 to 5 per cent. of children—can such a function be called normal?"

—I am, etc.,

Auckland, New Zealand, June 5th. VIOLET E. HASTINGS.

Use of "Oil" Vaccine in Rheumatism

SIR,—In the vaccine treatment of chronic rheumatic diseases, as in asthma, certain cases develop a degree of sensitiveness which may render them almost uninoculable. The causation of this hypersensitivity is unknown, but it seemed possible that if the absorption of the vaccine could be slowed down the effect of a dose might then be less drastic. The idea followed from the well-known fact that a protein molecule when adsorbed on to a colloid particle and injected into the body exerts its effect on the tissues less readily than when given in a simple solution.

The recent work of Walsh and Fraser and of Myers, where the lethal effect of tetanus and diphtheria toxin was greatly lessened by adsorption on to various colloids, is a striking example of this phenomenon. It was a simple matter to mix vaccine with a dilute emulsion of olive oil rendered isotonic by the addition of mannitol, and thirty-six cases have now been treated with adsorbed vaccine at the Charterhouse Rheumatism Clinic. (The emulsion of olive oil of a strength of 3.8 per cent. (Walsh and Fraser) was prepared for me by British Colloids, Ltd., whose help has been most valuable.) The trial has extended over two months, during which 150 doses have been given (average per patient 4.16).

A number of these patients, who seemed to be at a complete standstill, have again started to improve on the "oil" vaccine. The difference between the effect of this and ordinary vaccine is very striking. Thus the average sub-reaction dose of ordinary vaccine worked out at 4,500 streptococci and staphylococci in equal numbers, the "oil" at 169,000. That is to say that, on the average, the oil-adsorbed vaccine is 37.5 times less "toxic" than the ordinary. In practice it has been found that ten times the reaction dose is usually well tolerated, and followed by improvement in focal symptoms with a sense of well-being. By way of test, proportionately much larger doses have been given, but these have occasionally provoked nasty reactions, and in

any case the aim of treatment is not to give the largest possible dose, but that sub-reactional dose which is followed by the longest period of improvement. Experiments are now being carried out to determine the best and most stable colloid for the purpose. The above results also suggest the possibility of obtaining a high degree of immunity from the use of adsorbed prophylactic vaccine without the risk of unpleasant reactions.—I am, etc.,
London, W.1, July 23rd.

H. WARREN CROWE.

Vitamin A Deficiency

SIR,—In an interesting article published in the *Journal* of July 21st (p. 113), bearing the title "A Cutaneous Manifestation of Vitamin A Deficiency," Dr. G. P. Goodwin says that until about a year ago the occurrence of vitamin A deficiency in man had only been diagnosed with certainty when eye changes had been found, and he appears to be supported in this supposition by Dr. Helen M. M. Mackay, who writes a note to his paper.

In 1927 I described a deficiency disease which I denominated the A and B avitaminosis disease of Sierra Leone, and the paper was published in both the *Sierra Leone Annual Medical Report* and the *West African Medical Journal*. In 1930 a fuller account was published in Leitch's *Dietetics in Warm Climates*, and also in pamphlet form, which was announced in this journal. The later work contains the statements that the earliest and most reliable sign of human A-avitaminosis is a characteristic alteration—glazing—of the surface of the tongue. The angles of the mouth take on a white appearance, as "eczematous," and the texture of the skin of the limbs and trunk is frequently altered by a keratosis which causes it to be dry and rough. All these symptoms are the result of vitamin A deficiency, and heal rapidly on the exhibition of a vitamin A concentrate. Whilst discussing the diagnosis of this avitaminosis the typical cornification of the skin was considered an important early diagnostic point. It may be of interest to recall the significant observation that this condition was most easily studied in the pregnant woman. In fact, the whole complicated syndrome of this avitaminosis disease, which ends in disorders of the nervous system if not given dietetic treatment, was elucidated at the first ante-natal clinics in Sierra Leone in 1927. I have defined the A and B avitaminosis disease as "a disease distinct from pellagra and beri-beri, characterized by lesions of the mucous membranes and skin, especially evident at the mucocutaneous junctions, associated with or followed by disorders of the nervous system, and curable by the addition of cod-liver oil and yeast to the diet."

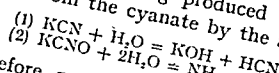
Dr. Goodwin's patient, a child aged 10 years, suffered from glazed tongue, moist eczema at the left angle of the mouth, keratinization of the skin, and inability to stand up for any length of time, and was cured by the administration of cod-liver oil and a liberal diet. It will be seen that there is a definite similarity between the A and B avitaminosis disease and Dr. Goodwin's case. It is interesting to note in this connexion that in 1930 Dr. H. S. Stannus, in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*, expressed the opinion that the disease I described was the "pellagra fruste" of French writers.

The object of this letter is to draw attention to a syndrome definitely associated with A-avitaminosis, which, although being increasingly recognized in the Tropics, is apparently little known in England. In conclusion I should mention failure or dimness of vision as one of the most baffling symptoms in this disorder—one

most frequently found in school children and pregnant women, but fortunately easily curable if diagnosed in time.—I am, etc.,
Wembley, July 24th. E. J. WRIGHT, M.R.C.S., D.T.M.

Cyanide Poisoning: Rasputin's Death

SIR,—Regarding the recent correspondence on Rasputin and potassium cyanide, I should like to point out that this is a most unstable substance. It is usually a mixture of cyanide and cyanate—also carbonate. When exposed to air it deliquesces, smells of hydrocyanic acid and ammonia, the former being produced from the cyanide and the latter from the cyanate by the action of water:



It is therefore most probable Rasputin was given a mixture of potassium hydroxide and carbonate, neither of which is likely to cause immediate death, and not potassium cyanide at all.—I am, etc.,
Catford, S.E., July 28th.

F. P. WALTON, B.Sc.

Tuberculin

SIR,—Those who evolve the policy that determines the fate of the hundreds of thousands of victims of tuberculosis in the poorer classes should be ready to adopt any method of treatment that has been proved by logical method to be of real value. We must not bow to authorities whose reputations are at stake. Dr. Bardswell and Dr. J. D. Macfie must fight for their stereotyped ideas upon sanatorium treatment, even though this system can never greatly help the poor.

It is certainly true that for the moment artificial pneumothorax *et hoc genus omne* have given the sanatorium system a fresh lease of life. But even granting the value of surgical expedients in resting the areas heavily attacked by tubercle bacilli, so far as the industrial population is concerned sanatorium treatment and surgical expedients are both costly and limited in their scope. True statistics will prove that sanatorium treatment can never greatly help more than 10 per cent. of the sufferers in the industrial classes, while surgical measures cannot help even this proportion of sufferers. What becomes of the remaining 75 to 80 per cent. of victims? That is the phase of the problem which has always interested me. Neither Dr. Bardswell nor Dr. Macfie offers any solution to this aspect of the problem. My solution has never been studied seriously. Dr. Macfie tells us he has used it "extensively" by carrying about four or five different tuberculins to the dispensaries and sanatoria under his charge. What he did with these tuberculins we do not know. Has he produced any evidence on this ambulatory method? Certainly if Dr. Macfie followed Dr. Bardswell's system of using tuberculin he was doomed to fail.

Long ago I laid down the conditions upon which an investigation into the value of any method of treating tuberculosis by scientific or other methods should be based. After-examinations in five years are indispensable. Recently, in my book *Tuberculin, its Vindication by Technique*, I proved that in the specific treatment of tuberculous diseases of the eye, which can be controlled directly by naked-eye examinations, assisted by instruments, large doses were necessary—often both exotoxins and endotoxins—to ensure arrest of the disease for any length of time. Dr. Bardswell was afraid to use large doses, and he failed. I feel justified in concluding that Dr. J. D. Macfie also failed for similar reasons. I am bold enough to say that the evidence in my last book justifies me in asking for a commission of inquiry, com-

posed of men who can give a right value to evidence such as I have to give.—I am, etc..

W. CAMAC WILKINSON, M.D., F.R.C.P.

London, W.1, July 28th.

* This correspondence seems to have reached a stage at which it cannot profitably be continued.—Ed., B.M.J.

Traffic Control by Light Signals

SIR,—I could agree with Dr. W. W. King Brown (July 21st, p. 141) that a longer warning to stop than that given by the yellow light would not be necessary if one were not liable to prosecution for accidentally making a crossing after the yellow light has suddenly appeared ahead. One is entirely at the mercy of the opinion of the police officer who sees the incident. As regards his rather satirical remarks on the subject of control of the car, the word "control" can only be used relatively. No car doing 30 m.p.h. is under control if some unexpected object such as a dog or human being leaps in front of it. However, one must assume that your correspondent never drives at such high speeds! By the phrase "bring the car under control" I meant, of course, such degree of control that it can be stopped within a few feet without stamping on the brakes.

My remarks on the need for more warning to stop were intended particularly to apply to fast main roads such as the Great West Road. In the big towns, where traffic moves generally more slowly, the need for such preliminary warning is not great. Suffice it to say that large numbers of drivers have endorsed my view that more warning to stop than that given by the present amber light is not only desirable, but vitally necessary. If Dr. King Brown ever should misjudge a yellow light and be summoned for it, he may change his view!—I am, etc.,

London, S.E., July 21st. GUY BOUSFIELD, M.D. Lond.

Unemployment Assistance: Determination of Needs

SIR.—We understand that under the new Unemployment Act a very large number of the unemployed and their families will come to depend partly or entirely for their support upon the allowances granted by the Unemployment Assistance Board. Our experience as physiologists and members of the medical profession leads us to believe that there will be grave danger of widespread physical deterioration, especially among the growing generation, if a considerable section of the population, obliged for reasons beyond its control to depend for maintenance on public funds, is unable to purchase sufficient food and other necessities for healthy existence.

We therefore welcome the provision made in the Act that the allowance granted to an applicant "shall be determined by reference to his needs, including the needs of any members of the household . . . who are dependent upon him." The definition of "needs" is necessarily left to the Board to determine; it is stated, however, that it is the function of the Board to promote the welfare of the unemployed and "to provide for the re-establishment of such persons with a view to their being in all respects fit for entry or return to regular employment." We suggest that a standard of needs which will fulfil the intention of the Act can only properly be arrived at in consultation with medical and other expert opinion qualified to estimate the minimum requirements of healthy living and the cost of satisfying them for families of various sizes.

"Needs" are conveniently divided into: (1) food; (2) rent; (3) fuel; (4) clothing; (5) light, cleansing materials, and sundries. With regard to food, scientific knowledge has now reached the point where it is possible to determine fairly accurately the minimum necessary to maintain health and working capacity. The findings of the recent Joint Conference representative of the British Medical Association and the Ministry of Health Committees on Nutrition on the constituents of a physiologically desirable dietary, and the work of the B.M.A. Committee on specimen minimum diets, can no doubt be used as a basis for estimating the minimum expenditure necessary.

With regard to other needs further investigation might have to be undertaken before a satisfactory standardization could be agreed upon. An adequate expenditure on food will only be secured if some margin is allowed for the small conventional necessities of civilized life. A scientifically determined scale such as we have in mind would obviously have to be adjusted to changes in the cost of living from place to place and from time to time.—We are, etc.,

E. FARQUHAR BUZZARD.
STUART J. COWELL.
J. B. S. HALDANE.
LESLIE HARRIS.
F. G. HOPKINS.
J. C. G. LEDINGHAM.

G. C. M. M'GONIGLE.
CHARLES MCNEIL.
V. H. MOTTRAM.
J. B. ORR.
CHARLES PORTER.
HUMPHRY ROLLESTON.

Obituary

THE LATE MR. CHARLES HEATH

Mr. H. NORMAN BARNETT (Bath) writes: Charles Heath was the man who first attacked the stronghold of the old-fashioned so-called radical mastoid operation. His method of doing so may not have been always wise, but it is open to question, if he had pursued gentle flank movements instead of direct assault, if he would have been listened to, or if the citadel would have fallen as it undoubtedly has to-day, giving place to the conservative procedure in this region of surgery. To Heath is due, originally, the honour of having shown that mastoid disease may be cured without the destruction of the hearing apparatus of the middle ear, and his position in this regard should be very fully realized and appreciated. One side of Heath's character that does not seem to have been generally appreciated is that he was really shy, and was often hurt by the lack of sympathetic understanding shown to him. As an example of this I may state that he went to the International Congress at Copenhagen with a manuscript prepared to submit to that Congress, but he was so obsessed by the likelihood of the lack of an appreciative hearing that he came straight back to London without having spoken. There is arising a new generation of aural surgeons who imagine that conservatism in dealing with mastoid disease has been evolved in their own fertile brains, while there is at least one Central European otologist who has had the temerity to label a proceeding exactly similar to Heath's with his own name. Charles Heath received no titular distinction, although one was offered to him in connexion with his work on hygienic footwear for the soldier. This he refused, though he would have welcomed such recognition of his scientific work as an otologist. A great man has passed away from the ranks of aural surgeons, and it is only fitting that we should recognize and acknowledge the importance of his work.

Mr. WILLIAM FOSTER CROSS, who died on July 14th, was born in 1873, within the precincts of St. Bartholomew's Hospital, of which his father, William Henry Cross, was Clerk for nearly forty years. He naturally received his medical education at that famous school, and obtained the diplomas M.R.C.S., L.R.C.P. in 1896.

OBITUARY

[THE BRITISH
MEDICAL JOURNAL]

After a year as house-physician at Bart's he went as resident medical officer to the Tottenham Hospital. By this time his interest in anaesthetics was already marked, and by persevering work and thoughtful inquiry he built up for himself a high reputation both as an administrator of anaesthetics and as a teacher. After a long period as resident anaesthetist at Bart's he was appointed a member of the visiting staff of the hospital, in succession to Edgar Willett in 1905, and became senior administrator of anaesthetics on the resignation of Richard Gill in 1916. Many a student learned first from him the wisdom of anaesthesia as well as the value of the bold measures, and he added much to the value of the discussions in the Section of Anaesthetics of the Royal Society of Medicine. A man of kindly and attractive personality, he will long be remembered with affection by former colleagues and pupils. Many an anecdote of his training survives to recall his strongly held opinions, as well as his readiness to accept new advances when these had proved themselves. After many years of loyal and devoted service to St. Bartholomew's Hospital, he retired with the well-earned distinction of being appointed consulting anaesthetist. He had latterly been living near Falmouth, and his death at the relatively early age of 61 is widely regretted. Mr. Cross was president of the Abernethian Society in 1895, and took the chair at its centenary meeting, held on May 1st of that year, when Sir James Paget was present and Sir Norman Moore gave an address.

Dr. DANIEL JOHN FRANCIS O'FLANAGAN, who died on July 16th at his residence in Gower Street, London, after a long illness, was a man of broad sympathies and wide experience as a general practitioner. Born in Sacramento, he was educated in California and at Dublin University. In 1919 he obtained the diplomas L.R.C.P.I., L.R.C.S.I., and the L.M. of the Rotunda Hospital. He held appointments as house-surgeon at the North Ormesby Hospital at Middlesbrough, the Grimsby and District Hospital, and the Burton-on-Trent General Infirmary. He then started general practice at Middlesbrough, and became greatly esteemed, holding various posts in connexion with assurance companies, as well as being medical officer and public vaccinator to two districts and on the staff of the Middlesbrough Public Assistance Committee. Three years ago Dr. O'Flanagan decided to remove to London, where he had already begun to build up a large and successful practice. Increasing illness, however, handicapped his work, despite his active nature, and his death at the age of 46 removes a keen-witted and able practitioner who had made for himself a wide circle of friends. He was interred at St. Pancras Catholic Cemetery on July 19th. He had been a member of the British Medical Association since qualification.

The death took place at Newbury on July 16th of Dr. FREDERICK DITTMAR, who, until the beginning of the present year, was Medical Inspector in the Department of Health for Scotland. Dr. Dittmar graduated M.A. at Glasgow University in 1889, and M.B., C.M. in 1893, proceeding to his M.D. with commendation in 1896. After a period of study in Vienna, he became medical officer of health at Scarborough, and later took up the post of assistant M.O.H. for Glasgow, and assistant medical officer in H.M. Prison, Glasgow. Shortly afterwards he was appointed Medical Officer to the Local Government Board, and when the functions of that Board were widened, he became successively Medical Officer to the Scottish Board of Health and to the Department of Health for Scotland. Dr. Dittmar took the Cambridge D.P.H. in 1901, and in 1914 he joined the Royal College of Physicians of Edinburgh as a member, becoming a Fellow in 1918. He was the author of numerous works dealing with public health subjects, including *Report of Meat Inspection (1907)*; *Incidence of Enteric Fever in Scottish Burghs over 20,000 Inhabitants (1911)*; *Administrative Control of Pulmonary Tuberculosis in Glasgow*, which was published in collaboration with Drs. T. F. Dewar and E. M. McVail; and *Administrative Treatment of Undefined Cases Certified as Scarlet Fever*, published in collaboration with Dr. J.

Brownlee in 1897. In 1922, with Dr. Gerald Leighton, he investigated the celebrated epidemic of food poisoning at Loch Maree, in which, for the first time in Scotland, he identified the *B. botulinus* as the cause of the deaths.

With the death of Dr. GILBERT HENDERSON GRIFFITHS of Deganwy on July 13th there passed one who was held in high esteem and general affection as a general practitioner. Born in 1867, he was a medical student in Liverpool, obtaining in 1891 the diplomas M.R.C.S., L.R.C.P. After holding the posts of resident medical officer to the Parish Infirmary, Liverpool, and house-surgeon to the Wallasey Dispensary, Liverpool, and general-practitioner to the mouth of the Conway, then a small hamlet at the mouth of the Conway, his practice steadily increased as the local community grew in size, and many a Welsh and English family learned to rely on his skill and welcome his friendship. Dr. Griffiths's interests were wide. He was a keen tennis player, and enjoyed other forms of sports. He was a zealous Freemason, rendered loyal service to his Church, and was a strong Conservative. On the day of his death he was seeing patients in the morning, and a sudden heart attack in the evening brought his life to a close. He had been a member of the British Medical Association since 1897. He leaves a widow, a daughter, and a son.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The E. G. Fearnside Scholarship, value £100, for the encouragement of clinical research in organic diseases of the nervous system, has been awarded to John Bishop Hamman, M.A., B.Chir., F.R.C.S., of St. John's College.

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

M.D.—Branch I (Medicine): H. G. Anderson, W. E. K. Coles, T. A. Ll. Davies, S. N. Evans, A. Garland, J. C. Heather, L. H. Howells, K. D. Keele, A. Kennedy, F. P. L. Lander, L. G. Norman (University Medal), *E. Renbourn, T. S. Stone, F. W. Ta'Bois, M. R. Thomas, F. W. Willway, A. L. Wingfield, Branch II (Pathology): Dorothy Woodman, Branch IV (Midwifery and Diseases of Women): Marion J. Cunnning, K. M. Masani, Branch V (Hygiene): R. C. Cohen, D. D. Payne, G. E. B. Payne. ACADEMIC POST-GRADUATE DIPLOMA IN MEDICAL RADIOLOGY:—W. M. Hewetson, P. Hogan, S. R. G. Pimm, A. M. Vlok. *Awarded a mark of distinction.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

ACADEMIC POST-GRADUATE DIPLOMA IN BACTERIOLOGY.—Mary C. Baker, D. N. Chakravarti, S. C. Ghosal, G. P. Gladstone, V. Glass, P. P. Grigg, Betty C. Hobbs, G. W. Rea, F. C. Storrs.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL

The following scholarships have been awarded: *Entrance Science Scholarships*: First, J. A. S. Green (Clifton College); second, C. B. B. Downman (City of London School); *Entrance Scholarship in Arts*: J. P. Irwin (Stonyhurst College).

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the Royal College of Physicians of Edinburgh was held on July 17th, with the President, Dr. Edwin Bramwell, in the chair. Dr. David Rhys Lewis (Swansea) was introduced, and took his seat as a Fellow of the College. Dr. John Ronald Currie (Glasgow) and Dr. Alastair Graham Cruickshank (Edinburgh) were elected Fellows.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College, held on July 25th, Dr. A. H. H. Sinclair, President, was in the chair. The following, having passed the requisite examinations, were admitted Fellows:

G. H. Cashmore, J. R. Crumie, P. N. Cutner, H. L. N. Davies, A. Duff, R. W. Graham-Campbell, B. R. Hallows, R. A. H. Krynauw, C. C. McKellar, N. Pencharz, G. W. Pottinger, S. C. Sinha, C. F. Sullivan, A. Track, D. C. Trainor, A. van der Poel, A. Watt, R. Withers, A. G. Young.

ROYAL AUSTRALASIAN COLLEGE OF SURGEONS

The eighth annual general meeting of the College will be held in Melbourne, beginning on March 4th, 1935. On that afternoon the building of the College will be declared open by the President of the Royal College of Surgeons of England, Sir Holburt Waring. In the evening, at the Wilson Hall, University of Melbourne, the third George Adlington Syme Oration will be delivered by Professor F. Wood-Jones. During the remaining part of the week operative demonstrations will be given at the Melbourne, Alfred, St. Vincent's, and Children's Hospitals. Surgical papers will be delivered by Dr. D. C. Balfour of the Mayo Clinic, Dr. Dean Lewis of Johns Hopkins Hospital, Professor C. F. Saint of Capetown, Sir D'Arcy Power of London, and Sir William I. de Courcy Wheeler.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At the quarterly meeting of the Council, held on July 24th in the College House, with the President, Dr. J. S. Fairbairn, in the chair, Dr. Fairbairn was re-elected President, and Dr. H. Russell Andrews and Dr. Bethel Solomons were elected Vice-Presidents. The following officers were also re-elected: honorary treasurer, Mr. Eardley Holand; honorary secretary, Professor W. Fletcher Shaw; honorary appeal treasurer, Sir Comyns Berkeley; honorary librarian, Dr. A. E. Giles; honorary assistant librarian, Mr. F. Roques. Miss Louisa Martindale, M.D., B.S., F.C.O.G., was co-opted a member of Council.

The following were elected members of the College:

Nicholas Attygalle (Ceylon), John Nicholas Chesterman (Sydney), Arthur Frederick Clift (London), T. F. Corkill (New Zealand), David William Currie (Leeds), Morgan David Arwyn Evans (Cardiff), William Dawson Galloway (Helmfrith), Frieda Ruth Heirhway (Sydney), Russell Norfolk Howard (Melbourne), Robert James Kellar (Edinburgh), Marjorie Jean Lyon (Sydney), John Harold Peel (London), Jack Polonsky (South Africa), Arthur Lloyd Potter (Liverpool), John Lekan Scholes (Melbourne), Percy Norman Leonard Seager (Dublin), Nora Proctor-Sims (India), Thomas Francis Todd (Preston), Rufus Clifford Thomas (Porthcawl), Charles Henry Walsh (Liverpool), Charles Alexander Whitfield (Aldershot), Bryan Williams (London), James Smith Young (Glasgow).

The following were formally admitted by the President to the Fellowship of the College: Andrew Moynihan Clave (Leeds), John Ellison (London); and to the Membership: Charles Granville Chapman (Grimsby), Calvett Martin Gwillim (London), Gladys Hill (London).

The following were admitted in *absentia*: *Foundation Fellows*, H. C. E. Donovan (Melbourne), Edward Rowden White (Melbourne); *Foundation Member*, William Irving (New Zealand); *Member*, Agnes Marshall Cowan (Manchuria).

The draft scheme for an investigation into analgesics suitable for use by midwives was passed, and instructions given that arrangements should be made for the immediate initiation of the investigation.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—F. G. S. Alderson, G. W. Bender, J. T. Boocock, J. A. McClintock, A. J. McGuire, H. J. Ripka, F. W. Treadwell.
MIDWIFERY.—F. G. S. Alderson, J. A. Amor, S. M. Sabat.
FORENSIC MEDICINE.—T. D. R. Aubrey, J. W. D. Bull, W. C. Campbell, D. S. G. Genge, S. Klein, J. E. T. Mann, S. M. Sabat.
MIDWIFERY.—T. D. R. Aubrey, J. W. D. Bull, G. W. Bender, C. C. Jounides, S. J. Navin, J. C. Paterson, J. F. L. Walley.

The diploma of the Society has been granted to G. W. Bender, S. Klein, A. J. McGuire, and H. J. Ripka.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examination indicated:

FINAL PROFESSIONAL EXAMINATION.—Ida Hirschmann, S. Hertz, Eleonore Bergmann, J. Plesch, E. Zuckermann, H. Kober, E. Lucas, S. K. Westmann, E. Jacobsohn, C. H. Rothschild, C. C. Becker, M. Gutstein, H. Feld, W. Auerbach, W. Kupfermann, I. K. Leshnansky, F. J. Newhall, R. Samson, P. Kahn, P. Nathan, E. Marx, Martha Turk, A. Lechner, O. Hartog, Sally Rammelsburg, A. Mann, E. Gostynski, M. S. Khan, F. Ewer, J. L. S. Strelow, P. Perlman, A. S. W. Buchanan, R. H. Hunt, C. W. A. de Silva, H. Jannemann, R. Hamburger, Nathalie Rothschild, Jessie R. Bruce, H. A. Thorner, J. F. Macgregor, L. C. Goldwater, H. Fleming, P. T. Hauff, F. A. Paul, L. H. Becker.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Parliament is now in recess until October 30th, when the House of Lords and House of Commons will reassemble.

In the House of Lords, on July 25th, the Road Traffic Bill was read the third time. On July 26th the House of Commons approved, after discussion, all the amendments made by the House of Lords to the Bill. The Royal Assent was given on July 31st.

On July 24th the Shops Bill was returned to the House of Lords from the House of Commons, with amendments agreed to. The Bill received the Royal Assent on July 25th. Other Bills receiving the Royal Assent were the Ministry of Health Provisional Order Confirmation (South Middlesex and Richmond Joint Hospital District) Bill, and the Ministry of Health Provisional Order Confirmation (Weymouth and Portland Joint Hospital District) Bill on July 25th, and the Milk Bill and the Poor Law (Scotland) Bill on July 31st.

In the House of Commons on July 26th the return of licences showing the number of experiments on living animals performed during 1933, which was ordered by the House on June 20th, was presented.

The Parliamentary Medical Committee met on July 25th and reviewed the work of the session.

Importance of Town Planning

In the House of Commons, on July 26th, on the vote for the Ministry of Health, Sir PERCY HARRIS opened a discussion on town planning. Sir FRANCIS FREMANTLE said that houses were growing up, generally, in a way that was a disgrace to the present age. Housing was going on at a great pace, and the pace would be increased, especially in the areas that wanted planning more than anything else—that was in the case of areas of slum clearance and overcrowding. Town planning required to come first and housing afterwards. Planning was sticking unnecessarily. In planning there was very great difficulty in visualizing the future. Sir Francis asked the Minister whether there was not now an opportunity for him to advise local authorities that it was in their power to plan only superficially and provisionally for the most part where areas were still purely rural, and to leave it open for a supplementary scheme to be introduced at a later date. He believed it was possible to work the Town Planning Act in that spirit, putting emphasis on the fact that they must lay down their plan in advance for the main development, and for the minor development to be left over for the time being. It was essential to plan for the immense movement of population. About 100,000 persons were being moved out of London every year, and were settling down in different areas round London. So far as possible that movement should be associated with the re-siting of factories. The movement of factories must be allowed, largely, to decide itself, and the planning of housing and the other requirements of civilization ought to be around the factory, which should be the nucleus. We had made a mistake in trying to see where residences should go and letting factories take their own line.

Sir HILTON YOUNG said that at present, when housing was advancing at a rate unexampled in the past, and when the towns were spreading so rapidly into the country, there was special requirement for greater foresight and attention to our planning activities. Sir Francis Fremantle had produced the impression, perhaps unintentionally, that town planning was sticking. He cordially agreed that the rate of progress, both of the organization of the work and of its actual achievement, was not all that could be desired, but the House ought not to receive the impression that no advance was being made. Ten years ago the number of authorities engaged in the active preparation of schemes was 218; to-day it was 803. In ten years the number of acres covered by town-planning schemes had increased from 1,200,000 to 12,000,000. To increase the efficiency of planning work it was necessary to rationalize and widen the executive areas over which planning could be

administered. For that reason the Government's policy had always been directed towards the promotion of regional planning committees, wherever they were required and could be instituted. Wisdom and progress would be obtained by promoting reasonable co-operation between local authorities, and not by arbitrarily overriding them. It was an encouraging figure for the future that in ten years we had increased the number of executive committees that actually controlled the work from one to seventy-five. The discussion closed.

Bathing Pools and Diphtheria

Replying, on July 30th, to Mr. Hales, Mr. SHAKESPEARE said that only one case of diphtheria was notified in the Campden Rural District during the last four months. In his annual report the medical officer of health reported that twenty-one cases occurred in 1933, most of them at the Chipping Campden Grammar School. The Minister of Health had no information that the outbreak was attributed to infection from bathing, and he was not aware that the causal organism of diphtheria had ever been found in water. The Public Health Act, 1875, gave the local authority, or any of its officers, a right of entry to any premises for the purpose of ascertaining whether any nuisance existed, and the Minister did not think it would be good policy that detailed inspection of swimming pools should be carried out by officers of the central authority. The Minister intended to call attention to the powers of local authorities in his next annual report, which would shortly be issued.

Medical Education on Industrial Diseases

On the motion for the adjournment for the summer recess, on July 31st, a debate took place on factory conditions, initiated by Mr. Rhys Davies. Sir F. FREMANTLE said there was no question but that an improvement in the health of persons engaged in factories and workshops depended not only on the Inspectorate, but much more on the individual work of certifying surgeons, and still more on the relations, which were not yet properly established, between the factories and workshops and the schools. The child entering at an early stage on an industrial career in factory or workshop should be properly directed and guided. There should be co-operation between the health side of the Home Office and the Board of Education in this matter. It was clear that a large number of people were careless and disregarded certain risks, and that there was necessity for educating individual workers, especially the younger ones, in protecting themselves against accident. Attention should be directed to a necessary change in medical education. Ordinary medical education was conducted in the hospitals by men engaged in the treatment of individual disease. Therefore, very little provision was made to teach the ordinary budding doctor in regard to prevention, and especially in regard to methods of dealing with industrial disease and conditions in factories. Captain CROOKSHANK suggested that during the recess members might get in touch with employers and workpeople, and bring remarks on the question of accidents contained in the report of the Chief Inspector of Factories to their notice. These things were largely a matter of education. The point which struck one in the report was the almost incredible number of avoidable accidents. The increase of accidents, however, must not be taken as any indication of failure on the part of a hard-working department of the Home Office.

Liquid Eggs Importation.—Sir HILTON YOUNG told Colonel Ackland-Troyte, on July 19th, that he had no information to show that the United States of America or any other countries prohibited the importation of liquid eggs on grounds of health. Liquid eggs imported into this country and intended for food must be free from preservatives and fit for human consumption, and, subject to these conditions, he was unaware of any reason for prohibiting their importation on grounds of health. Precautions were taken to ensure that liquid eggs were fit for human consumption.

Encephalitis following Vaccination.—Sir HILTON YOUNG told Mr. Groves, on July 26th, that his attention had been called to the death of an 18-year-old boy from encephalitis, resulting from vaccination performed as a condition of employment with

the Gas Light and Coke Company. The opinion had already been expressed, in circulars issued by his Department, that it was not generally expedient to press for the vaccination of children of school age, or of adolescents who had not previously been vaccinated, unless they had been in personal contact with a case of small-pox, or directly exposed to small-pox infection.

Vaccination and Admission to Day Nurseries.—In reply to Mr. Groves, on July 26th, Sir HILTON YOUNG stated he was unaware that certain day nurseries refused to admit unvaccinated infants, some of whom had been legally exempted from vaccination by the statutory declaration of their parents. This was a matter within the discretion of the authorities of the day nursery, and he could not undertake to intervene.

Harmful Effects of Exhaust Fumes.—Mr. HORE-BELISHA told Mr. Albery, on July 30th, that the question of the harmful effects suffered in crowded thoroughfares as a result of the exhaust fumes of motor vehicles came under the consideration of a Home Office Departmental Committee a year ago. Its report did not suggest that there was any such evidence of injury being caused by exhaust fumes to the health of drivers and conductors or of persons using the highway as would justify legislative action. The examiners appointed under the Road Traffic Act, 1930, and the Road and Rail Traffic Act, 1933, however, were required to look for defects in exhaust pipes in the public service vehicles and goods vehicles which they examined.

L.C.C. and Treatment for Tuberculosis.—Sir F. FREMANTLE, on July 30th, asked the Minister of Health if he had considered the representations from the Standing Joint Committee of the metropolitan borough councils in reference to the proposals of the London County Council to provide institutional treatment for all tuberculous persons at the expense of the ratepayers, without regard to the circumstances of their patients, who had hitherto been assessed for contributions according to their means. Mr. SHAKESPEARE said that the Minister of Health did not find that he had received any such representations as were mentioned in the question.

Military and Civil Hospitals.—Major TRYON, on July 30th, informed Sir Wilfrid Sugden that the policy of the Ministry of Pensions was to make use of civil hospitals so far as possible consistently with the interests of the Ministry's patients, but there were certain types of war disability, as, for example, nervous and mental disorder, epilepsy, paraplegia, and certain types of surgical case, for which either ordinary civil institutions did not provide or which could be more suitably dealt with in specialized Ministry institutions. No change was contemplated in this policy, which would continue to be pursued so long as the interests of the patients demanded it. The number of cases (not including pensioners certified as of unsound mind in public mental hospitals) admitted as in-patients to military hospitals, including Queen Mary's Hospital, Roehampton, in 1931 was 7,501; in 1932, 6,264; and in 1933, 5,790. The number of similar cases admitted to voluntary hospitals and general civil hospitals in 1931 was 3,478; in 1932, 2,541; and in 1933, 1,966.

Medical Inspection in Board of Control Institutions.—On July 31st Dr. O'DONOVAN asked the Minister of Health if his attention had been drawn to remarks by the Recorder of the City of London concerning a woman detained at Epsom under Subsection (1) of Section 11 of the Mental Deficiency Act. Sir HILTON YOUNG said that these remarks appeared to have been based upon inadequate information. Apart from the periodical statutory review to which the Recorder referred, mental defectives in institutions were under the constant observation of the medical staff. Suitable cases were frequently given leave of absence to test their fitness for discharge, and the Board of Control could discharge any patient at any time. The question whether special inquiries should be instituted into the need of amendment of the Act with regard to the frequency of medical inspections did not therefore arise.

Compensation for Silicosis.—On the motion for the adjournment of the House of Commons, on July 30th, Mr. D. GRENFELL raised the question of compensation for silicosis. Captain CROOKSHANK said that the Home Secretary had now completed his review of the proposal submitted to him for the amendment of the silicosis compensation scheme for coal mines. The main fact which emerged was that he recognized that limitation of the scheme to particular underground pro-

MEDICAL NEWS

Aug. 4, 1934]

cesses gave rise to serious difficulties. He proposed, therefore, to extend the scheme so as to bring underground employment in coal mines generally within its scope.

Rural Water Supplies.—Sir HILTON YOUNG told Lord Scone, on July 26th, that the total estimated capital cost of schemes submitted for the £1,000,000 grant for improving rural water supplies was £2,040,000.

Food Poisoning in Lincolnshire.—Mr. SHAKESPEARE stated, on July 24th, that the Minister of Health has received reports from the district and county medical officers of health that about thirty persons in the Welton rural district of Lincolnshire have been affected by food poisoning, but that all have recovered. The cause of the outbreak has not been established, but some pickled meat is suspected.

Medical News

The Royal College of Physicians of London will be closed for cleaning on Saturday, August 4th, and will reopen on Monday, September 17th.

The next lecture-demonstration arranged by the Fellowship of Medicine and Post-Graduate Medical Association (1, Wimpole Street, W.) will be given at 11, Chandos Street, W., on August 14th, at 2.30 p.m., on hysteria; no lecture on August 7th. On August 11th, at 3 p.m., a demonstration on chest cases. A short course on fractures at the National Temperance Hospital, there will be a demonstration on chest cases. A short course on fractures will be given at St. George-in-the-East Hospital every afternoon from August 13th to 17th, at 2.30 p.m. The panel of teachers offers daily instruction in various branches of medicine and surgery.

The ninth Italian Congress of Hygiene will be held at Bari from September 20th to October 4th, under the presidency of Dr. Alberto Botti.

A conference on health education and propaganda, to which members of Cheshire local authorities, other statutory bodies, and voluntary organizations were invited, was held at Chester on July 18th. Mr. George Wright, president of the National Association of Insurance Committees and chairman of the Cheshire Insurance Committee, occupied the chair. A provisional joint committee, of which Mr. Wright is chairman, has been formed, and a draft scheme drawn up for the constitution of a Cheshire Joint Committee for Health Education and Propaganda. The object of the scheme generally is to give effect to the powers and duties of the Insurance Committee and local authorities under the Public Health Act, 1925. Dr. Ian Mackay, county medical officer of health, spoke on "Public Health—Historical, Present Services in Cheshire, and Possible Developments," and briefly outlined the development of public health work. The publicity director of the health services, Mr. F. F. Potter, director of education for Cheshire, discussed education in relation to health, hygiene, and well-being. Dr. J. W. Lobban (Chester) said his authority felt that health propaganda should be carried on to a great extent under the medical officer of health. The city council would be favourably disposed towards the scheme provided certain small matters could be adjusted.

The London County Council has issued an official statement on the dietaries of resident officers in hospitals and institutions. It appears from this that publicity has been given to a resolution passed at a "mass meeting" of officers of the Council's hospitals and institutions, held under the auspices of the National Union of County Officers at the Memorial Hall, May 16th. The resolution protested emphatically "against the system of rationing entered upon by resident officers," and the grounds upon which the protest was made included the statement "that generally the quality of the food supplied appears to be of the lowest possible standard." The resolution laying bare a communication to the L.C.C. by the National Union of County Officers, representatives of the union were invited to visit the Council's stores from which food

is supplied to the various hospitals and institutions, to inspect the supplies, and to see the general system and method in operation. This invitation was accepted, and the general secretary (Mr. G. Vincent Evans) and Mrs. B. M. Drapper visited the Council's stores at Peckham Rye on July 9th, inspected the whole of the premises and goods therein, and made a report. As the result, a communication, dated July 17th, was sent to the Council by the union, enclosing a copy of the report and stating that the union desired to withdraw completely from its submissions to the Council any question as to the quality of food as purchased by, and issued from, the supplies department, and expressing regret that any such reference was made.

The new Kent and Sussex Hospital at Tunbridge Wells was opened on July 25th by the Marchioness Camden, wife of the president. Built at a cost of £180,000, it replaces the amalgamated Tunbridge Wells and Counties General Hospital, which was established in 1828, and the Tunbridge Wells Eye and Ear Hospital, founded in 1878.

At the Manchester Assizes on July 20th Dr. John Tryweryn Lloyd, formerly of Liverpool, was sentenced by Mr. Justice Atkinson to twelve months' imprisonment in the second division on a charge of having broken recognizances entered into at the Liverpool Assizes last April when he had been found guilty of libelling and assaulting Mr. R. M. Williams, a local relieving officer. On that occasion Mr. Justice du Parc bound Dr. Lloyd over indefinitely. It was stated on July 20th that since then he had again libelled and assaulted Williams. Mr. O. G. Morris, who prosecuted, said that the relieving officer caused Dr. Lloyd's removal to hospital on suspicion of being of unsound mind.

The issue of the *Deutsche medizinische Wochenschrift* for July 20th is devoted to the proceedings of the fourth international radiological congress recently held in Zurich.

Mr. Henry Kimpton announces for early publication a new and revised edition of Professor William Boyd's *Textbook of Pathology*.

TRAFFIC IN WOMEN AND CHILDREN

A conference on "White Slave Traffic in the East" was held on July 25th at the London School of Hygiene and Tropical Medicine under the auspices of the joint standing committee of the British Social Hygiene Council and the Conference of British Missionary Societies. The Earl of Lytton presided at one session and Sir Cecil Clementi, late Governor of the Straits Settlements, at the other. The objects of this preliminary conference were to consider means for making effective the conference proposed to be held by the League of Nations (probably in Singapore) by increasing interest in the subject among non-official organizations in the East, so that co-operation between Governments and non-official organizations in combating the traffic in women might be made easier. Support for these objects was given from the Chinese and Japanese Legations, the Dutch East Indies, the League of Nations, and by the Bishop of Singapore, prominent members of Protestant and Catholic missions in the East, and the Salvation Army. The Colonial, Home, and War Office Departments of the Government were also represented. Notice was taken of the general movement of the tolerated-brothel system in Europe, for the elimination of this system in preventing disease and in assisting in the maintenance of the health of the community. Abolition of regulation and toleration and the setting up of free and efficient V.D. treatment centres, available for the whole community, were now believed to be the line of progress on the medical and health side, so that there is no longer any serious conflict between the moral and the medical outlook on the matter. A number of resolutions were carried strongly supporting further action by the League of Nations and by the various Eastern Governments, with a view to securing inter-governmental action, which at present was the main hindrance to the elimination of the traffic in women and children.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Excessive Weight in Childhood

"A B C" writes: A girl, 11 years old, weighs 11 st., and is 4 ft. 11 in. in height. Do cases like this tend to lose excessive weight at puberty? She is active in mind and body. I should be glad of any suggestions for treatment from your readers.

Nail-biting

"M.B.Ed." asks for suggestions in the treatment of nail-biting in an intelligent girl of 11, the daughter of highly educated and sensible parents. The girl is otherwise quite normal, and is apparently fit in every way, but is a little highly strung temperamentally.

Over-smoking

"F. C. R." (Sussex) would be glad to know of any way of stopping excessive cigarette smoking in a man of 34. The man has been a heavy smoker all his life, and has repeatedly tried to cut it down both for reasons of economy as well as for the symptoms produced.

Insect Bite Causing Gangrene of Finger

Dr. EDWARD C. B. IBOTSON (Jersey) sends the following additional note (see *Journal*, June 23rd, p. 1152): Dry gangrene on the back of the terminal phalanx spread down to the bone, and I had to amputate the phalanx on July 17th. Whatever the insect was, the patient states it to have been very small and hard to remove, but that the bite caused much pain. He applied tincture of iodine only. The bite was on June 10th. A groove of dry, black gangrene was present when he came first on June 13th.

Book Wanted and Found

Within a few hours of the publication of our last issue, with its request from "W. G. R." for Sutherland's *Dispensing Made Easy*, we received by hand a copy from a reader in London. Since then medical men living as widely apart as Staines, Alloa, Liss, Royston, Folkestone, Brockenhurst, and Hawick have written to say that they can let our correspondent have copies of the book.

Income Tax

Depreciation of Sun-ray Apparatus

"T. D. R." has claimed an allowance of 20 per cent. of the cost (£65) of a sun-ray apparatus, but the inspector of taxes will agree to 5 per cent. only.

So far as our knowledge goes 10 per cent. is the usual rate allowed. Electrical appliances are undoubtedly subject to heavy depreciation, and 5 per cent. is definitely inadequate.

Request for Audit of Accounts

"E. R." is a partner in a firm whose annual accounts are prepared on a model furnished by a London firm of accountants, and have hitherto been accepted for income tax purposes without question. A request has now been made for the accounts to be audited.

It is, of course, fairly common for a firm's accounts to be prepared annually by a qualified accountant, but it is most unusual for a request of the sort mentioned to be made where there are no special circumstances. Professional accounts are so much simpler to keep and to summarize than business accounts that the usual possibilities for error are comparatively small. We suggest that "E. R." should see his local inspector of taxes, point out to him the unusual nature of the request, and ask for what reason the certificate of the partner who prepares the account is considered inadequate.

LETTERS, NOTES, ETC.

Epsom College Founder's Day

Favoured by fine weather, and attended by over 1,500 guests, Founder's Day was celebrated at Epsom College on Saturday last, July 28th, when the new president, Lord Leverhulme, presented the prizes. Proceedings opened at 11 o'clock with the second day of the Past and Present cricket match, which (for the first time for over ten years) was won easily by the Old Boys, who had no fewer than seven former school captains in their side. Service was held in chapel at noon. After lunch spectators were treated to a well-varied and effective open-air assault-at-arms, and this was followed by the prize-giving in Big School. The headmaster, in his speech of welcome to Lord Leverhulme, referred to a satisfactory year's progress, which had been rounded off by a striking improvement in examination results. He enumerated the additions made to the school buildings during the year, and announced that the council had decided to put up a block of new class rooms, ablution rooms, and changing rooms on the site of the present old chemistry block. If the school could shortly get some squash courts, there should then be no need for further building for many years. The headmaster also announced that a representative of the Ministry of Health had spent a week of the summer term at Epsom College investigating the diet and muscular reactions of the boys, and he felt sure the data, when collated, would be interesting and of good purpose both to the Ministry and to the school. Lord Leverhulme, after presenting the prizes, in the course of an interesting and witty speech emphasized the necessity of encouraging a boy to follow his bent. In the evening the school choral and orchestral societies gave a performance of *H.M.S. Pinafore*.

High Therapeutics

Mr. J. D. P. GRAHAM (Glasgow) writes: Those practitioners who pride themselves on keeping up to date in their therapeutic methods may care to add the following procedure to their technique. A lady infant health visitor in the city here was concerned to learn that a certain child among her charges was suffering from bronchitis. She therefore made haste to pay a visit and inquire after the invalid. The weather was extremely hot. The mother seemed unduly reluctant to allow of the visitor's looking at the youngster, but finally her excuses were overcome, when the lady approached and was shocked to discover a ghastly smell as of putrefaction coming from the region of the child. Further investigation revealed a large piece of fat applied to the unfortunate child's chest. Unashamedly the mother explained that a piece of chicken fat tied on the "affected part" was a sovereign specific for all coughs, though in hot weather it had its disadvantages.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 112.

BRITISH MEDICAL JOURNAL

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ENCEPHALITIS *

BY

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The subject of encephalitis is specially suitable for the section of diseases of children because in so many of its forms it is the period of childhood which is principally affected. The term "encephalitis," however, must be interpreted in its broadest sense. It is used to cover a large and heterogeneous variety of conditions, some inflammatory, others toxi-degenerative, and others of a vascular nature—embolic, haemorrhagic, and thrombotic. For the clinician it is often impossible to make a pathological diagnosis with any certainty, as the symptoms presented by the patient can only indicate which parts of the brain are involved, and may be produced by a variety of causes.

In the first place, we recognize two main types of encephalitis—the suppurative and the non-suppurative. About the former, suppurative encephalitis or cerebral abscess, it is sufficient to say that it is due to an invasion of the central nervous system by pyogenic organisms, and is almost invariably secondary to infection of the middle ear and mastoid, or a complication of chronic pulmonary

Non-suppurative encephalitis covers a much wider field, and contains the bulk of our material. The last twelve years, since 1922, have been specially eventful in increasing our knowledge of the clinical and pathological aspects of encephalitis. The stimulus provided has been the wave of prevalence of spontaneous forms of meningo-encephalitis, and of nervous complications following vaccination and some of the exanthemata. Earlier in the present century, starting from about 1916, the world-wide spread of epidemics of encephalitis lethargica constitutes a separate and distinct event. Prior to these two epochs encephalitis occupied comparatively little space in medical literature, and, with the exception of polio-encephalitis, is mainly referred to under purely clinical titles, such as sporadic cases of acute hemiplegia, acute tremor, and acute ataxy.

I propose to review briefly the various types of encephalitis in the following order: encephalitis lethargica and polio-encephalitis; encephalitis as a complication of vaccination, the acute fevers, and exanthemata; and acute disseminated encephalo-myelitis of spontaneous onset.

Encephalitis Lethargica and Polio-encephalitis

Encephalitis lethargica and polio-encephalo-myelitis stand out as distinct and separate entities—diseases of virus causation, with a clear-cut pathology, and without relation to any of the other forms of encephalitis. The neurotropic virus of encephalitis lethargica has a predilection for the grey matter of the brain stem and basal

ganglia, though no part of the nervous system is exempt. In polio-encephalitis, which, compared to the spinal type, poliomyelitis, is undoubtedly a rare disease, the activity of the virus falls focally upon the grey matter of the cortex, less often the brain stem and cerebellum.

The symptoms of "sleepy sickness" are too well known to need much comment. In the epidemics of past years an acute stage was frequently observed, typified by lethargy, disturbance of the sleep rhythm, ocular paralyseis, myoclonic and choreiform movements of the limbs. Characteristic symptoms of the chronic stage are lethargy, mental changes, and Parkinsonian rigidity. Mental deterioration in intelligence and behaviour are specially common in cases occurring in early childhood. In recent years, since 1926, the prevalence of the disease has markedly declined, and an acute stage is now rarely witnessed, or is of so mild a nature that its significance escapes recognition. A few cases in the chronic stage still come to light, in children as well as in adults.

To make a diagnosis of polio-encephalitis in the absence of polio-infection in epidemic proportions is probably nearly always inaccurate. The predilection of the polio-virus for the grey matter of the spinal cord has been proved experimentally beyond any doubt. Cerebral lesions, either in man or in animals, are unusual. Even in epidemics of poliomyelitis the cerebral type of case will not account for more than 4 per cent. of the total. The usual syndromes of polio-encephalitis are a sudden onset of fever, vomiting, convulsions, and coma, with a residuum of hemiplegia, sometimes accompanied by mental defect and epilepsy, or the main symptom may be cerebellar ataxy. These syndromes, however, are common to so many types of encephalitis, following acute fevers, the exanthemata, and of spontaneous onset, that in sporadic cases the clinician can seldom be certain of their pathology.

The frequency with which a diagnosis of polio-encephalitis is made in cases of acute hemiplegia in young children dates back to 1884. In that year Strümpell published a paper, based on twenty-four cases, in only two of which was the condition a complication of measles and of scarlet fever. He cited the uniformity of the symptoms with motor paralysis, the healthy type of child affected, the early age of onset (nineteen out of twenty-four cases in the first three years of life), and claimed that the condition was a specific disease, infective in origin, closely analogous to spinal paralysis or poliomyelitis. His opinion was supported by Marie and others, but queried by Wallenberg, who remarked that, although the symptomatology of acute hemiplegia in children was sharply defined, its morbid anatomy possessed no characteristic lesion. Gowers also opposed the theory, and stated that encephalitis of the Strümpell type was a "theoretical disease."

* Read in opening a discussion in the Section of Paediatrics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Encephalitis Associated with Vaccination and Acute Fevers

The group of encephalopathies associated with the acute fevers, exanthemata, and vaccination has been intensively studied within recent years. These nervous complications have long been recognized as rare occurrences, but actually since 1922 the cases following vaccination, measles, small-pox, and chicken-pox have been more numerous.

The clinical syndromes of the encephalopathies following vaccination, the acute fevers, and exanthems are of several types, but some types tend to be more often associated with certain fevers than with others. A meningeal syndrome, or state of meningismus or serous meningitis, with headache, vomiting, cervical rigidity, Kernig's sign, and sometimes convulsions, may be observed in any of the fevers. Other syndromes are: (1) a combined cerebral and spinal type; (2) a mainly spinal type; (3) a cerebellar and ataxic form; and (4) a focal cerebral hemiplegic type.

After vaccination, measles, and small-pox the combined encephalo-myelitic and the mainly myelitic syndromes are most common. Cerebellar ataxy, less often spinal symptoms, are seen following chicken-pox. In the much rarer cases following German measles, cerebral, cerebellar, and spinal symptoms have been recorded. The focal hemiplegic syndrome is the commonest complication of whooping-cough, scarlet fever, and mumps.

The nervous complications of vaccination, measles, small-pox, chicken-pox, and German measles have many features in common. This family likeness is noticeable in the symptomatology, the uniformity of the time interval, or period of incubation, separating the primary exanthem and the nervous symptoms. Further, the occurrence of nervous symptoms seldom bears any relation to the severity of the primary exanthem, or to the size of the epidemic.

The sequence of events is generally as follows. Usually after a period of about seven days, and after a febrile period of decline of the primary exanthem, when the patient is afebrile, the nervous symptoms appear abruptly with a renewal of pyrexia. Meningeal symptoms are commonly present, and drowsiness is a prominent symptom, often deepening to coma, which may last for several days. On the return of consciousness the character of the paralysis becomes more obvious. In the encephalo-myelitic type multiple focal signs of involvement of the brain and spinal cord are observed, including diplegia, hemiplegia, and aphasia, choreiform movements, rigidity, tremor, difficulty in speech and in swallowing, absence of the knee- and ankle-jerks, with extensor plantar responses. Trismus is often observed. Ocular paralyses and nystagmus are uncommon, but some swelling of the optic disks is frequently present. In the cerebellar type the predominant feature is ataxia. The character of the spinal type is that of a transverse or an ascending myelitis, with sensory disturbances and retention of urine.

Some reference must be made to the relative frequency of these complications. The case records, prior to the last twelve years, have been very few in number, and the instances of post-varicellar complications still rarer. Dagnelie, van Bogaert, and others have estimated from the literature a total of sixty-nine cases following chicken-pox, of which fifty have occurred since 1920, with thirteen in the year 1930 alone. In measles the figures have shown a striking rise since 1924. In England for the four years 1927 to 1930 of fatal cases alone there have been twenty-five. Post-vaccinal encephalitis began to be more frequent in 1922. From 1922 to 1927 the total of cases in Holland was 170, in England and Wales ninety-three, of which nine were in infants under 1 year. A raised incidence has been reported in nearly all European countries and in America. This prevalence, however, must not be exaggerated,

for, as Rolleston states, "the proportion of cases with nervous sequels was 1 to every 33,000 vaccinations, and of deaths, 1 to every 66,000 vaccinations." Since 1929 the number of cases following vaccination has markedly diminished. Following small-pox, mostly of the modified type, a slight increase of nervous complications has occurred. Marsden and Hurst described ten cases out of 40,313 cases of small-pox notified in England and Wales between 1928 and 1931. With one exception the ages in the group were all below 15 years.

The mortality rate in the cases following these fevers is unequal. It is least in the post-varicellar cases—about 6 per cent. In the cases following measles Ford estimates the mortality at about 10 per cent., and in post-vaccinal cases the average mortality has been 30 to 40 per cent. Otherwise the prognosis is good, and recovery usually complete, though some form of paralysis, or a psychosis, such as a speech disturbance, aphasia, or abnormal behaviour, may linger for a while. A permanent incapacity of some form has apparently been more common in the cases following measles than after vaccination or chicken-pox.

In scarlet fever, encephalitis, usually of the hemiplegic type, may occur early in the fever or not until later in the period of desquamation. The nervous symptoms in whooping-cough are often delayed until after the period of paroxysmal coughing has practically ceased. Usually the syndrome consists of multiple convulsions, or whooping-cough eclampsia, in some cases accompanied by hemiplegia, diplegia, idiocy, and blindness (Baginsky, Schmitt, Turnowsky). Most cases of pertussis eclampsia are fatal, but in a few instances recovery has occurred, even with return of vision and disappearance of hemiplegia. Symptoms of meningitis or of meningo-encephalitis, with Symptomatic and meningo-encephalitic complications may also occur in many other acute infections, such as pneumonia, erysipelas (Eckel), streptococcal pharyngeal and otitic inflammation. I have seen complete recovery occur in a case of this type following a streptococcal infection of the throat and middle ear in a boy of 7 years. It is interesting to note that Freud, in 1897, stated that hemiplegia in children occurred after infective corneal inflammation. The following order of frequency: measles, small-pox, German measles, whooping-cough, diphtheria, mumps, and vaccination.

Broadly speaking, the pathological features of the encephalopathies following vaccination, the exanthemata, and other fevers are of two main types. In one the principal points are congestion, oedema, vascular endothelial proliferation, and ganglion cell degeneration. This type is known as acute toxic encephalitis, and sometimes as acute haemorrhagic encephalitis with the presence of microscopical extravasation of red cells in relation to the vessels. The distinctive feature of the other type is the presence of areas of demyelination around the small veins, chiefly in the white matter—demyelinating encephalitis. Toxic encephalitis is the form usually associated with whooping-cough and acute infections, such as pneumonia and streptococcal tonsillitis and otitis media. Some cases of scarlatinal meningo-encephalitis are of this kind, and it has also occurred in association with measles and small-pox. The onset of symptoms, however, in cases of this nature complicating measles and small-pox shows no typical incubation period, but may even precede the appearance of the rash. Toxic encephalitis is almost certainly a reaction to bacterial toxins rather than the result of a microbic invasion. Grinker and Stone have drawn attention to the fact that the characteristic cerebral vascular, endothelial proliferation, and ganglion cell degeneration has also been observed in cases of food poison-

Aug. 11, 1934]

ing, and can be produced experimentally by inorganic poisons. A purely meningeal syndrome, or serous meningitis, can also be produced by a toxæmia. Blühdorn describes ten such cases in children, three complicating pneumonia, two whooping-cough, and five of spontaneous onset.

The endotoxin of whooping-cough has been shown experimentally in guinea-pigs by Fonteyne and Dagnelie to have a highly toxic action in minute doses injected intracerebrally. An intense convulsive state was provoked with a rapidly fatal meningo-encephalitis. Dubois, Ley, and Dagnelie, in eight fatal cases of whooping-cough, found fairly distinctive anatomical changes, consisting of small-celled meningeal infiltration and toxic degenerative changes of the ganglion cells. In none of these cases had hæmorrhage occurred.

Vascular lesions as a cause of hemiplegia in whooping-cough and scarlet fever have in the past acquired an importance which cannot be justified. It is possible in whooping-cough in the early stages, during a particularly severe bout of coughing, that asphyxia may lead to vascular stasis, cerebral oedema, and even hæmorrhage, resulting in a temporary or permanent hemiplegia. I have seen cases of hemiplegia, presumably of asphyxial origin, both in whooping-cough and in asthma, and in each instance the paralysis entirely cleared up.

The second pathological type, or demyelinating encephalitis, is characteristic of the cases of encephalo-myelitis following vaccination, measles, small-pox, chicken-pox, and German measles. The origin of this demyelinating reaction has yet to be solved—whether it is due to the action of the virus of the primary exanthem itself, or due to toxins, or to a latent hypothetical virus stirred into activity by any of these fevers. In vaccination experimental research has failed to reproduce lesions analogous to the demyelinating encephalitis seen in man. Hurst states that the lesions produced in the nervous system by vaccine virus are of a totally different type.

Spontaneous Acute Disseminated Encephalo-myelitis

Under this title several conditions are grouped which present cerebral, spinal, and meningeal symptoms, either combined or separately. They arise independently of the acute fevers or exanthems, or of any known cause. One form is clinically and pathologically indistinguishable from the cases of encephalo-myelitis following vaccination and measles. It shows the same demyelinating feature. Hurst considers that it should be regarded as an independent clinical and pathological entity, whether following one of the fevers or arising spontaneously. The spontaneous cases within recent years have occurred in children and young adults, and if the condition existed formerly it was either unrecognized or excited little interest.

Another form resembles in both clinical and pathological features the toxic encephalitis complicating acute infections—pneumonia, tonsillitis, and scarlet fever. It has been described under several titles: acute meningo-encephalo-myelitis of childhood, acute toxic or serous encephalitis (Brain and Hunter, Brown and Symmers), Both sporadic and epidemic cases have been recorded. Recovery is often complete in non-fatal cases, but the mortality has varied in different epidemics. In Brown and Symmers's ten cases of "acute serous encephalitis," aged 2 years and 2 months to 7 years, all died. Cases of a mainly meningeal type have been described as "epidemic serous meningitis," or "epidemic meningitis minor" (Schlesinger, Braithwaite and Innes). In Braithwaite and Innes's series of thirteen cases in children between 9 weeks and 6 years old, five were spontaneous and six secondary to mild bronchopneumonia.

It is difficult to know where to fit in the spontaneous cases in young children of acute tremor, acute ataxy, and acute hemiplegia, of which there are a large number of records in the literature (Poynton, Miller). Very little is known of the pathology of these conditions, as they are seldom fatal, and their causation is obscure, though they are possibly of toxic origin. In the cases of acute ataxy, and of acute tremor with hypertonus, nystagmus, and scanning speech, recovery is usually complete. In the cases of acute hemiplegia the paralysis is permanent, and often accompanied by amentia and epilepsy. This condition occurs chiefly in healthy young children, most often in the first three years of life (Taylor, Osler), and early symptoms are fever and a convulsive state, lasting for several days or longer. In such a case, which succumbed to bronchopneumonia, I had the opportunity of making a post-mortem examination, and found a thrombosis of one anterior cerebral artery, with no evidence of arterial disease elsewhere.

The Cerebro-spinal Fluid.—In all these forms of non-suppurative encephalitis the state of the cerebro-spinal fluid is fairly uniform. It may be normal, or show a slight rise in the protein percentage and a small or moderate increase of cells, which are mainly lymphocytes. Occasionally a turbid fluid is encountered, especially in the cases following measles, and polymorphs may predominate. A diagnosis of tuberculous meningitis is apt to be made in the early stages, but on subsequent lumbar punctures the persistence of normal percentages for the chlorides and glucose excludes this possibility.

Treatment.—Besides its diagnostic use, lumbar puncture is of value in alleviating the symptoms, and should be performed daily in the acute stage. Convalescent sera in the cases following vaccination (Horder, Hekman), and after measles and chicken-pox, have been used with apparent success, but the use of these sera must be empirical until more is known of the causation of these nervous complications.

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Major G. D. Jameson, R.A.M.C., in his annual report to the Gibraltar City Council, states that the general health of Gibraltar was good in 1933, when the zymotic death rate was the lowest recorded during the past decade. The infantile mortality rate was lower than in any previously recorded year. During a short period in the autumn, water for drinking purposes was supplied from wells at North Front to supplement the existing rain-water supply. This water was chlorinated before distribution, and the scheme worked successfully.

TYPHUS FEVERS IN THE TROPICS*

BY
SIR JOHN MEGAW, K.C.I.E.
MEDICAL ADVISER TO THE INDIA OFFICE

The title of the present discussion is "Tropical Typhus," but this name is obviously inappropriate, as the fevers with which we are dealing occur just as frequently in cold countries as in hot. A more suitable name is "Typhus Fevers in the Tropics," and although some experts are sure to object, I will adopt this until something better is suggested.

I propose to deal with the typhus fevers very briefly and in an elementary manner from the historical, clinical, and epidemiological points of view. I shall make little reference to the virus of the fevers: this omission is not due to any lack of appreciation of the very valuable contributions made by laboratory workers to our knowledge of these diseases, but to the fact that Dr. Fletcher and Dr. Felix, who have done so much to elucidate this aspect of the subject, are expected to take part in the discussion. My remarks are intended to provide a sketchy background to the very interesting observations which they are sure to make.

Typhus as an Epidemic Disease

"Every schoolboy knows" that the name "typhus fever" was originally applied to typhoid and relapsing fever as well as to typhus. In 1837 Still and Gerhard showed that typhoid fever was a distinct disease, and in 1843 Henderson differentiated relapsing fever. In 1862 Murchison emphasized the contagious nature of typhus fever. Nicolle and Conseil, in 1909, proved that the disease could be conveyed by lice. Between 1906 and 1910 Ricketts and Wilder suggested that the bodies now known as Rickettsia bodies were the causal organisms of typhus fever and Rocky Mountain spotted fever. In 1910 Wilson of Belfast discovered that the sera of typhus patients agglutinated organisms of the *coli* group which had been isolated from cases of the disease. He was careful to point out that he did not regard this agglutination response as indicating that the organisms caused typhus fever. Weil and Felix in 1916 described the reaction which is now known by their name; they used an organism called "*Proteus* X 19."

Until recently typhus exanthematicus was regarded as being essentially different from the other fevers which resembled it so closely in their clinical features; the reason being that these fevers were in sharp contrast with typhus in not being epidemic diseases associated with crowding, poverty, filth, and lice, and in not being directly communicable from man to man. Accordingly, even the spotted fever of the Rocky Mountains, which closely resembles typhus, was regarded by nearly all observers as belonging to a different disease group, until Wolbach, in his masterly monographs on the subject in 1916 to 1919, showed the essential similarity in the pathology of these two fevers. Sambon, however, had previously insisted that they were really the same as typhus fever.

So long ago as 1897 Brill of New York had discussed the relation between the disease which now goes by his name and typhus fever; he concluded that the epidemiological differences were so great as to make it impossible to place the two fevers in the same group, but in 1912 Brill's disease came to be regarded as an inter-epidemic form of typhus, because its virus was found to protect animals against typhus.

TYPHUS FEVERS IN THE TROPICS

[THE BRITISH MEDICAL JOURNAL]

At this date the position was that typhus fever was regarded as a unitary disease, while the Rocky Mountain and Japanese fevers were considered as belonging to a different category; they were known to be communicated from rodents to man by ticks and mites respectively.

Insect Vectors in other Diseases Resembling Typhus

A brief reference must be made to some fevers, the aetiology of which was not known at first, but which are now recognized as belonging to the typhus disease group. In 1910 Smithson in Queensland described a fever resembling Brill's disease; he suspected that the vector was some insect living in sugar canes. The same year Conor and Bruch described a similar disease in Tunis, and called it "fièvre boutonneuse." In 1911 McNaught gave an account of an anomalous form of paratyphoid occurring in South Africa. In his report he makes a significant reference to a suggestion by Colonel Maher that the fever might be connected with ticks, since he found that the onset of the patients had been bitten by ticks prior to the report. McKechnie, in 1913, wrote a very interesting report, unfortunately never published, of a fever prevalent in one locality in the Kumaon region of the lower Himalayas. He called this fever typhus, and suggested fleas, bugs, and mosquitos as possible vectors. Two years later, in 1915, Schüffner described a pseudo-typhus fever in Sumatra, and suspected a tick or mite of being the vector. The name given by Schüffner would probably be more correctly translated into English as pseudo-typhoid, as I understand he was thinking of typhus abdominalis rather than typhus exanthematicus.

Non-Epidemic Typhus in India

My own experience of a non-epidemic typhus fever was thrust upon me rather than sought. In June, 1916, while in the near neighbourhood of the place where McKechnie had already reported his cases of typhus, I found a tick on my neck in circumstances which indicated that it must have attached itself about twelve hours earlier. Some twenty days later, after returning to Lucknow, I began to suffer from fever with a step-like rise in temperature; within four days an eruption appeared, which recalled to my mind the descriptions I had read of the Rocky Mountain fever. At that time no human disease was known to be conveyed by a tick in India, so I had light-heartedly thrown away a very interesting specimen which, within a few days, assumed considerable importance as being the only likely vector of my attack of fever.

I wrote an account of my case in the *Indian Medical Gazette* of January, 1917, in which I suggested that the tick must have been either *Rhipicephalus sanguineus* or *Hyalomma aegypticum*. This, I think, was the first case in which definite evidence was produced of a tick being the vector of a typhus-like fever outside the Rocky Mountain fever zone. I also suggested that McKechnie's Kumaon fever and the fevers described by Conor, McNaught, and others should be classed with the spotted fever of Idaho and Brill's disease as a subgroup of typhus fever, differing from that fever in being conveyed by ticks or fleas, in being place diseases, and in having no connexion with lice, famine, dirt, or overcrowding. I fell into one serious error in regarding the low virulence of these diseases as being an important feature in differentiating them from classical typhus, but apart from this I have nothing to retract from what I wrote there eighteen years ago.

Several readers of my note, including Major-General Sprawson and Colonel Chapman, sent me accounts of similar cases which they had observed in various places in India. On the strength of these reports and after further study of the subject, I felt justified in suggesting

* Read in opening a discussion in the Section of Tropical Diseases at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

in a paper published in the *Indian Medical Gazette* of October, 1921, that a fever conveyed to man from an animal of the wilds by a tick was widely distributed in India and probably in other parts of the world; that this could not be clearly distinguished from the Rocky Mountain fever; and that it, with the other sporadic typhus-like diseases, should be classified as members of the typhus fever group. Accordingly, I suggested the classification "louse typhus," "tick typhus," and "mite typhus." In later papers I produced evidence of the frequent occurrence of tick typhus in various parts of India as well as in other countries, and added to my previously proposed classification another heading—namely, "typhus of unknown vector."

Fletcher's Work in the Federated Malay States

Apart from work in the Rocky Mountain, Japanese, and Indian areas, there was little evidence of interest in the sporadic typhus fevers until 1926, when Dr. William Fletcher described a number of cases of "tropical typhus" in the Federated Malay States. Dr. Fletcher was struck with the resemblance between his cases and those described by me in India, but he found no evidence of tick bite, and the agglutination response to *proteus* X organisms was quite different in his cases from that observed in India. In the Indian tick typhus the Weil-Felix reaction was usually negative, or positive only in such dilutions as 1 in 80 or 1 in 100 to *proteus* X 19, whereas Fletcher found two sharply contrasted groups of cases, one of which gave a strongly positive reaction to *proteus* X 19 and was negative to the Kingsbury strain of *proteus*, while the other reacted to the Kingsbury strain of *proteus* X but was negative to *proteus* X 19. At first the differences between the two forms of tropical typhus and tick typhus were rather puzzling, but recent work indicates that there really are three distinct types of sporadic typhus—namely, tick typhus, mite typhus, and flea typhus—and that each of these shows a distinct characteristic agglutination response towards *proteus* X organisms.

Apart altogether from its great intrinsic value, Dr. Fletcher's report was very important in attracting the attention of the medical world to these sporadic typhus fevers. Within the past few years a vast number of observations have been published showing that the fevers of the typhus group are very widespread in their distribution and of considerable practical importance.

It was not until 1930 that Durand, Conseil, and Brumpt demonstrated the conveyance of "fièvre boutonneuse" by a tick, *Rhipicephalus sanguineus*, which was one of the two suspected by me in 1916. Now we know also that the form of sporadic typhus which conforms to Brill's description is conveyed from rats to man by fleas, so that to my previous provisional classification there must now be added another subgroup—"flea typhus."

Need for Uniform Nomenclature

A few words must be said on the subject of the classification of the typhus fevers. Dr. E. W. Goodall objected to Dr. Fletcher's use of the name "tropical typhus," on the ground that all the typhus fevers ought to be called typhus pure and simple, irrespective of the vectors concerned and any other differences that exist between them. While I object to the name "tropical typhus," I object much more strongly to the position adopted by Dr. Goodall, for although the sporadic fevers are very similar to louse typhus in their clinical and pathological features, they are poles asunder in their epidemiology and in the measures that are called for in their practical management. If the name "typhus" were applied to all fevers of the group without further

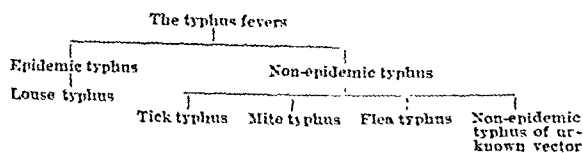
qualification a very misleading suggestion would be conveyed.

Disease nomenclature is intended to be helpful to the medical man, and should be as simple as possible, but if we attempt to secure simplicity by lumping together things that are essentially different the only result will be confusion. The classification of the typhus fevers is a matter of real importance, and I take this opportunity of appealing once more for the adoption of a uniform and rational nomenclature. The need for this step is evident when we consider that more than a dozen different names were given to the sporadic typhus fevers in a single recent issue of the *Tropical Diseases Bulletin*. Here is an incomplete list of twenty-seven names which have been used during the past few years for these fevers: spotted fever of the Rocky Mountains, fièvre boutonneuse, fièvre exanthématique, fièvre escharo nodularis, eruptive fever, macular fever, Marseilles fever, jungle typhus, spotted fever of the Eastern type, tick-bite fever, tick fever, Brill's disease, tropical typhus, endemic typhus, sporadic typhus, shop typhus, ship typhus, murine typhus, tabardillo, Mexican typhus, flea typhus, Manchurian typhus, Japanese river fever, tsutsugamushi, pseudo-typoid of Deli, Mossmann fever, and mite typhus. This is an appalling list, the only redeeming feature of which is the growing tendency to use the name typhus. Place names are obviously unsuitable; they suggest that the disease is restricted to one locality—for example, I could not have described Indian tick typhus as Rocky Mountain fever. Names like "spotted" or "macular" are also unsatisfactory; there are so many fevers in which spots or macules appear that the name becomes meaningless.

My provisional suggestion that the word typhus qualified by the name of the vector should be employed was open to criticism, because the vector was often unknown or doubtful. This perfectly sound objection can only be met by a frank confession of ignorance when the actual vector is unknown or doubtful, and accordingly employing the non-committal general term "non-epidemic typhus" to indicate those fevers which are not conveyed from man to man by lice as contrasted with "epidemic typhus," which has a human reservoir of infection. The term "endemic" would be neater and better than "non-epidemic," but it has already been earmarked as a name for flea typhus, and therefore could not be used without risk of confusion.

Suggested Classification

Evidence is now accumulating to show that the specific agglutination response of each of the non-epidemic typhus fevers is associated with the vector concerned, so that we may soon be able to classify the fevers according to the vector, even when there is no direct evidence as to which arthropod is responsible in any given case. With the rapid accumulation of more knowledge of the geographical distribution of the fevers, difficulty in assigning each case to the appropriate vector should soon disappear. Until something better is proposed I therefore suggest the following modification of my original classification.



This classification is not ideal, since, apart from the occasional difficulty of determining which vector is concerned, we are not yet able definitely to state that there are four distinct types of virus. In louse, tick, and mite typhus the evidence is already fairly strong that each

THE MEDICINAL TREATMENT OF CHOREA
(CALCIUM ASPIRIN)BY
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Discussion will be confined to chorea of Sydenham's type in children. Debatable cases of adult hysteria, pregnancy chorea, and conditions such as Huntington's chorea with gross structural changes in the central nervous system have been excluded.

General Considerations

The anatomical basis of the disease is still uncertain, and such changes as have been described are attributable to pyrexia, capillary emboli from coincident endocarditis, or confusion in diagnosis with the choreiform varieties of epidemic encephalitis. The basal difficulty is that in its typical form Sydenham's chorea is not fatal. Practically all recorded post-mortems have been carried out on cases of rheumatic endocarditis and pericarditis complicated by chorea, and not on patients dead from chorea itself. The most careful histological research, with modern methods on a typical case, by Shaw²³ did not reveal any morbid changes other than simple hyperaemia. It can be assumed, therefore, that the anatomical changes are negligible, and not such as to preclude complete recovery. If the patient is suitably rested and cared for, the spontaneous recovery rate approaches 100 per cent., so that the effect of a drug can only be assessed in terms of its ability to lessen the duration or severity of the attack. The average duration is usually accepted as six to ten weeks, but some cases drag on for months. For greater discrimination some method of grouping is essential.

1. Mild chorea, in which speech is not definitely affected and the patient can feed and dress himself with more or less difficulty.
2. Moderate chorea, in which coarse voluntary movements can still be performed, but the patient cannot feed or dress himself.
3. Severe chorea. Violence or pseudo-paresis now prevent all purposeful voluntary action. Bed boards and other protective measures are required.

Adopting a somewhat similar grouping Sutton²⁹ records sixty-three undrugged cases.

Group	Average Duration	Extremes
1. Mild	35 days	10-65 days
2. Moderate	46 "	19-120 days
3. Severe	67 "	30-180 days

The general average was 47 days.

There is no reason to believe that the general characteristics of the disease have undergone any material change in the last eighty or ninety years. Already by 1846 H. M. Hughes⁷ had dealt with the matter at Guy's. A few years later Séé²⁷ recorded an extensive clinical and aetiological analysis in Paris, and Trousseau discussed it at the New Sydenham Society. In 1874 Pye-Smith²⁴ reviewed the Guy's Hospital figures again, and in 1897 Morley Fletcher¹⁴ did the same at St. Bartholomew's. The chief clinical features have remained constant throughout. The disease has persistently occurred about three times as commonly in females as in males. The age of maximum incidence has always been between eight years and puberty. Urban districts have been more affected than the country, and the association with articular rheumatism and inflam-

virus is different from the others; at any rate there is no case on record of direct communication of tick or mite typhus from one person to another, and, after all, the manner of conveyance of the diseases is by far the most important practical matter from the physician's point of view. Flea typhus is so closely related to louse typhus in its immunological and serological aspects that careful research will be needed to determine whether or not the virus of louse typhus can ever be transmitted by fleas. If this virus be transmissible by fleas it must be greatly attenuated in the process, since flea typhus is the one type which has never been found to be severe. There is no evidence that any of the non-epidemic typhus fevers has ever started in a louse-borne epidemic, so that although there may be some mental reservations regarding the relation of the fevers, practising physicians can safely base their action on the hypothesis that epidemic and non-epidemic typhus fevers are essentially distinct from each other.

Differential Diagnosis

I have already referred to the error into which I fell eighteen years ago with regard to virulence; the truth is that tick typhus and mite typhus may be very mild or very severe. The same applies to a lesser extent to louse typhus, which is sometimes quite mild. Flea typhus alone has a consistent record of mildness so far, although severe or even fatal cases have been recorded. Another point which is sometimes relied on for differential diagnosis between the various forms of non-epidemic typhus is the presence or absence of local necrosis at the site of infection associated with lymphangitis. This feature is sometimes present and sometimes absent, both in tick typhus and mite typhus; it cannot, therefore, be relied on as a point of distinction between the two fevers. Agglutination and animal inoculation tests are not always conclusive, so that when there is no positive evidence regarding the vector difficulty may arise at times in individual cases in distinguishing between the three types of non-epidemic typhus.

On the other hand, there will seldom be any difficulty in deciding whether any given fever belongs to the epidemic or non-epidemic group if all the circumstances of each case or outbreak are investigated. After all, the chief concern of the medical man is to decide whether he is dealing with a disease which calls for extremely careful precautions to prevent spread to other human beings or with a disease not communicable from man to man.

Serological tests against two or more varieties of *proteus* X organisms will often be of great help in diagnosis, and knowledge of the local conditions will usually make it possible to be reasonably certain of the particular vector which is concerned.

We are now at an interesting stage of the investigation, and with so many intelligent observers at work throughout the world we seem to be rapidly approaching the time when the non-epidemic typhus fevers will be completely rescued from the small and rapidly diminishing group of fevers of unknown or doubtful aetiology. The most astonishing feature of the non-epidemic typhus fevers is that they escaped recognition so long in many parts of the world, in spite of their striking and characteristic features.

Volume XII of the *Guide to Current Official Statistics of the United Kingdom* is now available. It contains a list of the titles and prices of the statistical volumes issued during 1933 by the Governments of Great Britain and Northern Ireland, and an alphabetical index of their contents. Copies can be obtained from H.M. Stationery Office (1s. net, 1s. 5d. post free).

mation of the heart has been uniformly common. The mortality has been steady at about 2 per cent. If these facts are borne in mind it becomes comparatively easy to discard most of the older methods as powerless to change the general course of the complaint.

Therapeutic Measures

Methods have been varied and ingenious, and routes of administration many.

By Mouth.—Sodium salicylate, arsenious oxide, mercury, antipyrine, aspirin, chloral, chloretone, trional, bromides, luminal, nirvanol and other hypnotics, thyroid, parathyroid, and iodine.

Subcutaneously.—Adrenaline, sodium cacodylate, Rosenow's antiserum, and varieties of antistreptococcal sera.

Intravenously.—Novarsenobenzol, hypotonic saline.

Intramuscularly. Sulpharsphenamine, milk, typhoid vaccines, and T.A.B.

Intrathecally.—Magnesium sulphate, colloidal silver, gentian-violet, 1 per cent. phenol, atoxyl, sodium salicylate.

Per Rectum.—Avertin and paraldehyde.

Various Measures.—The removal of tonsils and other foci of sepsis and irritation; the ketogenic diet.

Although most of these methods can be dismissed as useless a few call for special discussion.

NIRVANOL

Nirvanol, or phenyl-ethyl-hydantoin, a near relation of the barbiturates, was first introduced as a hypnotic, but soon discredited because of its great tendency to produce skin eruption. It was reintroduced in 1919 by Roeder,²³ in Germany, as a specific for chorea. Her results were confirmed in Germany (1924-5) by Schmal,²⁴ E. Hefter,⁴ and Husler,⁵ and subsequently by a host of workers in Germany, America, and England. Even in 1932 its praises were still sounded, thirteen years after its introduction (Dennett and Wetchler¹). It would appear to be quite established as a drug which shortens the attack in a useful proportion of cases, in spite of the adverse report from a minority of clinicians—for example, Weinfeld and Cohen.²⁵ The treatment is drastic. A week is occupied in saturating the patient with the drug. Then follows a period of fever, rash, and severe constitutional disturbance. The method is not free from risk, and a certain number of deaths have been attributed to its use. It may cause serious leucopenia, loss of platelets, purpura, mucosal haemorrhage (Jones and Jacobs⁹), bloody diarrhoea, jaundice (Keller¹⁹), severe lung complications (Piltz,²² also Jones and Jacobs⁹), and damage to the kidneys (Pilcher and Gerstenberger²¹).

These universally disagreeable and sometimes dangerous side actions preclude any general employment of the drug in private practice. In my personal experience the biochemical trauma produced by the drug has impressed me far more than its efficacy in controlling the chorea.

KETOGENIC DIET

Increased muscular excitability in conditions of alkalosis and tetany led to the suggestion that, in a converse manner, hyperexcitability might be depressed by the production of artificial acidosis. With this end in view a diet containing an excessive proportion of fat is given. The ratio of fatty acid to glucose is made 2:1 and graduated until the ratio becomes 4:1. On this regimen acetone quickly appears in the urine, although the pH of the blood and the plasma bicarbonate are not easily modified. Some authors have reported improvement in chorea, but the most recent records by Gerstley and Wile,³ of fifteen closely observed cases, failed to show any advantage in the method at all; such has been my own experience.

PYROGENETIC METHODS

Since the introduction of the malarial treatment for general paralysis in 1918 by Wagner and Jauregg, many other pyrogenic substances have been employed: inoculation with *Treponema hispanicum* and with the organism of rat-bite fever; intravenous injection of typhoid vaccine; and, more recently, intramuscular injections of colloidal sulphur.

Mas de Ayala¹⁵ was probably the first to apply the method in chorea, using *Treponema hispanicum*; but mixed typhoid and paratyphoid vaccine proved much more convenient, and remarkable success has been claimed for this measure by Sutton²⁷ (1931) and by Trawley, Pepper, and Wathe²¹ (1932). About 250 millions of the mixed organisms are injected, and the dose steadily increased daily. A peak of temperature is produced in about three hours, and the temperature is normal four or five hours later. The method appears to cut short the attack effectively. It must, however, be classed as drastic treatment. The patients are decidedly exhausted and anaemic afterwards, and require a considerable period for convalescence (Mandel¹⁴). It is clearly desirable to find some simpler therapy if possible.

Three Aetiological Factors

A consideration of the three commonly recognized aetiological factors—rheumatism, nervous strain, and calcium deficiency—has led me to adopt a gentler type of treatment.

RHEUMATISM

The association between chorea and rheumatic fever is too close to be ignored. Mackenzie,¹² in 1887, recorded a history of rheumatic fever in 26 per cent. of his cases. Morley Fletcher,¹³ in 1896, found the incidence to be 26.9 per cent. among the in-patients at St. Bartholomew's. The corresponding figures for endocarditis among chorea patients are: Hughes (1846), 50 per cent.; Mackenzie (1887), 32 per cent.; Morley Fletcher (1896), 37 per cent.

These figures are still representative of the condition in more modern times. More careful analysis shows also that the severity of the rheumatic lesion varies in parallel with the severity of the chorea. Thus in the same series of chorea cases rheumatic fever occurred in only 19 per cent. of mild out-patient chorea cases, but in 27 per cent. of more severe in-patient types. Similarly, heart murmurs were present in 22 per cent. of mild cases, but in 49 per cent. of those requiring treatment in the wards. The intimate relation between the two conditions can be accepted as established beyond dispute.

NERVOUS STRAIN

It is difficult to discuss this factor on an actuarial basis. A history of fright or of persistent strain from overwork or excitement is given by a large number of the children concerned. The patient is frequently described as alert and bright intellectually before the chorea begins, although powers of attention and application may be seriously impaired later. Sedatives and tranquillity undoubtedly diminish the violence of the movements, even if they do not shorten the attack.

CALCIUM DEFICIENCY

In the latter half of the last century Isambard Owen reported that the topographical distribution of chorea seemed to follow that of rickets, and in 1927 the Medical Research Council¹⁷ reported that general poverty was the only environmental factor which appeared to be operative in the production of the rheumatic troubles of childhood. More detailed analysis proved elusive.

MEDICINAL TREATMENT OF CHOREA

THE BRITISH
MEDICAL JOURNAL

It has long been known that a lack of calcium leads to increased muscular excitability (Biedemann,¹ Loeb,¹¹ Lucas¹²), manifesting itself in spontaneous twitches, rhythmic contraction, and increased sensitiveness to electrical stimuli. The excitability of the motor cortex also rises as the calcium concentration falls. In man a fall in serum calcium leads to increased electrical excitability of the muscles ending in tetany. Recently Carter-Braine, Spurrell, and Warner¹³ demonstrated increased response of the muscles to galvanic stimulation in chorea, and Warner¹³ has correlated this with a deficiency of calcium in the serum and cerebro-spinal fluid. In his series of carefully controlled cases he shows that in active chorea there is always a calcium deficit, that this is greater in severe cases than in mild ones, and that the percentage fall is more conspicuous in the cerebro-spinal fluid than in the blood. In a typical case he found during the height of a severe attack. During the first month no appreciable clinical headway was made, and the calcium value fell a little to 4.62. A month later the attack had subsided completely, and the calcium had risen to 5.74. The normal value from collected data ranges from 5.1 to 6.5 mg. per 100 c.c.m. (Neustaetter,¹⁰ Neale¹⁹). That a disturbance in calcium metabolism occurs in the condition is firmly established, but its causation is still a matter for research.

Calcium Aspirin

In the simple substance calcium aspirin we possess the means of dealing with these three aetiological factors simultaneously. It supplies an adequate amount of calcium, produces a useful sedative effect on the brain, and combats the rheumatic element if given in appropriate doses. The drug has been known for many years, but in spite of its attractiveness has never come into general use, because of its instability. It dissolves readily in water (1 gram dissolves in 5 c.c.m.), in contrast with the neutral solution suitable for administration by vein (Cambell,³ Pritchard,²³ Burnford²⁴) or subcutaneously, as tasteless, and being neutral does not cause the gastric or bladder irritation so commonly observed when aspirin itself is given (Winter and Richey²⁵). Its solubility facilitates absorption (Thompson and Dragstedt²⁶), so that its effects are produced very quickly when given by mouth or rectum.

The difficulty of its instability has at last been overcome. Even simple aspirin exposed to air slowly decomposes with the liberation of pungent acetic acid and irritant free salicylic acid. Contact with water greatly increases the speed of hydrolysis. The simple salts of aspirin contain water of crystallization, which cannot be withdrawn, and hydrolysis is so rapid that the products become unusable before they can reach the patient through the usual channels.³⁰ Coplans has recently shown that this water can be "fixed" by the addition of a small proportion of extra calcium. By crystallization from a solution of calcium chloride a form of calcium aspirin is obtained with a stability approximately equal to that of the parent acid aspirin itself,¹⁶ and completely suitable for general clinical use. Calcium aspirin (Coplans), when taken by the mouth, causes a rise in the calcium content of the blood (Mutch¹⁶). The satisfactory nature of the clinical results can be judged from the following series of hospital and private cases treated during the last three years. The patients were kept in bed, and those treated in hospital were screened off partially from the rest of the ward. Bed boards and other protective measures were

employed as needed. A light, mixed diet was given, and very careful attention paid to the cleanliness of the digestive tract. The only drug employed (exclusive of aperients) was calcium aspirin (Coplans), dissolved in water and administered by mouth. The average daily dose varied up to 45 grains for a child 12 years old. The nineteen cases treated can be placed in the groups already defined: (1) mild, five cases; (2) moderate, eleven cases; (3) severe, three cases. The rapidity of response did not vary accurately with the original severity of the choreic movements; mild cases sometimes proved more resistant than severe ones. The criterion of cure or arrest taken by various authors is not always the same. To remove all ambiguity in the cases under discussion the attack was not registered as over until the condition had so far improved that an average medical man would have had difficulty in diagnosing the case as one of chorea at all. Spontaneous movements had ceased. Voluntary movements were of average accuracy, and the patient could sustain a steady hand-grip for a minute or more without fluctuation.

CASE HISTORY

One typical case (Case 12) will be quoted, and the rest will be summarized in a table.

A girl, aged 16, was admitted on October 28th, 1932, for chorea. First attack four years ago; tonsillectomy three years ago; second attack two years ago. Present attack began two days before admission. Movements were violent, and involved all parts of the body. Boards were fixed to the sides of the bed to prevent the patient from falling out. Voluntary movements could not be performed usefully. A slight systolic bruit could be heard at the apex, but there was no evidence of active endocarditis. Temperature almost normal. No joint pains.

October 26th: Onset of attack. October 28th: Calcium aspirin (Coplans) 15 grains t.d.s., given daily. November 7th: Movements almost disappeared; bed boards removed; could feed and dress herself with ease. November 11th: No movements discernible; impossible to demonstrate the case as one of chorea. Complete arrest was achieved after fourteen days of treatment and within sixteen days of the onset of a severe attack. The extreme limits recorded for spontaneous cure in such cases are thirty to 180 days, and the average is sixty-seven.

Table of Cases

Case	Age	Sex	Group	Attack	Maxi- mum Pyrexia	Heart	Joints	Daily Dose	Time Required for Arrest
1	7	F	Mild	1	99.2°	Normal	Normal	grains 30	days 12
2	12	F	Severe	1	98.8°	Apical systolic bruit	Normal	45	16
3	9	M	Moderate	1	99.8°	Normal	"	30	10
4	14	F	Mild	2	101.6°	Apical systolic bruit	Pains	60	19
5	11	M	"	2	98.6°	Normal	Normal	45	9
6	9	M	Moderate	1	102.6°	Endocarditis	"	30	46
7	13	M	"	1	99.4°	Normal	"	45	20
8	12	F	"	3	98.4°	"	"	45	8
9	8	M	"	1	99.0°	"	"	30	12
10	6	F	"	1	99.8°	Apical systolic bruit	"	25	14
11	10	F	Mild	1	101.4°	Normal	"	30	28
12	16	F	Severe	3	98.8°	"	Pains	45	14
13	12	F	Moderate	2	99.2°	"	Normal	45	21
14	9	M	"	1	101.2°	"	"	30	16
15	17	F	"	2	98.2°	"	Pains	60	15
16	11	M	Severe	1	99.6°	Apical systolic bruit	Normal	45	11
17	8	F	Moderate	1	102.0°	Normal	Pains	20	13
18	12	F	"	1	100.6°	"	"	45	24
19	9	F	Mild	1	99.4°	Endocarditis	Normal	30	7
						Apical systolic bruit	"		

The average time taken to control these patients was seventeen days, and the limits seven to forty-six days respectively; figures which compare very favourably indeed with the average expectation of thirty-five days for mild chorea cases and the sixty-seven days for severe ones referred to in the earlier part of this paper. The drug diminished the discomforts of the patients at all stages of the treatment, and did not produce any of that mental depression which accompanies the use of chlorotone and certain other hypnotics. There was no undue drowsiness or digestive derangement. There was no relapse or secondary exhaustion when the drug was finally withdrawn.

Conclusions

Calcium aspirin (Coplans)* affords a method of treating chorea without occasioning exhaustion, discomfort, or risk to the patient. It is less toxic^{14, 20} than acetyl-salicylic acid itself, and is free from the irritant action of the parent substance on the stomach and bladder. It is freely soluble, almost tasteless, and is rapidly absorbed. It has a triple action: (1) anti-rheumatic, (2) correction of calcium deficiency, (3) sedative to the brain.

The best results are secured when the patient is kept in bed during treatment and protected from undue emotional and mental stress.

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* Calcium chloride is present in this stabilized preparation to an extent approximating to the formula
 $(C_6H_5(OCOCH_3)CO_2)_2 \cdot CaH_2O + 1/3 CaCl_2$

The Health and Cleanliness Council (5, Tavistock Square, W.C.1) has issued a revised edition of its pamphlet first issued in 1926, incorporating suggestions for a local health and cleanliness campaign. Supplies are available for distribution free of charge, and applications for copies should be addressed to the secretary, Miss Norah March, B.Sc., at the address given above. The advisory board of the council consists of Dr. George F. Buchan (chairman), Dr. Sophia Friel, Miss J. Halford, Professor H. R. Kenwood, and Dr. Eric Pritchard.

THROMBOSIS OF THE PENIS AND URETHRAL HAEMORRHAGE*

BY

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Thrombosis may occur either in the veins of the penis or in the corpora cavernosa. The latter consist of spaces which fill with arterial blood when the penis is in a state of erection. This is only a part of the physiological process leading to enlargement of the organ. The glans is the terminal portion of the corpus spongiosum, and also distends with blood in the presence of sexual excitement.

The causes of a persisting enlargement of the penis are either nervous or vascular, and each can be recognized by the shape of the organ. Priapism is due to a nervous lesion, and the appearance of the penis is similar to that seen in the physiological state. On the other hand, thrombosis of the corpora cavernosa leads to the formation of a hard and tense swelling of the whole organ, *except the glans*. If the clotting is more extensive in one corpus than the other deviation occurs, and the penis is bent to the side which is more thrombosed. There are three diseases which may lead to the clotting of the blood in the cavernous spaces. They are malignant disease of the left kidney, lymphatic leukaemia, and arteriosclerosis. Whichever the cause, the condition is fortunately rare.

The explanation of the reason why thrombosis of the corpora cavernosa occurs in carcinoma of the left kidney is purely anatomical. The spermatic vein on this side of the body enters the renal vein. If the latter becomes blocked with growth at the point of entry of this tributary, stagnation of the blood occurs in the penis and left testicle, so that not only does pseudopriapism occur, but there is a temporary swelling of the latter due to the block in the pampiniform plexus. These veins can be felt as a hard mass in the inguinal canal. No original observations can be made on penile thrombosis due to lymphatic leukaemia, for the writer has never seen a case. However, most textbooks describe it as a complication of this blood disease, and it must be accepted as a fact unless proved to the contrary.

With regard to arteriosclerosis as a causal agent, two cases of thrombosis of the penis have been investigated in which the local lesion has been proved to be due to arterial disease. A study of the literature reveals that a considerable number have been described in which the cause is stated to be unknown. More accurate observation would have cleared up the mystery. In view of the fact that the nipple of a female breast consists of erectile tissue it is probable that thrombosis has occurred in this organ also in relation to arterial disease, but such a case has yet to be recorded.

Thrombosis: Case Records

The details of the two cases of thrombosis of the penis are as follows:

The first case to be carefully investigated was that of a man, aged 35, who was admitted to Whips Cross Hospital with the whole of the penis, apart from the glans, swollen and hard. The enlargement extended back to the bulb. The history was that the swelling had been of gradual onset, a period of three days having elapsed before it reached its full size. During this time repeated coitus had failed to produce any change in the organ. On admission the patient was in considerable distress, and complained of difficulty in micturition. There was no pain. The medical officer,

* A communication read before the Dutch Urological Association at Amsterdam, April, 1934.

believing the condition to be due to a nervous lesion, tried the effect of spinal anaesthesia, with a negative result. Leukaemia was then excluded by an examination of the blood. The Wassermann reaction was negative. Marked thickening of all superficial arteries was noted. The systolic blood pressure was 145. The urine was normal. In three weeks the penis had resumed its natural size, and the patient was then discharged. It is now over twelve months since this patient was in hospital. Every effort has been made to trace him, but letters remain unanswered.

The second case is of a more recent date. The patient, aged 45, has an exactly similar history to that of the first case. Again the medical officer thought he was dealing with a nervous lesion, and injected stovaine into the theca, with an unsatisfactory result. The patient was obviously suffering from arteriosclerosis, the radial arteries being hard and tortuous. The Wassermann reaction was negative, as was also the examination of the blood for leukaemia. The systolic blood pressure was 130. Urine normal. The patient discharged himself from hospital one week after admission, with no change in the size of the penis. This was at the beginning of July, 1932. Three months later, in answer to a letter, he presented himself for examination. The history was that the penis had become normal in size three weeks to a month after the onset of the swelling. He stated that he was enjoying good health apart from occasional headaches. His systolic blood pressure was 140, ten points higher than in July, 1932. Definite thickening could be felt along each corpus cavernosum. The patient stated that he was impotent. Sexual desire was strong, but there was no response in the penis, evidence that the nervous mechanism controlling coitus was intact, but the vascular system defective.

Local treatment in these two cases consisted of the application of evaporating lotions to the perineum, but it should be remembered that absorption of the clot occurs irrespective of either surgical or medical interference. Some writers advocate incisions into the corpora cavernosa, which shows their lack of understanding of the pathology of the lesion.

The other type of thrombosis of the penis occurs in acute infective processes of the urethra, the best example of which is gonorrhoea. In this condition it is the superficial veins which tend to clot, leading to oedema of the prepuce and subcutaneous tissues. It is really a case of phlebitis in an unusual situation. Resolution occurs slowly, but no permanent ill effects follow this complication. Dr. J. L. Morton reports to the writer that he has had under his care a man with thrombosis of the dorsal vein who has suffered for many years from syphilitic arteriosclerosis.

The study of urethral haemorrhage introduces problems of great pathological interest. Bleeding may occur either at the beginning or the end of micturition. On the other hand, it may be entirely independent of the passage of urine, and, lastly, it will take place during coitus.

Haemorrhage

There is no need to discuss in detail the causes of urethral haemorrhage in association with micturition, for they are well recognized. Any acute urethritis—gonococcal, tuberculous, or that due to the *Bacillus coli*—by the severity of the inflammation, will give rise to the dripping of blood, either before or after micturition. Also tumours of the urethra, such as papilloma and carcinoma (both rare diseases in this situation) cause haemorrhage. Again, a stone impacted in any part of the urethral tract may cause bleeding. One case of haemorrhage immediately after micturition is worthy of record on account of failure to discover the cause.

The patient was a well-built lad of 16½ years, who complained of a pain at the end of the penis after micturition, followed by a profuse flow of blood from the urethra. Quite two tablespoonfuls of blood were seen to escape immediately after micturition had ceased. The cause of the bleeding remains a mystery, in spite of all the known methods of

investigation, such as cystoscopy, urethrography, urethroscopy, urine analysis, and examination of the blood. All proved negative to disease except the urethroscopy, which revealed what looked like a small ulcer on the ventral aspect of the mucous membrane of the bulbous urethra. Irrigation daily with a solution of one in 10,000 silver nitrate has failed to stop the bleeding, and one is forced to the conclusion that the condition is due to self-inflicted trauma.

The best-known examples of urethral haemorrhage independent of micturition are rupture of the tube, complete or incomplete, and damage to the mucous membrane due to instrumentation. It must not be forgotten that the passage of a bougie, catheter, or cystoscope, however gently handled, always causes bleeding. With the skilled urologist this is only detected by the microscope. Occasional spontaneous urethral haemorrhage will occur from the vessels which supply an adenomatous prostate. Oozing of blood may be continuous and of such severity as to cause clot retention. This complication is in no way caused by the act of micturition, but is probably initiated by straining at stool.

Lastly, we have to consider what may be termed urethral epistaxis in relation to coitus. It is only within the last few years that this phenomenon has been recognized as a manifestation of serious arterial disease. Previously it was labelled "malade imaginaire." Three cases have been carefully studied and kept under observation; one patient still being alive and the other two dead. Their notes are given in full in the presidential address to the Section of Urology, October, 1933, but it may be helpful to recapitulate some of the salient points in the clinical histories.

The first case was dismissed as an anxiety neurosis, and it was only when the patient, 35 years of age, brought his pyjamas stained with blood to the consulting room that it was realized a mistake in diagnosis had been made. It was then decided to examine carefully the vascular system. All the superficial arteries were clearly sclerotic and the systolic blood pressure raised. The urine showed evidence of changes in the kidneys, hyaline and granular casts being present. The loss of blood during coitus continued until the patient became seriously ill with chronic nephritis, from which he eventually died.

Thus the sequence of events in the medical history is that this young man suffered from arterial disease from an early age, that the strain of coitus on occasions caused rupture of a blood vessel of the urethral mucous membrane, and that the uraemia from which he died was the result of arteriosclerosis.

The second case was that of the editor of a well-known paper, a man aged 45, who had a severe haemorrhage into the prepuce during coitus. He also gave a history of urethral haemorrhage. It was already known that for some years he had suffered from arterial disease and hyperlipis. A few months after being treated for the haematoma of the prepuce he died of cerebral haemorrhage.

The third patient is still alive, having been under medical observation for the past two years. He also has had urethral haemorrhage during coitus, due to arteriosclerosis and high blood pressure. Chronic nephritis is present, but, in spite of his disease and the fact that he is 64 years of age, he continues to work, and makes few complaints about his health.

Conclusion

These cases demonstrate very clearly how important it is that the urologist shall be just as much a student of medicine as he is of surgery. In fact, if he is satisfied to confine his interests to instrumental and operative technique, he will gradually disappear as an expert in diseases of the genito-urinary tract. The urologist of the future must be a man competent to diagnose accurately all constitutional diseases which first manifest themselves by purely urinary symptoms.

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POSTURAL DRAINAGE OF THE LUNGS*

BY

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The assumption of the upright posture has necessitated readjustments which affect every anatomical structure in the body and modify all the vital physiological processes. As a secondary outcome of this posture many spaces of the body are so situated that gravity causes their contents to accumulate farthest from their natural outlet.

In the upright position the upper respiratory tract is situated above the lower respiratory tract and can drain freely into it, and even in the supine position lipiodol, if it is introduced into the nasopharynx while the patient is heavily asleep, will enter the bronchi. This fact explains the close relation between nasal and bronchial infection. Through force of habit the majority of people sleep with two pillows, and patients with respiratory infections are provided with twice or three times this number, so adopting a position in which gravity drainage is impossible.

The natural methods of emptying the tracheo-bronchial tree of accumulated secretion are on the whole extremely inefficient. 'Ciliary action only removes minute particulate matter such as dust or bacteria, and is of no value when there is much secretion.' Although a peristaltoid movement of the bronchi has been described by one or two observers, its existence is extremely doubtful. Coughing is, of course, the physiological method by means of which secretions in excess are expelled from the tracheo-bronchial tree. The cough reflex functions very rapidly distal to this, and a high degree of tolerance to the presence of pus can be obtained. Reinberg¹ observed that when he ran opaque material in through a bronchial fistula no cough was produced until one of the primary bronchi was filled, and I have been surprised when bronchoscopic long-standing cases of bronchiectasis to see the whole of the lower lobe bronchus completely filled with pus without the patient having any desire to cough. The expulsive force of the cough is considerably hampered by the contraction of the lumen and shortening of the bronchi which occur during expiration and, even more so, on coughing. In children the lumen of a bronchus appears through the bronchoscope to close completely on coughing. The cough also scatters pus throughout both lungs, and the deep inspiration which precedes the cough drives it distally. In addition, coughing is a severe drain on the strength of a debilitated patient.

Intermittent Postural Drainage

The inadequacy of the physiological methods of cleansing the lung when secretion is considerable has led me to investigate the assistance which might be obtained from posture—namely, of using gravity to empty the lungs. It is clear that postural treatment is only likely to be successful and can only be properly applied when a precise anatomical knowledge of the position and direction of each broncho-pulmonic unit is obtained. What is usually implied by postural drainage, however, is the tilting of the patient into an almost vertical position with the head downwards for a few minutes several times a day. This should be called intermittent inverted postural drainage. It is effective in clearing the trachea and primary bronchi of accumulated secretions, but has very little effect on the secondary or tertiary bronchi, which

are the ones affected in bronchiectasis. In a case of bronchiectasis, if bronchoscopy is performed immediately after this type of posture quantities of pus will still be found in the lower bronchi, and lipiodol will often remain there for a week or more, in spite of frequent inversion of the patient. In the case of lung abscess, the communication with the bronchus is rarely large enough for the free escape of pus, and this brief inverted posture only gets rid of that which has overflowed into the main bronchi. It is obvious that this posture can be of no assistance in draining those bronchi which do not run upwards towards the mouth. Again, the sudden change into a head-downwards position is distressing to adults, and with acutely ill patients is usually impracticable.

Continuous Postural Drainage

The object of this paper is to describe a technique for continuous postural drainage as opposed to intermittent postural drainage. This is no new idea,² and was described by William Ewart³ in 1901, and later referred to by him as the "empty bronchus treatment by posture in the bronchiectasis of children." By this means the area of suppuration, whether it is bronchus or pulmonary cavity, is subject to an almost continuous drainage, which permits the pus to find its way out and prevents its reaccumulation. In continuous drainage the posture is maintained not for minutes but for hours at a time, and it must therefore be more or less comfortable, so that the patient can even sleep in the correct position. The posture must be such that the bronchus leading from the affected area is dependent, and the bifurcation of the trachea is the centre to which drainage is directed, and not the mouth. This can be expressed diagrammatically by imagining the chest to be a sphere, the centre of which is the bifurcation of the trachea and the affected area a cone in this sphere; then the correct posture is obtained by placing the sphere so that the base of the cone is uppermost. By means of a gentle cough pus can easily be expelled from the trachea, and if it has accumulated there while the patient is asleep leaning over the side of the bed on waking will assist its expulsion.

Anatomy of Postural Drainage

The postures which are here suggested for internal bronchial drainage are based on investigations which I have carried out on the bronchi and their distribution in the lung. This anatomical work will be published elsewhere, and only the briefest outline is given in this paper. The three figures (Figs. 2, 3, and 4) are tracings from lipiodol fillings of the bronchi; each comes from a different case, and they are chosen because of their close approximation to the average anatomical arrangement. It is customary to describe the lungs as having three lobes on the right side and two on the left, but despite this fact the internal structural relations are the same on the two sides and are symmetrical. It is therefore permissible to describe the two lungs in terms of four principal areas—namely, upper, middle (ventral), dorsal, and lower, which are set out in Fig. 1.

Upper Lobe, Right Lung

The bronchus to the upper lobe of the right lung arises from the lateral wall of the main bronchus, opposite to the bifurcation of the trachea (see Fig. 2). It runs horizontally outwards, lying in the same plane as the trachea and primary bronchi, and cannot, therefore, be identified in Fig. 3. After a course of approximately 1 cm. it divides into three branches:

1. *Apical*.—Running upwards, outwards, and slightly backwards to supply the true apex above the level of the clavicle and the posterior surface of the lobe (see Figs. 2 and 3).

* Work done under the Ernest Hart Memorial Scholarship of the British Medical Association, 1932-3.

POSTURAL DRAINAGE OF THE LUNGS.

[THE BRITISH
MEDICAL JOURNAL]

2. *Axillary*.—Continuing the direction of the parent bronchus outwards to supply the axillary surface of the upper lobe. This can be seen in Fig. 2, but in Fig. 3 all except one small branch is in cross section.

3. *Pectoral*.—Running horizontally forwards to supply that portion of the upper lobe lying underneath the pectoral muscles between the clavicle and the fourth rib in front. In Fig. 2 this is in transverse section, but can be seen in Fig. 3.

Upper Lobe, Left Lung

The bronchus to the upper lobe of the left lung corresponds on the left side to a composition of the upper and middle bronchi of the right side. Its origin is from the antero-lateral surface of the left main bronchus at its termination, and after a course of less than 1 cm. it divides into two component parts—namely, left upper bronchus and left ventral (middle) bronchus (see Fig. 1).

On account of its low origin, the left upper bronchus and its branches all tend to have an upward direction. The

apical (above clavicle), and posterior portions of the upper lobe. These bronchi can be seen in Figs. 2 and 4.

Middle Lobes, Left and Right

The bronchus to the right middle lobe arises from the anterior surface of the right main bronchus, about 2 cm.

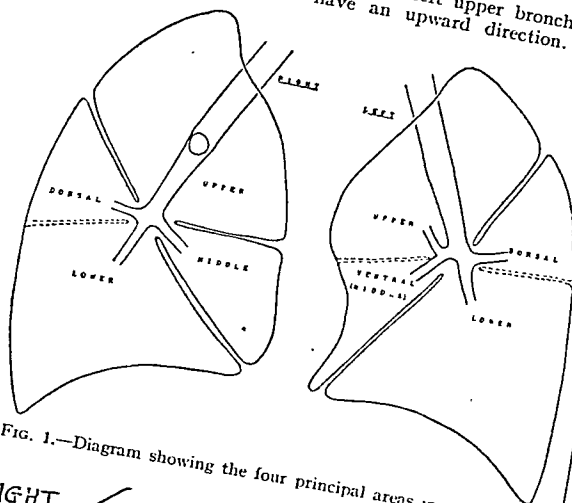


FIG. 1.—Diagram showing the four principal areas in each lung.

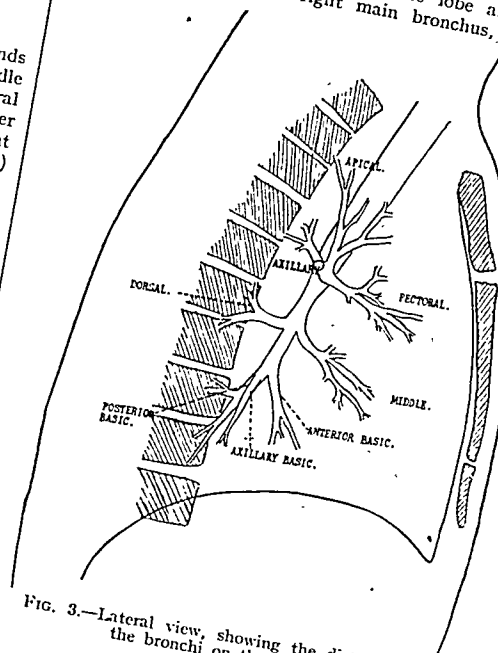


FIG. 3.—Lateral view, showing the distribution of the bronchi on the right side.

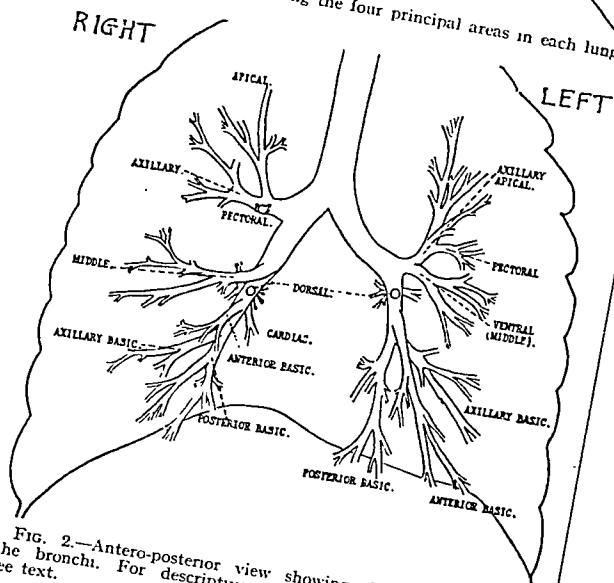


FIG. 2.—Antero-posterior view showing the distribution of the bronchi. For descriptive details of anatomical figures, see text.

bronchus itself is not more than about 5 mm. in length, and runs upwards and slightly outwards (see Figs. 2 and 4). It then divides into two branches:

1. *Pectoral*.—Running upwards, outwards, and forwards to supply the pectoral portion of the left upper lobe between the level of the clavicle and the fourth costal cartilage.
2. *Axillary-apical*.—Running upwards and backwards, and, as its name implies, supplying branches to the axillary,

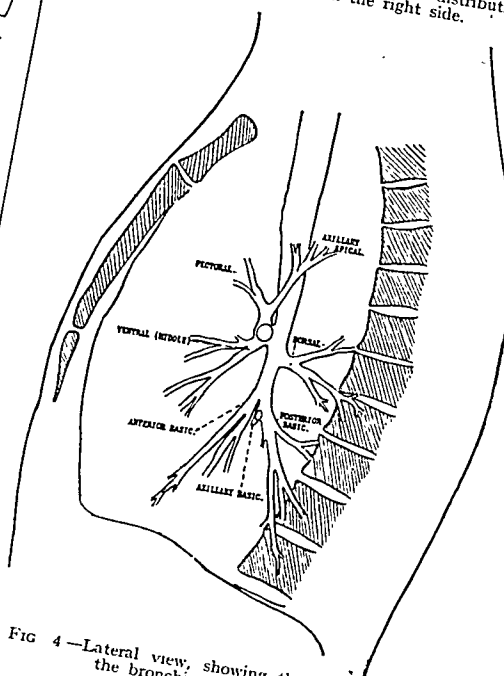


FIG. 4.—Lateral view, showing the distribution of the bronchi on the left side.

below the bronchus to the upper lobe, and runs forwards, outwards, and downwards (see Figs. 2 and 3). The middle "lobe" of the left lung is that portion situated below the plane of the fourth costal cartilage, and occasionally there is an actual fissure separating it from the rest of the upper lobe (see Fig. 1). The bronchus to this area arises, as I have explained above, from the bronchus to the left upper lobe, and runs outwards, forwards, and downwards (see Figs. 2 and 4).

The Dorsal Area

By the dorsal area is meant the upper part of the lower lobe. Although usually incorporated in the lower lobe, this area is occasionally separated from the rest of the lobe by a fissure. Anatomically, and clinically it acts independently of the rest of the lower lobe, and is entitled, as I have said elsewhere,¹⁰ to be called the dorsal area, and the bronchus that supplies it the dorsal bronchus (see Fig. 1).

The right dorsal bronchus arises from the posterior surface of the right main bronchus, almost opposite the origin of the right middle bronchus (see Fig. 3). It will thus be seen that the right main bronchus terminates by dividing into three branches—middle, dorsal, and lower. The dorsal runs a short course horizontally backwards, and then divides into branches which supply the upper portion of the right lower lobe. The extent of the area supplied is variable, and may be a quarter of the whole lobe.

The left dorsal bronchus springs from the posterior surface of the left lower bronchus practically at its commencement, and has a direction and distribution like its corresponding member on the other side. In Fig. 2 the origin of this bronchus is seen on both sides as a circle, with its tertiary branches just visible, but in Figs. 3 and 4 they are shown clearly.

Lower Lobes, Right and Left Lungs

On both sides the bronchus to the lower lobe gives off at its commencement the dorsal bronchus, as I have mentioned above; it then continues for about 2 cm. and terminates by dividing into anterior-basic and posterior-basic bronchi; the latter then gives off a large branch from its lateral surface—the axillary-basic bronchus. On the right side there is a separate cardiac branch arising from the medial wall of the lower lobe bronchus; it runs downwards and slightly inwards and backwards, to supply a small area lying just below the root of the lung. On account of its small size this bronchus will not be considered again.

The anterior-basic bronchus springs from the antero-medial surface of the lower lobe bronchus at its termination, and then runs downwards and outwards and forwards to supply the cardiac surface and the antero-inferior angle of the lower lobe (see Figs. 2, 3, and 4).

The axillary-basic bronchus comes from the lateral surface of the posterior-basic bronchus at its origin, and runs downwards and outwards to supply the axillary surface of the lower lobe (see Figs. 2 and 3), but in Fig. 4 this bronchus can only be seen at its commencement.

The posterior-basic bronchus continues the line of the main bronchus and lower lobe bronchus downwards, backwards, and slightly outwards (see Figs. 2, 3, and 4). It is the largest of the four branches, and supplies the posterior surface of the lower lobe below the dorsal area, the so-called "base" of the lung.

Localization of Lesions

The correct posture cannot be determined until we know the exact position of the lesion. For this we depend on physical signs and x-ray examination. Physical signs, when present, are of the greatest value in the localization of a lesion, but when they are only vague or absent altogether we must fall back on the x-ray.

In bronchiectasis the diagnosis and localization of the lesion cannot be made by physical signs alone. For the latter x-ray examination is by far the most valuable method. It is necessary to have either stereoscopic films or two views of the chest taken at right angles to each other—namely, antero-posterior and lateral—before it is possible to state the exact position of a lesion. It is customary to centre the x-ray tube at the level of the manubrio-sternal junction, so that in the film the clavicles and posterior ends of the fourth ribs are superimposed. In addition, the tube should be at least four feet distant from the film. The description that appears in the next section is based on films taken under these conditions. For the purpose of posture the antero-posterior film is divided into three zones—upper, middle, and lower—by two horizontal lines, the first passing through the first costal cartilage and the second through

the fourth costal cartilage (see Fig. 5, A): the significance of this division will be discussed in the next section.

In a normal lateral film the following features can be observed. Anteriorly is the sternum, posteriorly the vertebrae, forming a concave line, and, below, the diaphragm (see Fig. 5, B). There are two opaque areas: one is caused by the shoulder girdle, and is at the apex of the chest posteriorly (it varies with the position and size of the limb); while the other is caused by the heart, and lies anteriorly just above the diaphragm. There are also two translucent areas: one above the heart and anteriorly and the other between the heart and the vertebrae. The trachea is seen as a clear band running downwards and backwards through the upper part of the lung field, one-third of the distance from the vertebral bodies to the sternum. This clear area terminates at about the level of the sixth rib, and on the right side there is at this point a small oval translucent area, which is at the origin of the middle and dorsal bronchi and in the plane of the oblique fissure. If the axis of the trachea is continued downwards and backwards as a straight line it reaches the diaphragm just anterior to the vertebrae: this line can conveniently be called the tracheal axis. The position of a lesion in relation to this axis is described as anterior (pectoral), posterior (dorsal), or, when it is situated on the line, as lateral (axillary).

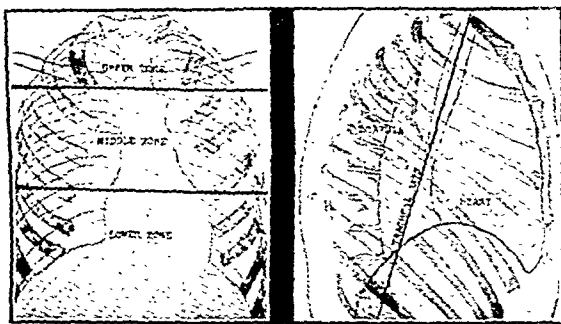


FIG. 5.—Showing the antero-posterior and lateral views of the normal chest.

The axillary border of the scapula may be seen somewhere between the trachea and the posterior border of the vertebrae.

Bronchiectasis requires lipiodol for its localization, and it is wisest not to fill both sides at the same time because of the confusion when they are superimposed in the lateral view. When filling the lower bronchi the patient should, in addition to the usual reclining position, be inclined forwards and then laterally for part of the time, so that the oil enters the anterior and laterally running bronchi: frequently the lateral film shows that only the posterior-basic bronchus has been filled. Even in the best lateral films it is sometimes difficult to find an opacity that is clearly visible in the antero-posterior view, owing to its being superimposed on the opacity of the heart or vertebrae. For this reason the ideal method of localization is by stereoscopic films, and they have another advantage that in the case of lipiodol both sides may be filled at the same time. It is unfortunate, however, that stereoscopic films are not in general use in this country, and for this reason I have confined the discussion to the antero-posterior and lateral films.

The Postures

The posture which a patient should adopt will depend on the position of the pulmonary lesion. In the antero-posterior x-ray film the lesion may be in the upper, middle, or lower zone. The upper zone is in reality the apex of a cone, and as it is supplied by one bronchus

POSTURAL DRAINAGE OF THE LUNGS

[THE BRITISH
MEDICAL JOURNAL]

this area does not require any subdivision. The middle and lower zones, on the other hand, are each subdivided according to the lateral x-ray film into three areas— anterior, lateral, and posterior. The lung fields are thus divided into seven areas on each side of the chest, and for each of these areas there is a different posture. For purposes of postural drainage the two sides of the chest may be considered as symmetrical, with one exception, which will be mentioned later.

The Upper Zone

In this zone the main extent of the opacity is situated above the level of the first costal cartilage: it always extends up to the apex, and may extend downwards towards the root of the lung. In the lateral film the opacity is at the apex posteriorly, and cannot be distinctly seen owing to the opacity caused by the shoulder girdle. This area is supplied on the right side by the apical bronchus, and on the left side by the apical branch of the axillary-apical bronchus. On both sides the surface of the lung corresponding to this bronchus (later referred to as the surface distribution) lies mainly behind, above the spine of the scapula but extending forwards as far as the clavicle; physical signs may be found over this area. The posture for a lesion in this position is sitting upright—namely, the Fowler position.

The Middle Zone

This zone extends from the first to the fourth costal cartilage. According to the position of the lesion in the lateral film this zone is subdivided into three areas.

1. *Pectoral*.—In the antero-posterior film the opacity is situated between the second and fourth ribs in front, in the centre of the lung field, while in the lateral film it lies anterior to the tracheal axis in that normally clear area between the trachea and sternum. This area is supplied on both sides by the pectoral bronchus, which has a surface distribution in front of the chest between the clavicle and the fourth rib: physical signs may be found over this area. The posture for a lesion in this region is lying flat in bed on the back—namely, supine.

2. *Axillary*.—In the antero-posterior film the opacity is situated between the second and third ribs in front in the outer half of the lung field, and extending to the periphery. In the lateral film the opacity overlies the trachea, which cannot therefore be distinguished, and may also extend posterior to this axis. On the right side this area is supplied by the axillary bronchus, and on the left by the axillary branch of the axillary-apical bronchus. On both sides this bronchus has a surface distribution in the axilla above the line of the sixth rib: physical signs may be found over this area. The posture for a lesion in this region varies slightly on the two sides. When it is on the right the patient should be lying flat and rotated on to the left side—namely, the lateral position; but when it is on the left the patient should be sitting up at an angle of approximately 45 degrees and rotated on to the right side.

3. *Dorsal*.—In the antero-posterior film the opacity is situated in the inner half of the lung field, and appears to be in the hilum of the lung. In fact, an abscess in this situation has frequently been called a hilar abscess, but when a lateral film is taken it will be seen to lie posterior to the tracheal axis, overlying the body of the seventh, eighth, or ninth

vertebra. On both sides this area is supplied by the dorsal bronchus, which has a surface distribution posteriorly in the region of the inferior angle of the scapula, and it is here that physical signs may be found. The posture for a lesion in this region is lying flat and turned over on to the face—namely, the prone position—and when the lesion is on the right side the patient's head is turned to the right, and vice versa.

The Lower Zone

This zone extends from the level of the fourth costal cartilage down to the diaphragm. Like the middle zone, it may be subdivided into three areas:

1. *Middle and Anterior-basic*.—In the antero-posterior film the opacity is situated between the fourth rib in front and the upper surface of the diaphragm when it is in the middle lobe, or laterally and in the costo-phrenic angle when it is in the anterior-basic bronchus. In the lateral film the opacity lies anterior to the tracheal axis and is superimposed upon that of the heart, and in this view it is practically impossible to distinguish a middle from an anterior-basic lesion. This area is supplied by two bronchi: (a) the middle lobe bronchus on the right and the ventral on the left, which have a surface distribution in front of the chest below the fourth costal

cartilage, where physical signs may be found; (b) the anterior-basic bronchus, which has only a small distribution on the costal surface of the lower lobe in the anterior axillary line about the level of the sixth rib, where physical signs may be found. The posture for a lesion in the middle or anterior-basic regions is lying flat on the back with the foot of the bed raised about twelve inches.

2. *Axillary-basic*.—In the antero-posterior film the opacity is situated below the level of the fourth costal cartilage in the outer part of the lung field. In the lateral film it lies in the shadow of the heart and the anterior surface of the bodies of the vertebrae. On both sides this area is supplied by the axillary-basic bronchus, which has a surface distribution on the lateral surface of the chest wall below the sixth rib. The posture for a lesion in this position is lying on the opposite side in the lateral position, as for an axillary lesion, but with the foot of the bed raised about twelve inches.

3. *Posterior-basic*.—In the antero-posterior film the opacity is situated in the lower zone, and extends down below the level of the diaphragm, and on the left side it may be obscured by the shadow of the heart. In the lateral film the opacity lies mainly behind the tracheal axis, over the bodies of the lower thoracic vertebrae. This area is supplied by the posterior-basic bronchus, which has a surface distribution behind over the so-called "base of the lung." The posture for a lesion in this region is lying prone with the foot of the bed raised about twelve inches. It is for lesions in this position that the postural drainage bed, described below, has been designed (see Fig. 6).

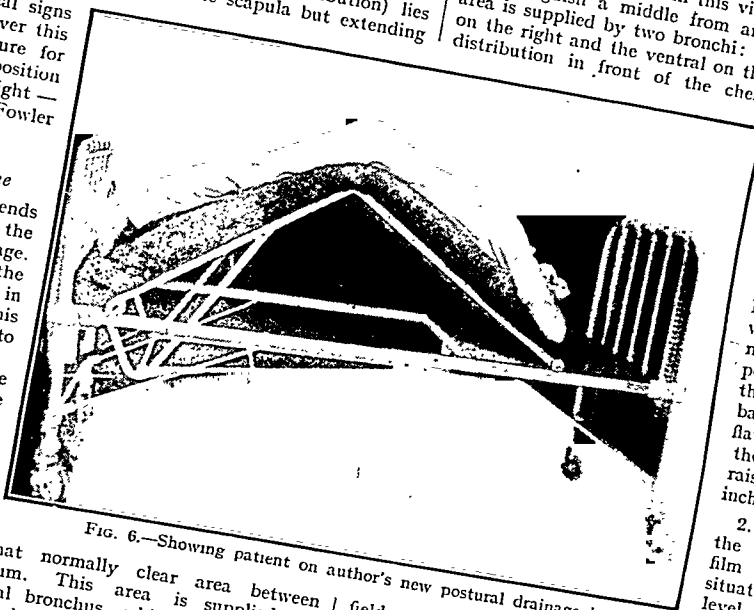


FIG. 6.—Showing patient on author's new postural drainage bed.

The Application of Postural Drainage

In spite of the statements made by some authorities that patients themselves usually discover the position in which they drain most satisfactorily, I find, generally, that they are sitting up in bed and in a position in which

they are inclined to cough the least. By examination of the patient and the x-ray film the best posture is determined, and the patient is instructed that he should lie in such-and-such a way. The reply "But that is the one position in which I cannot lie because it makes me cough all the time" confirms the decision. With unwilling patients I usually suggest that to begin with they should adopt the position for ten minutes three times a day before meals, and then I find that this period can gradually be increased, until in the end the posture is maintained for at least three periods of two hours during the day and for the greater part of the night. In patients who are acutely ill the sudden change from the sitting-up position may be extremely embarrassing, in which case they must be gradually lowered during the course of several days. There is usually an increase in the quantity of sputum, followed by a gradual diminution.

In the foregoing section lesions confined to definite localized areas of the lung have been described, but frequently two or more contiguous areas are involved at the same time, as, for example, all the tertiary branches of the lower bronchus or the apical and axillary branches of the upper lobe bronchus. In these circumstances one principal posture must be adopted which is more or less common to them all—namely, the horizontal for a middle zone lesion or with the foot of the bed raised for a lower zone lesion. Again, the lateral position, being half-way between prone and supine, is found to be the most useful, with occasional changes into the prone and supine. I have noticed the frequent combination of bronchiectasis in the posterior-basilar and middle or ventral bronchi; in these cases the patient is placed on the postural drainage bed or with the foot of the bed raised, and spends part of the postural time prone and part supine.

A Postural Drainage Bed*

In this bed (Fig. 6) the mattress frame is hinged across the middle, and on winding a handle at the foot of the bed the centre gradually rises. Before starting to "wind up," the patient's pillows are removed, and he lies in the prone position with the anterior iliac spines opposite the hinge; on winding up, the head, thorax, and abdomen hang down on one side and are counterbalanced by the lower limbs on the other. The maximum inclination that can be obtained in this bed is 45 degrees, but this is too steep for most cases, and especially for adults, who should be placed between 20 and 30 degrees. At the lower end of the bed the legs have adjustable inner tubes, so that the foot of the bed can be raised eighteen inches. The same bed can be used flat for the lateral and supine positions.

Summary

1. The advantages of a continuous posture are compared with the disadvantages of an intermittent posture.
2. The drainage should be towards the bifurcation of the trachea.
3. A brief account of the anatomy and distribution of the larger bronchi is given.
4. In the localization of pulmonary lesions the lateral x-ray film is as important as the antero-posterior one.
5. When lesions are considered according to their position in the antero-posterior film, those in the upper zone are treated in the sitting position, those in the middle zone by lying flat, and those in the lower zone with the foot of the bed raised.
6. When lesions are considered according to their position in the lateral film, those occurring anterior to the tracheal axis are treated in the supine position, those on the tracheal axis in the lateral position, and those posterior to it in the prone position.

* This bed has been made for me by Hoskins and Sewell Ltd., of Bordesley, Birmingham.

7. Some practical points in the application of postural drainage are mentioned.

8. A new postural drainage bed is described for the treatment of basal lesions in the prone position.

A full report of cases treated by these postural methods will be published elsewhere.

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Clinical Memoranda

A CASE SHOWING CULLEN'S SIGN

The rarity of Cullen's sign of extrauterine gestation, together with certain unusual features of the case, warrant record. The patient herself noted the condition, and the diagnosis was made originally on the presence of this sign.

CLINICAL HISTORY

C. S., aged 34, after seven years of childless marriage, had a normal menstrual period from August 5th to 9th, 1933. Six weeks later she consulted her doctor on account of vague lower abdominal pain of fourteen days' duration, but did not mention that suppression of the expected menstrual period had occurred. Abdominal examination did not suggest anything abnormal, and she was given mist. alba as a placebo. On the afternoon of September 26th, 1933, seven weeks after the last period, whilst taking tea with a friend, she experienced some accession of pain and examined her own abdomen. She "did not like the look" of some marks there, and sent for her doctor, who, on seeing the marks, made a diagnosis of tubal gestation. I saw the patient in consultation with Dr. Cathie of Felling-on-Tyne about an hour later. She was a spare woman with a well-marked acne rosacea; temperature 98.4°; pulse 80. Since being seen by Dr. Cathie she had commenced to pass a certain amount of dark blood per vaginam. She complained of pain, with periodic exacerbations in the hypogastric region, and the bladder was distended to the size of a five months pregnancy. On relief of this pain by catheterization she described her pain as being situated over the left iliac fossa. One inch below and to the left of the umbilicus was a purple, almost black, clearly cut mark 3/4 in. by 1/4 in. shaped like a comma. Below it, about the junction of the upper third and lower two-thirds of the distance from the umbilicus to the pubes, was a "bruise," bluish in colour, about 1 in. in diameter, whilst abutting on the inguinal fold was a reddish-purple mark like a fresh bruise, shaped roughly like the ace of clubs, about 2 1/2 in. in diameter. Neither of the two lower marks was so clearly cut or so intense in coloration as the upper mark. The whole was within the triangle formed by the midline and a line drawn to the umbilicus from the middle of the left inguinal ligament. On bimanual examination a soft mass the size of a hen's egg was evident in the left tubal region. There was not any evident dullness in the flanks.

OPERATION

She was admitted to the Royal Victoria Infirmary, Newcastle-upon-Tyne, where I opened the abdomen and removed the distal

half of the left Fallopian tube, which contained an ampullary pregnancy surrounded by a little blood clot. The tube was not ruptured, but a little dark blood was oozing from the abdominal ostium. In the peritoneal cavity there were not more than 3 or 4 oz. of dark fluid blood. Inspection of the parietal peritoneum did not show anything abnormal in the region of the subcutaneous stains, whilst incision into the subcutaneous fatty tissue proved the stains to be true ecchymoses. The right tube was sealed at its abdominal ostium and bound down by old adhesions in the pouch of Douglas. The patient made an uneventful recovery and left hospital ten days later. The ecchymoses had by then faded considerably and, indeed, progressed as any bruise does.

COMMENTARY

The sign was first described by Cullen¹ in 1818, and since then has been noted by several American and Continental surgeons, but I have not been able to trace a record of a case in the British literature. Cullen's case is described as having "the umbilical region bluish black." There were $1\frac{1}{2}$ quarts of blood in the peritoneal cavity. It is not stated whether the coloration was a true ecchymosis or mere staining by blood pigment, nor whether it was limited to the side on which the pregnancy had occurred, as in the above case. Schumann² showed that the sign was not pathognomonic of extrauterine gestation, for he noted bluish discoloration about the umbilicus in a case with a highly suggestive symptom-complex which at operation proved to have a normal intrauterine pregnancy and bilateral acute purulent salpingitis. Cope³ mentions "bluish discoloration in the region of the navel" as an inconstant sign of extrauterine gestation.

It is an interesting speculation as to how the blood reaches the subcutaneous tissues. In the present reported case I forecast that there would be an intraligamentary rupture of the tube with a broad ligament haematoma from which blood had tracked up extraperitoneally as far as the umbilicus, possibly following the obliterated hypogastric artery by which the lateral spread of the discoloration was limited. There was no evidence of this at operation, nor was there any tubal rupture. The absence of any subperitoneal effusion of blood also eliminated any possibility of spread by following the round ligament to the subcutaneous tissues. If it were a matter of lymphatic absorption from the peritoneal cavity one would expect the staining to appear first in the flanks and to show as a gradually deepening diffuse blood pigmentation rather than clearly marked ecchymoses. In addition, one would expect Cullen's sign to appear more frequently in cases with gross haemoperitoneum. In forty-seven operations for ruptured tubal gestation this is the only case in which this sign has been seen.

From the history and appearances in this case one feels that one must postulate a breach of continuity of the parietal peritoneal endothelium at the umbilicus through which blood escaped into the subcutaneous tissue. The umbilical scar is the point at which such a breach is most likely to occur, and the infrequency of peri-umbilical ecchymosis in tubal gestation suggests that it is associated with some unusual anatomical feature.

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Reviews

INFANT FEEDING AND MANAGEMENT

Dr. H. P. WRIGHT of Montreal has written a new book entitled *Essentials of Infant Feeding and Paediatric Practice*,¹ and in some two hundred pages he manages to include a great deal of information. The first section includes chapters on growth and physiology, leading on, after a discussion of the available milks and foods, to chapters on breast-feeding and artificial feeding in the normal infant. The second section discusses the principal nutritional disorders of infancy and early childhood, while the concluding section deals usefully with various subjects, such as therapeutic procedures, preventive measures, rules for controlling the communicable diseases, etc. Throughout the book the author draws on his wide personal experience, but he has not hesitated to make full use of the experience of others without burdening the book with too many references. For example, a chapter on anhydraemia, acidosis, and alkalosis interprets modern biochemical findings for the practising physician. This is an eminently readable and balanced production, to which the publishers have contributed their share in the clear print and stout binding for which the Oxford Medical Publications are well known.

In *Mothercraft*² Miss M. TRUBY KING has performed a modest task in an adequate manner in presenting her father's system of infant care and management "to meet the need of an inexpensive, up-to-date Truby King handbook for mothers and nurses." Such a need is perhaps not so obvious in this country as in the place of publication, but the book can be welcomed none the less as a careful exposition of these methods and principles, which have brought peace and happiness into many an agitated household. It is perhaps a little unfair to attack certain portions of the Truby King doctrine as set out in this book, for obviously the author has merely transcribed what others had previously taught. Nevertheless it is high time the method of over-diluting cow's milk for infants past the first few months of life was justified more scientifically than by the sweeping statement (p. 118): "The fatal objection to using whole cow's milk for babies . . . is the fact that the great excess of protein overtaxes both the digestive organs and the kidneys." The degree of dilution of cow's milk advised for the 6-months-old baby, for example, in order to reduce the hypothetical danger of too much protein, carries with it the real danger of reducing seriously the amount of vitamins and minerals present in the milk, and promoting the occurrence of nutritional disturbances such as anaemia. The wholesale condemnation of mackintosh drawers is also unwise. Properly used, these constitute a great boon to mother and baby, and there is no evidence that they are "most injurious" (p. 37) to the baby's general health.

The fourth edition of *A Practical Guide to Child Hygiene*³ was prepared by the late Dr. E. L. DE CHAZAL just before he died, and his collaborator, Dr. F. A. ROUGET, has been responsible for the final stages. Written essentially for the nurses, midwives, and mothers of Mauritius, this handbook contains a great deal of valuable information, and covers a very wide field.

¹ *Essentials of Infant Feeding and Paediatric Practice*. By Henry P. Wright, B.A., M.D. London: H. Millford, Oxford University Press, 1934. (Pp. 212 12s. 6d. net.)

² *Mothercraft*. By M. Truby King. London: Simpkin Marshall: Sydney and Melbourne: Whitcombe and Tombs Ltd. 1934. (Pp. 252. 3s. 6d. net.)

³ *Guide Pratique d'Hygiène Infantile*. By E. L. de Chazal, C.B.E., M.D., and F. A. Rouget, O.B.E., M.D. Port Louis (Ile Maurice). R. W. Brooks. 1933. (Pp. 291.)

A TEXTBOOK OF GYNAECOLOGY

A large number of readers will welcome the third edition of Dr. JAMES YOUNG'S *Text-Book of Gynaecology*.⁴ The format is a distinct improvement on that of its predecessors, while every chapter has been revised and several new ones incorporated. The main features of this work are a succinct but pleasant style, and an almost uncanny faculty for excluding that which it is unnecessary for a student to know. The modern views on the physiology of sex are epitomized without making extravagant implications with regard to gynaecological practice. We could have wished that a caveat against the indiscriminate use of endocrine preparations could have been included. Some gynaecologists will disagree with the author when he states that an infected cervix is a common cause of pain in women, while others will not accept his views on the pathology of chronic metritis and chronic endometritis. No mention is made of the frequency with which the rectum is involved in gonorrhoeal vulvo-vaginitis in young girls or of the fact that secretion of "milk" in the breasts is not uncommonly associated with uterine fibromyomata, while we do not believe it is necessary for women wearing a vulcanite pessary to douche themselves even three times a week. These minor criticisms merely emphasize the excellent qualities of the book and the sound judgement of the author. We have read it through with pleasure, and know of no more readable and valuable book on gynaecology for students. The third is in all respects an improvement on the well-known and proved previous editions.

HOUSING IN LONDON

In the volume on *Housing and Slum Clearance in London*,⁵ by HUGH QUIGLEY and ISMAY GOLDIE, a very important part is played by its illustrations. They are thirty-one in number, and show in an admirable way—in many respects better than any letterpress could do—the excellent achievements of a few recent housing schemes within the county of London, and the fact that they do not compare at all unfavourably with the justifiably vaunted successes of some such schemes in Germany, Austria, and Holland. Thus:

"The new estates built by the London County Council, above all in Kennington and Stamford Hill, the Cumberland Market buildings of the Commissioners of Crown Lands, the Duchy of Cornwall scheme in Kennington, and the Somers Town buildings of the St. Pancras House Improvement Society, must be included among the most remarkable and aesthetically satisfactory achievements of our time, and they definitely surpass the most expensive block of flats built in the West End of London."

Yet, in spite of this high praise, which it will be seen includes the London County Council, the authors conclude that:

"As far as London is concerned it may be necessary to remove housing at once from the range of control of the local authorities and of the London County Council, since the history of their activities is not such as to justify one in the belief that housing on an adequate scale will be properly handled and solved within an appreciable time by existing bodies."

This appears contradictory; and, indeed, the suggestion for a Ministry of Housing and of a National Building Board, with very wide powers and financial assistance, which is one of the main theses of the book, is not

⁴ *A Text-Book of Gynaecology. For Students and Practitioners.* By James Young, D.S.O., M.D., F.R.C.S.Ed., F.C.O.G. Third edition. London: A. and C. Black, Ltd. 1933. (Pp. 411; 220 figures. 16s.)

⁵ *Housing and Slum Clearance in London.* By Hugh Quigley and Ismay Goldie. London: Methuen and Co., Ltd. 1934. (Pp. 227. 7s. 6d. net.)

impressed upon the reader in any very clear and consistent fashion. For all that, however, it may be justified. The authors review in an effective way the history of housing; the position that the problem has occupied in the modern State; the way in which it has been dealt with by local authorities, by housing trusts, and by private enterprise; and the present campaign for slum clearance. They realize the importance of the uneconomic tenant, and emphasize the fact that the difficulties of housing increase with the size of the town—not merely proportionately, but almost in geometrical progression—and that this makes the London situation unique in this country. Evidently it can be solved in this case only by tenements, and the necessity for considering, understanding, and deliberately planning the most suitable conditions for these is of urgent importance in order to avoid the overcrowded buildings with a patch of asphalted ground which have hitherto represented the common idea of this type of scheme. Like most who write on this present situation, the authors conclude that

"the housing of the poor must not—cannot—depend on slum clearance; it is too slow and not sufficiently comprehensive. New housing by other means than private enterprise must be begun, now, while cheap money, cheap material, and idle labour are procurable."

LIFE AND SOUL

Several highly original and suggestive ideas in the domain both of physiology and of philosophy will be found in the volume entitled *Life and Soul*,⁶ by Dr. MAX LOEWENTHAL of Liverpool. The author is known for his research work in molecular physics and for his collaboration with Sir Victor Horsley in the investigation of the functions of the cerebellum. In an introduction to the first part of the present book Professor J. S. Macdonald writes:

"I know no better description of the general characteristics of living matter than the one contained in the pages of this book, and none so vivid. . . . Here the smooth surface of contemporary knowledge is attacked, and then with great sincerity and patience every facet is handled till the author's picture emerges complete, original, courageous, and in every detail open to examination. Nothing is proven, but everything is explained in a closely reasoned way and with transparent honesty."

As a professor of physiology Dr. Macdonald applies these words to the physiological part of the book only; but, as quoted above, there is no reason why they should not be used with reference to the whole. Throughout, the volume is characterized by obvious sincerity of conviction, by logical method, and by unusual clarity of thought and expression. The author sets out to seek, and claims to have found, a unifying theory—a characteristic feature common to all living beings and never met with in inanimate bodies—which will have the effect of converting physiology from the mere exact descriptive science which it is at present into a true interpretative science.

"As long as physiology does not claim to be more than applied physics and applied chemistry no theories are needed beyond those employed by these sciences. But if it has not resigned all hope of penetrating into the stronghold of life, which has been vainly besieged by the experimentalist for many years, a change of strategy must take place. . . . What is wanted is a science of 'biotics,' a science which accounts for all phenomena unexplainable by physics and chemistry."

Such a unifying theory or characteristic feature is declared to be that the unit of living matter possesses not a multimolecular structure such as that of ordinary

⁶ *Life and Soul. Outlines of a Future Theoretical Physiology and of a Critical Philosophy.* By Max Loewenthal. With foreword by Professor J. S. Macdonald, F.R.S. London: George Allen and Unwin, Ltd. 1934. (Pp. 291; 15 figures. 8s. 6d. net.)

ponderable substance, but a unimolecular, though, of course, polyatomic structure. This hypothesis is effectively developed and expounded in the first part of the book and is, in the second part, applied to the physiological processes which take place in the nervous system—central, peripheral, and terminal—of a human being as concomitants of every psychic process. The essential content of this second part consists of a consideration of these psychic processes. Psychic phenomena—all activities of that "entity which is known by the names of mind, soul, spirit, consciousness, or psyche," making no artificial or arbitrary distinction between these terms—are real things, true cosmic events, solely and entirely what they appear to be. A number of novel but highly important distinctions and suggestions are made in the course of this discussion. They can scarcely be indicated within the limits of a short review. Such processes or phenomena have both qualities and quantities, and in the realm of quantity they must be regarded as not only enduring in time but as occupying space, and to time and space must be added the equally important element of degree or intensity. Thus, startling as it may seem, "the dimensions of our visual images may considerably exceed those of our bodies and, further, every inner world, which is but another name for mind or soul, is extended in all directions and as far beyond the confines of the body as its sensations and thoughts will carry it." A notion of this kind may be taken to illustrate the fearlessness with which the author pursues his ideas and deductions and the consequences to which they lead; and it should be emphasized that an intelligent and consecutive reading of his book leaves no impression of the fantastic but only of what is logically conceived and clearly apprehended. It is refreshing in these days, when biochemistry and biophysics seem sometimes to occupy the whole field of the biologist, and when students are only too often left with the impression that nothing else matters, to be reminded of the passage from Professor J. S. Haldane's presidential address to the British Association in 1906 in which he said:

"In physiology, and biology generally, we are dealing with phenomena which, so far as our present knowledge goes, not only differ in complexity but differ in kind from physical and chemical phenomena; and the fundamental working hypothesis of physiology must differ correspondingly from those of physics and chemistry."

The literary style of the author, and the print and general format of the book, all add to the pleasure of the reader.

OCULAR DIOPTRICS

It is given only to the few to possess such a mastery of the methods of mathematics as to be able to demonstrate the laws underlying much of our common clinical practice in the examination of the eyes for errors of refraction and the correction of these errors by glasses. But it seems that at least one genius of the order appears every few years. The labours of these men form the true basis of the work of the clinician, and have helped materially towards those advances in the form of spectacle lenses which in recent years have added to the great comfort of the hard-worked or over-worked human eyes. For many years the treatise on geometrical optics by R. S. Heath held the field. He was a well-known Cambridge mathematician, and professor of mathematics at Birmingham. Then came Dr. A. S. Percival, a practising ophthalmic surgeon of Newcastle-on-Tyne. Now there is a new book before us on *Ocular Dioptrics and Lenses* by Mr. G. F. ALEXANDER. He has produced

mathematical dissertations before, but in this book he launches out into a much wider field. Starting to investigate a number of intricate technical problems which have received little notice in our textbooks and teaching, he found that their elucidation compelled him to make incursions into other fields of optics which are connected with ocular refraction. He is to be congratulated upon a notable piece of work. It is a book to study.

Notes on Books

Dr. A. C. ROXBURGH's *Common Skin Diseases* was very favourably reviewed in these columns on its appearance at the close of 1932. A second edition⁴ is now published. Some fresh illustrations have been added, and also chapters on congenital affections of the skin, atrophy and sclerosis, vesicular and bullous eruptions, and the erythrodermias.

The approach of the holiday season brings us a copy of *Fifty Years on the Test*,⁵ by C. ERNEST PAIN. This, which will appeal especially to those fortunate enough to have a rod on the River Test, will interest other fishermen as well. There are practical notes on hatching and stocking, and, generally, on how to improve a trout water. There will also be found useful hints on fishing difficult places, and on casting a fly. From the same publishers we have received *For Fishermen Only*,¹⁰ by ATWOOD CLARK. The expert to whom this has been submitted for criticism reports that it is a delightful book for both salmon and trout fishermen, and that it contains many valuable hints.

The book on *Hospital Accounting and Secretarial Practice*¹¹ by F. DEAN and C. H. SPENCE has been written for the use of hospital officials and for those preparing for examinations held by such bodies as the Association of Hospital Officials and the secretarial examining authorities. It contains chapters dealing with all forms and varieties of hospital accounting, with the laws relating to voluntary hospitals, with the practice of committee work, stores, printing, correspondence, filing, the almoner's department, and other kindred subjects of the greatest importance to those responsible for the management of our hospitals. The book is clearly written and full of information, and it should be of great service to budding hospital secretaries.

The Transactions of the Japanese Pathological Society, 1933,¹² form a handsome volume of nearly a thousand pages, comprising two hundred and fifty-three separate articles, ranging over the whole field of pathology, and including papers contributed to the twenty-seventh meeting of the Japanese Society of Cancer Research. Among the many articles of interest that by O. Tamura, on the development of the heart muscle, deserves special mention. According to the author the foetal and post-foetal tissue development, at present regarded as distinct processes, form one continuous process, the plan laid down in the foetal period being maintained and resulting in the formation of three centres (sino-auricular, atrio-ventricular, and bulboastial) from which the several sections of the heart are developed. Dr. Suzuki reports that the percentage of primary cancer of the lung in the necropsies of the Pathological Institute of the Imperial University of Tokio has steadily increased from 0.1 in 1894-8 to 2.01 in 1929-32. The volume is copiously illustrated, and opens with a short obituary notice, with portrait, of Dr. M. Nishibe.

⁴ *Common Skin Diseases*. By A. C. Roxburgh, M.A., M.D., B.Ch., F.R.C.P. Second edition. London: H. K. Lewis and Co. Ltd. 1934. (Pp. xxxii + 370; 128 figures; 8 coloured plates. 16s. net.)

⁵ *Fifty Years on the Test*. By C. Ernest Pain. London: Philip Allan and Co. 1934. (Pp. 198; 8 illustrations. 10s. 6d. net.)

¹⁰ *For Fishermen Only*. By Atwood Clark. London: Philip Allan and Co. 1934. (Pp. 274. 10s. 6d. net.)

¹¹ *Hospital Accounting and Secretarial Practice*. By Frank Dean and C. H. Spence. London: Sir Isaac Pitman and Sons, Ltd. 1933. (Pp. 160. 7s. 6d. net.)

¹² Volume xxiii. 1933. Published by the Society. Editorial Office: The Pathological Institute of the Tokyo Imperial University, Japan. (Pp. 977; illustrated.)

⁷ *Ocular Dioptrics and Lenses*. By G. F. Alexander, M.B., C.M. London: Baillière, Tindall and Cox. 1934. (Pp. viii + 212; 68 figures. 12s. 6d., postage 6d.)

British Medical Journal

SATURDAY, AUGUST 11th, 1934

LONDON WATER IN A DRY YEAR

The annual report for 1933 on the metropolitan water supply reproduces in most essentials the excellent features of its predecessors.¹ During the first six months of the period covered, the water examinations were still carried on under the personal direction of Sir Alexander Houston, whose desire it had been, in view of his then approaching retirement, to preface the report with some words of farewell. That this wish of his was denied fulfilment will be matter of genuine regret to all who knew and admired his interest in the streams and wells of the London supply, and yearly welcomed his vivid descriptive surveys of the sources from which these waters flow. He possessed, indeed, in a remarkable degree a gift of establishing terms of friendship with many who had never seen him, and our sense of personal loss is a tribute to his genial memory. Such a feeling, however, for the late director in no way lessens our appreciation of the competent manner in which Mr. R. B. Floris, the deputy director, has compiled the report for 1933.

The report shows how the watch over the quality of the water supplied to London has been maintained as in the past, the policy being to increase and not diminish the precautions used. In 1933 the number of routine water samples tested was 17,259. Of this total, 4,541 were chemically examined and 12,718 bacteriologically. In addition, many other samples were examined for special purposes. Excepting the raw river water which passes through the Staines aqueduct, filtered water only is chlorinated, the chlorination process being always preceded by ammonia treatment in order to prevent the development of obnoxious tastes in the water. All the Thames waters but those of Chelsea and Lambeth were submitted to chlorination, and yielded thereafter first-class samples in percentages ranging from 90.7 for Southwark and Vauxhall to 99.1 for Sunbury. The dose of chlorine varied from 0.2 to 0.3 part per million of water. The dose of ammonia as nitrogen was usually 0.1 part per million. The first-class samples of River Lea water, after chlorination, were 92.3 per cent., and of New River water, also after chlorination, 88.3 per cent. For the deep wells, which are not chlorinated, the first-class samples in Kent were 95.7 per cent., and in Lea Valley 93.2 per cent. By a first-class sample in these cases is meant one which shows no *B. coli* in 100 c.cm. of water.

It is worthy of note that in 1933 the community of Epping afforded ample justification for certain precau-

tions set on foot by Sir Alexander Houston early in 1931, when paratyphoid bacilli appeared in the effluent from its sewage disposal plant following on a local outbreak of that fever. This discharge flows into Cobbin's Brook, which in its turn joins the River Lea at a point above the London water intakes. The area of supply concerned was clearly exposed to risk, and sterilization of the effluent by means of chlorine was forthwith begun. During the three years which have since elapsed, paratyphoid bacilli have never been absent from the raw effluent for long, and have frequently been present in substantial numbers, yet no paratyphoid fever accreditable to Epping has emerged in London. Late in 1931 another case of the fever came to light in the Epping district, and still another in April, 1933. Finally, in September, 1933, a fresh paratyphoid outbreak developed, totalling twenty-two cases. Thus the measures initiated in 1931 not only excluded the Epping infection from London throughout the inter-epidemic period, but also, as shown, armed the metropolis in advance against the second outbreak. If Epping looms like a threatening cloud above the Lea supply area, it affords at the same time an object lesson in the foresight of those whose charge it is to protect the London consumer from the dangers inherent in polluted water. The method of handling adopted there, in a particular case where infective material was demonstrably present, is of a piece with the general practice noted above as applied in the routine London water examinations, where the possibility of infection is always presumed. The high standards set and the frequency with which these high standards are attained convey to consumers an assurance of safety of a correspondingly high order. Hence London water is often well described as above suspicion.

Passing now from the satisfactory annual report and turning to the question of quantity, we approach a topic which there has been no occasion to discuss from a practical point of view in connexion with London water for a number of years. The consumption of London is, no doubt, enormous, but the storage reservoirs are gigantic, and the Thames, as the greatest river in England, might well be reckoned an inexhaustible source, the draw-off from which is curtailed, if ever, not through any shortage of flow, but rather by waiting in times of flood to let the turbid waters go by. Yet even the London undertaking, large as it is, has felt the effects of an abnormally low rainfall prevailing over the country generally for many months. For the twelve months ended December 31st, 1933, the rainfall over England and Wales was 17 per cent. short of the average. For the twelve months ended June 30th of this year the deficiency had risen to 26 per cent. At June 20th last the flow of the Thames at Teddington Weir had fallen to 230 million gallons, a shortage of 589 million gallons on the daily average for June. To prevent depletion of the London supply an Order has been issued reducing to 50 million gallons a day the quantity of water to pass over the weir before any draw-off can be made

¹ Metropolitan Water Board. Twenty-eighth Annual Report. The Results of the Chemical and Bacteriological Examination of the London Waters for the Twelve Months ended December 31st, 1933. By R. B. Floris. London: P. S. King and Son, Ltd. 1934. (10s. 6d.)

by the Metropolitan Water Board to replenish its reservoirs. The citizens, too, urged to use less water, have already responded in some measure, but an official paper recently issued roundly expresses the view that much larger economies in water can still be effected in the London area without any hardship.

Other large communities in the country are, like London, engaging the problem of the drought without appreciable inconvenience. Of the smaller urban areas, however, a number are experiencing shortage, while many rural authorities in one part or other of their districts have for months past suffered grave embarrassment, and cartage of water has begun. Such difficulties are being relieved, so far as possible, under the emergency powers to improve supplies conferred by the Water Shortage Act, and grants in aid of permanent works in terms of the Rural Water Supplies Act are being made available by the Government to a number of councils. *The private individual everywhere has a duty to second these public enterprises by observing for his own part a strict frugality in the use of water.* An example worthy of imitation has been set by the people of a northern town, who have reduced their water consumption by one-third through voluntary effort alone.

THE ENDOCRINE FACTOR IN ESSENTIAL HYPERTENSION

The clinical features of essential or malignant hypertension have long presented problems which could not be explained on the ordinary lines followed in cases of chronic, permanent, and relatively benign forms of high arterial blood pressure. It is clear that they cannot be explained on the grounds of structural changes in the peripheral vessels, having regard to its paroxysmal and rapidly progressive nature. As long ago as 1904 Vaquez, as a result of study of a case of hypertension in which he had found evidence of hyperplasia of one suprarenal, suggested a humoral mechanism for this, and considered that the suprarenal was specially to be considered in this connexion. Recent work tends more and more to show that such an endocrine factor is certainly involved. The demonstration of increased amounts of a pressor substance in the blood of hypertensives of this type is attended by very special difficulties, and claims to have effected such a proof are always rather suspect.

The probability that increased quantities of circulating adrenaline are present is strongly supported by those cases of tumours of the medulla of the suprarenal (phaeochromocytoma) in which, clinically, the symptoms and signs closely resemble those of essential hypertension. A very interesting case of this has recently been described by H. Kalk.¹ The patient was a woman of 36 who complained of "attacks" with the following symptoms: "sizzling" in the head, feeling of deafness, palpitation coming on suddenly,

followed by retrosternal pain and great anxiety. The intensity of the attacks varied; they might be very severe, stop for a minute, and then recur worse than ever.

Pallor of the face, hands, and feet was observed during the attack, and this series of phenomena might continue at short intervals for three to six hours. The patient noted that muscular movements often precipitated attacks. A variety of investigations revealed a tumour in the region of the right kidney, and on palpation and massage of the tumour region the blood pressure rose from 125/85 to 155/125 (in the interval between attacks the blood pressure was 120/80), the pupils dilated, the face became pale, and the pulse rate increased by 15 beats a minute; these changes were then succeeded in about three minutes by the usual post-adrenaline compensations—perspiration, redness of the face, slight salivation, and contraction of the pupil. The results of manipulation of the tumour were exactly similar to the manifestations of spontaneous attacks, but in the latter they were much more severe, the blood pressure, for example, rising to 240 and 300 mm. Hg and the pulse rate increasing by 30. Operation revealed a tumour of the right adrenal weighing 290 grams which was identified as a phaeochromocytoma, containing between 150 and 200 mg. per cent. of adrenaline. After removal of the tumour the crises of hypertension disappeared. Two points of interest in this case were that the tumour was diagnosed correctly on clinical grounds, and that careful examination of kidney function at no time revealed any indication of nephritis. Such a case presents us with unquestionable evidence that a tumour of this sort can produce the picture of paroxysmal hypertension, and that discharge of adrenaline is the immediate cause of the attacks.

There is no suggestion, of course, that all cases of essential hypertension are associated with medullary tumours, but the presumption that they are due to hyperadrenalinism gains strong support. Working on this hypothesis de Courcy and co-workers² adopted the plan of removing two-thirds of each suprarenal, having regard to the well-known fact that in animals removal of one gland and partial resection of the other does not materially interfere with their continued well-being. This operation, performed in two stages, was carried out in several cases of typical essential hypertension with such satisfactory results that the authors feel justified in drawing a close analogy between hyper-suprarenalism and hypertension. In support of this contention they point out that it is always possible to demonstrate hyperplasia of the suprarenal medulla in essential hypertension, and that it has recently been shown by Kuré and his associates that a vaso-constrictor body exists in the arterial blood which appears in greater quantities in cases of hypertension than in normal controls. Olivier and Meillère³ take a similar view as to the value of adrenalectomy in essential

¹ *Klin. Woch.*, April 28th, 1934.

² *Journ. Amer. Med. Assoc.*, April 7th, 1934.

³ *Presse Méd.*, May 5th, 1934.

Aug. 11, 1934]

LOUPING-ILL IN MAN

hypertension, but consider that the medullary hyperplasia is slight and that the value of unilateral adrenalectomy (which they practised) lies in the partial rupture of a pathological chain, the glands removed in these cases appearing to them quite normal. Olivier and Meillère do not, however, give sufficient morphological and histological details to be sure of the absence of hyperplasia, and are themselves puzzled at the success of their operations in relieving the hypertension.

From the purely therapeutic point of view another way of preventing the hypertensive crises in these cases is to provide a vascular reservoir which could be utilized in an emergency, and thus prevent the dangerous rise in blood pressure. Working on this plan Adson and Brown⁴ performed bilateral section of the anterior roots from the sixth thoracic to the second lumbar, thus cutting off the vaso-constrictor supply to a large vascular area, denervating the suprarenals, and removing the motor innervation of the abdominal wall, which would in a crisis tend to maintain the intra-abdominal pressure. The results of this operation in a female patient with a severe and progressive form of hypertension were a marked fall in systolic pressure and a relatively unaffected diastolic. The latter finding was due to the already considerable hypertrophy of the arteries, a return to normal diastolic pressure at that stage being impossible. These results are of great interest, but cannot compare in value with those obtained by removal of the gland tissue. The latter operation obviously has more to commend it in that it seems to attack the basic factor in the disease. None of these results give us the slightest information as to what may be the stimulus to over-secretion of the suprarenal medulla, but this appears to be the situation in most endocrine syndromes.

LOUPING-ILL IN MAN

There is no more obscure and difficult study than that of virus infections of the central nervous system. Although some types of encephalitis and encephalomyelitis, both in man and more particularly in animals, are readily recognizable, and of these some are easily transmissible, we need only recollect the difficulties which beset the experimental study of encephalitis lethargica and post-vaccinal encephalitis, and the state of uncertainty and frustration in which these studies were abandoned, to appreciate that even a well-defined type of the disease may baffle the closest investigation. With sporadic cases, such as are reported from time to time, presenting the features of an encephalitis, the likelihood of reaching any aetiological conclusions is even less. The structural changes in the brain vary in their nature singularly little between one type and another, though they may differ in distribution and extent, and the only hope of identifying the responsible agent depends on the success of animal transmission and on further methods of investigation in which comparatively few bacteriologists are experienced. It is,

in fact, not only almost certain that there are varieties of encephalitis the cause of which is unknown, but quite possible that cases appear of which the nature passes entirely unrecognized. Peculiar interest therefore attaches to the recent report of Rivers and Schwentker¹ of four cases of encephalitis attributed to the virus of louping-ill. It should be said at once that but for the circumstances in which these cases occurred and the immediate availability of facilities for expert investigation, there is not the smallest likelihood that their nature would have been recognized or even suspected. Louping-ill is a disease of sheep, the features of which have recently been discussed by W. S. Gordon in these columns.² The virus of this disease has been the subject of experimental work at the Rockefeller Institute in New York, and three of the cases described were in investigators engaged in this work; the fourth was that of an investigator in London whose subsequent visit to America enabled Rivers and Schwentker to inquire into the features of his illness and to perform the serological tests by which its nature was determined. The features of the illness were in each case fever, drowsiness, headache, and photophobia, lasting for a week or rather less after confinement to bed, with a moderate pleocytosis in the cerebro-spinal fluid (about 60 leucocytes per c.mm.). All the patients recovered completely. The proof of the nature of the illness rests on protection tests in mice with serum obtained after recovery, and although the results of these tests are not entirely clear-cut, their number and the exactitude with which they were performed, together with a profusion of control tests, must command conviction. It is worthy of note that the symptomatology is far from being distinctive; it is, in fact, singularly vague, and such a case arising in other circumstances would inevitably remain undiagnosed. Although there is no direct evidence that this form of encephalitis can be naturally acquired in man, the fact of its occurrence will serve to renew interest in this obscure field of work, and perhaps to prompt further investigations in cases of similar clinical type. It should be generally known that, although brain from a fatal case is naturally the most fruitful material for laboratory investigation, the serum of a recovered case may, as in Rivers and Schwentker's cases, yield valuable information, and should therefore be obtained and preserved whenever it is hoped to gain further light on a case of suspected encephalitis. Burnet³ in Australia has recently suggested that Australian x-disease—an epidemic of encephalitis which occurred in that country in 1917-18—may have been due to the same (louping-ill) virus. The human symptomatology is similar, and the distribution of cases is said to have been more consistent with an animal origin than with transmission by human carriers. On the other hand, louping-ill in sheep is unknown outside North Britain, and its vector, the tick *Ixodes ricinus*, is not found in Australia. The serum of cases of x-disease obtained sixteen years after the attack does not neutralize louping-ill virus. There is therefore no apparent prospect of either confirming or disproving this interesting but highly speculative suggestion.

¹ *Journ. Exper. Med.*, 1934, lxx, 669.
² *British Medical Journal*, 1934, i, 885.

³ *Med. Journ. of Australia*, May 26th, 1934, p. 679.

⁴ *Journ. Amer. Med. Assoc.*, April 7th, 1934.

FEE-SPLITTING IN CANADA

After the ventilation which fee-splitting or dichotomy had in these columns about fifteen months ago, this unpleasant topic seems to have receded into the background again so far as England is concerned. That it still troubles our colleagues on the other side of the Atlantic may be judged from an article on "The Difficulties of the Profession," by Dr. Harris McPhedran, in the *Canadian Medical Association Journal* for July. After discussing the hard times through which the general practitioners of Canada have been going in the past few years, and the need for consolidating the profession of Ontario as a self-controlled unit before health insurance in some form comes, Dr. McPhedran writes: "There are, too, difficulties and dangers in the ranks of the profession. These appertain largely to the practice of surgery. One hears complaints frequently from skilful surgeons that many general practitioners are attempting to solve surgical problems for which by training and experience they are quite unfitted. It is admitted by all surgeons that many general practitioners are sufficiently experienced and qualified to deal with the more common surgical diseases that are encountered in general practice. But there are others who, without any justification whatever, attempt the more difficult operations solely for the sake of the monetary compensation, or, in lieu of operating themselves, refer their patients to one who, without much right, assumes the title of surgeon, and will secretly divide with them the fee obtained for operating on their patients. In some way legitimate surgery must go to those qualified by experience and training in the science and art of this branch of medicine. Again, by some means, secret division of fees must be stopped, as the greed of gain on the part of those who are parties to this procedure tends to unnecessary operations, and in the case of necessary operations leads to the choice of a surgeon who tacitly admits his inferiority in offering to divide his fee." Plain words, these. But fee-splitting is an ugly thing—a form of commercialism which threatens the foundations of medical practice.

PICTORIAL ART AND THE MEDICAL PROFESSION

In connexion with the Annual Meeting at Bournemouth an exhibition of pictorial art by members of the medical profession had been collected by Mr. Norman L. Silvester, curator of the Russell-Cotes Art Gallery and Museum, and was on view in that fine building. Special attention was attracted by two fine examples of pinpoint needlework contributed by Dr. Margaret Vivian of Southbourne, and described as "Trees" and "Bushy Park in Bluebell Time." In happy contrast were the swift impressions of landscapes in oils and water-colours by Sir Leonard Hill and others. Mr. E. B. Waggett exhibited a dozen delightful works in pastel, while Dr. T. G. Stevens, in the same medium, recalled London scenes. Sir Harold Gillies depicted hill country in Scotland, and other subjects. Opening the exhibition, the president, Dr. Watson Smith, remarked that the necessary cultivation by doctors of imperturbability was assisted by such hobbies as this. No doctor could afford to be without some hobby, and one of the highest forms of happiness was to be found in art. Sir Leonard Hill, in a short address, referred to the "extraordinary interest to be found in art. It gave great

relief alike to the general practitioner and to the research worker. He explained how it was now possible to identify pictures by scientific means. A low-power microscope with good illumination brought out variations in brushwork, and thus specified particular painters. Similarly, the style of handling foliage varied, and details were disclosed by magnification. The application of x rays might reveal the existence of one picture beneath the apparent one, sometimes with important results. Ultra-violet rays employed with Wood's glass caused certain substances to fluoresce, thus defining the composition of certain pigments, indicating some as modern and not ancient. Micro-chemical methods were applicable to small portions of paint removed by a hypodermic needle. Such portions could also be cut into sections and examined microscopically. The nature of the media used could be identified, such as gesso, egg-white, and oil, and so identification of certain painters be established. The ancients had only a limited number of colours, all the constituents of which were known. Modern artists also had pigment preferences, and scientific methods were applicable in cases of disputed authorship. Some of those who visited the exhibition traced a special significance in the words on the wall which faced the entrance: "Art is the most immediate form of knowledge." Certainly, the excellence of technique and composition in the exhibits revealed an accuracy of observation and a sensitiveness to effects which medical practice induces and in which medical practitioners can find recreation and relief. The exhibition will remain open throughout August.

INGROWING TOE-NAIL

The factors underlying the production of the common disability of ingrowing toe-nail are by no means clear, and there is a corresponding lack of uniformity in the methods of treatment. These vary between the simple palliative measures of chiropody and extensive plastic operations. In an attempt to discover the method giving the maximum freedom from recurrence and the shortest convalescence Keyes¹ has analysed the results of a series of 110 operations performed by twenty-six different surgeons. That which he describes as the "usual" operation has long been associated with the name of Watson Cheyne, and consists in the removal of a wedge of nail about a quarter of an inch wide, together with the underlying nail bed and nail matrix and sufficient of the nail wall to include the ulcerated area. This operation was performed sixty times: the results were the best in the series, showing only 5 per cent. of recurrences and an average healing period of sixteen days. The "Winograd" operation, by which is meant excision of a strip of nail and its matrix, leaving intact the nail wall, gave 11 per cent. of recurrences in thirty-four cases and a healing time of fifteen days. Simple avulsion of the nail was followed by recurrence in seven out of nine cases, with an average healing time of thirty-seven days. Excision of the whole nail and the matrix gave freedom from recurrence in the three cases on which it was performed and a healing time of twenty-three days. Wedge resection from the nail wall with the object of allowing more space for the ingrowing nail was followed by at least one recurrence

¹ *Journ. Amer. Med. Assoc.*, May 5th, 1934, p. 1458.

in four cases. These were the methods employed in the series under consideration, but this list is by no means exhaustive. The results would indicate that the operation of Watson Cheyne gives a sufficiently high percentage of cures with a fairly short convalescence. The aesthetic effect, in addition, is much better than that which follows excision of the whole nail and its matrix, though the latter would appear to be more certain in its results. In every operation depending in principle on permanent removal of part or whole of the nail thorough excision of the matrix is essential to success, and most recurrences are due to failure to accomplish this. The difficulties experienced by Dr. Keyes with his local anaesthesia and haemostasis do not become apparent to surgeons who use routine general anaesthesia and secure haemostasis for all operations on the foot by a tourniquet, preferably of the Esmarch bandage type, which is finally fixed around the middle of the leg and not around the base of the toe.

BARBITURATE POISONING IN FRANCE

Drs. C. Flandin, F. Joly, and J. Bernard have written an account of Parisian experience of poisoning by hypnotics, with special reference to barbiturate intoxication.¹ It is only a few weeks since we reviewed a volume on the same subject by Lille physicians.² The intensive interest in barbiturate poisoning in France is explained by a statement in the preface to the latest publication to the effect that the prevalence of this condition has suddenly increased since 1930, and that a single hospital had sixty-two cases in the last eighteen months. The authors estimate that every year in Paris there must be thousands of cases of barbiturate poisoning of greater or less severity. The augmentation in the number of severe cases is due to the fact that these drugs are becoming the method of choice for suicide among certain classes, and have completely ousted laudanum. It is of interest to note that recently luminal (phenobarbitone) has provided twice as many cases of poisoning as veronal (barbitone), and that female cases are two or three times more common than male. The authors have therefore had a rich supply of clinical material on which to base their description of barbiturate poisoning, and they give a detailed account of the clinical symptoms and pathological changes observed in these cases. In regard to treatment they support the use of large doses of strychnine. They recommend doses of from 1/6 to 5/6 grain (0.01 to 0.05 gram), repeated hourly if necessary. This method requires the constant and watchful care of a medical man, who must be fully conversant with the initial signs of strychnine poisoning. The authors conclude that although this method of treatment does not provide miraculous cures, yet it does save a number of patients who would otherwise certainly die. They conclude that strychnine, even in the large doses mentioned, has a disappointingly feeble action as a respiratory stimulant, and recommend for this purpose coramine injections or inhalation of carbogen. The authors appeal for a more rigorous control of the sale of barbiturates, which in their view are social poisons of greater importance than opium or cocaine, and but little

inferior to alcohol. Much has been written in this country for and against the barbiturates, and the defenders of these drugs have been able to show that at present they do not appear to constitute a widespread social danger on this side of the Channel. The evidence set out by Flandin, Joly, and Bernard indicates, however, that in recent years in France the abuse of these drugs has grown in a remarkable fashion.

THE HUNTERIAN MUSEUM

The enlarged outlook in the working of the Museum of the Royal College of Surgeons of England, which had its inception and early development under the conservatorship of Sir Arthur Keith, appears in full fruition in the annual report of the new conservator, Dr. John Beattie. While there is no intention to allow of any relaxation in the endeavour to maintain the present position of the Museum as one of the finest in the world, surgical research will, for the future, be added to the functions of the Museum and take equal place beside the collection of pathological specimens. The organization of the research side appears now to be complete, except for certain alterations and additions required in the laboratories at the College of Surgeons. The conservator has been appointed head of the department as director of research, with control over the laboratories at the College and over the Buckston Browne Surgical Research Farm at Downe. The latter was formally opened during the past year, and is now in full working under the immediate direction of the Master, Sir Arthur Keith. One-half of the annual report is taken up with the subject of research, and the following list of workers, and the investigations on which they are engaged, will give some idea of the extent of the present activities of the department. Mr. J. H. Thompson, on parathyroid extracts; Mr. H. Jackson Burrows, on tissue culture and osteochondritis juvenalis; Sir Charles Ballance, on sympathetic-peripheral nerve anastomoses and the effect of ablation of the facial nerve on the facial nucleus; Mr. A. E. M. Woolf, on diverticulitis; Mr. V. E. Negus, on ciliary activity; Lieut.-Colonel E. P. Argyle, on roaring in horses; Mr. H. P. Winsbury-White, on the spread of pelvic inflammations; Mr. L. O'Shaughnessy, on the surgery of the lung, heart, and oesophagus, and on traumatic shock; Dr. D. Slome, on carbohydrate metabolism; Mr. G. C. Knight, on achalasia; Dr. R. A. Willis, on teratomata; and Mr. T. Barnett, on decerebrate rigidity. In addition to this experimental work, numerous investigations of an observational nature have been undertaken in the Museum, as in previous years, chiefly in the osteological and anthropological sections. These, together with the donations which have been made to the Museum during the year, are described in the reports of the curators of the several departments. Of particular interest is Mr. T. D. McCown's account of the excavations at the Mount Carmel caves, from which three blocks containing fossil skeletons were transferred to the College in 1932. The difficult operation of excavating these skeletons from the solid breccia matrix in which they are embedded has already been partially accomplished by Miss G. M. Collett and Mr. W. C. Willmott. The Museum has suffered a severe loss in the retirement of Mr. H. R. Burne, F.R.S., who has for many years occupied the post of physiological curator.

¹ *L'Intoxication par les Somnifères (Intoxication Barbiturique)*. By Charles Flandin, François Joly, and Jean Bernard. Paris: G. Doin et Cie. (20 fr.)

² *British Medical Journal* July 7th, 1934, p. 19.

ONE HUNDRED AND SECOND ANNUAL
MEETING
of the

British Medical Association

HELD AT BOURNEMOUTH, JULY, 1934

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL the opening papers communicated to the Scientific Sections of the Annual Meeting at Bournemouth. The reports of discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE
Thursday, July 26th

B. COLI INFECTION

Professor D. M. LYON (Edinburgh) opened a discussion on the aetiology and treatment of *B. coli* infection. In all cases, he said, the original source of the infection was doubtless the bowel, and he discussed the various possible methods of spread to other sites. Spread to the urinary tract might be by lymphatics, blood stream, or by direct penetration; there might be invasion of the portal stream or of the thoracic duct, with consequent general spread. In pyelitis most writers seemed to favour blood spread to the kidney. Urinary infection occurred at all ages, and was more frequent in women than in men at all ages. In men it was nearly always associated with some degree of obstruction, and obstruction and long retention of urine were probably the most important aetiological factors. Pyelitis was common about the middle of pregnancy, and this might be due to the dilatation of the renal pelvis, which was almost constant in this condition. Infection of the gall-bladder took place in much the same way as in the urinary bladder. The bacilli invaded the wall and formed a focus for infection of the bile. But factors other than the mere presence of organisms were probably necessary to establish infection; among these might be reckoned gall-stones, chemical and toxic damage to the mucous membrane, and defective drainage. True *B. coli* septicaemia was exceptional. In treatment special attention must be given to correcting lesions interfering with free drainage of the urinary and biliary systems, and every care should be taken to ensure a healthy condition of the bowel, both constipation and diarrhoea being carefully avoided. Intestinal antiseptics were of little avail; calomel in non-purgative doses was probably the most useful drug; high colon lavage might be employed. There was some evidence that excess fat in the diet favoured penetration of the bowel wall by *B. coli*, and all writers agreed that in acute renal infection milk must be avoided, and butter and eggs were usually restricted. In the acute renal urinary infections the treatment was standardized: bed, warmth, large doses of alkali, barley water, fruit juice, and glucose drinks up to four pints a day. If alkali treatment failed alternate treatment with antiseptics hexamine was the most generally used; for little effect in infections above the bladder as too little formaldehyde was evolved above that level. The ketogenic diet had proved successful in some cases, but it was nauseating, and would probably be reserved for the most resistant cases. In chronic biliary infection efforts must be made to secure a free flow of bile.

Dr. CUTHBERT DUKES discussed the conditions which predisposed to urinary infection with *B. coli* when the functions of the bladder were temporarily deranged after surgical operations, basing his observations on a series of 214 cases of retention of urine following excision of the rectum. He first dealt with certain factors that might be supposed to influence infection but did not: changes in the nursing personnel, type of operation, and minor degrees of deficiency in renal function (that is, of a degree insufficient to make the case inoperable) in no way affected the incidence of infection. The four chief factors were sex, age, duration of retention, and general health. Sex was the most obvious factor, infection occurring in 69 per cent. of women but in only 36 per cent. of men. Next to sex old age was the most important; in women under 60 only 62 per cent. developed infection, as against 86 per cent. over 60, and a similar disproportion was seen in men. This was attributable in women to loss of muscle tone and in men to the increasing incidence of prostatic disease. Both resulted in longer periods of retention, and figures showed clearly that the longer the period of retention the greater was the incidence of infection. Lastly, the general health was clearly an important factor; early cases were in a much better state of health and showed a much lower incidence of infection.

Dr. C. M. WILSON discussed the advantages of the ketogenic diet for chronic cases in adults. Of 100 consecutive cases treated with this diet eighty-eight were freed from infection and twelve were failures, while there was relapse in fifteen. Professor Lyon had said that this diet should be reserved for cases which had failed to respond to other methods, but this was a surprising conclusion in view of the fact that it was generally admitted that no other method could offer the patient so hopeful a prospect of cure. If a successful result was to be obtained the pH of the urine must be brought down to 5, and must give a strong positive ferric chloride test. Moreover, the ketosis must be kept at this level throughout the twenty-four hours, and evening and morning tests were essential. The treatment must be pushed from the start, and a positive ferric chloride test should be obtained in three or four days. The patient should not be kept in bed, but should pursue his ordinary avocation. Exercise was helpful. With care the diet was not necessarily very unpalatable; but nausea was common, vomiting not rare, the pulse increased in rate, and weight was often lost.

Dr. C. M. HINDS HOWELL spoke of the importance of prostatic infection in aetiology; prostatic massage and diathermy were important aids to treatment. Bacteriophages he had found disappointing. Ultra-violet light and direct sunlight must be used with the greatest caution. He had had difficulty in getting the urinary pH below 5.8 with a ketogenic diet, but large doses of ammonium chloride would ensure it. Dr. E. P. POULTON emphasized the value of protein in securing a ketosis. He was now using calcium chloride: a 7½-grain pill coated with salol and given six times a day produced a pH of 5 without dieting. Dr. W. H. F. OXLEY asked whether any further advance had been made in the preparation of the ketogenic diet in relation to its bactericidal activity. Dr. DOROTHY HARE spoke of the value of the B.D.H. capillometer as an easy means of determining the pH, and recalled Dr. Lepper's experiments on the effect of slight trauma in producing infection. Dr. E. HOW WHITE (Bournemouth) pleaded for the more prolonged and careful treatment of acute cases, thus preventing the occurrence of the chronic case. Dr. J. A. RYLE suggested a classification into (a) acute, without obstruction; (b) acute, with obstruction; (c) chronic, without obstruction; and (d) chronic, with obstruction. In (a) adequate alkalinization was not sufficiently frequently secured, but with large enough doses it should prevent chronicity in a greater number of cases. In (b) and (d) surgical assistance was generally required. Unilateral loin pain was very suggestive of an obstruction, and early diagnosis might frequently save patients from prolonged and fruitless dietetic treatment. Dr. S. C. DYKE (Wolverhampton) pointed out that the cause and treatment of *B. coli* infection must depend on the anatomical lesion. He described cases of so-called acute

pyelitis in women in which the kidneys removed during life or after death showed cortical abscesses and septic infarcts from which *B. coli* were grown. He thought infection occurred via the blood stream, and emphasized the need for rest in treatment.

DEMONSTRATION OF OXYGEN TENT

Dr. E. P. POULTON demonstrated the use and value of the oxygen tent in the treatment of pneumonia. For practical purposes, he said, there were two ways of giving oxygen: (1) by nasal catheter, (2) by the oxygen tent. The latter was widely used in America, but its employment in this country was only just beginning. The tent was more effective than the nasal catheter, and this had been proved both experimentally and clinically. With the help of the Medical Research Council it was now possible to send out at the request of any medical man an oxygen tent in the charge of a fully qualified physical therapist. Only the actual expenses would be charged for; but it was hoped that any patient who had benefited from the treatment would make a donation towards the cost of an oxygen therapeutic service to be constituted on a voluntary basis.

(Further information can be obtained from the Secretary, 25, Upper Wimpole Street, W.1 (telephone, Welbeck 1627), or from the Medical Section, British Industries House, Marble Arch, W.1.)

SECTION OF SURGERY

Thursday, July 26th

BAD SURGICAL RISKS

Under the chairmanship of Professor GREY TURNER (Newcastle-on-Tyne) Mr. G. GORDON-TAYLOR opened a discussion on bad surgical risks.

Mr. Gordon-Taylor said that, apart from the technical competence of the operation, the organization of the theatre, and the environment in which the surgeon worked, there were many factors which combined to determine the success or failure of a surgical operation. He did not propose to turn the discussion towards the consideration of patients who were bad risks because of the magnitude of the surgical measures intended, however justifiable. He was to envisage the operated, not the operation, and to take as his criterion of a bad surgical risk Rooke's definition of "a type of patient whose prospect of recovery from active surgical treatment falls much below the average." He detailed the various causal agencies in determining whether a patient was a bad surgical risk: (a) aetiological factors of race, sex, age, and heredity; (b) bodily conformation; (c) previous habits; (d) antecedent or intercurrent disease; (e) psychology of the patient; (f) the severity of the present ailment; and (g) the type of operation proposed. He regarded it as difficult to controvert the view that members of the Jewish faith were bad surgical risks. Operations in women were, if possible, to be avoided during menstruation, pregnancy, and parturition. A long-lived ancestry was a precious possession. The psychological undesirables were those who required no persuasion or over-persuasion; the apprehensive patient; the man with huge piles of books on the tables at each side of his bed; the man with the rapid pulse and the stack of French novels around him; and, likewise, the individual who was reading his paper upside down. It was a commonplace that clergymen, doctors, nurses, actors, and those of an artistic temperament were poor risks. Mr. Gordon-Taylor then referred to beneficial pre- and post-operative measures in the different fields of surgery. He instanced the change of outlook since the introduction of iodine therapy in the surgery of thyrotoxicosis, and dwelt with some detail on the choice of operation in peptic ulcer. He advocated exteriorization methods of the Paul-Mikulicz type in carcinoma of the colon.

Mr. ERNEST MILES said that the opening speaker had dealt exhaustively with the broad aspects. He himself proposed to speak purely regarding the risks in rectal surgery. While there were only two reasons for operation

in haemorrhoids—namely, protrusion on exertion so that the patient became somewhat of an invalid, and repeated haemorrhages—stoppage of the latter by surgical means was a grave risk where cirrhosis of the liver or high blood pressure was present. Operations for fistulae were not dangerous to life except where pulmonary tuberculosis existed and was the exciting cause. Recto-sigmoidectomy for procidentia recti, even though it involved the opening of the peritoneal cavity, had carried in his hands no operative mortality. Cancer of the rectum, in contrast to non-malignant conditions, was a very different affair. Untreated, there was a mortality of 100 per cent. in two to four years. A disease of such lethal nature demanded drastic measures, and the only radical operations based on a sound pathology—his one-stage abdomino-perineal operation, the two-stage abdomino-perineal operation of Coffey, and the perineo-abdominal operation first suggested by the chairman—all demanded a great deal of the patient. In the early days of the one-stage operation the mortality was about one-third. At the present time, with our knowledge of the demands made by the operation, with our methods of inducing anaesthesia, with improved pre- and post-operative treatment, and with routine blood transfusion, the operative mortality had been reduced to 10 per cent. Careful pre-operative examination by a physician was insisted on. Every means within his power should be employed by the surgeon to get the patient to the optimum state before operation. Obese and highly strung patients particularly required careful preparation. The toxic patient, as evidenced by a sallow, earthy complexion and furred tongue, was a bad risk. The chief cause of this was septic absorption in the colon. Where this was not associated with stricture, he advocated high colonic lavage with dettol, two drachms to the pint. Where stricture was present he advocated caecostomy. The so-called tube-caecostomy was valueless; he brought the caecum up to the surface, and made an opening of one and a half inches diameter.

Mr. E. FINCH (Sheffield) said that adequate pre- and post-operative treatment was the best prophylactic against such lay press statements as: "The operation was successful, but the patient died." The family doctor should be able to assist the surgeon in great measure by his knowledge of the patient's antecedent history. It might be superfluous to mention it, but a correct diagnosis was very important in assessing the risk. Physiology was gradually elucidating what underlay a "poor resistance," and dehydration and acid imbalance were being properly treated. He was of opinion that blood transfusions were better given before than after operation. Early surgery in biliary cases was successful surgery; once jaundice had occurred the risk was increased. The appearance of the patient was of more import in renal cases than tests of function.

Dr. M. DANZIS (Newark, New Jersey) declared that he would not regard American Jews as presenting increased surgical risks. Mr. McADAM ECCLES thought the Continental Jews greater risks than British Jews. He would include among bad risks those who had recently suffered from insomnia, those who were affected severely by tropical heat, and those who were "bad sailors." Mr. J. RUSSELL (Glasgow) felt strongly that a close association between anaesthetist and surgeon was desirable in assessment of risk. The possibility of using local anaesthesia, either alone or with a view to cutting down the amount of general anaesthetic, should always be considered. He preferred never to add adrenaline to the novocain in patients of the hyperthyroid type. Mr. MASTERMAN contrasted the surgical risks in Arabs and Jews in Palestine, to the detriment of the latter. The main reason was that fear made them postpone operation till the case was advanced. Mr. R. L. SPITTEL (Colombo) thought that the apparent increased risk in Indians was possibly due to the surgeons not being able to specialize enough in their different ways. Mr. R. B. BLAIR (Hull) regarded nervous patients as usually very satisfactory patients. Mr. J. ARMSTRONG (Ballymena) claimed that the quality of the "material" handled by a country practitioner who did occasional surgery made up for deficiencies in investigation and equipment. Dr. W. N.

LEAK (Winsford) advocated large doses of vitamin A in the preparation of the patient, and Mr. BASIL ROOKE (Boscombe) thought the country labourer was a typical good risk. The cheerful fat person was a better risk than the doleful obese.

Mr. GORDON-TAYLOR, in reply, agreed with Mr. Miles in deprecating tube caecostomy. He disclaimed too much severity in his attitude towards Jews as surgical risks; there were many other factors. He joined with Mr. Russell in his advocacy of the advantages of local anaesthesia.

POST-OPERATIVE MANAGEMENT OF EMPYEMA CASES

Mr. G. A. MASON, in a short paper on the post-operative management of acute empyema thoracis, referred to the care of the wound and to the frequent necessity of converting siphon drainage into the open variety of drainage. He stressed the importance of maintaining a cavity was left in which pus was almost certain to accumulate and give rise to toxæmia and the formation of a chronic empyema. There was no constant rate of expansion of the lung, and so the decision for removal of the tube was made on radiograms showing complete expansion. It was sometimes said that prolonged use of a drainage tube led to chronic empyema, but the reverse was far more often the case. Patients could follow their occupations in the later stages with a tube in position. Mr. Mason favoured open-air treatment and the beneficial tonic effect of massage to the limbs. Irrigation of the cavity in the early stages was probably free from danger if simple measures for warming the fluid and avoiding undue increase of pressure were followed. Reflex collapse, air embolism, and cerebral abscess were unlikely due to a standstill before the cavity was completely obliterated, and rarely the lung remained completely collapsed. Irrigation with solvents such as pepsin and eusol should be tried with a view to a chemical decortication, but where success did not follow, more radical and severe procedures, such as thoracoplasty and open decortication, were indicated. Mr. PHILIP TURNER said that the bad results were more commonly due to inadequate after-treatment than to deficiencies in operative technique. His procedure, after two days' simple drainage, was to apply a large Bier's cup to the wound once daily, making two or three applications. This withdrew pus, and, by the suction, promoted expansion of the lung.

SECTION OF OBSTETRICS AND GYNAECOLOGY Thursday, July 26th

OVARIAN CAUSES OF PELVIC PAIN

With Mr. W. S. RICHARDSON, a Vice-President, in the chair, Professor DANIEL DOUGAL (Manchester) opened a discussion on ovarian conditions as causes of pelvic pain. Professor Dougal stated that the object of the discussion was to decide what conditions of the ovary produced pain. The anatomy of the organ was described, and it was pointed out that trauma, by rupture of a follicle, could occur on the surface. This trauma varied greatly in different individuals, and depended upon the activity of the anterior part of the pituitary gland. Referred pain probably never occurred at all, unless from a peritoneum irritated by ovarian disturbance. The pain was discussed under the headings of functional, mechanical, inflammatory, and neoplastic. Nature had provided that the ovary appeared insensitive to the normal distension of the follicle. Medical men might, in patients who complained of ovarian pain, deny that the pain existed, and label the patient hysterical, assume that the threshold of the pain had been lowered, as in neurasthenia, or, lastly, attribute the pain to local disease. The speaker himself took the view that a patient with a low pain threshold could and did feel pain and discomfort at the time of follicular rupture. Treatment in the first place was to

ensure physical, mental, and emotional rest. Puncture of cysts and removal of the ovary were useless and unnecessary measures. Varied results were to be expected from presacral or periarterial sympathectomy, and it was to be expected that organotherapy would be likely to give the best results. Brief reference would be made to mechanical disturbances. Retroversion of the uterus and prolapse of the ovaries did undoubtedly cause discomfort occasionally. Varicocele of the ovarian veins was of doubtful clinical importance. Inflammation of the ovary was well recognized as a cause of ovarian pain. Endometrioma was the exception among ovarian tumours as regards ovarian pain.

Professor ANDREW H. DAVIDSON said he realized how the subject bristled with difficulties. Many medical men had suffered as a result of neurasthenic patients in whom oophorectomy had been done for doubtful ovarian disease. The speaker had seen two undoubted examples of "Mittelschmerz," and had found hard, white, ovaries with a thickened cortex. Shaving off the cortex proved quite useless. Periarterial sympathectomy of the ovarian plexus should be tried to relieve this condition. Prolapsed ovaries certainly caused pain and discomfort, and he thought that varicocele of the broad ligament, especially if associated with retroversion, was a condition that produced severe ovarian pain, and that Gilliam's operation would relieve the condition. Ovarian dysmenorrhoea was produced by endometriomata of the ovary. Professor Davidson had little faith in the idea that the small cystic ovary produced pain. His views on the part played by a neurasthenic state in this condition, and also on the way in which in hysteria the patient fixed her attention on her normal ovaries, coincided exactly with those of Professor Dougal. Rubin's test was frequently of use in the establishment of disease of the Fallopian tubes and ovaries, and if no disease was found the patient should be told of it.

Dr. GERTRUDE DEARNLEY said she was constantly being sent patients who had been told they had ovarian pain, but who most certainly had not this condition. Occasionally a demand was made for double oophorectomy in the patient, who might be a young woman. Retroversion of the uterus with prolapsed, tender ovaries would certainly cause ovarian pain. Dr. Dearnley agreed with the opening speakers that a polycystic ovary could produce pain in a neurasthenic patient. Often these cases had associated mental depression, and the only treatment that seemed to give any hope was the subcutaneous injection of ovarian hormone preparations, especially progynon in 1 c.cm. doses.

Dr. JOHN FAIRBAIRN said he was sorry to have heard the constant reference to neurosis in the discussion. It was realized that ovarian pain was now mental, and none the less a very real pain. He thought that the pain in dyspareunia, ascribed to a prolapsed ovary, was nearly always due to mental upset and disturbance, and not to a "mechanical displacement." Before the abdomen was opened the surgeon must satisfy himself that an obvious pathological condition was present. Mr. GREEN-ARMYTAGUE thought that a number of young women with ovarian pain suffered in reality as a result of some condition such as scoliosis or lordosis. He deplored the use of so-called ovarian extracts in cases of possible ovarian pain, and believed that the action of these preparations was due to the irresponsible insertion of the pessary or the promiscuous use of Caesarean section. No mention had as yet been made of haematoma of the ovary or of ovarian pregnancy. He had seen cases in which operative cure of a retroverted uterus did cure ovarian pain. Professor F. J. BROWNE said that left-sided pelvic pain was a great difficulty for the general practitioner. It was a serious matter when these cases were labelled "ovarian pain." He knew one clinic which treated all such cases with a large dose of salts, and the patients did not return. He disagreed that ovarian tumours did not give rise to pain, and was not prepared to see the small cirrhotic ovary displaced from its position as a cause of pain.

THE SECTIONS: SUMMARY OF PROCEEDINGS

Sir EWEN MACLEAN (Cardiff) did not think there was any other subject in the medical curriculum in which an organ was so wrongly blamed as the cause of symptoms. Dr. BLOOMFIELD described a case of a woman who always complained of violent pain in the right ovarian region. After palliative treatment had failed, an apparently normal ovary was removed, with apparent cure of the pain. She described cases of endometriomata of the ovary which had freedom from symptoms for six to eight months. Mr. ALECK BOURNE said that he was constantly sent cases of left iliac pain, and that those who sent the cases nearly always ascribed the pain to the ovary. The chief reason for doubt as to the correctness of this diagnosis was that oophorectomy failed to produce a cure. He did believe that a prolapsed ovary and that an ovary containing a tense cyst could both cause pain. Dr. J. S. ENGLISH (Singapore) described ovarian pain caused by worm infection of the intestine and bowel. Dr. W. H. ASHMORE (Dublin) had been disappointed not to hear the "early cystic ovary" mentioned as a cause of pain. Resection of the cystic portion cured the pain. Dr. A. E. CHISHOLM (Dundee) thought that a diagnosis of hysteria should only be made as a last resource in cases of unexplained ovarian pain. Examination without an anaesthetic was more important than examination under anaesthesia. Undoubted ovarian tenderness was accentuated by a low state of general health. Constipation was an undoubted cause of left iliac pain. He would suggest that a cystic ovary was due to under- or over-secretion of prolactin. Mr. W. S. RICHARDSON (Bournemouth) classed his cases of ovarian pain into the following aetiological groups: inflammation, torsion, pressure, endometrioma, neurasthenia, and haemorrhage. Chronic appendicitis, when the organ was placed in the pelvic position, was frequently a cause of ovarian pain. Removal of the ovary was, of course, unnecessary in these cases.

Professor DANIEL DOUGAL, in reply, said that he disagreed with Professor Browne that pain was a common symptom of ovarian tumours. He hoped that as a result of the discussion there would be fewer cases in which the ovary would be wrongly blamed for pain for which it did not account. Professor DAVIDSON (Dublin) wished to emphasize the great fault that was committed by doctors who branded their patients with the label of "ovarian pain." It was a condition that took much to undo.

The meeting concluded with a film illustrating the operation of Caesarean section performed by Mr. W. S. RICHARDSON of Bournemouth, who discussed the various points during the demonstration.

SECTION OF NEUROLOGY, PSYCHOLOGICAL
MEDICINE, AND MENTAL DISEASES
Thursday, July 26th

ORGANIC AND FUNCTIONAL NERVOUS DISORDERS

With Dr. EDWARD MAPOTHER, a Vice-President, in the chair, a discussion on the differential diagnosis of organic and functional nervous disorders was opened by Dr. GEORGE RIDDOKH and Dr. A. A. W. PETRIE.

Dr. Riddoch defined the term "functional," for the purposes of discussion, as indicating symptoms which were primarily psychogenic, and "organic" as those which resulted from abnormal physical alterations in the nervous system. A medical history, he said, should recapitulate the life of the patient as a whole. The history of a psychoneurotic showed a tendency to face trouble badly. He discussed the physical signs of organic nervous disorders, as opposed to those of hysteria, including paralyses, sensory disorders, and fits. Emotionalism did not necessarily mean that the patient had not some organic illness. The investigation of the behaviour of the individual in the past and in the present, coupled with an analysis of symptoms and signs, was the essential basis upon which diagnosis depended.

Dr. Petrie also stressed the fact that consideration of the patient's whole make-up and circumstances often rendered the diagnosis clear when consideration of symp-

toms left it obscure. He discussed the hypochondriacal attitude of mind in regard to the patient's valuation of his symptoms. He dealt at length with the neuroses—hysteria and its subsidiary, the traumatic neurosis, neurasthenia, anxiety neurosis, and various mixed types, and differentiated it from the debility following severe illness or associated with chronic toxæmia. He then considered the varied manifestations of anxiety states, with symptoms representing a functional disturbance of the autonomic nervous system. Closely allied to these were vasovagal attacks, which were often mistaken for symptoms of grave organic disease. The hysteric was the classical simulator of many diseases, and to understand his symptoms a study of the patient as a whole was essential. The distinction of pseudo-fits from true epilepsy depended essentially upon this. Neglect of the psychological aspect frequently led to failure in diagnosis and treatment.

Dr. MAPOTHER complimented the openers on their practical treatment of the problem before them. The neurologist had taken a more definitely psychological view than the psychologist. Dr. Riddoch took the positive line in defining "functional" as synonymous with psychogenic. One main source of error that had not been previously mentioned was that mental symptoms of early and insidious organic diseases were related to the type of personality, and were often indistinguishable from functional conditions; in short, the man became more than ever himself. At the Maudsley many cases of early organic disease were seen that were too mentally ill for a neurological hospital and not mentally ill enough for certification. Even definitely hysterical symptoms might be a symptom of organic decontrol. The first requisite for right diagnosis was that a psychologist should be a competent neurologist. He was amazed that this had sometimes been denied.

Dr. A. GREIG ANDERSON (Aberdeen) agreed that it was difficult to give satisfactory definitions of organic and functional disease without introducing a cross classification. The psychosis seemed to be a disease of a different order from the psychoneurosis. He deprecated the use of the ambiguous term "borderland case," since it suggested a transition between two separate categories of disease. It was true, however, that in early stages of schizophrenia many hysterical symptoms might occur, though the individual was always schizophrenic from the start. Functional disease was a reversible process, at least in the early stages. Organic disease was, from the beginning, an irreversible one, though it might be arrested. The case which had presented definite organic signs would continue to do so at all subsequent examinations; whereas functional disorder varied widely from time to time. Functional disorder might last for life without giving organic signs. Organic disease had an orderly sequence of onset, development of physical signs, symptoms, and stages; this was not so in a functional case. He stressed the necessity for complete and careful history-taking, not only as to the patient's past diseases, but to his life as a whole—his emotional reactions to life.

Dr. HELEN BOYLE (Hove) said that the meaning of the term "functional" was not clearly focused. It would be agreed that all forms of activity of the nervous system must be associated with physical changes. It seemed as if prolonged dysfunction might lead to abnormal physical alterations in other parts of the body, even if not in the nervous system. The possibility of recovery was a salient point in the use of the word "functional"—that was to say, it implied that the case was amenable to treatment. This necessity for treatment was often overlooked and the case disregarded as though "functional" were synonymous with "malingering." Patients should be seen alone in order to obtain an individual approach, whatever the opposition of the family.

Dr. FERGUS R. FERGUSON (Manchester) preferred to speak of organic and non-organic disorder. The patient who was suffering severely from a functional disorder was often told that there was nothing wrong with her. This was obviously not true. Among the most difficult conditions to be differentiated were cerebral arteriosclerosis, myasthenia gravis, and brachial neuritis. The history of

THE SECTIONS: SUMMARY OF PROCEEDINGS

THE BRITISH
MEDICAL JOURNAL

transient attacks of numbness, weakness, and loss of vision was more important than the presence of abnormal physical signs in the diagnosis of disseminated sclerosis. In cerebral vascular disease insufficient attention was paid to psychological disturbances; this caused many grave errors. In contradistinction to Dr. Petrie's experience practically all his own cases of myasthenia gravis had come with the label "functional." Neuritis in less common situations such as brachial, external popliteal, anterior crural, or lumbo-sacral were frequently diagnosed as "purely functional," especially as an anxiety state as frequently superimposed.

Dr. R. D. GILLESPIE made four generalizations. First, all physical symptoms and signs that might be regarded as the direct effect of emotional disturbance were probably of psychological origin, if no relevant organic disease could be discovered. Secondly, symptoms or signs that followed concepts of disease rather than physiological patterns were probably of psychological origin. Thirdly, where physical signs occurred in conjunction with symptoms these signs of organic alteration should be relevant to the complaint. Fourthly, in regard to the history, important characteristics of a psychogenic history were its time relations to certain psychological factors. There was a group that stood midway between the purely psychogenic and the purely physiogenic—notably, asthma, and probably eczema and prurigo, Graves's disease, diabetes, and certain cases of rheumatoid arthritis.

Dr. E. DOUGLAS GRANGER (Bournemouth) gave the details of cases illustrating four difficult conditions: (1) Advanced chronic neurasthenia. (2) Psychogenic symptoms associated with anaemia. (One case had repeated vaso-vagal attacks and a severe degree of agranulocytosis from which she recovered.) (3) Excessive fatigability, found later to be associated with myasthenia gravis. (4) Cases suggesting involvement of the basal ganglia and extrapyramidal motor system. These appeared to be getting more common. Dr. AUBREY J. LEWIS drew attention to those organic cases in which at some stage of the illness the clinical picture satisfied every positive requirement for a diagnosis of functional disorder, and sometimes no physical signs of organic impairment were present. Where hysterical phenomena were present and sometimes an adequate motive for the symptom, there was also not infrequently a coarse topical lesion in the central nervous system. The explanation of the appearance of a functional syndrome in the course of organic disorders might be (1) that the patient had a personality which predisposed him to this type of symptom when provoked, either by psychic or physical damage; this was generally accepted, but did not always seem to be true; (2) that a physical change in the central nervous system had a psychic action in producing certain functional syndromes; or (3) the functional syndrome might be psychogenic, representing a reaction along comprehensible lines to the physical illness. Ignorance of neurology exposed the psychologist to innumerable blunders. Dr. A. T. WILLIAMS (Bordighera) said that functional disease should be positively diagnosed and not merely suggested by exclusion of organic factors. He quoted cases to illustrate this. The difficulty in diagnosis arose in cases where an organic lesion existed which was not in itself disabling, associated with the belief on the part of the patient that he was incapacitated by it. Dr. LIONEL WEATHERLY (Bournemouth) quoted two precepts which he had received from his father some seventy years ago: (1) The causation of almost all hysteria has been an abnormal love of sympathy; (2) if you would help the patient you must accept some pain or other as the cause of the symptoms. Dr. MURDO MACKENZIE said the differential diagnosis between neurological and psychogenic lesions was that bearing a subjective experience. Conversion symptoms of hysteria were the end-results of a subjective psychogenic process, while anxiety states and neurasthenia were objective neurological conditions. Conversion symptoms in hysteria were late, chronic, as a rule incurable, and really unimportant. Crude methods would remove these for a short time, a fact which had been given undue notoriety. In one sense they were in the same category as delusions. Dr. HAROLD SIMMONS (Bournemouth) emphasized the

importance, from the general practitioner's point of view, of the differential diagnosis, because of the difference in treatment in these types of illnesses. Dr. JAMES COLLIER referred the meeting to the methods of the ancient Greeks in the treatment of psychogenic physical symptoms. It was always well to beware of fits, since the most typically functional turned out to be organic occasionally. Dr. RIDDOCH, in summing up, said that it would be purely artificial to separate psychiatry from neurology. Dr. PETRIE, in his reply, welcomed the fact that neurologists and psychologists were much more appreciative of each other's point of view than formerly, a fact which was of happy augury for their patients.

SECTION OF PATHOLOGY, BACTERIOLOGY,
AND BIOCHEMISTRY

Thursday, July 26th

OESTRUS-PRODUCING HORMONES

With the President, Professor J. W. BIGGER (Dublin), in the chair, Professor E. C. DODDS opened a discussion on oestrus-producing hormones. Professor Dodds said that it was now almost certain that the oestrus-producing hormones in the urine of pregnant women belonged to the group of sterols, and had in common a partially hydrogenated phenanthrene ring. Of the three hormones, trihydroxy-, ketohydroxy-, and dihydro-oestrin, the last was much the most powerful. In the so far unsuccessful attempt to synthesize ketohydroxy-oestrin a series of compounds had been prepared in the laboratory which could produce all the known phenomena of oestrus. It had also been shown that the naturally occurring oestrus-producing hormones were linked on one side with carcinogenic substances, and on the other with the vitamins and certain plant sterols. The specificity of these hormones was not restricted to any one group of animals; all female animals responded to injections of them if sufficient quantities were given. Kauffmann had shown that, provided sufficient of the hormone was given together with the corpus luteum hormone, it was possible to produce menstrual changes in the uterus, even in ovariectomized women. The menses could be induced in women suffering from primary or secondary amenorrhoea, and long after the menopause. In menopause cases very good results had been reported with doses of 50,000 mouse units injected twice each week, with alleviation of the psychic symptoms, and cure of the characteristic chronic vulval inflammations. Use of the corpus luteum hormone had resulted in the controlling of certain types of menorrhagia, and patients suffering from repeated abortions had been successfully brought to term.

Dr. A. S. PARKES said that the sexual cycles of all mammals had the same essential features—namely, a first phase characterized by growth and ovulation of the Graafian follicle, and a second by growth of the corpus luteum and by pregnancy if fertile mating had occurred. The oestrus-producing hormones were essentially associated with the first phase, as could be shown by the production of its ordinary manifestations by injecting hormones into ovariectomized animals—for example, in the mouse or rat the vagina underwent cornification, in vulval skin dilatation. In the baboon the perivulval function of the oestrogenic hormone was to sensitize the uterus to progesterin. In immature or ovariectomized animals, progesterin had no effect unless the uterus had previously been brought into the condition of oestrus by the action of oestrin. This interrelation between the two hormones might prove to be of clinical importance. Dr. H. GARDINER-HILL described his experience in treating eighteen cases with oestrin and luteo-hormone obtained from Professor Kauffmann, whose technique and dosage he had followed. Eleven cases of secondary amenorrhoea, of duration varying between one and thirteen years, had been treated with full doses of oestrin and luteo-hormone, and in all but one menstruation had occurred, its time of onset varying between thirty-six

and fifty-six hours after the end of the treatment. In several cases further courses of treatment had been given, always with positive results, but in no case was a regular menstrual cycle restored. Five cases of secondary amenorrhoea received oestrin alone, and three menstruated after an interval of seven to nine days. In one of these, menstruation occurred spontaneously in the following two months. As to the case of primary amenorrhoea which he had reported on at the Royal Society of Medicine in February, 1934, on Kauffmann's advice he had given two further courses of oestrin and luteo-hormone, after both of which menstruation had occurred, but there had been no spontaneous return of the cycle. The secondary sex characteristics had now developed markedly. Dr. Gardiner-Hill thought there was no doubt that these hormones, given in the way Kauffmann suggested, almost invariably produced menstruation in cases of amenorrhoea, but they did not seem to solve the problem of the regulation of the periodicity of the menstrual cycle.

Dr. J. M. ROSSON (Edinburgh) dealt with the effects of oestrin on the uterine muscle. He stated that the muscle showed variations in activity during the menstrual cycle, and that probably both its rhythmic contractions and its reactivity to the oxytocic hormone of the pituitary reached a maximum at the onset of menstruation. The reactivity to oxytocin also varied during pregnancy, and reached a maximum at parturition. Oestrin was concerned in these effects. This increased reactivity to oxytocin could also be produced late in pregnancy, and this raised the hope that it might be possible to control this stage in the human being. The dosage necessary to affect the human uterine muscle was not known, but the rapid destruction of oestrin in the body suggested that large doses at frequent intervals would be necessary.

Dr. P. M. F. BISHOP dealt with Markee's work on transplanting endometrium in the rabbit to the anterior chamber of the eye, which he had himself confirmed. The vascular changes in the transplants could be observed. Normally there was rhythmic blushing and blanching five or six times a minute. After an injection of oestrin the pink colour of the graft deepened within ten minutes, and vaso-dilatation arrested the rhythm within half an hour. The technique of grafting presented difficulties, but in a successfully grafted rabbit the urine of suspected pregnancy could be very rapidly tested for oestrin. The test was not so delicate as the Aschheim-Zondek one, and the earliest positive result obtained was forty-seven days after the last period.

Mr. L. C. RIVETT, as a gynaecologist, was interested in certain clinical conditions apparently due to oestrous-producing hormones: (1) infantilism causing amenorrhoea or dysmenorrhoea; and (2) the menopause, either spontaneous or surgical. Was it possible to demonstrate by a quantitative test a deficiency of oestrin? Was the excess in the urine in pregnancy due to over-production or to excretion of an unwanted hormone? It was accepted among endocrinologists that ovulation occurred in the human being fourteen to sixteen days after menstruation commenced. Yet on clinical grounds this was considered the "safe period." He suggested that the observed ovulation was the casting off of a spent ovum, and that fertile ovulation was produced, as in the rabbit, by the stimulus of coitus.

Dr. M. TAUSK (Holland) drew attention to the functions of oestrin in the male. It was present in urine and testes. Though it depressed the hormone production of the testes, it promoted the growth of the smooth muscle of the seminal vesicles and caused hyperplasia and metaplasia of prostatic epithelium. This effect could be counteracted by injection of male hormone. Possibly it played some part in the pathogenesis of enlarged prostate. Dr. Tausk also pleaded for uniformity in methods of standardization and in size of units, but doubted whether dosage by weight would be practicable for some time.

Professor D. CAMPBELL (Aberdeen) thought the oestrogenic action of anterior pituitary extracts should be considered. Such extracts in small doses caused a typical increase in uterine activity, as seen with oestrin; if continued, the corpus luteum effect of diminished activity was seen.

Professor DODDS, in reply, said he considered it impossible at present to estimate oestrin quantitatively in urine. He was in favour of expressing dosage of oestrin by weight rather than by biological units. He thought the general acceptance by all speakers of the possibility of causing menstruation by hormone injections showed how much progress had been made.

SECTION OF OPHTHALMOLOGY

Thursday, July 26th

BLINDNESS FOLLOWING N.A.B.

At the second meeting of the Section, with Mr. LESLIE PATON in the chair, Mr. F. A. JULER read a paper on a case of blindness following the administration of N.A.B. He said that cases of blindness following the pentavalent group of organic arsenic compounds had been well recognized in the past, and had led to the non-use of most of those compounds. Blindness after the trivalent or salvarsan group was very rare, few cases having been reported. He reported a case in a woman of 46 following a course of N.A.B. Six doses had been given, commencing with 0.3 gram and concluding with 0.9 gram twenty-eight days later. Fifteen days after the last injection the patient became rapidly blind in both eyes, losing all perception of light in one eye, and the vision being reduced to hand movements in the other. The disks became white, and the arteries narrow with white lines along them. Two years later the vision was still the same. She had previously had no trouble with her eyes, and there was no complaint of vision. She had no gross syphilitic lesion; it was suggested that the arsenic had affected the optic nerve or retinal vessels directly and that it was not a case of a "Herxheimer" reaction. Mr. A. D. GRIFFITH quoted six cases of patients blind from atoxyl in the early days of organic arsenic, and asked whether it was necessary to do elaborate liver function tests. Mr. D. HARDIE (Bournemouth) asked whether the arsenic was the cause of the damage and whether bismuth was safer. In reply, Mr. JULER stated that the accident was rare and that the cause was unknown.

ADVANCEMENT AND TENDON LENGTHENING

Opening the discussion on the technique of advancement and of tendon lengthening in strabismus operations, Mr. W. B. INGLIS POLLOCK (Glasgow) said that during the last eleven years he had been using a clove hitch to attach the stitch to the rectus muscle for advancement operations. Two stitches were employed. The advantage of this procedure was that the only knot for each stitch was outside the conjunctiva. The muscle did not require to be exposed for removal of the stitch because one cut brought the entire stitch out. In tendon lengthening he employed two hooks slipped through small openings in the conjunctiva, one above the tendon and the other below. The two hooks were then separated by 10 to 15 mm. Two cuts were made at one side of the tendon: one in front of the anterior hook and one behind the posterior. The intervening cut on the opposite side of the tendon was done between the two hooks; this procedure, being subconjunctival, did not require sutures, and the dressing was only applied for twenty-four hours to arrest haemorrhage. In the discussion, in which the President, Mr. F. W. LAW, Mr. BISHOP HARMAN, and Mr. F. A. JULER participated, the preoperative cutting of the lashes and the possibility of doing squint operations in the outpatient department were considered.

LOCAL ULTRA-VIOLET THERAPY IN EYE DISEASE

Mr. F. W. LAW, in a paper on local ultra-violet therapy in eye disease, gave a short description of the two types of apparatus used for local irradiation of the eye—that for the conjunctiva of the lids, and that for the cornea and episclera. He said that the apparatus at present available for the latter was far too expensive, and he had designed one which he hoped would be marketed at a price which any ophthalmic hospital could easily afford. After

referring to the dangers of ultra-violet irradiation, which he said had been greatly exaggerated, he himself never having seen a single case of ocular damage from this cause, he gave an account of the cases treated in his department at Moorfields during the last twelve months. From this it appeared that the most successful results to be expected from local therapy were in cases of recurrent erosion, corneal ulcer, some forms of keratitis, and epitheritis, and in sterilizing the conjunctival sac before operation. The President related a case in his experience of cataract due to ultra-violet irradiation. Mr. A. D. GRIFFITH asked whether it was necessary to fix the eye during exposure. Mr. LAW, in reply, stated that the possibility of other factors producing cataract, as in the President's case, had to be considered. Whether an eye required to be fixed or not depended on its irritability.

ORTHOPTIC TREATMENT: ITS SCOPE AND LIMITATION

In a paper on orthoptic treatment Miss M. A. PUGH said that orthoptic training had become a necessity owing to the failure of operative measures completely to correct squint. In some cases the eyes were straight immediately following operation, but relapsed soon after. This was to be expected where the subsequent formation of scar tissue might alter the position of the eye, and also where the patient had to deal with images which were disorientated in space according to his former habit of sight. The residual deviation after a squint operation often included a vertical displacement and/or a cyclophoria. These displacements, if left, did not correct themselves, but could usually be corrected by training. The age difficulty was generally overrated. Training was certainly more satisfactory in patients of 4 or 5. Nevertheless, adult patients could re-develop their fusion faculty easily; this was seen in patients who developed a divergent squint when the power of accommodation decreased. In her opinion the one serious limitation to orthoptic training was the eye which had been allowed to become amblyopic. Such an eye was best treated up to 7 years, but good results were obtained by occlusion up to 14 or more. Alternating squints gave as good results as monocular squints, but tended to take a longer time. The President asked whether Miss Pugh advocated squint training as a preliminary even in cases that would obviously come to operation. In reply to the discussion, in which Mr. GRAY CLEGG, Mr. P. A. ROSS (Bournemouth), and Mr. INGLIS POLLOCK joined, Miss PUGH said that training was always of value. It helped to avoid post-operative diplopia. She recommended the gradual occlusion of an eye—for example, using a varnished lens rather than an occluder.

PHYSICS AND OPHTHALMOLOGY

Mr. F. RIDLEY, reading a paper on physics in the problems of modern ophthalmology, showed graphs representing the distensibility of the globe, and described the experimental work upon which these were based. He discussed the physical laws relating to pressure in liquids, and, applying them to the problem of the intraocular pressure, showed that the latter was determined by the tension in the walls of the globe, and was equal to the pressure within any blood vessel in the eye less the pressure due to the support afforded by the vessel wall at the point observed. From the graphs the amount of blood normally present in the living eye, and the expansion of the vascular bed of the uvea, when active tone was lost, could be deduced. It was further shown that such expansion of the vascular bed could produce rises in intraocular pressure as great as any observed clinically. The graphs also demonstrated that the walls of the globe exhibit the phenomenon of stretching when submitted to distension as in glaucoma, and that glaucomatous eyes give such a "stretched" curve. The importance of this stretching in predisposing the eye to a second attack of glaucoma was emphasized.

DYSTROPHIES AND DEGENERATIONS OF THE MACULA

Mr. ARNOLD SORSBY, in a paper on the dystrophies and degenerations of the macula, drew a sharp distinction between these two groups of lesions. In the dystrophies,

he said, there was a hereditary basis, recessive, dominant, or irregularly dominant. The age of onset varied in different families, as did the ophthalmoscopic appearance, but within the same family the lesion had an almost photographic likeness in the members affected. Abiopathy was the underlying factor in these affections, which ranged from severe lesions present at birth or developing shortly afterwards (Best's disease), to pre-senile familial type of Tay's choroiditis. The group possibly included also some forms of so-called senile degeneration. In contrast to these dystrophies, which were sometimes associated with widespread neurological and skeletal lesions, the degenerations of the macula followed upon some clear degeneration of the macula. Mr. SORSBY drew attention to disciform degeneration of the macula with its kaleidoscopic range of intermediate appearances and characteristic terminal stage of disk-like atrophy at the macula. Referring to the cases of macular dystrophy associated with central nervous system manifestations, the President related adult cases of macular dystrophy associated with psychoses. Mr. G. CLEGG thought that the cases grouped under disciform degeneration helped to explain cases previously diagnosed as tuberculous. Mr. SORSBY, in reply, said that attempts to establish an entity of cerebro-macular affections occurring in later life had so far failed.

SECTION OF ORTHOPAEDICS

Thursday, July 26th

ADOLESCENT AND SENILE KYPHOSIS

With the President, Mr. HARRY PLATT, in the chair, a discussion on adolescent and senile kyphosis was opened by Mr. C. LAMBRINUDI. He confined his remarks to the adolescent condition, a rounded dorsal kyphosis of insidious onset, making its appearance between the ages of 12 and 17. There were, he said, five fairly well defined clinical groups. In the first, kyphosis appeared without pain or other symptoms in an otherwise healthy patient. In the second, the onset was similar but the child was tall, poorly developed, and had frequent debilitating illnesses. In the third group, the onset was fairly rapid, a history of trauma was common, and pain was a very definite feature—the condition first described by Scheuermann in 1921. Patients in the fourth group showed a kyphosis with evidence of endocrine imbalance; the child was usually too tall for his age, and the secondary sexual characteristics might be irregular. Lastly, adolescent kyphosis might develop rapidly after an acute chest infection, particularly pneumonia. The various aetiological factors were then discussed, and it was shown that infection, hernia of the nucleus pulposus, and repeated minor traumata had all to be taken into account. Mr. Lambrinudi had examined some 400 school children, and had found a definite association between adolescent kyphosis and tightness of the hamstrings. If a child with tight hamstrings was repeatedly compelled to perform toe-touching exercises, hyperflexion of the spine occurred, since the hamstrings could not be stretched by leverage applied through the spine.

Dr. JACQUES CALVÉ (Paris) described the formation of the long, ugly curves that appeared in the cervical and lumbar regions in an untreated case of adolescent kyphosis. A patient in whom the disease was allowed to run its natural course ended up with a camel-like hump in the dorsal region, with marked lordoses above and below; in consequence, the whole trunk and neck appeared to be shortened. The problem of treatment was exactly the same as the one that had to be faced in dealing with extensive dorsal caries. If short, compensatory curves could be induced immediately above and below the segment of the spine in which kyphotic changes had occurred, the total shortening of the trunk would be negligible, the cosmetic result excellent, and the patient would be spared the grinding backache so commonly found in severe lumbar lordosis. This result might be obtained by nursing the patient in a plaster bed, so con-

structed that the normal cervical and lumbar curves were obliterated and constant pressure was exerted on the spine immediately above and below the kyphos. The Minerva jacket with a posterior window over the kyphos worked in the same way, with the added advantage of making constant recumbency unnecessary. Pressure above and below the kyphos was made by insertion of pads of felt through the window in the back of the jacket.

Professor H. A. HARRIS said that although the spine at all ages accounted for 37 to 40 per cent. of the total body length, and the dorsal part at all ages accounted for 37 per cent. of the total spinal length, yet there was a marked disproportion in the growth of the cervical and lumbar regions, as regards both the bony vertebrae and the fibro-cartilaginous disks. The disproportion in growth in the case of the disks was more marked than that of the bony vertebrae, for the total height of the disks in the cervical and dorsal region was doubled between birth and adolescence, whereas in the lumbar region the disks increased fourfold. The primary and secondary centres of ossification in the vertebrae were illustrated radiographically, and special attention was directed to the postponement of consolidation in the spine and os innominatum of man in accord with the prolonged period of childhood and the delay of puberty. The growth processes in relation to the epiphyseal plates above and below the body of the vertebrae were shown to be identical with those at the growth cartilages of the long bones. The epiphyseal plates were to be regarded as a means of limiting growth in the spine, so that the range of variation in total spinal length could be maintained within much narrower limits than variation in stature. Radiographs were shown indicating that nutritional and infectious diseases, with or without certain underlying perversions of growth, had a place in the aetiology of adolescent kyphosis. Schmorl's useful demonstration of lesions of the fibro-cartilaginous disks did not appear to explain all cases. Professor Harris compared the changes in senile kyphosis to those reversions which are familiar in old age, both in the mandible and in the vault of the skull, whereby the bone is restored to its infantile condition. In childhood the disks were relatively immune and the vertebrae peculiarly susceptible to nutritional and infective conditions. In old age the vertebrae were susceptible to nutritional conditions such as osteoporosis or osteomalacia, and the disks and ligaments were peculiarly liable to calcification and ossification as a result of chronic infections such as pyorrhoea, leucorrhoea, and gonorrhoea.

Mr. N. ROSS SMITH (Bournemouth) said that Schmorl's theory of congenital weakness of the cartilaginous plates above and below the nucleus pulposus left several clinical facts unexplained. If the defect was present from birth, why was it that the onset of deformity was always delayed until puberty? Furthermore, nuclear herniae were conspicuously absent in many cases of marked adolescent kyphosis. There was little doubt that infection was of some aetiological importance. A case was described in which a tall youth of 18, with kyphosis of four years' duration, showed signs of low-grade chronic infection: slight fever, sweating, secondary anaemia, a polymorphonuclear leucocytosis, and an increased sedimentation rate. The tonsils were found to be grossly infected; after they had been removed the patient's condition rapidly improved. It was admitted that the chronic sepsis and the kyphosis might be quite unassociated, but there was no doubt that the bone changes had occurred during the time of the patient's ill-health. Mr. B. WHITCHURCH HOWELL espoused the infective theory, particularly in the senile cases. Many of his patients were so ill that their appearance suggested the presence of malignant disease. Evidence of chronic sepsis was by no means uncommon in adult kyphosis. He felt that the economic importance of the adolescent condition was insufficiently appreciated, and that claims for disability supposed to have arisen during the course of work were too frequently recognized, when in reality the trouble in the back dated from the appearance of a kyphosis during school life. The obvious remedy was early recognition of the condition at school orthopaedic clinics and the prompt institution of treatment. Miss MAUD F. FORRESTER-BROWN (Bath) supported Mr.

Lambrinudi's statements regarding the aetiological importance of tight hamstrings. In a certain physical training college she had traced numerous cases of sacro-iliac strain to the vigorous attempts of certain pupils to stretch their unstretchable tight hamstrings. She had found that in cases of established kyphosis it was difficult, often impossible, to treat patients in recumbency. Considerable relief of pain and the development of good compensatory curves often followed a course of abdominal exercises and the wearing of a light Goldthwait brace.

SECTION OF ANAESTHETICS

Thursday, July 26th

PRACTICAL DEMONSTRATIONS

The second meeting of the Section was devoted to demonstrations at the Cornelia and East Dorset Hospital, Poole. Dr. W. B. PRIMROSE (Glasgow) demonstrated closed anaesthesia with carbon dioxide absorption in a case of cholecystectomy. He used his single-phase apparatus anaesthetor "M.7." Dr. H. J. A. SIMMONS (Bournemouth) demonstrated the intravenous use of sodium evipan in four cases. Dr. J. C. A. NORMAN (Broadstone) showed two cases, one of appendicectomy and the other of implantation of radium around the uterus, in both of which spinocain was used. Premedication had been administered as follows: evening prior to operation, 3 grains luminal; one and a half hours before operation, 3 grains nembutal; half an hour before operation, 1/2 c.cm. omnopon-scopolamine; a quarter of an hour before operation, if the patient was not drowsy, a further 1/2 c.cm. of omnopon-scopolamine.

SECTION OF OTO-RHINO-LARYNGOLOGY

Thursday, July 26th

ALLERGIC FACTORS IN RHINORRHOEA

With the President, Mr. J. S. FRASER, in the chair, the discussion on allergic factors in rhinorrhoea and nasal catarrh was opened by Mr. T. H. JUST.

After defining the term "allergic disease," Mr. Just said that his remarks were restricted to allergy as seen by the rhinologist in a rather indefinite form, either complicated or uncomplicated by catarrh. He discussed the factors operating in vasomotor rhinitis and some of the causes, one of which, he maintained, was the use of face powder by the modern young woman, and particularly of powder which contained orris root as an ingredient. He dealt with the allergic's sensitivity to the staphylococcal protein as a cause of the vasomotor rhinitis, and the effects attendant on the administration of minute doses of autogenous vaccines in patients suffering from asthma and nasopharyngeal catarrh.

Mr. E. D. D. DAVIS said that from a clinical point of view cases of allergic vasomotor rhinorrhoea could be divided into two groups: (1) those in which there was no anatomical abnormality; and (2) those of long duration with consequent permanent oedema, polypi, etc. In all cases the allergic and general condition must be treated. Operative treatment in the majority was unsatisfactory, but when permanent changes such as polypi and suppuration supervened operation became a necessity. There was need for research into the basis of allergic rhinorrhoea, which might lead to the successful treatment of asthma and hay fever.

In the discussion which followed Mr. E. WATSON-WILLIAMS (Bristol) contended that the treatment employed depended on the degree of nasal abnormality. Where the rhinorrhoea was slight it might be sufficient to avoid exposure to the allergic factors. Where there was gross abnormality he advised very slight cauterization of the septal spur. Dr. W. C. DAVIDSON (Torquay) emphasized the importance of the gastro-intestinal factor in asthma and rhinorrhoea. Professor H. S. BRACKETT (Montreal) asked what was the influence of race on the disease. In his town it was particularly prevalent among the Jewish

SECTION OF PAEDIATRICS
Thursday, July 26th

OSTEOMYELITIS

With Dr. H. H. CHODAK GREGORY, Vice-President, in the chair, Professor JOHN FRASER (Edinburgh) opened a discussion on acute osteomyelitis.

He pointed out that, while staphylococcal osteomyelitis was apparently disappearing, there had been a definite increase in the last twelve months. He accepted the view that the bone disease arose from a blood stream infection, and to a certain extent the local pus formation might be regarded as a defensive mechanism, akin to a fixation abscess, a point of some importance in regard to infection. Dealing with the cause of the localization of the infection, Professor Fraser suggested that the great concentration of reticulo-endothelial tissue in the marrow of the growing bone might explain the occurrence of a localized reactive process in response to a generalized infection. Treatment, he said, was essentially conservative; he was an advocate of a form of the Starr technique. Actually he was accustomed to expose the affected area of bone, and then, by means of a drill one-eighth of an inch in diameter, perforate the cortex of the metaphysis in a number of places, covering as far as possible all the infected area. A special gauze dressing was then packed into the wound, and complete immobilization secured by encasing the limb in plaster so as to include the joints above and below the lesion. After a fortnight the plaster was removed, and a fresh plaster applied for a period of four to six weeks. In the treatment of the general condition Professor Fraser employed an anti-staphylococcal immuno-blood transfusion if the temperature had not fallen or shown signs of improvement by the third day after operation. Staphylococcal serum had been disappearing, and, apart from immuno-transfusion, he relied upon an abundant supply of fluid and a high vitamin intake.

Mr. H. TYRRELL-GRAY said that over a period of many years he had become more conservative in treatment, so that actually for the past five years he had not operated on a single case of osteomyelitis. He regarded the disorder as essentially a septicaemia, with the local lesion as an incident. He admitted that in desperate cases there was a great deal of anxiety for the surgeon who wished to hold rigidly to his principles, but he had found that treatment of the septicaemia, without any interference with the local lesion, gave good results. By close cooperation with the pathologists there had been evolved an intensive form of attack upon the general infection, mainly by means of intravenous injections of mercuric chloride (1/40 to 1/16 grain), and the use of anti-staphylococcal serum or anti-streptococcal serum, depending upon the organism found on blood culture. Secondary abscesses occurred and had to be dealt with; anorexia was a frequent symptom, but yielded to open-air treatment. This method, he said, avoided all the risks inherent in the opening up of the bone, the chances of pyaemia, and the chronic stages of sinuses and sequestra. Over a period of five years he had had one death, due to empyema developing comparatively late in the illness, and no instance of sequestration.

Mr. H. W. S. WRIGHT emphasized that little was known about the early stages of the malady called osteomyelitis, and it was obvious that the local bone condition was but the last act in a play. He thought more emphasis should be laid on the factors of poverty, overcrowding, dirt, and underfeeding in the lowering of resistance. As with rickets and bone tuberculosis, osteomyelitis would be abolished if enough people were willing to take enough trouble. Dealing with his personal experience, Mr. Wright emphasized the danger of leaving plasters on too long, and the value of the Carrel-Dakin methods in clearing up a persisting state of local sepsis.

Dr. L. COLE (Cambridge), speaking as a physician, thought that the early stages of obscure osteomyelitis were more likely to come under medical than surgical observation. In any case of acute unexplained pyrexia, although local signs were slight or negligible, the possi-

TONSILLECTOMY IN CHILDREN

Dr. B. ELIZABETH NESBITT (Edinburgh) opened the discussion on post-operative complications and results of tonsil and adenoid operations in children. Her material was based on 1,457 cases from Dr. J. S. Fraser's department at the Royal Infirmary, Edinburgh, and on 900 cases operated upon in private by Dr. Fraser. A statistical survey of all possible complications was carried out, and the results were carefully noted. The local symptoms for which the operation was recommended were completely cured in 75 per cent., partly cured in 18 per cent., and persistent in 7 per cent. of cases. There was a marked improvement in general health in 86.4 per cent., and no improvement in 12.2 per cent. The post-operative complications were higher in the hospital than in the private cases.

Mr. E. B. WAGGETT stated that the children who were sent home from hospital on the day of the operation did much better than those who were kept at hospital for twenty-four or forty-eight hours. Mr. T. RITCHIE RODGER agreed with Mr. Waggett on this point. Professor H. S. BIRKETT (Montreal) discussed the particular techniques in tonsillectomy which gave the best aesthetic results. He had never had a case of pneumonia following a tonsil operation in children.

INFECTIONS OF THE MAXILLARY SINUS

Dr. I. B. THORBURN (Glasgow) opened the discussion on infections of the maxillary sinus. He reviewed the results obtained in 508 cases treated by Dr. J. S. Fraser at the Edinburgh Royal Infirmary from 1921 to 1930. Treatment was by conservative methods, and, where these failed, by the intranasal rather than by the radical operation. In the acute cases an ultimate cure was obtained in 50 per cent. by conservative treatment, and in 75 per cent. by intranasal operation. Conservative treatment, he said, was of little value in chronic cases; by intranasal operation one-third were cured and another third improved. The radical operation had special indications; in uncomplicated cases 60 per cent. were cured and in complicated cases only 25 per cent. The mucosa of the maxillary sinus was frequently polypoid, and this often accounted for the recurrence of nasal polypi after operation.

Mr. TILLEY said that in most cases of "choanal polypus" the antrum, on being opened, was found to be full of polypi. In his opinion, therefore, Dr. Thorburn was not justified in excluding these cases in his analysis of sinusitis. He further stated that the transillumination test was unreliable because one or two previous attacks of sinusitis would cause the affected antrum to appear more opaque for a relatively long time. Mr. WAGGETT deplored that the Lichtwitz trocar and cannula for washing out the antrum was still in use. Far better results were obtained and fewer antral operations would be required if Killian's needle were employed or that of Watson-

bility of acute osteomyelitis should be kept in mind. Even if the local lesion was becoming severe the manifestations might be slight, and it was necessary to make a minute examination of bones and joints, especially if there was any history of an injury. Accessory aids to diagnosis included a four-hourly temperature chart, leucocyte count, blood culture, and aspiration of fluid in the region of the local affection.

Mr. S. A. S. MALKIN (Nottingham) said that the problem of treatment in osteomyelitis had two aspects—the preservation of life, and, later, the preservation of function. He saw the chronic stages of the disease in an orthopaedic hospital, and as a result of this he concluded that early treatment should aim at promoting free drainage of the medulla with as little damage as possible; once the acute stage was over many cases could have their illness cut short by radical sequestrectomy. Mr. W. ARCH. MEIN (Bournemouth) raised one problem of aetiology—namely, the possible relation of the increased incidence of removal of tonsils by dissection with the occurrence one or two years later of osteomyelitis. The presence of intense oedema of the bone marrow was responsible for necrosis of bone, and treatment must be directed towards remedying this. Hence he sought to secure free drainage, with the use of an irrigation method to keep the openings in the bone and secure a free flow of purulent material. Dr. F. J. POYTON, the President, said that he had been brought up in the school which taught that if acute osteomyelitis was diagnosed there must be immediate operation to save life. After hearing the discussion he was very doubtful as to what he should do if a relative were affected with this disorder. He mentioned one difficulty in differential diagnosis—for example, in cases of acute lymphatic leukaemia with some infiltration of the bone in the neighbourhood of the joints. Mr. R. KENNON (Liverpool) held that if pus was present then operation had to be performed. It was important to realize the exact points where tenderness over the bones was to be expected. He was against prolonged covering-up of cases of osteomyelitis after operation. Mr. W. J. EASTWOOD (Liverpool) still thought, despite all he had heard, that the ideal operation was "guttering." He considered that exact diagnosis as to the extent of the disease and the operation should both be carefully planned in the ward as a result of clinical findings.

SECTION OF PUBLIC HEALTH (INCLUDING TUBERCULOSIS)

Thursday, July 26th

IMMUNIZATION IN THE SPECIFIC FEVERS

With the President, Dr. T. CARNWATH, in the chair, Dr. R. A. O'BRIEN (Beckenham) opened a discussion on immunization in the prevention of the specific fevers.

Dealing first with diphtheria, Dr. O'Brien said that such mixtures as toxin-antitoxin were being given up, but toxoid-antitoxin floccules (T.A.F.) were still popular. Toxoid alone was being more freely employed, sometimes combined with an immobilizing agent such as alum. The antigen alum-toxoid had proved remarkably useful in animal immunization in the laboratory, but it was doubtful whether it would displace formal-toxoid in two well-spaced doses for human immunization. When the chemist could prepare pure crystalline toxin as he now produced ferments and vitamins, more rapid progress could be expected, but the "pseudo" constituent which caused local swelling and general malaise would have to be eliminated. In dealing with an institutional epidemic, the dictum of 1923 still held good—"Schick-test and swab every inmate; immunize immediately the Schick-positive children, and isolate and examine daily the Schick-positive and swab-positive children, for it was in this group that all the cases of diphtheria appeared." It was as yet uncertain whether current methods of immunization would secure immunity against all types of diphtheria, but it appeared the best policy at present to endeavour to improve the type of prophylactic hitherto derived from the

Park 8 strain. There seemed to be no evidence that the morbidity or mortality rose even temporarily in a partly immunized community because of the suggested rise in the carrier rate among the inoculated. In scarlet fever, active immunization with a small series of doses of toxin gave high protection. The reduction of the number of injections had not yet proved practicable. Formalinization must not be carried too far; unless approximately 500 skin test doses of toxin per c.cm. were left, high immunity was not secured, even with three doses and the addition of alum. As regards whooping-cough, the vaccinating work of Madsen in Scandinavia and of Sauer and others in the United States offered considerable hope. Jundell in Sweden was endeavouring to obtain an equivalent of the valuable convalescent measles serum for the protection of young children in contact with whooping-cough patients.

Surgeon Captain S. F. DUDLEY, R.N. (Chatham), said that 10 per cent. of Greenwich Hospital schoolboys had lost their negative Schick reaction within two years of successful immunization. The immunizability of such cases had been permanently augmented, and, if later infected with diphtheria, antitoxin would be manufactured so rapidly that disease would not develop, apart from trivial sore throats. He wholeheartedly endorsed Dr. Nash's insistence on a post-inoculation-Schick test. Artificial protection against clinical diphtheria was no protection against carrier infection; it might even increase the risk of infection to unprotected members of the community. Every effort should be made, therefore, to protect the younger age groups or pre-school children, who were more liable than others to severe and fatal infection. The Greenwich School had been invaded in 1932 by diphtheria bacilli of the gravis type, indistinguishable from that which had caused such havoc at Leeds. No fewer than 146 healthy carriers had been detected, but had not been segregated since all the school had been previously immunized. There were no cases of clinical diphtheria, and only eighteen cases of mild sore throat with K.L.B. infection—a splendid testimonial to the value of artificial immunization, which could certainly reduce the morbidity of clinical diphtheria to a negligible figure.

Dr. WILSON SMITH insisted that any satisfactory method of immunization must be absolutely safe, cause no disturbance of health, be painless, and produce a high grade of long-lasting immunity. Such ideals had not yet been realized in the case of virus diseases. Viruses were so minute that the administration of an adequate bulk to immunize might be impossible. No susceptible animal species had yet been discovered, and so supplies in quantity of virus and immune sera could not be forthcoming. Yet great advances had been made. Immunization with killed or inactivated virus gave rise to a mild temporary result, which rendered possible the administration of doses of living virus which might otherwise have been lethal. Formalized and carbolyzed vaccines, useful in dog distemper, cattle plague, and human rabies, had proved unconvincing in yellow fever, and their immunizing properties quickly disappeared. Yet killed viruses had antigenic properties, and improved methods of obtaining concentrated virus, freed from the undesirable animal tissues, might lead to their extended use in the future. Living virus could be used with safety if modified by passage through animals, or associated with a protective immune serum. Yellow fever virus could be transmitted to mice by intracerebral inoculation, and carried on indefinitely thus from brain to brain. The final virus no longer produced a fatal infection in monkeys when inoculated subcutaneously or intraperitoneally, but only when introduced into the central nervous system. The milder non-fatal infection induced a solid immunity against all strains of the virus, and had been used for human beings, although often with the protection of a serum. A very careful balance of virus and serum was necessary. By using the intradermal approach smaller doses of convalescent serum were required; the crucial test would be furnished by the occurrence of an epidemic, but laboratory infections had already been obviated by this means. Although no serum was effective in measles, if

given after the onset of symptoms, prevention was obtainable. A similar use of convalescent serum would probably yield good results in poliomyelitis, chicken-pox, and mumps.

Dr. E. H. R. HARRIES discussed the indications for immunization, active and passive, in the practice of the fever hospital. In his experience, when in Birmingham, the procedure of seeking parental consent to produce active immunity to diphtheria during the stay of scarlet fever patients in hospital had, on the whole, worked satisfactorily, and resulted in the protection of large numbers of children annually. Benson had used toxoid in Edinburgh, and in 1933 inoculated about 1,000 scarlet fever patients under 10 years old, the parental consent rate exceeding 80 per cent. Apart from this practice the chief indications at present for active immunization were the protection of the hospital staff against small-pox, diphtheria, scarlet fever, and the enteric group. In his own hospital, in spite of abundant opportunities for infection, there was no evidence that the active immunization of nurses with toxoid was not proof against infections with gravis or intermediate strains of *C. diphtheriae*. The Dick test, carried out with a well-tested toxin, was a reliable indication of immunity to the toxin of the haemolytic streptococcus at the time the test was read. He had found that natural Dick-immunes possessed solid immunity.

Artificial Dick-immunes occasionally lapsed to an extent which permitted not only a positive Dick test, but a clinical attack of scarlet fever. If this was so in the case of nurses constantly receiving stimuli from the ubiquitous haemolytic streptococcus it was difficult to advise active immunization against scarlet fever in public schools. An outbreak of scarlet fever among lapsed artificial immunes might require considerable explanation. The positive Dick reactor was in a majority among public school communities. Advance in active immunization against scarlet fever still awaited a laboratory method of titration of the toxin and the determination of the optimum series of doses for the production of lasting immunity. The speaker produced figures to show that active immunization of nurses against scarlet fever did not increase the incidence of streptococcal tonsillitis among them. Prophylactic passive immunization against diphtheria, scarlet fever, and measles was of proved value in fever and in children's hospital practice, and Dr. Harries advocated the injection of a combined prophylactic dose of scarlet fever and diphtheria antitoxins in concentrated serum before tonsillectomy in clinics. During the recent measles epidemic in London he had, by the injection on admission of this combined prophylactic, succeeded in keeping his measles wards virtually clear from cross-infection with diphtheria and scarlet fever. Analysis of a consecutive series of 943 cases injected with the combined prophylactic showed a complete absence of anaphylactic shock and an incidence of late serum rashes in 89 (9.4 per cent.). Passive immunization of children exposed to measles could be successfully carried out, especially if or adult-immune serum. Dr. Harries discussed the question of dosage, and gave it as his opinion that recent work in the vaccine prophylaxis of whooping-cough promised well.

Dr. C. W. HURT said that the cost of immunization was far less than that of the nursing and treatment of cases. The process was almost painless, and in children reactions were rare. In the U.S.A. and Canada diphtheria immunization was an ordinary event in a child's life, and Canadians considered us very backward in this respect. In Birmingham, however, 70,000 children had been immunized; in Manchester, 20,000; and in Cork 10,000. In England and Wales diphtheria immunization was now in progress in 159 sanitary districts, and at least forty clinics had been established for this purpose. Not one person in the British Isles had died as the result of diphtheria immunization; for this thanks were chiefly due to Dr. O'Brien. If immunization was to make headway, the interest of the general practitioner must be secured; he was wanted to urge parents to have their children immunized, or to do it himself. General practi-

tioner schemes were in existence in two or three metropolitan boroughs; a scheme had been put forward by Kensington, Hammersmith, and Paddington practitioners, and another scheme was being operated for a rural area. Dr. Hutt suggested that authoritative information and advice should be issued to medical practitioners by a representative committee under the aegis of the British Medical Association, or actually by a committee of the Association comparable with those which had done such good work in connexion with mental deficiency and psycho-analysis.

Dr. E. H. T. NASH (M.O.H., Isleworth) thought that too many were under the deplorable delusion that a child once immunized would always be immune. Many children required six doses for immunization. He was actively engaged in a five years' campaign, the results of which, he thought, would be the establishment of public confidence. In 5,000 cases of full immunization, in which both a preliminary and a final Schick test had been made, he had not had a single case of diphtheria. Too many authorities were only giving three doses, and without Schick testing—a thoroughly unscientific procedure. Immunization was easier in a circumscribed community; in the general population immunization against measles was at present almost impossible, but the position was improving. Dr. J. B. HOWELL (M.O.H., Hammersmith) had inaugurated a campaign against diphtheria two years ago in the middle of a severe epidemic. It had proved very effective, and was being continued. Three immunizations were being given each term to children in infant schools. Dr. D. S. SUTHERLAND (Manchester) said that recently all cases entering fever hospitals had been immunized against diphtheria, and he was entirely in favour of it. Only three had returned subsequently with diphtheria, but one of the cases had proved fatal. A severe type of diphtheria had recently been prevalent in Leeds and Manchester. It was difficult to diagnose, resembling quinsy. One case had proved fatal, diphtheria bacilli only having been found on culture, and anitoxin having been given too late. The President, referring to a complaint by Dr. O'Brien of the lack of clinical material, thought that this was due to the country's democratic temperament. It was necessary to proceed cautiously and to ensure that the technique was perfect. It had been claimed that the fall in diphtheria mortality in New York had been due to wholesale immunization, but during the same period there had been a corresponding fall in London without this. Yet it would be criminal not to do everything possible to protect circumscribed communities, although the possibility of wholesale immunization was still lacking. No extravagant claims should be made, since they retarded progress.

Dr. O'BRIEN, replying, retorted that the United States claimed to be a democratic community. One great hindrance had been the use of the word "compulsory," an unfortunate echo of the days of compulsory vaccination. There were no absolute Schick negative and positive levels, but a host of intermediate stages best represented as a curve, which tended to fall in all cases from the negative towards the positive as time went on. Most immunized cases remained potentially immune, and only a few reached the Schick-positive level. There was no evidence that the antigen used at present was not operative against all types of diphtheria. Great progress had been made in virus information. The speaker had been agreeably surprised at the abundance of measles serum obtained by enthusiastic medical officers of health and various organizations, but there was not nearly enough yet.

MODERN SANATORIUM TREATMENT

In an independent paper, Dr. A. S. McNALTY said that the present tendency to regard artificial pneumothorax treatment as the main remedy for pulmonary tuberculosis had adversely affected the progress and improvement of ordinary sanatorium treatment. He outlined the various grades of treatment, and referred to the possibilities of segregation available. He suggested that alternation between hospital and sanatorium treatment was most desirable, and should be made possible within the limits

of a single institution. The principles of modern sanatorium treatment comprised: (1) early diagnosis; (2) proper selection of patients for such treatment; (3) full co-ordination between the tuberculosis officer and the sanatorium medical superintendent; (4) observation and hospital treatment, including collapse therapy; (5) correct co-ordination of hospital and sanatorium treatment; (6) study and treatment of each patient by the sanatorium medical superintendent; (7) proper sanatorium regime; (8) prolonged stay in the sanatorium; and (9) maintenance of the ex-sanatorium patient under medical supervision for at least five years. If these conditions were maintained less would be heard about the failure of sanatorium treatment.

In the ensuing discussion Dr. COATES said that sanatorium treatment had not had a full and fair trial. The war had interrupted the start of the scheme. There had been too much undue enthusiasm for it as well as for other lines of tuberculosis therapy. It had even been expected to cure cases in three months. Hopeless cases had been sent in to sanatoria. Dr. CHANDLER added that sanatorium treatment was now being improved. Collapse therapy was excellent, but tried too frequently.

SECTION OF RADIOLOGY AND ELECTRO-THERAPEUTICS

Thursday, July 26th

RADIOLOGY AND THE GENERAL PRACTITIONER

With Dr. D. D. MALPAS in the chair, Dr. J. H. DOUGLAS WEBSTER, President, opened the discussion on the value of radiology as an aid to the general practitioner.

Radiologists, Dr. Webster said, should be physicians practising radiology and not merely technicians. Radiology had produced more pathognomonic signs than centuries of medical observation. Köhler had said that radiological signs must always be secondary to clinical findings, but Holzknecht, with whom the speaker agreed, asserted that the reverse was often the case. Careful distinction must be made between good and bad radiology. Haenisch of Hamburg had said that there could be no "minor" radiology in the sense that there was "minor" surgery, but he (the speaker) doubted this. The lay practice of radiology should be made illegal, and recent legislation in Germany had been introduced to ensure this. Many people argued that the special instruction of students in radiology was unnecessary, but he disagreed with this. The claims of radiology should be brought more prominently before the medical profession and the public; this was being attempted in America and Sweden.

Dr. E. KAYE LE FLEMING (Wimborne) said that, from the general practitioner's point of view, radiology had made enormous strides since he was a student. The lack of personal contact between doctor and radiologist was a great loss to both, and written reports did not serve the same useful purpose as consultations. That all suspected bone injuries should be subjected to x-ray examination was a maxim not easy to live up to, mainly because of expense. He knew, however, that radiologists would be against any suggestion that screening alone was sufficient in such cases. He had never felt that there was urgent need for alteration in the laws regarding sterilization, and he would like to know whether the effect of x-ray treatment could be guaranteed. He hoped that radium would prove an alternative to the knife in carcinoma of the breast.

Dr. F. G. WOOD presented an analysis of 678 cases sent to him for radiological investigation. More than half were of fractures; next in order came cases requiring examination of the chest, joints, teeth, and urinary tract, and, finally, the barium-meal examination. Radiology was invaluable in lung and heart conditions, and had even been responsible for the discovery of previously unsuspected diseases, such as early pneumonia following influenza. Lipiodol had revolutionized the radiography of the chest, and in pregnancy it could show clearly the relation between the size of the foetal head and the

pelvis. General practitioners could help radiologists by enabling them to follow up cases.

Dr. H. GUY DAIN (Birmingham) hoped that the perfection of modern radiological technique would not tend to make clinical acumen unnecessary. Radiology was a valuable aid to diagnosis, but was sometimes unreliable. It was a great help to the general practitioner in cases of suspected fracture, but the legal aspect was, he thought, often over-emphasized. X-ray examinations helped in the control of cases of arthritis and tuberculous joints, and saved many good teeth from unnecessary extraction. It was most valuable, perhaps, in conditions of the gall-bladder and urinary tract. It was important to have a radiological opinion on which one could rely. With regard to treatment, Dr. Dain had found x-rays of great assistance in ringworm and other skin diseases, but he was not impressed with the results in exophthalmic goitre. He doubted the value of repeated x-ray treatment after radical mastectomy for carcinoma of the breast, and thought that the general practitioner was, on the whole, more impressed by the diagnostic than by the therapeutic side.

Dr. W. B. PROWSE (Brighton) said that the future of radiology was largely in the hands of the general practitioner, who could educate the public concerning it. Unqualified practice should not be allowed, and doctors and patients should realize that the radiologist was a physician and not merely a technician. The x-ray "picture" loomed so large that the public was apt to forget that great skill was required in its interpretation. Dr. Le Fleming had stressed the financial difficulties, but he thought that radiologists were as accommodating as other specialists in this respect. The fees were not high when the time and expenses of the radiologist were considered. Co-operation among radiologists, and between them and the general practitioner, was even more necessary in therapy than in diagnosis.

Dr. A. BAXTER (Alderley Edge) considered that few doctors had time to keep pace with advances in specialties such as radiology, and it was necessary for the practitioner to co-operate closely with the radiologist. In cases of hyperthyroidism in which operation was contra-indicated he had found x-ray treatment valuable. In advanced carcinoma of the breast it often saved the patient the misery of fungation through the skin. Radiological treatment was the method of choice in sterilization and in production of an artificial menopause.

Dr. G. B. BATTEN stated that, after forty-eight years as a general practitioner, he had come to the conclusion that good films were of no use unless interpretation by a highly experienced person could be secured. The late Dr. Stanley Melville had insisted on the value of attending post-mortem examinations on cases which had passed through the hands of the radiologist, and he concurred in this. He did not agree that students should be taught details of radiological technique; the result would be that they would regard themselves as radiologists when they had had no experience at all. The general practitioner should be told more clearly what radiology could do.

Mr. D. H. KIRCHIN (Barrister-at-Law) said that a doctor defending an action for negligent treatment of a fracture had little chance of succeeding unless he could show the jury an x-ray picture of the injured part or else written instructions from the patient that he did not wish an x-ray examination to be made. This state of affairs was, he said, an expression of the idea suggested by a previous speaker, that the x-ray film was a picture of the disease. Nevertheless, Dr. Dain had himself suggested, by implication, that this attitude was not altogether unreasonable, in pointing out that many fractures were easily mistaken for sprains. Although a doctor might treat these conditions with equal care, yet if he had to admit that he had confused them the jury might not believe that he had done his best if he had not had the injury radiographed. Now that such cases were being more frequently tried by a judge alone, under the New Procedure, the necessity for a radiogram might not be so urgent, as a judge had more appreciation of the true function of radiology.

Dr. J. F. BRULSFORD (Birmingham) maintained that students should be instructed about radiographic appearances. He had no objection to the unqualified radio-

POPULAR LECTURE: FOODS, FADS,
AND FASHIONS

The Popular Lecture in connexion with the Annual Meeting was given on July 27th at the Municipal College, Bournemouth, by Professor V. H. MOTTRAM, professor of physiology in the University of London, whose subject was "Food, Fads, and Fashions." Mr. H. S. SOUTTAR, Chairman of the Representative Body, presided over a crowded audience.

Professor Mottram quoted from Stefansson's *The Friendly Arctic*: "There is no field of human thought where sentiment and prejudice take the place of sound knowledge and logical thinking so completely as in dietetics." The arboreal ancestors of the human race at some period descended from the trees and took to the land, and then discovered that, in addition to insects and lizards, and perhaps small birds, the larger animals were worth eating. The first age of man was that of a hunter, living on an entirely meat diet. At a later stage he discovered that he could tame animals, like the goat and cow, and live on the milk or on the cheese made from the milk. Finally he took to agriculture, and consumed cereals and vegetables. He survived these tremendous changes, though probably with difficulty. The lecturer wondered whether the medicine men in those distant ages noted any increase in caries when man began on a cereal diet. When the Romans invaded Ancient Britain they brought their food fashions with them. What was the reaction of the natives? Did they, in A.D. 134, cr little to the east of the Isle of Wight and Hampshire, the Belgae from the Isle of Purbeck, to which came the Durotriges from Dorset, the Iceni from East Anglia, the Cantii from Kent and Sussex, even the Picts and Scots from the North, and invite a person interested in dietetics to tell them that all these food fashions did not matter?

DIETETIC HISTORY

That was conjecture, but in historic times food fashions had been changing in the strangest way. There was a delightful picture in the *Canterbury Tales* of a poor person's diet—the widow in the Priest's Tale, who practised simple diet, exercise, and a contented mind. She drank neither red nor white wine, her food was mainly black and white bread, broiled bacon, and an egg or two. Did she in the late spring ever have incipient scurvy? Probably not, for she took plenty of unpasteurized milk. (The lecturer hastened to add that he was not against the pasteurization of milk, but strongly in favour of it in present conditions.)

Some people sighed for the great days of Elizabeth. No one would want to live in her day if he understood what they had to eat. Sugar then, at present prices, cost a sovereign a pound, and only people like the Queen herself could afford it. Too much sugar was said to have caused the blackness of her teeth. Potatoes in those days were a curiosity. Ambassador Page said that the English had many vegetables, most of them cabbage. In those days cabbage was newly introduced, as was the French bean. The plum, cherry, and quince were new importations. There was no coffee, tea, or cocoa. Beer or, if one was better off, wine was drunk for breakfast. Beer-drinking at breakfast, according to a recent newspaper correspondence, continued until the seventies of the last century in Oxford, that home of lost causes.

In one's own time, Professor Mottram continued, diet had undergone many changes. In his own boyhood the tomato was just beginning to make its way; the banana had hardly appeared; grape fruit, now familiar on the breakfast table, came in about 1900. Before the war a certain commodity was only discoverable in German shops, but now every shop which supplied pig products furnished the liver sausage—he was sometimes inclined to think it was the only good thing which had come out of the war. Frozen mutton and chilled beef had come in since

grapher as long as it was realized that interpretation of the film was the most important thing. Fees could only be reduced by making less thorough examinations, and he was against contract work for this reason. He thought that clinical investigation was being neglected. Nevertheless the general practitioner could not afford to ignore positive radiological findings, even if clinical evidence was wanting. Dr. ROY WARD claimed that early diagnosis was the most important single factor in the treatment of malignant disease, and here the radiologist was in the hands of the general practitioner. Radium was advantageous in the treatment of menorrhagia, in that it was as certain as x rays, and the administration of an anaesthetic made thorough examination possible. Although radium was invaluable in inoperable cases of carcinoma of the breast, the position with regard to operable cases was not yet certain. Radium certainly relieved surgeons from the responsibility of performing useless operations in hopeless cases. Dr. C. H. C. DALTON (Ipswich) considered that education of the student as to what could be done by radiology should be thorough, and that every radiological specialist should spend a year in general practice before specializing. Dr. KIRCHIN disagreed with Dr. Dain that the treatment of a sprain and of a fracture without displacement was the same. An x-ray picture should always be taken, and the legal aspect of the problem was very important. He suggested the use of paper films as a means of reducing expense. Dr. S. L. MUCKLOW (Cheltenham) said that he always encouraged the practitioner to see the film with him, and there was, he thought, need for such co-operation. He had found x-ray treatment admirable for warts on the feet and hands. Dr. LE FLEMING pointed out the difficulties of adding further courses of instruction to an already full medical curriculum. He thought all specialists should have had experience of general practice. In pulmonary tuberculosis not only was radiological examination invaluable, but patients would often not submit to treatment without it. He had little faith in the radiological diagnosis of appendicitis, but films were useful in persuading patients to undergo appendicectomy. Dr. DOUGLAS WEBSTER, in reply, expressed the Section's indebtedness to Dr. Le Fleming for his paper. He thought that reliance on screening alone in fracture cases was dangerous. There was no risk of skin burns in the modern x-ray treatment of exophthalmic goitre. He had treated 200 cases without having this complication, and had recently treated several patients by daily applications for a week in order to shorten the treatment period. He agreed with Dr. Roy Ward about the importance of early diagnosis in malignant disease. In New York many insurance companies reduced premiums if the insured person consented to bi-annual examination. Some early cases must be discovered by this means. X rays were better than radon seeds in the treatment of extensive carcinoma of the breast.

The Section of Radiology and Electrotherapeutics held a demonstration on every afternoon of the meeting, in which slides were shown of cases in further illustration of the subject-matter of the morning discussion. The demonstration of these cases was followed by much interesting and valuable informal discussion. The following is a list of the subjects and demonstrators: Practical electrotherapeutics, Dr. W. J. Turrell, Oxford; genito-urinary cases, Dr. Dalton, Ipswich; cases of general interest where diagnosis has proved difficult, Dr. B. Grellier, Hastings, and Dr. D. Webster, London (the latter demonstrating cases of Dr. F. G. Nicholas); stomach and duodenal cases, Dr. Craig Mooney, Plymouth, Dr. Beatrice Collins, Richmond, Dr. C. H. Dalton, Ipswich, Dr. D. Webster (for Dr. F. G. Nicholas), and Dr. Payne, Leicester. Special mention must be made of Dr. Turrell's ingenious device for the regulation of current; of Dr. Dalton's cases showing the power of recovery of a kidney after the removal of calculi; of Dr. Nicholas's case of Cooley's anaemia, never before shown in this country; and of Dr. Grellier's case of cutaneous xanthoma showing changes in the vertebral column.

the childhood of many of those present, as had canned foods, the canning industry starting about 1870. These changes were partly due to better and quicker transport, but also to standardization of food products. Butter, for example, was made in larger and larger factories. The cream from which it was made was soured always with the same type of bacteria, and so the taste was standardized. People who had been accustomed to New Zealand butter and were suddenly switched over to Dorset said that they did not like the flavour.

A great refinement of food had taken place, particularly in sugar and flour; the former was now practically 100 per cent. pure. A great deal of food sophistication had arisen. In a physico-psychological laboratory, when an apparatus for matching colours was desired, resort was made to a tintometer used by the brewers to ensure that a particular brand of beer was always of the same colour. Even the best jam, with the exception of the products of one or two makers, was very sophisticated, containing a good deal of glucose, and a good deal of fruit juice which was not from the fruit after which the jam was named. He wondered whether, as a result of standardization, discrimination in food was being lost.

MODERN FOOD HABITS

Some curious mixtures of food were often consumed. In the States he saw a person eating sausages with waffles and golden syrup, and in Germany gooseberry jam with stewed beef, though people who had red currant jelly with their mutton had no right to make a remark, any more than the Englishman who favoured putrid cheese should express disgust at the diet of the Eskimo, which was largely putrid meat. Such cheese, by the way, had now largely disappeared from country inns, and was found only in West End clubs. The order and times of meals had also changed. At the coronation feast of William IV, for example, the courses, which had no particular order, began early in the afternoon, and went on for most of the remainder of the day. Afternoon tea was a modern innovation. From the biography of Fanny Kemble it appeared to have arisen about the 'fifties or 'sixties, when, under whispers of secrecy, tea was served in the lady's boudoir. The custom was now making its way with the French.

Practically every change of fashion had its reaction. There were always people who said that a new introduction was producing some horrible disease. Cancer had been ascribed to bread made from white flour, also to tomatoes, for no better reason than that since the introduction of tomatoes the cancer rate had gone up. He sympathized with the moral objection of the vegetarian to meat, though a psycho-analyst friend assured him that vegetarianism was due to the repression of cannibalistic desire. But meat was attacked on other grounds, as causing cancer, although in Australia, where they ate three times as much meat as we did, cancer was less prevalent than here. A new attitude of mind was that foods should not be mixed. "Quida," a novelist of some vogue in Victorian times, pointed out that animals never mixed their foods. Nor did they, but if their foods were mixed for them, he had never seen an animal refuse. But it was now once again being said that one should have only starch or sugar foods at one meal, fat at another, and so on—a wholly irrational idea. He had no doubt that there would soon be a chivalrous war upon vitamins.

Professor Mottram told his audience how to distinguish a fad from a fashion. A fashion became a fad when it needed emotion to defend it. Sometimes there was an unctuous rectitude about the faddist. He knew exactly what food it was within the last twenty-four hours that had disagreed with him, though Francis Bacon pointed out that it would take an enormous amount of experimentation before a particular mince-pie could be incriminated. The lecturer was sometimes called in to suggest an economic diet for a family, and when a wife greeted one of his suggestions with the remark that her husband would not eat that, he knew perfectly well that she would not eat it either! Professor Mottram himself let emotion creep in when he went on to denounce the brown bread fanatics, the anti-starch, anti-sugar, and

anti-acid fanatics, the anti-meat fanatics, the anti-purine-bodies fanatics, the intestinal toxæmia fanatics, the roughage fanatics, the slimming craze, and the so-called nature cure. The only food fad he did not denounce was the fad of having no food fads at all.

PRESENT-DAY NEEDS

The great need of to-day was more mass research into the problems of diet. Boys entering a well-known public school, for instance, compared with boys entering elementary schools, were from 1½ to 2 inches taller and from 7 to 11 pounds heavier, and it was suspected that the difference was largely due to food. The difficulties in research were the cost, and also the fact that man, with his complex psychology, was the worst research animal in the world, his psychological reactions towards food being almost as strong and disturbing as towards sex. Auto-suggestion explained the vogue of many patent medicines and patent foods. Most of the symptoms which arose from stasis of the colon were psychological and not chemical at all. Anything that removed that stasis gave a sense of well-being, and the individual, feeling better, went on taking the patent food or patent medicine until a vicious circle was created. Commercial firms had scientific men in their employment who seized on the latest discoveries in dietetics and exploited them. He spoke of the enormous amount of advertisement space occupied by patent foods in all classes of periodicals.

The British Medical Association, which had done a useful service with regard to secret remedies, might do yet more with regard to patent foods. One food which was brought to him by a nurse for investigation was advised for babies from birth, but as far as could be analysed it consisted almost entirely of starch and cane sugar, and if any baby thrived on that food it did so on the milk with which the food had to be made up. There ought to be analysis of all patent foods, and an insistence on an accurate description of them in advertisements.

Another need was for trained dietitians in every hospital of reasonable size—so far there were only a paltry half-dozen of them—a good deal of whose work should lie in the out-patient department. They should also have the opportunity of instructing medical students in dietetics. Post-graduate courses in the subject were desirable, also a general elementary instruction of the public through the B.B.C., health visitors, sanitary inspectors, district nurses, and teachers. What was good enough for our grandparents to eat was not perhaps good enough for us, because in the meantime, though called by the same name, it had become something entirely different. University centres for the training of teachers in dietetics were desirable. The principles of dietetics, so far as that subject had become a science, were very simple: that a mixed diet was essential, which mixed diet must contain first of all dairy food—milk, butter, cheese, and eggs—secondly, market garden produce—salads, green vegetables—and, thirdly, food from the sea. There were no fads in diet, and only one fashion should be allowed, namely, to eat a mixed diet.

A hearty vote of thanks was accorded to Professor Mottram on the motion of Dr. W. ASTEN.

At the last general meeting of the International Association for the Prevention of Blindness and of the International Organization against Trachoma, held in Paris, with Professor de Lapersonne in the chair, reports on various aspects of the trachoma problem were presented, and these have now been issued in pamphlet form (Imprimerie Alençonnaise, Rue des Marcheries, Alençon). The principal contribution is a survey by Mr. A. F. MacCallan, F.R.C.S., of trachoma in the British Colonial Empire, its relation to blindness, work of relief, and preventive action. The address given by Professor Emil de Grosz of Budapest on that occasion is published as a separate leaflet by the Royal Hungarian Press. On behalf of the American Ophthalmological Society and other parties the Downer medal was presented to Professor de Lapersonne for his outstanding work in ophthalmology and the prevention of blindness.

MR. HOLMES AND DR. WATSON

MR. HOLMES AND DR. WATSON

[THE BRITISH
MEDICAL JOURNAL]

[1886-1934]

When Arthur Conan Doyle was a medical student at Edinburgh in the late 'seventies he came under the influence of Joseph Bell, surgeon to the Royal Infirmary, whose gift of quick perception and rapid reasoning from small observations he turned to good account later. In 1886, when practising obscurely at Southsea, Conan Doyle hit on the idea of an amateur detective who should apply the methods of Joseph Bell to the unravelling of mysteries, with a sort of medical Boswell as foil and showman. Thus arose Mr. Sherlock Holmes, Dr. Watson, and *A Study in Scarlet*. Conan Doyle then came to London in the hope of making a name in ophthalmology, but no patients knocked at the door of the house in Montagu Street, Portman Square, and he filled his time by writing further adventures of Sherlock Holmes for the *Strand Magazine*. Now, forty-eight years after his creation, and four years after the death of his creator, Sherlock Holmes, with the lovable but absurd Watson, has passed into the realm of historical figures; in the minds of millions of people they are far more real than many of their living acquaintances. "His methods, his life, the documents in which his career is related, his friend and biographer, Dr. Watson, have all been investigated and made the topic of mock-scientific hypotheses." The game still goes on, and we are privileged to publish below a report of the inaugural meeting of the Sherlock Holmes Society. Appropriately enough, in view of all the circumstances—Joseph Bell and Conan Doyle were medical graduates of Edinburgh, John H. Watson had been a house-surgeon at Bart's, and met Sherlock Holmes there—the company included two members of the medical profession. We are glad to recall, too, that Dr. Watson was a regular reader of the *British Medical Journal*.

THE SHERLOCK HOLMES SOCIETY

The first dinner of the Society was held on the evening of Derby Day, Wednesday, June 6th, 1934, at Canuto's Restaurant in Baker Street. The following members were present: Dr. H. R. L. Sheppard, C.H. (in the chair), Mr. Ivor Back, F.R.C.S., Mr. E. M. Behrens, Mr. H. W. Bell, Mr. Anthony Berkeley, Miss Winifred Blazey, Mr. Denis Browne, F.R.C.S., Mr. C. M. Givens, Mr. R. I. Gunn, Mr. Gerald Hopkins, Miss Lanthé Jerrold, Mr. Gerald Kelly, R.A., Miss Gladys Mitchell, Mr. F. V. Morley, Mr. Stanley Morrison, Mr. E. R. Punshon, Mr. S. C. Roberts, Miss Dorothy Sayers, Miss Helen Simpson, Mr. Dominick Spring-Rice, Captain A. E. W. Thomas, D.S.O., M.C., Mr. Richard Heron Ward, Mr. K. Hobson, and Mr. A. G. Macdonell (hon. secretary). A genial note of welcome was struck by placing in front of each member a copy of Mr. Roberts's masterly study of Dr. Watson.

Two members arrived, it is understood, in a hansom cab, and two at least drank Beane because it was Dr. Watson's choice on a notable occasion. At the close of dinner a happy inspiration of Mr. Kelly's led to the appearance of a dish with a large metal cover, the removal of which by the Chairman, temporarily inveigled into the role of "Tadpole" Phelps, disclosed a facsimile of the Naval Treaty. This was followed by the presentation to the Chairman of copper beech leaves and orange pips by Miss Simpson and of an ear-flapped travelling cap by Mr. Spring-Rice. These unexpected and ingenious touches of local colour put the company in the best of humour, and served as an admirable introduction to the business of the evening.

The proceedings were opened by Mr. MACDONELL, who won unanimous approval for his proposal that the Society should elect Dr. Sheppard its President in recognition of his services in forcibly resuscitating Sherlock Holmes. (Later in the evening the President described the exact nature of the pressure which he and two friends applied to Sir A. Conan Doyle for this purpose during an I Zingari tour.) Mr. Macdonell then referred to various messages of greeting which he had received from, among others, Mr. Vincent Starrett and Mr. Desmond MacCarthy, and read extracts from a letter written by Mr.

T. S. Blakeney from a town in Southern India, which must, as several members eagerly exclaimed, have been Pondicherry.

Mr. Ivor Back was then asked to speak on Dr. Watson's medical qualifications, and responded by reading a letter which he had recently received from him. It appears that the doctor is now eighty-two years of age, but still has a few patients, one of whom, suffering from the loss of a big toe, he proposed to send to Mr. Back for examination. Advancing years, however, have shaken Dr. Watson's confidence in his professional powers, and he frankly admitted to his correspondent that he felt that he was now an even greater danger to the public than when he recommended strychnine in large doses as a sedative.

Mr. MORLEY then rose to read a cryptic telegram of greeting to the Society from the Gasogene of the Baker Street Irregulars. He explained that the latter are a body of enthusiasts established in New York, and that the Gasogene is their chief officer, the other two being the Tautalus and the Com-missionaire. The Society's interest in its American counterpart was increased by the extracts which Mr. Morley read from the Irregulars' highly original constitution, while his eloquent plea for a memorial plaque in Baker Street, or, if this should re-kindle the fires of controversy, in Montagu Street, obviously appealed strongly to his fellow members' sense of fitness.

A reference by Mr. Morley to the unsolved problem of how two, or possibly three, Moriarty brothers each came to bear the name of James gave Mr. GERALD KELLY his cue for a brilliant diatribe on the subject of Moriarty's Greuze. He challenged Holmes's argument that the acquisition of a picture by this artist presupposed an income far in excess of a professional stipend: the Vernet blood in his veins may well have caused Holmes to set a misplaced value on Greuze's work. Alternatively, why should not "La Jeune Fille à l'Agneau" have been a liability inherited by Moriarty from his father, whose unimaginative choice of names for his sons revealed him as a man of indifferent taste? Or again, might not Holmes himself have planted the work on his arch-enemy with the deliberate aim of undermining his moral?

Mr. ROBERTS and Mr. SPRING-RICE continued the discussion, the latter drawing attention to the curious incident of the train which left Winchester and arrived at Victoria after the race for the Wessex Cup. Mr. BELL propounded an ingenious theory that, notwithstanding Holmes's descent from country squires, his familiarity with London dated from early days; the evidence being that the thoroughfare which he identified as Robert Street in 1886 had for a number of years previously been renamed Robsart Street.

Miss SAYERS then proceeded to improve on Mr. Morley's proposal by asking why, if mere creatures of the imagination, like Peter Pan, are to be commemorated with statues, this honour should be withheld from national figures such as Sherlock Holmes and Dr. Watson. Nay more, let members consider the claims of Mrs. Hudson, that paragon of land-ladies, whom Baker Street Irregulars could not dismay, nor thoughts of vanished tidiness betray. Does not she, nor Happy Warrior of below-stairs, whom every kitchen-maid should wish to be, deserve a statue if anyone does?

So far Miss Sayers was on safe ground, but her next excursion landed her in a heated controversy. An incautious reference to Cambridge as Holmes's university brought Mr. MACDONELL to his feet with the indignant rejoinder that anyone who meant to study the exact sciences must have chosen Edinburgh. Miss Sayers replied with spirit, citing chapter and verse in support of her view, but Mr. Macdonell remained unconvinced. Meanwhile the champions of Oxford discreetly bowed their heads before the storm.

Discussion of two questions of future policy concluded this first and highly successful meeting of the Society. One was concerned with its form of government, and on this point Mr. Macdonell advocated an autocratic Soviet, of preferably one person, to deal with such questions as the number and election of members, and disarmed criticism by proposing himself as the Soviet. That this proposal was entirely to the taste of his fellow members was evident from the way in which they endorsed Mr. Back's thanks to the Secretary for his previous labours on their behalf.

The remaining question was that of future meetings of the Society. It was agreed that not more than two dinners should be held each year, and that the choice of Derby Night for one of them could not be improved upon. Mr. Back's plea for the anniversaries of Holmes's and Watson's birthdays would have gained more support but for the total lack of evidence as to when these anniversaries fall. Ultimately it was decided that the second dinner should be held in November. This, it was generally conceded, would give the Society the best chance of meeting in a thick yellow fog, or, failing that, in a high autumnal wind.

R. I. G.

Scotland

Central Midwives Board

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded, with the following results:

Out of 164 candidates who appeared for the examination, 140 passed. Of the successful candidates twenty-seven were trained at the Royal Maternity Hospital, Edinburgh; fourteen at the Elsie Inglis Memorial Hospital, Edinburgh; thirty-five at the Royal Maternity Hospital, Glasgow; nine at Stobhill General Hospital; two at the Eastern District Hospital; four at the Western District Hospital; nine at the Govan Maternity Hospital; eleven at Bellshill Maternity Hospital; two at Motherwell Maternity Hospital; two at Barshaw Maternity Hospital, Paisley; nine at the Maternity Hospital, Aberdeen; nine at the maternity department, Royal Infirmary, Dundee; five at the maternity department, Royal Infirmary, Perth; and the remainder at various recognized institutions.

Environment as a Cause of Mental Deficiency

The annual report of Dr. W. D. Chambers, physician-superintendent of James Murray's Royal Asylum, Perth, shows that on April 1st, 1933, there were 180 patients on the register, and that during the year 107 patients were admitted, of whom seventy-six were voluntary. The number of discharges included seventy-two patients recovered or relieved, nine unimproved, and eighteen deaths, leaving 188 patients on the register at the end of the year. The number treated during the year was 287. The report states that in recent years too many loose but dogmatic assertions have been made concerning the spread of mental deficiency and the decline in the mental and physical health of the population. There is still a widely held conviction that mental disorders are mainly due to faulty heredity to the exclusion of other causes, but as time goes on there is less and less excuse for hasty and ill-founded conclusions. Although there have been observations on the occurrence of mental disorder or defect in succeeding generations of certain families, little attention has been given to the number, quality, social value, and ability to survive among the healthy members of those families. The report of the Mental Deficiency Commission in 1929 recorded an incidence of mental defect in England and Wales of 8 per 1,000, but the Commission was unable to obtain evidence that the number of defectives was any greater than in previous generations. The Departmental Committee on Sterilization in 1934 found no evidence that mental deficiency was increasing at any notable rate. The difficulty in determining the cause of defect in any given case is to assess the comparative value of inheritance and of environment. Environment is apt to be regarded in too narrow and restricted a sense. Children brought up in circumstances of poverty, hardship, and inefficiency might with a perfect genetic inheritance grow up to be burdens on the community. On the other hand, persons from an obviously bad and weak stock might have an easy passage through life, escaping severe mental and physical strain. The effects of environment are usually given due weight in the case of psychotic breakdown in adult life, but their equal importance in cases of mental defect appearing in early years is only now becoming realized. At least one-quarter of all cases of mental defect are wholly environmental. Definite knowledge concerning the inheritance of mental disability is at the present time scanty, and could not possibly justify interference in any general way in social, political, or racial problems. Those

who urgently demand sterilization on a large scale must themselves be suspected of pretentious or even sadistic tendencies. Referring to the necessity for early treatment of mental illness, the report states that patients who suffer a mental breakdown will probably respond to immediate treatment by complete recovery, and in any case the proportion that can be restored to moderate health by investigation and treatment at an early stage is highly satisfactory. The case most likely to be neglected is that of the patient suffering from depression, who is apt to be allowed to drift until prospects of good recovery are greatly impaired. Such patients show little disorder of conduct, and the reserve associated with their condition is apt to conceal the severe disorder that is frequently present.

Ireland

Milk Bill (Irish Free State)

The text of the Milk Bill, already read a first time in the Dáil, has been published. The Bill is entitled "an Act to make further and better provision in relation to the production and sale of milk with a view to improving the standards of purity and wholesomeness thereof." Part III, Section 23, provides that this part of the Act applies to (a) each of the following diseases—namely, tuberculosis, typhoid fever, paratyphoid fever, diphtheria, membranous croup, scarlatina; and (b) every other disease which may from time to time be declared by an Order for the time being in force made under this section to be a disease to which Part III of the Act applies. The Minister may also from time to time, by Order made under this section, declare any disease (being a disease which in the opinion of the Minister is likely to be caused by any infected or contaminated milk) to be a disease to which Part III of the Act applies. Section 24 (1) is concerned with the stoppage of supplies of milk likely to cause disease, and provides that if the medical officer of a sanitary district has reason to suspect that any disease to which this part of this Act applies is caused, or likely to be caused, by the consumption of any milk which is being exposed or kept for sale within such sanitary district, he shall ascertain the location of the dairy in which the animal or animals from which such milk was obtained is or are kept, and thereupon the following provisions shall have effect: (a) if such dairy is within such sanitary district he shall examine the dairy, and, if he thinks fit, any person engaged in the service thereof, or who may be resident in any premises where any person employed in such dairy may reside, and shall if necessary require the veterinary inspector to accompany him and to examine the animals therein; and (b) if such dairy is situate in another sanitary district, he shall forthwith serve by post on the medical officer of such other sanitary district a notice of the facts of the case and the location of such dairy. Thereupon, the medical officer of such other sanitary district shall do the following things: (1) (i) He shall examine the dairy, and, if he thinks fit, any person engaged in the service thereof, or resident in the dairy, or who may be resident in any premises where any person employed in such dairy may reside, and shall, if necessary, require the veterinary inspector to accompany him and to examine the animals therein; and (ii) he shall report to the sanitary authority whose medical officer he is and to the medical officer by whom such notice was served, the result of such examination and any action taken by him under the next following subsection. 2. If the medical officer of a sanitary district, who has in pursuance of the immediately

preceding subsection examined a dairy, is satisfied as the result of such examination that any disease to which this part of the Act applies is caused or is likely to be caused by the consumption of milk supplied from such dairy, he may make an Order (in this section referred to as a Prohibition Order) prohibiting the dairyman, either absolutely or unless such conditions as such medical officer may think fit to insert in such Order are complied with, from selling any milk from such dairy or from any particular animal or animals therein so long as such Order is in force. In boroughs and county health areas where there are no whole-time medical officers of health, provision is made for the discharge of their duties by dispensary doctors in their capacity of medical officers of health in their districts. Section 28 provides for the prohibition of the sale of milk from cows suffering from the following diseases: tuberculosis of the udder, any tuberculous condition of the uterus, any form of tuberculosis in which tubercle bacilli are excreted, any septic condition of the uterus, acute mastitis, chronic mastitis, actinomycosis of the udder, retained placenta, and every suppurative disease of the udder, and every other disease which may from time to time be declared by an Order for the time being in force made under this section to be a disease to which this part of this Act applies. The Minister may from time to time by Order made under this section (a) declare any disease affecting cows to be a disease to which this part of this Act applies, (b) revoke any Order previously made by him under this section. Section 30 makes provision for the appointment of bacteriological examiners, but does not

Tuberculosis in Belfast

In his report as Chief Tuberculosis Officer of the county borough of Belfast for 1933, Dr. Andrew Trimble shows that there has been a reduction of more than 59 per cent. in the death rate in the last fifteen years. He believes that the course of the disease is becoming more chronic and its type more fibrotic, which may explain the lengthening period now observed between the beginning of the disease and death. Whereas in 1915, 150 women were found suffering from pulmonary tuberculosis in proportion to 100 men, the figure in 1933 had fallen to 103. In 1915 there were 144 female deaths for every 100 male deaths; in 1933 the female figure had fallen to 92. Dr. Trimble suggests that Ireland is passing through a phase of relative sex incidence like that observed in England thirty years ago, and that Ireland will also pass through the same cycle in respect of the death rate later on. Of the 1,164 new patients examined in 1933 no fewer than 410 (35.6 per cent.) had had a definite opportunity of infection through contact with tuberculous patients. In the remainder also there was a strong likelihood of similar though unrecognized contact with sources of infection. Dr. Trimble insists that improvement of the living conditions of the people, especially in regard to the isolation and nursing of a tuberculous patient, is one of the most important factors in the tuberculosis campaign. He believes that the offensive habit of spitting in the streets and public conveyances is on the increase, and pleads for more general action against it. He has found the sedimentation test and blood cell assessment of great help in prognosis and the guidance of treatment. An interesting follow-up has been begun of patients whose sputum contains albumin or albumose without tubercle bacilli. There is great need of increased institutional accommodation for tuberculous patients. Patients have overflowed from the municipal sanatorium into Belfast Infirmary, but still the waiting list grows steadily. It is hoped that expansion of the Graymount Hospital for Tuberculous Children will be well under way before the

end of the current year. The scheme will provide accommodation for about 100 more children immediately, and for about 150 ultimately, suffering from the non-pulmonary (including the hilar) forms of tuberculosis. In over 80 per cent. of the children discharged last year the disease had been cured without any resulting physical abnormality. The Graymount Open-air School, working under very restricted and make-shift conditions, is proving nevertheless exceedingly valuable in the prevention of tuberculosis among child contacts. An appeal is made for a new school with modern equipment, and it is urged that many weakly children would benefit greatly by being taught at open-air schools, where the midday rest and proper food might ensure their growing up to be sturdy and healthy adults. Commenting on late notification of tuberculosis, Dr. Trimble incriminates mainly the delay before the patient will apply for medical advice. In this way this disease presents problems in prevention and cure unknown in almost any other realm of medicine. The demand for Grade A (T.T.) milk is steadily increasing in Belfast.

Poor Law Medical Officers

A comprehensive agenda was considered at a recent meeting of the Poor Law Medical Committee, appointed by the Irish Medical Committee to make a report to the General Council of Medical Associations. Dr. P. O'Dowd, T.D., was in the chair, and Dr. T. P. McDonnell, Athlone, was appointed secretary. Dr. T. F. Armstrong of Ferns, Wexford, and Dr. D. F. McCarthy also attended; Dr. A. D. Courtney and Dr. Raverty, Bray, sent apologies for absence. Dr. Falvey, Dublin, who was unable to be present, submitted a number of important questions for consideration by the committee. Among the many matters considered were: the panel system in Great Britain and Northern Ireland, a short history of the statutes in relation thereto, and the efforts made with regard to the establishment of medical benefits in the Irish Free State; conditions of medical education, methods of appointments, service, remuneration, promotion, sworn inquiries, and pension rights in the Irish Free State, Great Britain, and Northern Ireland; unemployment in the medical profession was also discussed, and in connexion therewith the appointment of a representative deputation to wait on the Free State medical licensing bodies in regard to the curtailment of the number of doctors becoming qualified. The secretary was requested to invite the co-operation of a number of medical colleagues who in the past had given valuable services, especially to the Poor Law medical services. The committee decided to request the General Council of Medical Associations to appoint a finance committee to draw up a scale of fees which would be fair remuneration for the duties performed by the Irish Poor Law medical officers. The committee, however, expressed the opinion that any scale less than £350 to £450 would be inadequate for the work which is now being done by dispensary doctors. Owing to the increased work of dispensary doctors, medical officers of health of their districts the committee considered a minimal salary of £40 per annum should be paid for the discharge of the duties of such officers.

Salary of R.M.S. of Armagh Mental Hospital

The Armagh Mental Hospital considered the request from the resident medical superintendent, Dr. Doris Allman, for an increase in salary. In a letter to the board she said she had occupied the position for three years, and had done her utmost for the benefit of the institution. Her duties and responsibilities were greater than those of her predecessor and her salary less. The committee had now Castledillon in addition to the main hospital, where fifty-two patients were housed, thus re-

lieving overcrowding. Many other improvements had been made, and a poultry farm was also in existence. Dr. Allman's salary at the time of her application for an increase was £600 with £150 allowances per annum. Her predecessor's salary was £700 with £200 allowances per annum. The committee granted Dr. Allman an increase of £100 per annum.

England and Wales

Bournemouth Health Services

A circular tour on July 27th, arranged by the Bournemouth Corporation, enabled a party of those attending the Annual Meeting of the B.M.A. to obtain an inside view of some of the health services and new housing schemes, being conveyed from point to point by a Corporation omnibus. Two clinics were visited. The first, in Madeira Road, was a house in grounds bought about three years ago for £4,000, and adapted for the purposes of ante-natal, dental, and ophthalmological work. The dental department, which contains an x-ray apparatus, is conducted by a part-time dentist, any necessary anaesthetics being given by an assistant medical officer of health. The arrangement of the rooms is such that as many as thirty cases can be dealt with in two hours, the in-coming patients not meeting those who have just been treated—a very important matter in the case of children. Ante-natal cases requiring dental work are also treated here. The ophthalmological department includes a large room, which is also utilized for lectures to midwives and others. In addition to the ante-natal work, which is on the usual lines, it is proposed in September to begin maternity welfare activities on more comprehensive lines. The site has been well chosen in view of the increase in the working-class population. A contrast was afforded later in the tour by a visit to the Moordown Infant Welfare Centre, the work of which is carried on in a building hired for each weekly occasion from the local Congregational Church authorities. The schoolroom here is of adequate size for use as a waiting room and for the distribution of such accessories as infant foods and clothing, while there is also a good weighing room, a room for the medical officer, and sufficient accommodation for perambulators. There are nine infant welfare centres in Bournemouth. The itinerary included the Overcliff Drive, with its evidence of continued expansion of residential sites and good-class houses. Many of the tourists were particularly interested in the two types of sewage disposal illustrated, the first to be visited being the historical Hord Lane Disintegrator Station. With a view to the elimination of any possibility of foreshore fouling careful experiments were conducted by Bournemouth sanitary engineers some time ago, as the result of which it was found that special methods of preparation would undoubtedly be required before the effluent was discharged in the neighbourhood of Hengistbury Head. In the town there are now five groups of disintegrator outfalls, of which the Hord Lane one was typical. Here was demonstrated the way in which the sewage was minced by a cutting blade and revolving propellers, discharged in forty feet of water, and dispersed ultimately in cone form when rising to the surface, in order to be more available for destruction by marine organisms. These centrifugal propellers are set to 1 1,000 inch. The effluent is discharged at all states of the tide, which in this locality is double in the twenty-four hours, and has an average rise and fall of only six feet. It was pointed out that Bournemouth had been the pioneer in this method of sewage distribution. The other sewage disposal works

visited was at Kinson, situated in part of the area taken over three years ago when the scheme was in process of construction, and so had to be completed. Here in operation was seen the most recent activated sludge method. The sewage comes first to detritus tanks, where such large components as rags are arrested by screens. The clear fluid goes to filters before being passed into the River Stour. The sediment is collected and pumped up into digestion tanks of the aerobic kind, no forced ventilation being employed. It is then subsequently pumped out on to drying fields of clinker beds. The recently established Hord housing estate was the first to be visited. Here there are 166 houses of the non-parlour type, erected at a cost of £470 each and let at a weekly rental of 10s. 5d. Difficulties encountered here were the cost of the land and the prevalence of a high water rate, Bournemouth having no municipal supply, but depending on two companies, of which the one in this case charges a relatively high figure. Each house has one living room, three bedrooms, a bath room, and a kitchen. The other municipal housing estate visited was at Kinson, where there are 102 houses erected at an all-in total cost of £360. There are two slightly different forms of non-parlour house, let at 9s. 5d. weekly. In one form the living room extends through the length of the house, having a good window at each end. Each kitchen has a gas copper, and it was stated that practically no inconvenience resulted from the steam. The party proceeded to the Bournemouth Gas and Water Company's waterworks at Alderney, where tea was provided by the directors in a marquee near a filter bed. An excellent description was given of the work of pumping, filtration by sand, purification by waterweeds and algae, and subsequently by chloramine, and distribution to the town. The exceptionally well planned programme of the afternoon's tour elicited many expressions of gratitude from the party. The wise and progressive outlook of the municipality was whole-heartedly commended.

Water Supplies and the Drought

At a meeting of the Water Supplies Emergency Conference, held at the Ministry of Health on July 31st to consider the general situation resulting from the drought, it was stated that supplies are well maintained despite the scarcity of rain. Information has been obtained from 221 of the larger water undertakings, of which 190 report no serious shortage (present or prospective); twenty-seven report present shortage, but have measures in hand for dealing with it; and four, though not at present suffering from shortage, report that, though the position may worsen later, measures have been prepared for coping with it. Of 721 urban authorities (population less than 20,000) from which replies have been received 677 report no serious shortage; thirty-four report shortage, of which twenty-nine have schemes for new supplies, and others are relying on economies in consumption; ten more have sources available if needed, or are seeking new supplies. Of 510 rural district councils interrogated 260 report no serious shortage; 178 report serious partial shortage; and special action taken in 144 areas. In seventy-one others, where shortage is anticipated, supplies are available in twenty, and in fifty-one special action will be taken. Engineering inspectors of the Ministry continue to visit districts where the position appears to call for investigation. Twenty-eight applications have been received under the Water Shortage Act for special emergency powers, about half of which are for new sources of supply, and new powers have already been given in seventeen cases. Applications for grant under the Rural Water Supplies Act have been received from 154 rural districts, mainly for schemes of permanent improvement at an estimated cost of £2,299,000. Grant has

already been promised to sixty-eight councils for schemes costing £1,249,000. As regards the Metropolitan Water Board, recent rainstorms have helped matters, and, although the effect is only temporary, there is stated to be no need for alarm. Economy of consumption is, however, still required.

Leicester Royal Infirmary

Good progress was made last year with the work of extending and bringing up to date the accommodation generally at Leicester Royal Infirmary. One wing of the new Nurses' Home was completed and occupied, and there were many more applicants for training as nurses. Overstrand Hall, near Cromer, was subjected to extensive alterations, to serve as a convalescent home for female patients. A home for men in the grounds is projected, and thus the central convalescent home scheme of the Leicester and County Saturday Hospital Society is approaching completion. This seaside centre for convalescent treatment will free for the use of the Infirmary the Swithland Home for Men and Desford Hall House for Women. The acquisition of the first-named will place about fifty beds at the disposal of the Infirmary, and, if the convalescent home scheme for men develops, a further sixty beds will be available there. In this way the bed accommodation and services of the Infirmary will be substantially augmented. The financial outlook has brightened. Income exceeded expenditure for the third time in the last sixteen years, though by only a narrow margin. There were reductions in the amounts derived from annual subscriptions, donations, and the Hospital Sunday Fund, but the contributions from workpeople under the Hospital Saturday Fund exceeded those of 1932 by nearly £1,500, the total being £49,555. Legacies produced income double that of the preceding year. Increased income also accrued from hospital contributory associations, Road Traffic Act payments, and public authorities—on account of services rendered. There was a substantial addition to the number of endowed beds and cots. More radium was bought; the Royal Infirmary now possesses 497.7 mg. of radium element, and has been recognized by the National Radium Commission as an approved institution.

Salford Royal Hospital

In the annual report of the board of management of Salford Royal Hospital for the year ended December 31st, 1933, it is announced that the cost of treating patients for injuries resulting from traffic accidents increased over that in the previous years and reached a total of £1,087, towards which only £221 was recovered. Heavy pressure of work in all the departments indicated how urgent was the need for extension, but the financial position resulting from serious shortage of income in recent years made it impossible to proceed with the plan of enlargement which has been prepared. The out-patient department was built twenty-three years ago, and the work of the surgical and medical staffs is now being regrettably handicapped by lack of room. In 1920 fourteen beds were set aside for paying patients; during the year under review the number admitted was 135, as compared with 128 in the previous twelve months. The deficiency on the year's working was £2,825, even though there was a reduction of expenditure by over £3,000. It is regretted also that the central scheme of workpeople's contributions has not received the support it merits, and basis hoped that greater efforts will be made to encourage a more general adoption of weekly contributions throughout the district to the Hospital Fund. With a view to infirmity a closer relationship with this Fund, a joint is hoped of representatives of all the local hospitals and Tuberculosis is in process of formation. General adoption

of this scheme would, it is calculated, yield sufficient funds to obviate the necessity of special appeals being made from time to time to wipe off deficiencies of income. It is mentioned that no special appeal for financial support has been made during the last twenty years, and £60,000 is now urgently required to meet the bank overdraft and immediate necessities. An additional annual income of £5,000 is necessary to allow the present accommodation to be maintained. The number of patients admitted during 1933 to the wards was 4,031, as compared with 3,965 in 1932. The average cost of each in-patient was £8 1s. 3d. in 1933, a reduction of 14s. on the previous year.

Papworth Tuberculosis Settlement

Sir Pendrill Varrier-Jones, medical director of the Papworth Village Settlement, in his annual report states that 1933 witnessed greater activity than any previous year in the history of Papworth. Not only has the number of hospital beds increased, but advanced cases have been rehoused and observation wards provided for those who come for treatment and training: there are also private wards for paying patients. Thanks to the generosity of the Bernhard Baron Trustees a large new hospital has been erected for men, and also a well-equipped out-patient department for housing the various clinics, which include a new x-ray department. As a consequence of all these activities Papworth Hall has been reorganized and the administrative staff now have at last adequate accommodation for their work. This and the other reports on the year's work have been printed as an illustrative pamphlet by the Papworth Press, and were approved at the seventeenth annual general meeting, held in London on July 11th. Fifteen days later the Duke of Gloucester visited the Settlement, where he was met by the President (Sir Humphry Rolleston), by the Lord Lieutenant of Cambridgeshire (Mr. C. R. W. Adeane), Lady Linlithgow, and the Duchess of Northumberland. His Royal Highness then made a tour of the village and its workshops and inspected the new hospital, towards the building of which the trustees of the late Mr. Bernhard Baron have given £20,000. He then went to the site of the new surgical block and laid the foundation stone.

London Maternity Hospitals

Consideration of the annual reports for 1933 of various London maternity hospitals reveals an increasing tendency of expectant mothers to enter institutions for their confinements. In the General Lying-In Hospital, for example, whereas in 1932 there were 887 out-patients attended in their homes, only 776 were so treated in 1933, while the in-patient total rose in the two years from 1,040 to 1,065. Similarly at Queen Charlotte's Hospital the capacity of the institution to meet the demand for in-patient treatment has become inadequate. Beds are booked for a longer period ahead than hitherto, and there is no diminution in the number of emergency cases. The total number of in-patients was 2,771, contrasting with a decrease in the number of out-patients. It is pointed out that the Local Government Act of 1929 has resulted in the transfer to local authorities of largely increased accommodation for maternity services, both actual and potential, and the consequent loss of patients to training hospitals with districts is a serious matter. A similar fall in the number of out-patients is recorded by the City of London Maternity Hospital. At the General Lying-In Hospital, where 444 prospective mothers had to be refused admission owing to lack of accommodation, the possibility of providing beds for patients able to contribute towards the cost of treatment was considered during the year under review. Discussions have been held with the

Charity Commissioners, and a thorough investigation has been made of the possibilities, financial and otherwise, but the matter has had to be left in abeyance. The year was, however, marked by the completion of the extension scheme, launched in 1927, for the building of an up-to-date nurses' home and an out-patient department. The cost of erecting and equipping the new building has been met by the special extension fund, with the exception of the comparatively small sum of £350. In view of the discussion on the results of ante-natal care at the Annual Meeting of the British Medical Association this year at Bournemouth, and of earlier correspondence in these columns, special interest attaches to the references to this matter in the various reports. At Queen Charlotte's, for instance, the maternal mortality rate in booked cases delivered in the main hospital was 5.3 per 1,000. The rate for district out-patients was 2.1 per 1,000, giving a general rate for booked cases of 4.07 per 1,000, compared with 44.4 per 1,000 for emergency cases. Whereas the

booked cases attend the hospital ante-natal department, and have therefore been under the care of the hospital for some time before confinement, the emergency cases are sent in by medical practitioners at the last moment, and are generally in a critical condition. It is concluded, therefore, that the statistics reflect in no uncertain manner the vital importance both to mother and child of early and regular ante-natal care. At the City of London Maternity Hospital all booked patients have similar ante-natal supervision, while at the East End Maternity Hospital the homes of all patients booked for attendance in the district are visited; 445 special visits were paid in 1933 to patients suffering from ante-natal disorders. In the last-named institution there were no maternal deaths during the year; Caesarean section was only required in one instance, and in the single case of eclampsia which occurred the patient had had no albuminuria during pregnancy, nor was it present on admission. She had five fits, and made a good recovery.

CORRESPONDENCE

The G.P., the Schoolmaster, and the Specialist

SIR.—I should like, if I may, to air a small grievance which I think must be shared by many and which ventilation may perhaps amend.

The custom seems to be growing among head masters and mistresses and house masters of boarding schools of writing to parents at the end of term somewhat as follows: "We are sorry to find that your child's tonsils are in a very unhealthy state, and we trust that you will have them removed at the earliest possible moment." Or, "William's [or Julia's] health has not been at all satisfactory this term, and we hope you will take him [or her] to see a heart, lung, nerve, or gland specialist without delay." Whether or not the letter takes exactly this form, it is certain that something very like a command is issued for the child to be taken to see what is considered to be the suitable specialist or to have some specific operation. Rarely, if ever, is the parent advised to consult the family doctor.

Now it often happens that the family doctor, having known the child since infancy, is perfectly aware of the large tonsils, murmur, tachycardia, cough, fidgetiness, prominent thyroid, or what not, but has excellent reasons for thinking that neither specialized investigation nor active interference would be at all good for the child. In any case his opinion ought surely to be of value, and there can be no justification whatever for attempting to circumvent him. Often enough, of course, he is not circumvented at all, but only ruffled. At other times the parent takes the line of least resistance, considerable embarrassment is caused, and the child's health is not always improved. It is probably better not to quote specific instances, but the situations which arise are sometimes very curious and even entertaining.

Could not the medical officers attached to the schools, most of whom must themselves be also family doctors, impress on masters and mistresses the fact that the child probably has a doctor at home who ought to be consulted, and if there is really some condition requiring attention, would it not be far better that they themselves should write a note to the child's doctor? I cannot doubt that sometimes they do, but I cannot remember ever to have received such a letter, though I have had experience of the other procedure many times.—I am, etc.,

H. J. [?], Aug. 10.

LINDSEY W. BATTEN.

Occupational Therapy

SIR.—Dr. A. J. Brock (*Journal*, August 4th, p. 231) expresses surprise that I should have stated from the chair at the conference in London on occupational therapy that the movement was of recent development.

"Recent" is, of course, a relative term, but in my remarks I gave a short historical survey of occupational therapy, and showed that it was essentially a movement of the present century, although it had been utilized in at least two instances in the last century. I have no authoritative knowledge of the extent to which it is employed in mental hospitals, but it may be of interest to record that it has been an essential feature at the Lord Mayor Treloar Cripples' Hospital and College since the foundation of the institution in 1908. This work at Treloar Hospital aroused the interest of the Board of Education, and on the advice of Sir George Newman, Mr. Lloyd George, then Chancellor of the Exchequer, recognized hospital schools, which became eligible for both educational and medical grants in 1911.

Such movements are easier to initiate in public than in private institutions. In the latter no Government aid is forthcoming. I believe the Morland Clinics are unique as a private enterprise in combining education and occupation for every suitable case in the chronic diseases there treated. It is a source of real gratification to record that many boys and girls under treatment at Morland Hall have continued their education with little interruption while treatment was in progress, and in many cases have been successfully prepared for entrance examinations to the universities.

The importance of this, to the better-class boy and girl, is that education is not interfered with by the incidence of disease, which may require up to two or three years' recumbent treatment. The value of this combined treatment and education cannot be overestimated for that social class where education is essential to a successful career.—I am, etc.,

Alton, Aug. 6th.

HENRY GAUVAIN

Pellagra in England

SIR.—Ever since I heard Dr. Louis Sambon lecture on the above subject some fifteen years ago I have been interested, and have been on the look out for it among cases seen in private and at hospital. It has been shown that it was endemic in Scotland and England, apart from asylum cases. I shall not readily forget his answer to a doctor in Cumberland who, after reading a description by

Sambon of the disease, wrote to say he had such a case, but that the patient was dying. Sambon wrote to the doctor to say he was coming to see it. He received a telegram, "Patient dead," to which Sambon replied, "Coming all the quicker."

I have had the opportunity of seeing since that time two cases in females aged from 40 to 50, and one other in a young lad of 18 or so. It is impossible to diagnose such cases in the early stages—in this country at least. Probably the photodynamic factor helps in the earlier diagnosis of cases in Egypt and Eastern Europe by bringing into prominence the characteristic skin pigmentation. Gastro-intestinal symptoms which do not respond to any known therapy, medical or surgical, and are of considerable duration were the primary complaint in my cases. In my first female case I was led to try the effect of a Coffey's suspension for severe gastroparesis, but without result. The great depression, followed by the skin pigmentation which appeared not long afterwards, gave one the clue to the correct diagnosis. This patient was subsequently found with her head in a gas oven.

The other female case resembled a pernicious or aplastic anaemia—there was a prolonged history of relapsing gastro-intestinal attacks, with diarrhoea, tingling and numbness in the hands and feet, sore tongue, dysphagia, severe pains in the epigastrium, and acute "blood breaks" resulting in a reduction of the haemoglobin to 30 per cent. The anaemia was, however, of secondary type. Gastric analysis revealed an approximately normal HCl, but an x-ray of the alimentary tract showed marked hypertonicity. These attacks of epigastric pain were accompanied by the passage of urine containing excess of indican, urobilin, and urobilinogen, and were the prelude to profuse offensive diarrhoeas. Kaylene powder and pil. ferri redactum grains x a day were of use during these attacks, although injections of calcium sandoz 10 c.cm. and paroidin (P. D. and Co.) m v often acted magically in relieving the pains and diarrhoea. The exhibition of magnesium thiosulphate, as suggested by Sabry and with a view of combating an intestinal hepatic anaphylaxis, seemed to help. It was the exposure of this patient to the sun and fresh air which gradually led to the diagnosis. Her face and hands rapidly tanned, until the latter began to desquamate round the knuckles, large, thin, lifeless, crinkly scales making their appearance. The elbows also appeared dirty and scaly. Even so, one might have regarded the condition as just "erythema solare," as it rapidly responded to glyc. acid. carb. applications. A vaccine containing haemolytic streptococci and *B. coli* prepared from faeces seemed to help. As the patient became very depressed, and suffered from recurrence of the abdominal pain and diarrhoea, she was allowed home, where she seemed to improve rapidly, her hands becoming normal and her facial pigmentation diminishing, the pearly sclerotics standing out in marked contrast to the background of yellow skin. This patient had always been freckled.

The tanning from the sun was so rapid that the production of melanin led one's thoughts to tyrosine and tyrosinase. In an adjacent bed was a patient with symptoms of thyrotoxicosis (and with urinary findings similar to those recorded above) who had tanned almost as severely. Now tyrosine is related to thyroxine and melanin. In the course of my work I have come across "epidemics" of illness, frequently in springtime, which suggested the production in the intestine of some product like tyramine. This is produced by certain forms of *B. coli*, with the property of decarboxylation. A change in the pH of parts of the bowel compels these organisms, as a means of self-preservation, to change their mode of living. Tyrosine is therefore broken down in two ways: (a) by decarboxylation into tyramine, or (b) into phenol by deamination and oxidation. Tyramine is oxidized by tyrosinase.

Some such explanation would account for many of the clinical features of pellagra and do away with the need for an extraneous factor like maize, velvet beans, etc.

The successful treatment of such cases by vitamin B₂ (yeast and liver extract) supports McCarrison's findings on the necessity of this for a healthy intestinal tract. The nervous symptoms and mental deterioration are supported by the findings of Ewins and Laidlaw—namely, that of the putrefactive products of tryptophan indole ethylamine is probably the cause of dementia praecox.—I am, etc.,

Darlington, July 21st.

R. CHALMERS.

Haemorrhage from Peritonsillar Abscess

SIR,—In the *Journal* of April 28th (p. 755) Dr. T. G. Wilson related a case of haemorrhage following spontaneous evacuation of a peritonsillar abscess. This account reminded me of a similar case which was under my care some twelve years ago when I was in general practice in South Australia. The history of the case was almost identical with that recorded by Dr. Wilson.

The patient was a lusty plumber who had been the victim of recurrent attacks of tonsillar suppuration. On the occasion in question his peritonsillar abscess discharged spontaneously after an illness of four days. Within a few hours severe haemorrhage from the abscess cavity started, and persisted with short intermissions and, in spite of every effort to check it, for two days. By this time he was in a dangerous exsanguinated condition, and it was clear that unless the bleeding was permanently stopped he would die. The presence of a trickle of blood into the pharynx made the administration of a general anaesthetic a hazardous procedure, and therefore it was decided to operate under local anaesthesia. After a dose of morphine and hyoscine the neck was infiltrated with 1 per cent. novocain, and the external, not the common, carotid was tied. The operation was not easy, as the presence of associated adenitis of the carotid glands compelled the removal of several of these before proper exposure of the bifurcation of the common carotid could be achieved. A dread of the possible cerebral sequels of tying the common carotid made me, in my inexperience, decide to tie the external branch. The result was very satisfactory, the patient making a speedy and uninterrupted recovery after immediate cessation of the bleeding.

As the literature suggests that ligation of the common carotid is not without risk of unhappy sequels, it seems to me wiser to tie the external branch—an operation which is rather more difficult and takes more time, but which meets the condition without interfering with cerebral blood supply.—I am, etc.,

J. B. DAWSON,

Professor of Obstetrics and Gynaecology,
University of Otago.

Dunedin, New Zealand, June 20th.

Splenectomy for Menorrhagia in Purpura Haemorrhagica

SIR,—In your issue of July 7th (p. 8) an interesting case of purpura haemorrhagica with menorrhagia was described by Dr. Stanley Hartfall and Mr. Carlton Oldfield, in which they stated that the only symptom was recurrent menorrhagia causing severe anaemia, that there was no bleeding from any other source, no purpura or spontaneous bruising, but that the latent purpuric state was revealed by the capillary resistance test. The last point is very interesting to those of us who have felt for some time that the capillary resistance test was at the present time necessary in differentiating a case of essential purpura haemorrhagica from other kinds. I have recorded five cases of the essential type, and in each one the capillary resistance test was positive sooner or later.

In a case which I published in the *Proceedings of the Royal Society of Medicine* nine years ago, of a woman aged 28 who had suffered from essential thrombocytopenic purpura haemorrhagica with very severe menorrhagia on

and off for some years, the thrombocytic count went down to 40,000, and occasionally to zero, after severe haemorrhages; the bleeding time was fifteen minutes, and the capillary resistance test was markedly positive. During one severe bout the red cells went down to 2,000,000. Purpuric spots used to come out in crops on the skin, lips, and nose, and occasionally the latter oozed for days together. Splenectomy, performed nine years ago, has been followed by cessation of all purpuric symptoms, menstruation has become absolutely normal, and she has enjoyed, and still enjoys, perfect health. The spleen in her case was normal in size clinically and at operation.—I am, etc.,

BERNARD MYERS, M.D., F.R.C.P.

London, W.1, July 28th.

Tests of Renal Function

SIR,—Dr. Robert Platt, in his letter in the *Journal* of July 21st (p. 138), chiefly objects to the urea clearance test because of "its obvious pretence to a scientific accuracy which it does not possess, even in its modified form." His objection is apparently based on the fact that a case clinically diagnosed as chronic uraemia showed a urea clearance better than the average for a group of cases with renal disease, and, therefore, that the urea clearance did not bear a sufficiently close relation to the clinical condition of the patient. But the urea clearance test is simply a test of renal function, whereas the clinical condition of the patient depends not only on the nature and extent of the disease of the kidneys but also on the presence or absence of disease elsewhere. In the same letter Dr. Platt refers to cases of his own "which were without serious renal insufficiency until heart failure occurred and, by lowering the blood pressure, caused oliguria and consequent uraemia." He recognizes, therefore, that the determining factor in the onset of uraemia may be heart failure rather than renal insufficiency.

The patient referred to by Dr. Platt had dizziness, headache, vomiting, cardiac hypertrophy, some arteriosclerosis, raised blood pressure, and albuminuria. There was, however, by ordinary tests, no impaired excretion of urea—that is, the blood urea was not raised, and the urea concentration of the urine, following the usual dose of urea, reached a high level in the second hour—namely, 3.19 per cent. I think Dr. Platt will agree that some part, at any rate, of the clinical manifestations shown by this case was due to cardiovascular conditions, so that the failure of the urea clearance to correspond to the gravity of the case as suggested by the clinical diagnosis does not prove that the urea clearance is not a fair indication of the state of the patient's renal function. Dr. Platt also states that he does not find in practice that the urea clearance test is as helpful as a dilution and concentration test, and examination of the blood for non-protein nitrogen and indican. I should like to know if he is here referring to the urea clearance test in its modified form, and, if so, if he has already carried out systematic comparisons of the modified test, and the procedure he prefers.

With reference to the subject of albuminuria in chronic nephritis, to which he refers, and his statement that he regards the presence of albuminuria (more than a trace) as a fairly good rough indication of involvement of the kidney (nephrosclerosis) in essential hypertension, I would refer him to the statement of Peters and van Slyke (*Quantitative Clinical Chemistry: Interpretations*, p. 703) that "in the nephrosclerotic type of the disease the quantity of protein in the urine is usually small, sometimes almost undemonstrable."—I am, etc.,

Leeds, July 31st

F. S. FOWWEATHER.

Evipan Anaesthesia

SIR,—I have been greatly interested in the recent letters on the subject of sodium evipan anaesthesia, but have hesitated so far to join in, having very little, though excellent, experience with the drug. As, however, Dr. Kuhne (*Journal*, June 9th, p. 1029) was emboldened to describe his experience of only two cases, I venture to describe here a series of ten, which, occurring in the Tropics and under unfavourable conditions, may prove of interest. My cases were all aboriginal Indian tea estate coolies, except two—an Indian clerk and a Chinese mechanic.

The Chinese was my first case, requiring complete endotracheal. Anaesthesia was complete for twenty-two minutes, but consciousness was not recovered for four hours. No ill effects followed. Next in order two adults were circumcised, two minor amputations were done, two fractured limbs set, two large sebaceous cysts excised, and in the tenth case evipan was used as an introductory anaesthetic in an operation for localized peritonitis. The coolie cases all required more than 10 c.cm. sodium evipan solution to effect proper anaesthesia. The peritonitis case was an exception, only 5 c.cm. being necessary. The Indian clerk also required only 5 c.cm. for successful circumcision to be done. The patient on whom I operated for peritonitis was a coolie aged 20, in a toxic state and also suffering badly from anaemia due to hookworm. Evipan anaesthesia was complete in two minutes. This was followed by chloroform, the anaesthetic commonest in tea estate practice, and it was noticed that only a very little was used (less than 4 drachms), in spite of the hot weather and the time taken for operation—one hour. Curiously, consciousness was regained half an hour afterwards, as against an average of two and a half hours in other cases. The patient made an uninterrupted recovery.

Points of interest are: (1) in no case was premedication with other narcotics used; (2) in no case were any ill after-effects observed; (3) in no case was the jaw observed to drop, although anaesthesia was complete; (4) in eight out of the ten cases the patients had anaemia, with haemic murmurs in three instances. In view of this last point the probability of sodium evipan being a powerful respiratory or cardiac depressant hardly seems correct. I can surely not have been merely lucky with my series. I am glad to note Dr. Montague Solomon (*Journal*, June 30th, p. 1187), with his longer experience, agrees with my findings. Sodium evipan is a drug I shall always use with confidence.—I am, etc.,

Assam, July 26th.

EDMUND BURKE.

Non-specific Colitis

SIR,—As one having extensive personal experience of this condition (surely the best school of learning), I would remark that Dr. J. T. Shirlaw (August 4th, p. 231) is both right and wrong in his statements on the question of carbohydrates and colonic irrigation respectively in this form of ill-health. With regard to carbohydrates, personal experience and facts derived from the treatment of patients put me in entire agreement with the advisability, even necessity, of cutting down sugar and starch in this condition. There would appear to be a definite failure in the metabolism of carbohydrates in colitis cases.

Colonic irrigation is a two-edged tool, which fact should be remembered if it is to be used successfully in colitis. In the "constipation" type of colitis, where the colon can be so atonic as to assume enormous dimensions, irrigation, if done sufficiently slowly, can be of very great

Obituary

M. S. PEMBREY, F.R.S., M.D.

Late Professor of Physiology, University of London
Professor Marcus Pembrey, a short notice of whose death appeared in last week's *Journal*, might well be called a "general physiologist"—general in the sense that the whole of Nature was his textbook, the living world his laboratory. Throughout all his work is found the attempt to adapt its applications and to make them practicable for the benefit of living organisms. He loved the country-side, and founded many of his observations upon the events of farm life.

The son of an expert Oriental linguist associated with the Clarendon Press, he obtained a science exhibition at Christ Church, Oxford, and graduated in arts in 1889. He took the M.B., B.Ch. in 1892, and the M.D. three years later. During his tenure of the Radcliffe

Travelling Fellowship, which he secured in 1890, he did research work in Würzburg and Kiel, returning later to Oxford as demonstrator of physiology under Burdon-Sanderson.

From this time onwards he began to publish valuable work on physiology, sometimes in collaboration with Professor J. S. Haldane.

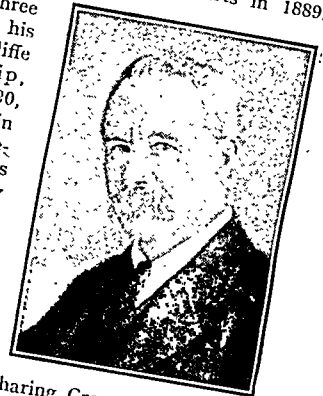
From Oxford Pembrey went as lecturer in physiology to Charing Cross Hospital, and afterwards succeeded the late Professor Starling in a corresponding post, later converted into a London University professorship, at Guy's Hospital. In 1922 he was elected a Fellow of the Royal Society in recognition of his experimental work. It was in 1894 that Pembrey became a member of the British Medical Association, and he received B.M.A. scientific grants in the years 1906 to 1914 inclusive.

He was secretary of the Section of Anatomy and Physiology at the Annual Meeting of 1899, and vice-president of the Section of Physiology in 1904.

His early work was devoted to questions of heat production and temperature regulation. These investigations were of a comparative nature, and covered a wide range of conditions and species. Included in the series was the question of hibernation, and for this he studied the marmot, an association for which he will be long remembered by his students and assistants. From the temperature changes of hibernation he passed to the associated metabolism, and his measurements of the respiratory quotients of the marmot are almost classical. Respiration now provided his main field, and he studied the respiratory exchanges in muscular exercise and diseased conditions, notably diabetes; "second wind" and "stitch" were two problems of constant interest to him. The homely couplet

"After dinner rest awhile,
After supper walk a mile,"

furnished him with the text for his final work upon the reactions of the alimentary tract to muscular exercise. His papers are to be found mainly in the *Journal of Physiology* and the *Guy's Hospital Reports*. From 1906 to 1909 Professor Pembrey served on the War Office Committee on the Physiological Effects of Food, Training, and Clothing on the Soldier. He took a very active part in the work, and one can imagine the enthusiasm with which he tramped along with the troops



value indeed. Where, however, the main symptom is irritative diarrhoea with constant spasmodic pain, irrigation is definitely inadvisable, and grave harm may ensue to the tender membrane and to the mind of the patient from the resulting pain. There is probably no other treatment which should so definitely be kept in the hands of trained practitioners, and yet (? because we are so apathetic) colonic irrigation can easily be obtained from unqualified people or used in the patient's own home.—I am, etc.,
Oldham, Aug. 4th.

MARY G. CARDWELL, M.D.

The Swab in Diphtheria Diagnosis

SIR,—Dr. E. James (*Journal*, August 4th, p. 230) has undoubtedly exposed the main fallacies of the diphtheria swab. As medical officer to the isolation hospital for this area I have had some seventy cases of diphtheria admitted in the last six months, quite a number of which, though absolutely definite clinically, returned a negative swab.

The swab in diphtheria must, I consider, be regarded in the same light as the examination of sputum in tuberculosis—that is, a negative swab is no contraindication of the presence of the disease, while a positive one confirms the presence of the micro-organisms. In any suspicious case serum should always be administered whether a swab is taken or not, and in no circumstances should this be delayed pending the result—particularly in districts where immediate bacteriological examination is not available.

As to dosage, I entirely agree with Dr. James that at least 20,000 units should be administered, and this point should be accentuated, as there is still present among the profession a fear of giving larger doses than 8,000 units. As to this, I have personally administered up to 150,000 units in doses of 40,000 units, with no more effect than an irritating serum rash, allayed by hypodermic injection of pituitrin and/or calamine lotion. I may add that I invariably use Parke, Davis and Co's serum.—I am, etc.,
Bridport, Aug. 4th.

JOHN C. T. SANCTUARY.

Radical Cure of Hernia

SIR,—The descriptions in textbooks of operative surgery of the radical cure of inguinal hernia usually omit one useful step in the operation. I refer to the introduction of the forefinger through the neck of the sac into the abdominal cavity for the purpose of exploring the internal inguinal ring of the opposite side. Three of my recent cases have illustrated the value of this simple procedure. In two cases of right inguinal hernia a patent process was in this way discovered on the left side, and a double radical cure effected. In neither of these cases was the left hernia diagnosed before operation, though in one case it was suspected. In the third case, at an operation performed elsewhere, the patient's left inguinal region had been explored for hernia and no sac had been found. Protracted suppuration had followed the operation, and six months later the patient came to me with a scrotal hernia on the right side with the request that I would perform a radical cure of the right side, and would explore his left side to find and cure the hernia, if any, on that side. At the operation on the right side it was possible to palpate the left inguinal region and to determine the absence of a sac on the left side, thus avoiding further operation on that side.—I am, etc.,
Lautoka, Fiji, June 3rd.

PHILIP HARPER.

Aug. 11, 1934]

OBITUARY

on their experimental marches. Pulse, temperature, and water loss were investigated under a variety of conditions, and a very full report embodied conclusions of an essentially practical nature. Pembrey had very decided opinions upon teaching. He favoured the method of Socratic discussion, and objected strongly to what he called "spoon-feeding." It is true that, in the heat of discussion, his classes often rather wandered from the work in hand, and his students may not have acquired a vast store of academic knowledge, but he made them think for themselves and so helped them to stand on their own feet. He instituted classes in clinical physiology so that the students might see the direct application to man of the principles he inculcated. In his official capacity he was indefatigable, and he never hesitated to express his opinion when necessary. Candid criticism and cheery optimism characterized all his actions, and his due allowance was made for his love of argument, his advice was always valuable. Among his many duties was that of treasurer to the Physiological Society, and his report in that capacity was always a feature of the annual meeting: he usually succeeded in enlivening the monotony of figures with some merry quip or polemic thrust.

No portrait of Professor Pembrey would be complete without reference to his passionate interest in the preservation of the race. The problems of reproduction, in all its aspects, always attracted him, and he contributed many papers on the physiology of the foetus and newly born. A strong supporter of the family, he constantly preached what he would call "the morality of Nature," and he viewed with horror any schemes of artificial selection. To him the struggle for existence was essentially beneficial; pain was not "a supreme evil"; self-determination was to be encouraged at all costs.

By his untimely death his colleagues and students have lost a very real friend—one who was ever willing to lend a sympathetic ear, one who would stretch out a helping hand to those who were ready to make an effort, one who did not allow personalities to take precedence over principles.

The photograph reproduced is by Elliott and Fry, Ltd.]

D. NAUNTON MORGAN, F.R.C.S.I.

Past-President, South Wales and Monmouthshire Branch
By the death of Dr. David Naunton Morgan of Gilfach Goch, Bridgend, the South Wales Branch of the British Medical Association has lost one of the oldest and most respected of its members.

Naunton Morgan was born in Ystrad-Rhondda in 1862, and belonged to a well-known Glamorganshire medical family, members of which have practised medicine in the county for five or six generations. He studied medicine in the London Hospital, and took the qualifications M.R.C.S., L.R.C.P. in 1890. He then started practice at Gilfach Goch in conjunction with his uncle, the late Dr. H. Naunton Davies of Porth, who was the first Gold Medallist of the British Medical Association. Naunton Morgan soon established himself as an able and very reliable practitioner, and won the confidence of the whole community, retaining it until his death. His leaning was towards surgery, and in 1906 he took the Fellowship of the Royal College of Surgeons of Ireland. He was one of the senior surgeons of the Porth Cottage Hospital. From the time he qualified he took an active part in the work of the B.M.A., was an ex-chairman of his Division, an ex-president of the South Wales and Monmouthshire Branch, was the first president of the Rhondda Medical Society, and a member of the Glamorgan Panel Committee from its inception. He also represented Wales on the Central Medical War Committee during the war. Naunton Morgan found time to take part in the local affairs of the district, and was at one time chairman of the

then school board. He was placed on the Commission of the Peace for Glamorgan more than twenty years ago. He had the characteristics of many of his race. He was fiery and impulsive, but kind-hearted, good-natured, and generous to a fault—qualities which made him a very popular figure among all who knew him, and he was always looked upon as "one of the best." The immense concourse of people which attended his funeral at the Tonyrefail Cemetery, where he was laid to rest, was an eloquent tribute to his popularity and an expressive appreciation of his worth and work. He leaves a widow, four daughters, and three sons, two of whom are medical students. Two sons and one daughter predeceased him. One of the sons was a member of the profession, and was about to join his father in practice when he died.

THE LATE DR. JAMES W. STEEL

Mr. JOHN PATRICK, Glasgow, writes:
Everyone who knew the late Dr. James W. Steel, especially in Salonika in the days of the war, will appreciate the excellent notice which appeared in the *British Medical Journal* of July 28th, contributed by Mr. Saunders Melville. I would like to amplify the remarks made in regard to Jimmie Steel's musical gifts. To those of us who love music, but who are not possessed of the gift of a good "ear," the ability shown by Steel almost approached the wonderful. He could not read the simplest piece of music, and learning music from a score was to him a laborious business, and seldom attempted. Yet he could sit at the piano at a cinema exhibition and play straight on for two hours, varying his music with the character of the picture. I recall a summer afternoon in the anteroom of the officers' mess of the 28th General Hospital, when Steel played the piano to me as his only auditor. Amongst other pieces which he played was that exquisite Prelude of Chopin, known, I think, to musicians as "The Rain Drop." After he had finished I told him that it was very beautiful, but not quite as Chopin wrote it, and his reply was, "Yes, I know, but I have only heard it played twice, and I have never seen the score." This peculiar gift possessed by Steel is one of great rarity. Throughout his war service he was most unsparing and ungrudging in his use of it, and his playing was in constant demand in many units.

Dr. EBENEZER WILLIAM DIVER, who died on July 15th, had interested himself particularly in the prevention and treatment of tuberculosis. Born in 1865, he received his medical education at University College, London, and at Newcastle-on-Tyne. He graduated M.B. Durham in 1889, and the next year obtained the diplomas M.R.C.S., L.R.C.P. In 1896 he proceeded M.D., and in 1913 received the diploma L.C.P.S. of Alberta, Canada. One of the earlier promoters of sanatorium treatment, he was for some time medical officer and proprietor of the Belle Vue Private Sanatorium, Shotley Bridge. From 1902 onwards he published articles and pamphlets on the treatment of tuberculosis, with special reference to its clinical manifestations and the steps to be taken in eradicating it from the community. He later practised in Eltham Park. He was elected a member of the British Medical Association in 1893 and was chairman of the Woolwich Division in 1926-7.

We regret to announce the sudden death, on July 26th, at the age of 60 years, of Dr. JAMES ROSS of Liverpool, one of the best-known practitioners in Walton. He was born in Ballymena, County Antrim, and was educated at Queen's College, Belfast, and the Edinburgh College. He qualified at Edinburgh in 1899, and in 1925 took the degree of M.D. of Durham University. Dr. Ross settled at Walton over thirty years ago, and gained a very extensive practice. He was very keen on his work, and a great reader. He loved his practice and his patients, and would always do the best for them. He leaves a widow, three sons, and a daughter. Two of the sons are in the medical profession.

ogy and Otology (7); and Medical

Aug. 11, 1934]

MEDICAL NEWS

The Services

ROYAL NAVY MEDICAL DEPARTMENT
Surgeon Rear-Admiral Guy L. Buckeridge, O.B.E., has been appointed Deputy Director-General of the Medical Department of the Navy, and took over his duties on August 8th in succession to Surgeon Captain C. V. Griffiths, D.S.O.

DEATHS IN THE SERVICES

Major Samuel Butterworth, R.A.M.C. (ret.), died at Portsmouth on May 23rd, aged 76. He was born at Rochdale on June 21st, 1857, and entered the Army as surgeon on August 2nd, 1884. He became surgeon major after twelve years' service, and retired on August 3rd, 1904. He received the Sudan Campaign of 1885, at Suakin, and in the Egyptian medal with the Khedive's bronze star; and in the South African War in 1899-1902, when he took part in operations in Natal, including the relief of Ladysmith, Lombard's Kop, and Colenso, and the relief of Ladysmith, also in the Transvaal and the Orange River Colony, was mentioned in dispatches in the *London Gazette* of February 8th, 1901, and received the Queen's medal with five clasps and the King's medal with two clasps.

Medical News

A clinical meeting of the Paddington Medical Society will be held at the Great Western Royal Hotel, Paddington, W., on Tuesday, August 14th, at 9 p.m.

The next lecture-demonstration arranged by the Fellowship of Medicine and Post-Graduate Medical Association (1, Wimpole Street, W.) will be given by Dr. Clark-Kennedy, at 11, Chandos Street, W., on August 14th, at 2.30 p.m.; the subject will be hysteria. Mr. A. C. Gardner will give a short course of demonstrations on the treatment of fractures at St. George-in-the-East Hospital, Raine Street, E., from August 13th to 17th, at 2.30 p.m. The course will include fractures of the upper extremity, fractures of the spine and pelvis, and fractures of the lower extremity. Daily instruction in various branches of medicine and surgery is provided by the panel of teachers.

At a recent meeting of the council of the Oxford Ophthalmological Congress the following executive appointments were made for 1935: Master, C. G. Russ Wood; Immediate Past-Master, Cyril H. Walker; Deputy Master, Philip H. Adams; Honorary Secretary and Treasurer, F. A. Anderson, 12, St. John's Hill, Shrewsbury. The dates for the next congress are July 4th, 5th, and 6th, 1935.

In the House of Commons, on July 31st, Mr. Elliot, replying to Mr. Joel, said he understood that the scheme for the supply of milk in schools at reduced rates, which was to be submitted by the English Milk Marketing Board for approval under Clause 11 of the Milk Bill, would probably provide that milk should be delivered in bottles wherever possible, and that straws would be provided with the bottles.

The report for 1933 of the pathological laboratories of the gift of the Prudential Assurance Company of the City of London Hospital for Diseases of the Heart and Lungs comprises a summary of the work done and two illustrated reprints of papers published during that year in *Lancet*. The titles of these papers are: "Infracted Phonogram of the Aortic Valve" and "The Morphology and Histology of Atherosclerosis."

A paper on "Recent Tendencies in the Development of General Hospitals in England" in the *Quarterly Bulletin of the Health Organization of the League of Nations*, by Dr. Melville D. MacKenzie, has been published separately in pamphlet form (Vol. III, Extract No. 5).

It is announced that Dr. H. Morley Fletcher and Dr. G. F. Still have been appointed consulting physicians and Mr. O. L. Addison and Mr. George E. Waugh consulting surgeons to the Infants Hospital, Vincent Square, Westminster.

The offices of the National Smoke Abatement Society have been transferred to 36, King Street, Manchester, 2.

Dr. James Marshall, international inside right of the Glasgow Rangers Association Football Club, has been transferred to the Arsenal. Dr. Marshall graduated at Glasgow University in October last, and a condition of the transfer is that he is to continue his medical career in London.

The King has appointed Dr. D. P. Wailling, acting medical officer, to be an Official Member of the Executive Council of the Presidency of the Virginia Islands.

Professor d'Hérèlle has resigned his chair at Yale University for the directorship of the Institute of Infectious Diseases at Tiflis, where he will continue his studies on the bacteriophage.

Professor H. Schottmüller of Hamburg has been elected president of the German Society of Internal Medicine for 1935.

Professor Luigi Devoto, professor of industrial diseases at Milan, Professor Giuseppe Muscatello, professor of clinical surgery at Catania, and Professor Giulio Salvi, professor of human anatomy and rector of the University of Naples, have been elected members of the Italian Senate.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication. Authors desiring **REPRINTS** of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is **EUSTON 2111** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

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QUERIES AND ANSWERS

House-fires

"O. M." (London, E.C.) writes in reply to "G. L." (July 7th p. 47). My own experience in recent years of similar plagues of fire occurring on windows of two rooms, one exactly above the other, may help him. Looking round for a possible nesting place, I removed a gas fire from the fire-place of the lower room, a fire which had been only 5 ft. in use for years. I collected over four pint jars of fire (ordinary house variety), having first stuffed them with a spray. This process was repeated to ensure thorough evacuation of all fires and the lower aperture of the chimney stopped up with a paper bung since when no fire have recurred throughout the subsequent season.

Tennis Elbow

In reply to "Wessex" a chartered physician writes: I have even obtained a very satisfactory result with the following treatment: fifteen minutes' moist heat, twenty minutes' treatment with a very hot (140° F.) dry massage of this time to be devoted to local treatment over and around the elbow-joint, and gentle active exercise within the limit of pain. This can be used daily in a natural manner for a short period, say one day under a strain.

LETTERS, NOTES, AND ANSWERS

After the first day it is possible to decide to what extent it may be used in this way without a painful reaction. Any loss of muscular tone may be restored by graduated faradic contractions. There should be a definite improvement at the end of ten days' daily treatment if applied intelligently by an experienced masseur. Otherwise I would suggest considering the possibility of: (1) circulating toxin, as advanced by many authorities; (2) a collection of inflammatory material lying underneath the dense fascia of the extensor muscles over the head of the radius. In conclusion, I might inquire whether "Vessex" is satisfied that his back-hand is an orthodox stroke.

Nail-biting

"W. R. W." (Hove), in answer to the query of "M.B.Ed." for a method of curing nail-biting, writes: I would suggest he should ask the patient's dental surgeon to fix two caps on the upper first permanent molars. These will keep the incisors from meeting, and so prevent the girl biting her nails. The caps must not be left on too long, or the articulation will be upset, but from my own experience in a very bad case the habit is soon cured.

Spermatorrhoea when Bathing

Dr. W. PATERSON BROWN (London), in reply to "M.D., D.P.H." (July 28th, p. 192), writes: The discharge of semen following upon an unusual or inadequate stimulus is to be regarded as a common symptom of perversion or neurosis, and may occur in the apparently healthy. Analytic psychotherapy has benefited many such cases, and cure is usual.

Income Tax**Depreciation of Car**

"H. L. P." has sold a car for £47 10s. which is the exact amount to which the cost had been reduced by the aggregate of the depreciation allowances up to that for the year 1934-5 inclusive. He bought a new car for £218 10s. in June, 1934—the full amount before any deduction for the £47 10s. received for the old car. What depreciation should he claim when making his return for 1935-6?

* £218 10s. at 20 per cent. = £44.

Deduction for Rent and Rates

"CHESHIRE" owns his own house and surgery. What deductions are allowable?

* A good deal must depend on the actual facts—for example, a practitioner possessed of substantial private means might use premises where the professional element was comparatively small. Assuming that "Cheshire" has a surgery and waiting room on the ground floor, and a garage, he might reasonably claim one-half of the rates and income tax assessable value. If there is no separate waiting room he may not succeed in obtaining more than one-third.

Proportion of Household and Car Expenses

"D. C." differs from his local inspector of taxes with regard to the proportion to be applied to expenses which are not entirely professional—for example, house rent, domestic service, private use of car on holidays, etc.

* The difference is mainly one of principle. "D. C." regards the proper professional charge as the amount which the service, etc., would cost, and the inspector considers that the total actual expenditure should be divided in the approximate ratio of professional and private use. The latter is the generally accepted view, and we believe it would be upheld on appeal. It may, for instance, be true that one maid alone would be inadequate to look after the surgery, attend the door, etc., at all times; but if, in fact, two maids are kept—and one, on the average, is fully employed on the domestic work of the house—then only one-half the expense of the two is deductible as a professional expense.

Employment of Wife: Special Allowance

"B. R.'s" bookkeeping, typing, and clerical work generally is done by his wife, who receives £2 a week in consideration of that work.

* He is entitled to the special allowance for wife's earned income of £45 per annum. The £104 can be deducted as a professional expense, but if so must be separately assessed on the wife. Repayment can be obtained in respect of last year, when the claim was omitted.

LETTERS, NOTES, ETC.

Boiled Milk

"E. B." writes from Birmingham: One sees so much in the papers of "Drink more milk," and many doctors say "Drink more milk boiled." It is not generally known that when milk is boiled, if it is immediately well whisked to a froth, either in the saucepan or in the bowl, the boiled flavour disappears, and the tough scum, to which so many invalids and particularly little children object, does not rise to the top. When the milk is cold, if it is passed through a fine sieve a few disintegrated particles of scum may be found, but nothing that would be noticeable when used in an ordinary way. In two or three hours the cream rises, and can be used for tea, coffee, or fruit. Milk prepared in this way has a rich, delicious flavour.

Insect Bites and Iodine

Dr. P. PRINGLE (Uxbridge) writes: In connexion with the case of gangrene of the finger following an insect bite, recorded by Dr. Ibbotson (*Journal*, August 4th, p. 240), I should like to record that I have found in every case of septic insect bite which has presented itself to me this summer a history of the immediate application of iodine. I have wondered if anyone else has any views on this subject.

Magic Pastille

A Birmingham correspondent has sent us a cutting from the advertisement pages of a celebrated weekly periodical. The object of this advertisement is to persuade readers that by eating a pastille every night before going to bed they can smoke as much as ever they like without any ill effects. "It seems to me," writes our correspondent, "a pernicious kind of thing to advertise, for we know that if a man is affected by smoking in the manner suggested in the picture, it is time he began to cut his tobacco down, and realized that no masking of symptoms will do any good."

Medical Golf

The Scottish Medical Golfing Society held its inaugurating meeting at Hadley Wood Golf Club on July 26th, with the greatest success. The prize for the best eighteen holes against bogey, presented by Dr. Skelley, was won by Dr. John Grant. The prizes for the first and second nine holes were won by Dr. Mackenzie and Dr. Findlay. Members dined together at the clubhouse.

Disclaimers

Professor GREY TURNER writes: In a Sunday newspaper, which has a considerable circulation in the North of England, an account recently appeared of a case on which I have lately operated at the Newcastle-on-Tyne Royal Infirmary. Under an arresting title misleading statements were made concerning the operation, and my name was mentioned in a way to which I very much object. Needless to say I knew nothing whatever about the report, nor did I give any information to the newspaper authorities, nor have they obtained information from the report, castle-on-Tyne Infirmary. It has unfortunately become not uncommon in this district for the more sensational papers to write up accounts of cases of which they have heard, and this is the third occasion I have been the victim of publicity during the last twelve months. On a previous occasion I had an interview with an editor, and as a consequence he published a small paragraph in an out-of-the-way part of the paper disclaiming my connexion with the article in question; but evidently they find the practice provides too "good copy" to be discontinued.

Dr. E. HOPEWELL-ASH (London) writes: To avoid misunderstanding, may I say that certain opinions on the subject of drought and "nerves" attributed to "Dr. Edwin Ash of Welbeck Street" by a Sunday newspaper do not in the least represent my views. A disclaimer from me might perhaps be considered unnecessary, as I have not at any time practised in Welbeck Street; but the opinions in question are supposed to be supported by extracts made from a book I wrote some sixteen years ago—*The Problem of Nervous Breakdown*.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 124.

BRITISH MEDICAL JOURNAL

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THE TREATMENT OF LUPUS VULGARIS*

BY

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DIRECTOR OF DERMATOLOGICAL CLINIC, FINSEN LIGHT INSTITUTE, COPENHAGEN

Lupus vulgaris does not belong to the common diseases. Stühmer thinks that in Germany the frequency of patients with lupus vulgaris (present or cured) is about 1 per 1,000 inhabitants. The incidence is much the same in Denmark, where from a population of about three millions we receive some 100 new cases each year.

The serious character of the disease is due to the following features: (1) its extremely chronic course—patients who have once contracted lupus hardly ever get rid of it without treatment; (2) the fact that it attacks young persons, spoiling the years of their youth and marking them for the rest of their life; and (3) its localization, in a great majority of cases, to the face, where it produces permanent and markedly disfiguring destruction of tissues, often so extensive that even if the disease itself is cured the tracks it leaves behind are so unsightly as considerably to handicap the patient in obtaining employment.

General Features of the Disease

Lupus, as is well known, may arise in three different ways: (1) By direct inoculation, which is rare and only of slight practical significance, as the lesions produced in this way are generally small, benign, and most often localized to the hands, where they are comparatively easy to cure. (2) By extension, as a rule in one of the following three ways: (a) from suppurating lymphadenitis involving the skin, most often from cervical or pre-auricular lymph glands; (b) from colliquative tuberculosis involving the skin—this is seen most often in children; and (c) around a tuberculous fistula—for example, tuberculous osteitis, arthritis, etc. (3) By haematogenous (or lymphogenous) transplants from tuberculous foci elsewhere in the body (lungs, lymph glands, or mucous membrane of the nose); this latter is by far the most prevalent.

From these facts it obviously follows that the most rational procedure for the prevention of lupus is to combat the spread of tuberculosis as a whole. To this end main stress should be laid on reduction of the number of infection-carrying persons rather than on the treatment of the individual tuberculous patients. It is not persons infected with a clinically serious form of tuberculosis—for example, pulmonary tuberculosis—who develop lupus; on the contrary, these patients seem to be fairly immune.

On going through the data in respect of all new lupus patients admitted to the Finsen Institute during the decade of 1922-31, we have found that out of a total of 787 patients (224 men, 563 women) only twenty-six showed signs of active tuberculosis. Among the remainder, fifty-five showed signs of old tuberculosis.

* By invitation of a Section in the Society of Dermatology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

eighteen others showed areas of calcification in the hilar glands only, forty-five gave a past history of pleurisy, and a good many (250) had had cervical adenitis. It should be mentioned, however, that x-ray examination has not been made systematically, but only in a comparatively small number of cases, where there was particular reason for doing so. Consequently, it may be that latent tuberculous processes giving no symptoms have been overlooked in a considerable number of cases, though there cannot have been missed many cases of florid phthisis, as nearly all patients were under the closest observation in the hospital.

Prophylaxis.—Tuberculosis prophylaxis has two aspects—human tuberculosis and bovine tuberculosis. In pulmonary tuberculosis 97 per cent. of the cases are due to the human type of tubercle bacilli; and here the prophylactic measures must be isolation and treatment of open infectious cases. In tuberculous adenitis, which in about 80 per cent. of the cases are due to bovine infection, the prophylactic measures must be directed especially at milk control.

As to the aetiology of lupus vulgaris, our investigations at the Institute have demonstrated the infection to be bovine in about 40 per cent. of the cases. Dr. K. A. Jensen of the State Serum Institute, Copenhagen, has been kind enough to type-determine the tubercle bacilli in thirty-one cases of lupus vulgaris. Eighteen showed the human type, twelve the bovine type, and one a dysgonic human type. A particularly striking feature in these findings was the fact that a majority of the isolated strains—twenty-one—showed more or less attenuation of the virulence (ten human, ten bovine, one dysgonic human), whereas only five were found to be of normal virulence (three human, two bovine). In the remaining five strains, all human, the virulence has not yet been determined.

We have not been able to demonstrate any difference between the course of cases of lupus due to infection with the human type and cases due to bovine infection. In combating lupus it is essential, therefore, to have in mind both forms of tuberculosis. It would take too long to enter into the details of this prophylactic work, especially as this work falls largely within the domain of the chest specialist, school medical officer, and district medical officer. It will suffice here to establish that the occurrence of lupus will be automatically reduced to the same extent as tuberculosis in general is reduced.

Light Treatment.—So much for the prophylaxis. Fortunately therapy also enables us to do a great deal in the fight against lupus. In Denmark we estimate that we are able to cure about 80 per cent. of our patients—that is, make them free from symptoms—and to do that so thoroughly that they remain symptom-free for the rest of life, or at any rate for a number of years (vide the statistics of A. Rønn: *Comptes rendus du VIII^e Congrès international de Dermatologie*, Copenhagen, 1931).

1930). Our principal treatment consists in local Finsen treatment with concentrated carbon arc light, supplemented with carbon-arc-light baths. It is a very rare event for a case of lupus to be of so malignant a nature that it is not improved by our light therapy. During thirteen years' experience in the Finsen Institute, Copenhagen, the writer has only seen two such cases. Both were in children; the disease began in the nose and spread steadily in spite of thorough treatment. Lately, however, a new form of light treatment has been introduced, and it seems to be able to check the disease even in these two cases. Generally lupus is very amenable to Finsen light treatment, recovery being obtained in the great majority of the cases, and a considerable improvement in the remainder. In early cases with small lesions the percentage of recovery is practically 100. Consequently all efforts must be made to bring the patients under light treatment early in the disease, especially as a temporary symptomatic treatment (corrosives, cauterization, etc.), such as is often given by physicians anxious to render immediate help, may make light treatment difficult because the scars formed hinder the penetration of the light.

To ensure that patients come early under the Finsen light method of treatment it is essential to provide sufficient adequately equipped hospitals for such treatment. In Denmark, with its three million inhabitants, the Finsen Light Institute has been found to afford ample accommodation. It has for this special purpose about fifty beds, twelve lamps of the Finsen-Lomholt type, and a similar number of carbon-arc-light baths—that is, six light baths for the daily treatment of about sixty patients for one hour each. The Institute can receive nearly all the fresh cases of lupus referred to it, can carry on the treatment to relative recovery, and can also manage the treatment of a not inconsiderable number of older patients whose earlier treatment has not resulted in complete recovery. We have been able to cure several of these latter patients as well, and in the rest we have obtained a definite improvement.

Working of "Light Stations."—Assuming that the frequency of lupus vulgaris is relatively the same in Great Britain as in Denmark, Britain would require about ten stations of a similar size to the Finsen Institute to combat the disease effectively. In the establishment of stations for treatment of lupus it is an indispensable condition that each station must have as medical superintendent an experienced and interested dermatologist to manage the treatment, and, in addition, a capable rhinologist to assist him. It is also important that the individual stations should not be too small. Each station should be large enough to collect sufficient clinical experience to ensure that in it diagnosis and treatment may be efficient. The therapeutic results achieved by these stations provide the best incentive to lupus patients to present themselves for treatment. For reasons not altogether accountable, most—or nearly all—lupus patients belong to the poor classes, and they are apt to lose courage if the first treatment to which they submit themselves does not give definite results. With their disfigured features they are so reserved that they do not even reappear in the clinic; but, with the better prospects of cure offered by the light treatment, they come so freely that it may even be necessary to select the cases most suitable for treatment—that is, cases in which there are prospects of complete recovery. It may even be necessary temporarily to turn away cases with particularly extensive lesions (mostly elderly persons) because they would require too much time and occupy the apparatus too long in relation to the possible result obtainable, and so hinder the treatment of younger patients with less extensive lesions.

The close co-operation of the general practitioner and dermatologist is of great importance to the success of the work of the stations. In instruction of dermatology at the medical school particular stress ought to be laid on the mention of lupus vulgaris. Lupus vulgaris, like tertiary syphilis, is a disease that is very frequently wrongly diagnosed, especially in its earlier stages, when the treatment is easy and gives most promise. It must be impressed upon the medical students that in dealing with any protracted stationary affection of the face they must always keep in mind the possibility of this disease, and, in case of the least suspicion, apply to an experienced colleague for assistance in diagnosis and treatment. As mentioned before, lupus is particularly frequent in the poorest classes of the population, perhaps partly because the disfiguring disease precludes these unfortunate persons from all chance of employment. The lupus stations must therefore co-operate with the physicians attached to institutions for the poor and disabled, with the medical district officers, with school medical officers and physicians attached to institutions for the care of children suffering from surgical tuberculosis. Lupus is of rare occurrence in sanatoria for adults with pulmonary tuberculosis. It is also important to arouse the interest of nurses engaged in charity work, municipal nursing, tuberculosis stations, etc. Most lupus patients have no regular family physician to consult, neither do they belong to sick benefit clubs, and the charity nurses should be informed as to the existence of chronic lupus patients in need of treatment.

There are two forms of treatment—general and local—and our experience shows that the local treatment is still the most efficient of the two, although the general treatment is also of importance.

General Treatment

1. *Dietetic Measures.*—In recent years, particularly in Germany, extensive experiments have been made with certain forms of diet (Gerson, Hermannsdorffer-Sauerbrück) which contain a large amount of vitamins and fresh vegetables, and practically no sodium chloride at all. Some authors have reported very good symptomatic results from this treatment, although real cure appears to be considerably less frequent. The results reported by other authors have been more modest.

In the Finsen Institute, experimental treatment with this diet was given to forty patients, but without any noticeable effect. When the patients themselves were asked what was their personal impression only one replied that he had noticed any considerable improvement. Six thought there was some improvement, but the rest had noticed no change at all, or at the most only a very slight improvement. It is difficult to give any explanation of this, but possibly it is connected with the diet of the patients prior to their admission for dietetic treatment. Often the food of poor people is very monotonous, and it is particularly poor in green vegetables and vitamins, the importance of which for the resistance of the organism to infections has been demonstrated clearly in recent years. It is easy to understand that the condition of such patients improves when they are placed on a more suitable diet, but this does not warrant the diet being regarded as a specific remedy against tuberculosis, or assuming that a change in diet would be sufficient to effect complete recovery.

In view of these experiences, however, we have in recent years given many of our patients supplementary food rich in vitamins in addition to the ordinary diet—particularly in cases with extensive processes of lupus vulgaris, where the general condition of the patient was debilitated. This supplementary vitamin food consisted of vitamin A (50 grams butter and two carrots), vitamins

B and E (two tablespoonfuls of wheat germ), and vitamin C (the juice of a lemon). With this diet we have obtained a considerably greater increase of weight in our patients than usual (about double).

2. *Light Baths.*—Finsen was the first to observe that sun baths had an excellent effect on surgical tuberculosis. Unfortunately the climate in Denmark does not permit of an extensive treatment with sun baths, but the idea rapidly gained ground in other countries, especially in Switzerland (Bernhard, Rollier), where it gave excellent results. Later Reyn introduced a similar treatment with artificial light: the Finsen carbon-arc-light bath, given as a supplement to the classical local Finsen treatment of lupus with concentrated carbon arc light. By this the therapeutic results in the Finsen Institute were improved considerably, and this combination of local and universal light treatment still remains the routine treatment in our Institute. It is our experience that the carbon arc light has a much stronger effect on lupus vulgaris than the mercury lamp. In recent years we have commenced to introduce a new type of lamp, the "universal lamp" in which the pure carbons are replaced by Siemens's Schneeweisskohlen ("white flame carbons"), which give an emission resembling sunlight considerably more closely than does the emission from pure carbons. The carbons are placed almost parallel, so that the emission from both craters is utilized when the patients are irradiated in a horizontal position with the lamp suspended above them. With this lamp we obtain a much stronger erythema effect than previously, and the same, or even a better, therapeutic effect with a shorter time of exposure. Of course it is difficult to furnish any statistical proof of this, but several patients in whom the improvement seemed to have stopped under the original carbon-arc-light treatment made new progress with the new light baths. This was the case with the two before-mentioned cases which, as stated, proved refractory to the original treatment with the Finsen light bath.

The light baths are to be given to the patients lying down, daily or every other day, in such initial doses as will produce a moderate erythema. The time of exposure is increased gradually from day to day, up to one hour as a maximum, care being taken to avoid a strong erythema uncomfortable to the patient. In case of strong irritation it is advisable to make a short pause, and then begin anew with a smaller dose. The treatment should not be continued uninterruptedly for more than three months at the most, after which period there should be a pause for about one month. Then the light baths may be given again. We have never seen any injurious effects from our light baths, and this applies also to patients suffering from a simultaneous pulmonary tuberculosis. In pulmonary cases, however, greater caution is advisable so as to avoid any exhaustion of the patients by a too energetic treatment. In favourable cases complete recovery of lupus may be obtained by treatment with carbon-arc-light baths alone, as has been demonstrated previously by Heiberg and With. Not long ago I had occasion myself to make sure of this in one case, in a Swedish patient with an enormous plaque of lupus vulgaris on the face and numerous smaller lupus nodules on the legs—so many that it would have taken much too long a time to give local treatment. The lupus processes on the legs subsided almost completely under the light bath treatment. Subsequent histological examination of two small lupus lesions showed no sign of tuberculous granulation tissue.

Local Treatment

Local treatment is still the most important form of therapy, and comprises several highly effective methods.

1. *Surgical Removal.*—Excision is the most sure and, if successful, the simplest method. It may be employed for very small lupus lesions on the face—though not very well where a lesion is located on the nose—and on the hands, and against most lupus processes on the trunk and extremities. The excision must include also a surrounding zone of definitely normal tissue. The result will most often be complete recovery, although recurrence is not altogether rare. To ensure a neat scar formation, and particularly when there is a tendency to hypertrophy of the scar, we give the patient an after-treatment with radium emanation of about 0.04 millicuries per square centimetre, applied in thin wax plates for a period of about sixteen hours at a time, and altogether four or five times at intervals of four weeks. Simple removal of the lupus process by scraping with a curette never leads to recovery, and should therefore never be resorted to.

2. *Electrocoagulation.*—In recent years this treatment has been largely recommended, especially by German authors. It has the advantage that the risk of recurrence is less than with a simple excision; on the other hand, the scars are not quite so neat after electrocoagulation as after excision. The treatment may be carried out either by compact destruction of the entire area involved—the method of choice with all small lesions—or by regular excision with a knife-shaped electrode or a bent band-shaped electrode, as recommended by Wucherpfennig (*Über das elektrische Schneiden mit der Drahtschlinge*, Jena, 1932). The open wounds are allowed to fill in by granulation, or their edges are pulled together by sutures. This method is quick and radical, and often gives fairly good results, but it must be clear that it is not an ideal method, as it often produces disfiguring scars. We have therefore refrained from its employment in most recent cases. In these we always prefer the light. On the other hand, we employ electrocoagulation a great deal in small local relapses in light-treated tissue that are found resistant to repeated treatment with light. After removal of the lupus lesion with electrocoagulation we often repeat the light treatment, and we have had quite satisfactory results from this combination.

3. *Scarification.*—This form of treatment has been recommended, especially by French authors. We have had no personal experience with this method in our Institute, but it does not appear to be very effective.

4. *Chemical Corrosion.*—The sovereign caustic for this purpose is pyrogallie acid, which Veil proved to have an elective caustic effect on tuberculous granulation tissue. It is most efficacious when combined with salicylic acid and resorcin (vaseline, 11 parts; pyrogallie acid, 3; salicylic acid, 3; and resorcin, 3). This is a very powerful caustic ointment, but a satisfactory effect may be obtained also with somewhat weaker concentrations.

The procedure is as follows. The ointment is smeared on a piece of lint cut to fit the plaque to be treated and fastened by a tight bandage. The bandage is changed in the morning and in the evening, and each time as much of the destroyed tissue as possible is cautiously removed. The treatment may be rather painful, and as a rule is only tolerated for a few days at a time. When the treatment is discontinued the caustic ointment is replaced by an indifferent soft ointment, or by a compress of 0.2 per cent. resorcin solution.

Corrosive treatment is able to remove the main part of lupus tissue, even in large plaques, but complete recovery is rare. After some time new nodules make their appearance in the zone around the scar and in the scar itself. Further, the scar is apt to undergo hypertrophy and become rather disfiguring. A serious drawback to the corrosive treatment is that the massive scar tissue makes subsequent light treatment very difficult. If there is

any chance of having the patients treated with light one should not waste any time on a protracted corrosive treatment under which there may be heavy scar formation. On the other hand, pyrogallol ointment may be employed with great advantage as a preliminary to light treatment in cases with extensive proliferating lupus plaques, removing rapidly and readily the main bulk of lupus tissue. But the local Finsen treatment should always be instituted immediately after. Corrosive treatment is indispensable in dealing with the verrucous form of lupus on the hands, being excellent for removal of the keratotic surface of the lesion, which it is hard for the light to penetrate.

In England much use is made of a special remedy—liquor hydrargyri nitratis acidi, B.P., 1913. The solution is applied cautiously to the individual lupus nodules by means of a small cotton swab, and it is left on for a few minutes so that it produces a local corrosion. We have not had any personal experience with this treatment in lupus, but we employ the same remedy largely in the treatment of tuberculous abscesses and fistulas. In these conditions it is highly efficacious, superior to all other remedies.

5. Local Light Treatment.—There are two methods for local light treatment. The Finsen treatment with concentrated carbon arc light, and the Kromayer treatment with water-cooled mercury vapour light. The latter method of treatment is by far the easier and less expensive, but it is the general consensus of opinion that it is considerably inferior to the Finsen treatment, and therefore it ought to be employed only where Finsen treatment is not available.

For Finsen treatment, as carried out at the Finsen Institute, we now use exclusively our new model of the Finsen-Lomholt lamp, which has the advantage of being worked automatically, so that one nurse can operate three lamps at a time. This lamp, also, is considerably more effective than the original model. Its main points are as follows (for details see *British Journal of Dermatology*, 1930).

I. A carbon arc lamp of 20 to 30 amperes, with automatic regulation, and with the positive upper carbon in the horizontal and the negative carbon in the vertical position.

II. A concentration apparatus consisting of: (1) a strong plano-convex front lens (focus distance about 10 cm.); (2) a large quartz cylinder, the ends of which are formed by two plano-convex lenses melted into the walls of the cylinder, the cylinder being filled with a watery solution of cobalt sulphate (red); and (3) a cuvette filled with a blue solution of copper sulphate in strong ammonia, a strong plano-convex quartz lens forming the front side of the cuvette.

III. A number of quartz tubes of different shapes, to be used for the compression of the lupus patch during the treatment.

By using lenses of thermo-resistant quartz (fused instead of natural silica) it is practicable to place the luminous positive crater close to the concentration apparatus, and the use of coloured filters makes it possible at the same time to filter off the inactive luminous rays. By this the concentration of the ultra-violet rays is increased to four or five times the concentration obtained with the original apparatus, so that the irradiation time may be reduced to about one-third of the time formerly required. Thus one nurse can easily treat nine patients in the same time that it previously took to treat a single patient. This naturally means a saving of time and money, and, in addition, the effect is stronger and more constant. Using carbon with a nickel core, a greater therapeutic effect is obtained, because it gives a considerably stronger emission in that part of the ultra-violet field which appears to be of particular importance for this therapeutic effect. This is in the field from 3,300 to 3,600 A.U. It is essential to clean the lupus lesion very carefully and cautiously before the treatment, removing all scales, crusts, and remnants of ointment, but avoiding any

bleeding. A front piece is chosen which corresponds in size and form to the lupus area which is to be irradiated, but the treatment must always include also a zone (about 5 mm. wide) of the adjacent healthy tissue. The compression apparatus is adjusted to give a firm, fairly strong pressure, so as to cause an effective degree of anaemia in the area in question. Experiments on rabbits' ears have shown that this is essential in order to obtain a good deep effect. Yet the treatment need never be painful to the patient, and ought not to be so. Only in rare cases with extensive open lesions may it be necessary to employ some local anaesthetic (2 to 4 per cent. cocaine or percaïne solution).

The treatment must be given in an orderly manner, beginning at one side of the lesion and proceeding systematically until the whole plaque is treated completely. The physician in charge must follow the treatment from day to day, and direct what parts are to be treated and in what succession; he must watch especially that one application joins another closely, so that no diseased tissue is missed. As a rule the nose is the first area to be treated, beginning with the vestibule when this is involved, as the treatment of this part will be painful if sensitive reactions are already brought about on the outside of the nose by preceding treatment. Similar rules apply to treatment of the inner surface of the lips. It goes without saying that the treatment of these parts should be carried out in co-operation with the rhino-laryngologist. In the case of an extensive lupus plaque involving both halves of the face the treatment must be managed so that the patient is able to rest comfortably on one side at night. A lasting good result can be obtained without pain. On the other hand, it is only natural, for the patient's own sake, to make the treatment as intensive as possible. Occasionally it is advisable to cut down the irradiation time to three-quarters or half an hour—for instance, when the lesion is very extensive, or when the patient has been treated previously with x rays, after which the skin reaction is always particularly strong and painful, and slow in healing.

The power of the current should as a rule be kept steadily at about 25 to 30 amperes. With this there are no difficulties with the usual front pieces. It happens now and then, however, that the patient complains of secondary pains from the reaction set up by the treatment in the large open plaques. If very intensive treatment is essential, such pains are unavoidable. These pains are never very severe, though they may weary the patient by being so protracted, but as a rule careful bandaging will reduce them to a minimum. The great majority of our patients do not complain of pain at all.

Results of Light Treatment

To obtain rapid healing it is very important strictly to carry through a suitable treatment for the reactions that appear after irradiation. They heal fairly rapidly—in eight to fourteen days—when treated with moist compresses—for example, 0.2 per cent. resorcin solution. The compress consists of three to four layers of lint, cut exactly to the shape of the inflamed area, soaked with the solution, and wrung so hard that they remain only a little moist; they are then covered with waterproof material or with a piece of lint smeared with ointment. The dressing is changed at least three times daily. If it is not practicable to change the dressing so often it will be preferable to apply an ointment bandage—for example, vaseline 40 parts, adip. lanae hydrat. 50, zinc. oxid. 10. In secondary infection an antiseptic—for example, precipitate of mercury 2 per cent.—is added. Silver nitrate is not to be used on account of the colour, neither in solution nor for ointment. Occasionally it

may be advantageous to use compress bandage and ointment bandage alternately, or to change from one to the other, according to what is most agreeable to the patient. In only quite exceptional cases will it be necessary to employ a local anaesthetic (cocaine, percaine).

If the lupus plaque is ulcerated to begin with the ulcerated places must be treated directly. If the irradiation produces distinct haemorrhage the treatment of this area must be discontinued until the blood has been absorbed, as free blood in the tissue cannot be made to disappear by compression, and the ultra-violet rays are absorbed by haemoglobin. As a rule the treatment may be repeated after one to two weeks. *In lupus of recent development our rule is always to give five to seven series of irradiations with an interval of eight to fourteen days as first treatment.* Each series consists of a number of exposures lasting one hour and covering an area the size of, say, a shilling, until the whole patch has been irradiated. This will in most cases give complete recovery. In several cases we have seen healing after only three to four irradiations, but as it is exceedingly important to obtain complete recovery with the first treatment, five to seven treatments should be the normal. In the case of compact processes in which the lupus granulation tissue is particularly refractory to treatment, more applications are required. Relapses are more difficult to cure, because the rays have to pass through the scars formed after the previous affection and by the light treatment given.

It cannot be emphasized strongly enough how important it is to complete the treatment the first time. In most of the cases in which we have obtained a lasting cure recovery was obtained with the first treatment. The consequence of this is that in circumstances where a sufficient number of apparatuses are not available, the suitable cases must be carefully selected and treated thoroughly and completely before others are taken on. It is the worst economy imaginable to institute treatment on many cases which can be only half carried through, so that one has to fight in the following years with troublesome and persistent relapses. It is costly and burdensome both to doctor and to patient.

The Finsen treatment may very well be carried through on out-patients. It is advisable, however, if possible, to admit to hospital patients with extensive lesions, especially if their general condition is poor. Only in a hospital is it practicable to ensure a perfectly effective treatment of such patients, for it is difficult to have large areas of light reactions treated properly outside the hospital. Where less extensive lesions require general treatment, such, for instance, as light baths, the patients should be admitted to hospital unless they live so near to the clinic that they can easily attend for treatment every day or every other day. In cases of small benign lesions, where the chief requirement is local treatment, it is best to admit the patients to the clinic for one or two days at intervals of two to three weeks. It is fortunately not essential that a lupus patient should be treated in an extensively equipped modern hospital, as only few lupus patients suffer from severe progressive tuberculosis. For rational and effective combating of lupus vulgaris it is of the very greatest importance that the patients should, through energetic propaganda, be made to apply for treatment in the very earliest stage of the disease, and should afterwards be kept steadily under close observation by re-examination two or three times a year, so that any relapse that may appear can be treated effectively at once.

Treatment of Lupus of Mucous Membrane

With the original treatment of lupus vulgaris the most difficult point was undoubtedly the treatment of

lesions of the vestibule of the nose. This frequent localization, which is often the starting-point of relapses on the outside of the soft part of the nose, was previously treated by means of a quartz prism, constructed by K. K. Lundsgaard, through which the light was reflected on to the mucous membrane. But the effect of this treatment was often uncertain, because it was difficult to fix the prism apparatus in the proper position. Furthermore, the effect was always very weak, because the effective utilization of the rays was only slight—10 per cent. maximum. Even with an uninterrupted radiation lasting four hours the reaction was often quite weak.

The new apparatus produced much better results from this part of the treatment. The front piece to be used for the treatment of the vestibules is somewhat longer and more pointed than the forms used for skin treatment. The little surface which is to lie on the lesion is made oblique, and this gives an apparatus which may be introduced into the vestibule quite easily, and is readily adjusted to the surface of the mucous membrane by firm pressure on the outside of the nose, easily maintained by the patient himself during the treatment. With the new apparatus the intensity of the radiation was multiplied. It is possible within fifteen to twenty minutes to get a constant and much stronger effect than could be obtained previously in four hours. The vestibular lupus was previously extremely difficult to cure, but now the cure is always easy.

A longer and more slender model was constructed for use in the depth of the oral cavity, and even on the posterior wall of the fauces, but this required a modification of the concentration apparatus in order to obtain a longer focal distance. Through intimate co-operation with the oto-rhinologist of our Institute, Dr. Ove Strandberg, we have been able in the last year to treat some cases of lupus of the gums and fauces—some of them very extensive lesions—and we have obtained a considerable improvement, even clinical recovery, in cases which had previously been intractable.

The above-mentioned front pieces are also very serviceable in the treatment of lupus of the inner surface of the eyelids. Here, of course, it is essential to protect the cornea carefully from the light rays, and a very simple way of doing this is to wrap the front piece in several layers of gutta serena paper.

Radium and X-Ray Treatment

Radium and x rays have been widely used in the treatment of lupus vulgaris. They give a good transitory, symptomatic effect on the patch, but a definite cure is rare, and the result will after some years generally become that of a disfiguring atrophy with the well-known telangiectasia, irregular pigmentation, and even ulceration; not to mention the marked tendency to malignant degeneration. Very unfortunate is the difficulty created by this atrophy and reduced vitality of the skin for the treating of relapses of lupus vulgaris in the atrophic scar with light. The treatment becomes very painful, and the reactions after the light treatment heal but slowly—in months instead of weeks. The new Grenzstrahlen seem less dangerous than radium and x rays, but a definite cure seems by their means equally difficult to obtain.

Conclusion

According to the scheme outlined above we have treated about 150 fresh cases of lupus vulgaris in the Finsen Institute, Copenhagen, during the last two years. Apart from a few extensive inveterate cases in patients who could not afford sufficient time for proper treatment, we have obtained apparent cure in nearly 80 per cent.—that is, all nodules and other symptoms of activity disappeared,

and the scars remained free from relapses. In the rest of the cases great improvement was obtained. Only a few scattered nodules reappeared in a scar otherwise free from lupus. Probably a repetition of the light treatment, combined perhaps with electrocoagulation, will succeed in removing in these cases, too, the last remnant of the disease, as was in fact found with a number of other inveterate cases which had proved refractory to previous treatment with the original Finsen apparatus.

The two outstanding advantages of the Finsen treatment are its efficacy, and even more the ideal cosmetic results: soft, smooth, often hardly visible scars, which have preserved the full vitality and resistance of the natural skin without any disposition to atrophy, ulceration, or malignant degeneration.

THE EYES AS A CAUSE OF HEADACHE*

BY

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It is surprising to an ophthalmologist that physicians attach relatively so little importance to the eyes as a cause of headache. I have examined my notes of 1,000 private cases, and I find that 24 per cent. of the patients came to me complaining of headache. Not every headache, however, is due to use of the eyes, and the oculist, faced with a patient complaining of headache, must determine, if he can, whether the headache is an ocular one or not. In this he may be greatly helped by the history which he obtains from the patient.

First, as to the *situation* of the pain. Usually an ocular headache is frontal or orbital ("pain behind the eyes"); more rarely is it occipital or temporal, and almost never is it vertical. In the series of cases which I analysed, of 181 cases where the type of headache was noted 60 per cent. were frontal or orbital. Next the *time of onset* of the pain should be ascertained. Next the *monon* with ocular headache the pain comes on in the late afternoon or early evening—that is, at the end of a day's work. Sometimes a headache is present on waking in the morning, and it may be difficult to persuade the patient that this morning headache has been earned by the misuse of the eyes on the preceding day. Of course, other headaches may be earned overnight, such as that which comes out of a whisky bottle, but the patient always recognizes this type, and will say that if he ever gets a headache he knows to what to attribute it. The delayed headache is probably due to the power of the healthy human being to ignore slight pain. It is only when he is tired, or when his control has been weakened by sleep, that he becomes conscious of pain. Sometimes patients will say that if, for any reason, they wake in the night, they find they have a headache. Another instance of delayed pain is the week-end headache; the patient may be free from pain during the week, but on Sunday, although using his eyes less, he gets headache. One patient said that he had not time for a headache during the week. Association of the pain with use of the eyes may be so clear as to make it reasonably certain that we are dealing with ocular headache.

Ciliary Muscle Contraction as Cause of Headache

Although the pain of eye headache may radiate through any of the branches of the trigeminal nerve, the initial

cause is painful contraction of muscle. The muscles concerned may be the ciliary muscles, the extrinsic eye muscles, or the occipito-frontalis. If one doubts that contraction of the ciliary muscle can be painful one should put strong eserine drops into an eye; the resulting pain may be severe enough to cause nausea.

The simplest case of pain from ciliary muscle contraction is that of a hypermetrope with equal errors in the two eyes. Such a patient can only see clearly by contracting the ciliary muscles, and throughout his waking day they are in a state of tonic contraction, the contraction being greater when close work is done. After prolonged close work these muscles tire, and the patient finds his sight varying, the type appearing alternately clear and confused. He may seek relief from this by stopping his work and gazing into the distance for some minutes, when he finds that he can continue to focus his work for a time. More frequently he discovers that by getting closer to his work, and so obtaining larger retinal images, he can appreciate it, in spite of confusion of vision, with less mental effort, but this diminution of mental effort is gained at the expense of accommodation and convergence, and a vicious circle is set up, which ends in headache or in breakdown of accommodation. Most children are guilty of the mental laziness which makes them read at too short a distance and so gain larger retinal images. The habit is accentuated by refraction errors and by imperfect lighting, and is one which should be combated constantly by teachers and parents.

When the hypermetropia is of different degrees in the two eyes the ciliary muscles are presented with a more difficult task. Not only must the patient accommodate in order to see clearly, but he must accommodate to a different extent in the two eyes. Patients will often tolerate a considerable under-correction of their hypermetropia or presbyopia better than a small imbalance of accommodative effort in the two eyes. In correcting refraction errors it is of the greatest importance to get the two eyes balancing in this respect.

In astigmatism there is introduced another abnormality of ciliary muscle contraction. If there is much astigmatism the ciliary muscle may make little or no effort to correct it, and there is no "eye-strain" and no headache. But if the degree of astigmatism is low or moderate the ciliary muscle contracts irregularly, more in some fibres than in those at right angles to them, and produces a lental astigmatism of opposite sense to the corneal astigmatism. Often enough the effort is overdone, and we find that a patient who, for instance, has a low degree of astigmatism "with the rule," chooses a cylinder "against the rule." Low degrees of astigmatism often cause more severe headache than do high degrees, although the importance of correcting very small refraction errors has been exaggerated.

More debatable is the question of "eye-strain" and headache being caused by contraction of the iris muscles. It is undoubted that the early cinema theatres were more productive of "cinema headache" than are the modern ones. Much of the improvement may be attributed to abolition of flicker and to reduction in the size of the screen, but another factor is that, whereas in modern cinema theatres a certain amount of general illumination is kept, in the old theatres the house was quite dark. Alternate gazing at the brilliantly lit screen and into surrounding blackness caused alternate contraction and dilatation of the pupils, and this may well have contributed to "cinema headache." In some of the newest cinemas the audience must traverse long corridors before reaching the theatre. One may be inclined to attribute this to love of display on the part of the management, or to ineptitude on the part of the architect, unless one observes that the illumination is gradually reduced as

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

one passes from the brilliantly lit foyer to the dimly lit theatre.

Before leaving the subject of ciliary muscle headaches I would refer to the fairly large group of composite headaches in which the ocular part is only a fraction of the whole cause.

As an instance, I would quote the case of a woman who consulted me for very severe and constant headache, which completely incapacitated her. She was taking enormous quantities of barbitone drugs with little relief. She had given up her work, and friends had taken her away on their yacht to try to improve her health, but she spent the whole time in bed, and returned as bad as ever. I corrected her refraction errors and ordered glasses. On wearing them she was free from headache for the unprecedented period of three weeks. Then began a clear association of the headache with her menstrual periods; it returned a day or two before the onset of the period, passed off, and returned for three or four days after the period. I sent the patient to a physician, who treated her with appropriate endocrine preparations, with the result that she has hardly had a headache in over five years.

Headaches Due to Extrinsic Muscle Abnormalities

Here in Bournemouth, where Maddox lived and worked for over thirty years, it is appropriate to discuss the use of prisms. Headache caused by imperfect muscle balance can often be relieved by the discriminating use of prisms, but few things require greater judgement than their prescription. Even more than in correcting refraction errors must one avoid the error of over-correction. It is better not to order prisms than to order too strong ones. Not always can the same prisms be worn for distance and for near work. An esotrope with muscle imbalance sufficient to cause confusion and even diplopia in the distance may find his latent convergence rather a help in reading. Such a person, however, is liable to fall into the habit—a habit which is responsible for much ocular headache—of reading at too short a distance, and so overtaxing his accommodation.

The movements of elevation and depression of the eyes are performed by a mechanism more complex than that used for the lateral movements, and it is perhaps for this reason that vertical heterophorias, although less common than lateral imbalance, are more productive of discomfort and headache; it is especially these vertical errors which call for relief by prisms. As a rule, it is the less good eye which tends to deviate upwards, probably because the elevating muscles are stronger than the depressors. The factor which decides which eye shall tend to deviate is usually the refraction, the eye with the more complicated refraction error tending to rise. When there is little difference in refraction the hyperphoric eye is usually that which is not the "master eye": one might call it the "servant eye." We are therefore correct in speaking, as we usually do, of a right or left hyperphoria, and not of hypophoria.

As rough rules for the prescription of prisms for heterophoria Maddox suggested as maximal corrections two-thirds of the error in esophoria, one-half in exophoria, and two-thirds in hyperphoria. There can, however, be no fixed rules, and each case must be considered separately. A plan which I have found of the greatest value is to make the patient gaze at a distant spot of light with coloured glasses before his eyes, red glass before the right eye and green before the left. If he says, whatever the finding with the Maddox rod may have been, that the red and green lights are mixed together, his heterophoria does not need correction by prisms. If, on the other hand, he sees the red and the green lights separate, one must find the weakest prism which will enable him to mix them. This prism is to be regarded as a maximum, which is not to be exceeded in the prescription. It may even be found that some still weaker prism will give the patient comfort when reading the test types with

both eyes, making the letters appear steady instead of dancing and confused. In prescribing prisms, as in correcting refraction errors, over-correction must be avoided.

It is said that the prescription of prisms for heterophoria is purely palliative and not curative, but this is not always true. It is true that patients who have been relieved by wearing prisms may, when they return a year or so later, be found to have more heterophoria than before, but one finds at least as frequently that the tired muscles have recovered some of their tone, and that we can reduce or abandon the prisms in the glasses.

Occipital Headache

The last group of eye headaches to which I will refer includes those which can often be relieved by the volition of the patient. Many patients suffering from eye-strain screw their lids together. This may be done, as in cases of myopia, to cut off diffusion circles by narrowing the palpebral fissures, but in other cases it would seem that the excessive innervation of the eye muscles overflows into the orbicularis muscles. The frontales muscles are inserted into the upper lids, and they participate in the contraction, and as the frontales, on contracting, pull on the epicranial fascia the occipital muscles are pulled upon, and these, too, contract and cause occipital pain. This is not the only, nor perhaps the commonest, form of occipital headache. We shall hear from the neurologists of occipital pain arising in the meningeal branches of the trigeminal nerve and associated with changes in the meningeal vessels or with alterations in intracranial pressure. In a recent case of Lindau's disease, in which I had been observing the angiomatosis of the retina, the first and only indication that the patient had developed a haemangioma of the cerebellum was the sudden appearance of severe occipital neuralgia.

The occipital headache of eye-strain, however, seems clearly to be localized to the occipital muscles, and to be relieved by pressing on them. It is a form of headache which is easily relieved by wearing suitable glasses. Much may be done for the patient by explaining to him that he is himself producing headache by screwing his lids and frowning, and that he must make himself conscious of the occasions on which he does these things and decide not to do them.

I have intentionally omitted reference to the headache of gross eye disease, such as iritis and glaucoma, of nasal sinusitis, and also of nephritis, cerebral tumour, and hyperpiasis, diseases in which ophthalmologists are interested by reason of the fundus changes which occur in them. I have confined myself to consideration of the headaches caused by misuse of the eyes, and of the ways in which we can relieve them.

A memorial fund to the late Madame Marie Curie has been opened by the hospital in Hampstead which bears her name and operates as a centre for the radium treatment of cancer in women. The appeal is being simultaneously launched in Paris and Warsaw. It has been thought fitting that the money thus received should be most appropriately expended on extension of this hospital in which she was so deeply interested. A department for deep x-ray therapy has recently been added to supplement radium treatment and for certain cases which respond better to x rays alone. Already it is overtaxed, and many would-be patients have to be turned away owing to the lack of facilities. The growing number of applicants, and the fact that for most of these radiotherapy offers the only prospect of relief and cure, make it urgent that the contemplated extension should be undertaken as soon as possible, especially since the establishment of this institution was one of the tributes this great investigator appreciated most highly during her life. Contributions may be forwarded to the treasurer, Marie Curie Hospital, 2, Fitzjohn's Avenue, N.W.3.

HEADACHES IN RELATION TO OCULAR CONDITIONS*

BY

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Headache, one of the commonest of symptoms, is one whose pathology is very doubtful and difficult to explain. The variety of its causes is almost innumerable, and, though many forms of it may be expressed as reflex neuralgias, in terms of the fifth nerve or other nerves supplying the scalp or cranium, yet it is difficult to be certain of the mechanism of headache in a great number of cases.

Pressure Headaches

It has been usual in the past to ascribe headache due to rise of intracranial pressures and migraine as the result of influences such as pressure acting upon the recurrent meningeal branches of the trigeminal nerve, which supply the dura in the various fossae and the falk. Yet we are met by the fact that quite large areas of the dura appear to be insensitive to surgical manipulation in decompressions done under a local anaesthetic. Surgeons tell me that the areas of dura which are specially sensitive are those in the neighbourhood of the larger vessels and of the chief sulci. Opinions vary as to whether the sympathetic supply of pia-arachnoid vessels has any bearing on the conduction of sensations. On the whole, modern physiological opinion is against the sympathetic system being a carrier of sensory impressions, but some authors assert definitely that pain may be conducted along the sympathetic.

There seems no doubt that a sudden rise of intracranial pressure may be a cause of violent headache. This may be due to sudden out-pouring of blood from a subarachnoid haemorrhage at the base of the brain, and I have known this condition commence with sudden, violent pain at the back of the head. This is understandable, owing to interference with, and pressure upon, the meningeal trigeminal branches of the dura in the neighbourhood. In some of these cases subhyaloid haemorrhages may be seen as evidence of the spread of blood along the base to the back of the eye. Violent headache may, however, be produced by distension of the ventricles, and it is a symptom that comes on extremely rapidly from blockage of the foramen of Monro in cases of ependymal tumour in the ventricle. In this case the cerebro-spinal fluid escape through the foramen is obstructed and the pressure within the ventricle rapidly rises as the fluid is secreted from the choroid plexus.

General distension would cause pressure to be transmitted through the cerebral substance, and compress the cortex and the membranes against the vault of the skull, and also at the base, but it is a question whether the severe headache that is felt as a symptom is due to pressure upon the meningeal nerves on the surface or whether it is produced by the effects of the pressure on certain parts of the brain itself—for example, the thalamus, which is in such close relationship with the lateral ventricle.

Migraine

A common cerebral cause of headache, which has close associations with ocular conditions, is migraine. Here, in a typical case, the first onset of the scintillating scotoma, or hemianopia, will be succeeded some twenty minutes or half an hour later by violent unilateral headache, which may persist for hours, and be succeeded by vomiting.

* Read in opening a discussion in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

What is the mechanism of the headache in this condition? There seems little doubt that in the preliminary stage of the aura there is arterial constriction, and actual narrowing of the central artery of the retina has been observed in this stage, succeeded later by throbbing and dilatation of the vessel. This fact suggests that a similar condition of constriction of the cortical vessels, especially in the occipital region, may be concerned in the production of the hemianopia, or other varieties of the scotoma: scintillans, and that the subsequent headache is due to engorgement of the vessels and cerebral compression therefrom, the vomiting itself being suggestive of raised intracranial pressure. True migraine rarely has any direct connexion with ocular conditions, such as errors of refraction, though I have known a case in which repeated attacks of apparently typical migraine occurred for about eighteen months following a corneal ulceration and the subsequent astigmatism from scarring.

True migraine so often commences in early life—and, indeed, may be traced back to the periodic vomiting attacks that occur in infancy—and these headaches in children will very likely lead to consultation with an oculist, with the frequent discovery of small errors of refraction and the prescription of glasses therefor, in the hope of curing the headaches, but the true migraine headaches differ entirely from the headaches that are commonly produced by errors of refraction. Migraine is a periodic headache, coming on at irregular intervals, which lasts usually for twelve hours or longer, sometimes for a couple of days, and is generally associated with nausea and vomiting. A typical case will be preceded by the aura of scintillating scotoma, or hemianopia, or perhaps tingling along the lips and tongue, and even a temporary aphasia and weakness of an arm, rarely the leg. These are obviously cerebral effects, and should not be confounded with the different forms of refractive headache. Often there is a family history of the same condition, and other neuroses may be present in the family.

Headaches from Refraction Errors

These are probably dealt with more fully by the ophthalmic surgeons, but they appear to be not diagnostic from their location at any particular part of the head. The pain may be over the eyebrows, frontal region, or back of the head and neck. It may be one-sided, or it may be diffuse. It is not always the more severe forms of high hypermetropia or severe astigmatism that cause the most troublesome headaches, which are sometimes due to comparatively slight errors of astigmatism. The pain is not always produced only by using the eyes, but may be present on waking in the morning, and troublesome headaches which are not periodic and paroxysmal, as in migraine, should always be treated by corrective glasses, if definite errors of refraction are found and no other obvious cause is apparent. More particularly is headache likely to be produced when these errors are different in the two eyes.

Further Ocular Causes

Another cause, which no doubt will be fully gone into by the ophthalmic surgeons, will be headache referable to want of muscular balance, heterophoria, esophoria, and the like. Yet another cause that I have seen referred to recently is the difference in apparent size of the images perceived by the two eyes, so that there is a difficulty in acquiring true stereoscopic vision. Again, diplopia from actual muscle or nerve paresis may be a source of neuralgic headaches, but this cause would be very obvious in the patient's complaint, and treatment need not detain us here.

Conditions within the eyeball itself are common causes of headache—namely, iritis, cyclitis, and glaucoma. In

iritis the pain appears first in the eyeball—a ciliary pain—and next spreads to the brow and temple along the supraorbital nerve; it may be very severe, throbbing and stabbing, and increasing at night. Sometimes the pain may be referred along the side of the nose, the infraorbital area, even into the cheek.

The pain in acute glaucoma may be very distressing, though its cause is not likely to be overlooked, but in chronic glaucoma neuralgic pains about the face and head are commoner perhaps than is generally believed. For example, in Parsons's textbook, *Diseases of the Eye* (seventh edition, 1934), in his description of chronic glaucoma, no reference is made to pain, and I have heard an ophthalmic surgeon assert that pain is never a symptom of chronic glaucoma. On the other hand, De Schweinitz writes, in his textbook (tenth edition, 1934, p. 417), after describing the pain of acute glaucoma:

"In chronic cases there may be only a general feeling of discomfort, a sense of fullness, occasional shoots of neuralgia, or attacks described by the patient as headache, or pain is entirely absent."

I have seen at least two patients in which violent neuralgic pains in the face, cheek and jaws, and temple appeared to be due mainly, or aggravated by, the presence of chronic glaucoma.

In choroidal tumour, if the tension is raised, a brow pain and neuralgia may be the symptom. The pain of corneal ulcers may be considerable, but is referred mainly to the eye itself, though the general distress and photophobia may lead in some subjects to general headache. Orbital abscess or tumours in this region naturally will be the source of pains referred to the brow and cheek, and if there is marked proptosis, and if the growth invades the eyeball, pain may be referred to the eye itself. Similarly, in exophthalmic goitre, when the proptosis is extreme, ulceration of the cornea may occur, associated with pain and headache. Frontal or ophthalmic herpes may be complicated by certain ocular conditions, such as corneal ulceration, iritis, perforation of the cornea, and panophthalmitis. The violent pains of ophthalmic herpes are, of course, well known, but occasionally—especially in old people—the persistence of the neuralgia is extremely distressing, and this may go on for years, and may apparently be permanent.

Headaches from Cerebral Disease and Neuralgia

The headaches of cerebral tumour, abscess, or meningitis need not detain us here, though papilloedema is a common physical sign in tumour or abscess. In meningitis the disks may remain normal throughout, though slight blurring of the edges is not uncommon. In sinus thrombosis headache may be very severe, and retinal haemorrhages may be most extensive.

The headache of cerebral arteriosclerosis is an important one to be recognized. After middle life it will usually be associated with increased blood pressure, and the pain is more or less continual for days or weeks, though it may clear up at times. These cases will be recognized first by the ophthalmic surgeon by the ophthalmoscopic appearances, by slight haemorrhages around the disk, and the well-known silver wire arteries, with their compression of the veins where the latter are crossed by arterial branches, and in more pronounced cases by the more definite appearances of albuminuric retinitis. The headache is often of a bursting character, and may be worse at night. There may be other symptoms of uraemia, such as vomiting and asthmatic attacks.

Neuralgic headaches that physicians meet with commonly, and which have often been treated extensively by throat and nose surgeons, and by prescribing of spectacles, are the various forms of migrainous neuralgia,

maxillary neurosis, and supraorbital neuralgia, together with the headaches which may be due to frontal and antral sinusitis. These latter are very common after catarrhal infections, or infections from the teeth, and should not be difficult to recognize by transillumination and x-ray, though they have no special connexions with the eye.

A common form of pain in the face, usually referred to the cheek, side of nose, and temple, is almost peculiar to women, and I have termed it "maxillary neurosis," or chronic neuralgia of the jaw. In many cases the pain has started after severe dental extraction, and, being unilateral, is thought to be a true neuralgia due to some piece of decayed stump or diseased bone. These cases usually run the gauntlet of nose and throat surgeons, dentists, and ophthalmic surgeons, before being seen by a neurologist. Patients often complain of a certain amount of swelling and flushing over the cheek, and though all the remaining teeth may be removed, the antrum washed out, turbinal bones removed, and glasses prescribed, the pain continues unabated. The pain is not paroxysmal or tic-like in character, but is more or less persistent, though it varies at different times of the day. No operative treatment is of any value, and alcohol injection should always be refused to these patients.

REFLEX ASTHMA: ITS PATHOLOGY AND TREATMENT

INCLUDING A REVIEW OF 337 CASES*

BY

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Bronchospasm may be produced reflexly in many different ways, but the nose is the most important source of reflex asthma. A distended stomach and a distended rectum may both produce reflex attacks of asthma quite independently of any form of alimentary toxæmia. As Hurst¹ points out, the evacuation of the stomach or of the rectum produces immediate relief long before a change could take place in the blood from diminished absorption of poisons. In certain cases the cause of irritation appears to be central and psychical, but in such cases the action is not a reflex one. The purely nervous or psychical factor will therefore not be considered in this paper.

Mechanism

Some observers hold that reflex stimulation may arise in the lung itself. A focal lesion in the lung, such as an old healed and calcified tuberculous focus, may irritate the afferent fibres of the vagus nerve and so cause reflex asthma. The reflex action from the nose occurs through the naso-pulmonary reflex. This reflex has a reflex arc composed of the trigeminal nerve and the vagus nerve. The afferent, or sensory, branch of this arc consists of the ophthalmic and superior maxillary divisions of the fifth nerve, and of the sensory root and the sensory end nucleus of the trigeminus. The efferent, or motor, branch is formed by the dorsal motor nucleus of the vagus, the nucleus ambiguus, and the efferent fibres of the vagus nerve (see Figure). Certain parts of the nose are more closely connected with the naso-pulmonary reflex than others, and the area of the nose which, if stimulated, is more likely to cause bronchospasm has been called the asthmagenic area, the trigger area, or the ethmoid region. This area begins with the lower margin of the middle turbinal, and includes all of the upper air passages extending from this margin to the cribriform plate, both the lateral and septal surfaces of the nose being included. It is bounded in

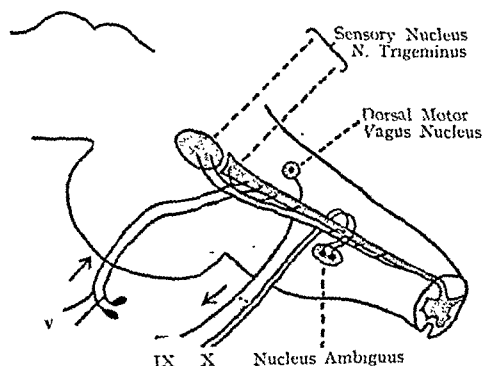
* With a grant from the Asthma Research Council.

front by the anterior end of the middle-turbinal, extends posteriorly to the sphenoid body, and may include the sphenoid cavity. Laterally it extends from the septum to the lateral plate of the ethmoid. Although clinically it is very difficult to produce asthma by stimulation of this area, it is possible in an asthmatic with a hypersensitive nose to produce another reflex action which is often significant—namely, the naso-facial reflex.

If by means of a probe one stimulates the asthmagenic area, and especially the middle turbinal, it is often possible to produce the following manifestations:

1. Intense lachrymation, at first homolateral and then bilateral, with hyperaemia of the conjunctiva.
2. A reflex flush of the ala nasi; the flush sometimes extends to the eyelids, the cheeks, the forehead, the ear, and even to the neck.
3. A swelling of the nasal mucosa giving rise to a profuse rhinorrhoea.
4. A homolateral mydriasis, a spasmodic cough, and in extreme cases nausea, palpitation, collapse, and loss of consciousness.

The presence of a naso-facial reflex is often a useful diagnostic sign, as it indicates that the asthma is probably of reflex origin.



Course of trigeminal, vagus, and glossopharyngeal in the brainstem. The diagram represents the arc through which the naso-pulmonary reflex is produced. The sensory portion of the vagus and glossopharyngeal and the motor portion of the trigeminal have been omitted. (Modified from Villiger.)

Another reflex action which may be observed in allergic subjects is obtained by intense illumination of the interior of the eyeball; this may cause a sneeze reflex, a cough reflex, or even an attack of asthma. Many hay fever sufferers find that they are worse when exposed to bright sunshine, and this is also the case with many asthmatics. Sunlight may give rise to asthma or hay fever even apart from any reflex action. Patients may be sensitive to sunlight in the same way as they may be sensitive to foreign proteins; physical allergy is now a well-recognized condition.

In addition to reflex stimulation, abnormal conditions of the nose may lead to asthma by many other ways. It is true that the most direct way of causing asthma is by reflex stimulation; spurs and deflected septa causing contact with the middle and superior turbinates may "tickle" the ethmoid region and incite bronchospasm. A septic focus (infected tonsils, infected sinuses) may, however, give rise to asthma by infecting the lungs; the patient may also become sensitized to bacterial toxins, and may react to them as to any other allergen.

A mechanical effect may also be brought about by the presence of growths or enlargements blocking the airway, so that mouth-breathing becomes necessary, and the onus of warming, moistening, and purifying the inspired air is transferred to the bronchi, which are thus constantly irritated.

Earlier Experiments

The importance of the nasal factor in asthma was first recognized by Herck in 1844. It is interesting to note that this clinical discovery followed very closely the experimental demonstration of Williams² in 1840, by means of which he was able to prove the presence of muscle fibres in the bronchi which had been described by Reisseisen some twenty years before. Williams's experiment consisted of connecting the trachea with a water manometer and noting the difference of pressure obtained by applying a galvanic current to the lungs. The experiment was made on dead animals. In 1876 Gerlach began to experiment on living curarized animals, and produced bronchospasm by stimulating the vagus nerve. He was followed by a number of other experimenters—Sandmann (1890), Einthoven (1893), François Franck (1893), Doyon (1897)—who by various methods were also able to demonstrate the presence of constricting fibres in the bronchi. The results of these early experiments were, however, in most cases both unsatisfactory and contradictory, and it was only in 1903 that a real advance was made by the researches of Dixon and Brodie.³

Without doubt the experiments made by these two observers were the most important and the most precise which hitherto had been made; even to-day they constitute the scientific foundation of our knowledge of reflex constriction of the bronchi. The success of the method adopted by Dixon and Brodie lay in the fact that they demonstrated broncho-constriction by registering changes in the volume of air passing through the bronchi, whereas previous observers had only registered changes of pressure.

Dixon and Brodie, by means of their experiments, were able to demonstrate the presence of both broncho-constrictor and broncho-dilator fibres in the vagus nerve. Later, Dixon, working with Ransom,⁴ was also able to show powerful broncho-dilator nerves of sympathetic origin; reflex broncho-constriction was demonstrated experimentally, as well, by the stimulation of the nasal mucous membrane. The best site for stimulation of the nose was the upper and posterior part of the nasal septum, which clinically corresponds to part of the asthmagenic area. Dixon and Ransom in 1913 also demonstrated broncho-constriction of reflex origin by stimulating the central cut ends of various afferent nerves, such as the central end of the vagus and the central end of the thoracic sympathetic. Prevost and Saloz,⁵ working on tortoises, obtained broncho-constriction by stimulating a number of peripheral nerves.

Pathology

From all this experimental evidence one may conclude: (1) that stimulation of the vagus nerve causes broncho-constriction, and (2) that reflex broncho-constriction can be obtained in a number of ways, although stimulation of the nasal mucous membrane proves always to be the most efficacious.

If now one transfers these experimental results to the clinical aspect of asthma, one is faced with a very difficult problem. Irritation of the nose and nasal abnormalities are of very frequent occurrence, yet in only a few cases do they cause asthma.

Thus Becker⁶ in 360 cases of nasal polypi found asthma in only nine cases, or in 2.5 per cent. of cases. Hering in 200 cases found seven cases of asthma, and Schmiegelow in 139 cases thirty-one asthmatics.

These figures show that a source of nasal irritation by itself does not necessarily cause bronchospasm unless the naso-pulmonary reflex is unduly active. What causes this state of irritability of the naso-pulmonary reflex which enables a reflex action to occur and cause asthma?

Many suggestions have been made, but none of them has as yet given a final solution to this fundamental problem of asthma.

Stoland, Sherwood, and Woodbury⁷ have shown that the excitability of the vagus nerve (chronaxie) is increased by the previous injection of foreign sera. An analogous state has been described by Freund and Gottlieb,⁸ who found that peptone or foreign serum causes an enormous increase in the

Aug. 18, 1934]

salivary response to pilocarpine. In this connexion it is interesting to note an experiment made by Dodel. Dodel⁹ found that the action of pilocarpine in guinea-pigs is enhanced by producing a chemical bronchitis by means of a few whiffs of chlorine gas. A dose of pilocarpine, which in the ordinary way would not be a fatal dose, kills the animal in thirty minutes after the bronchitis has been produced. He concluded that the bronchitis produced by the inhalation of chlorine had concentrated the vagotropic action of pilocarpine on to the respiratory system. In a similar way, a chronic respiratory infection in man may cause increased vagal action and thus lead to asthma.

It has been a moot point whether asthma is associated with a state of acidosis or alkalosis, but now there is good evidence to show that an asthmatic attack may be accompanied or may be induced by a state of alkalosis. Epstein¹⁰ states that in asthma there is a tendency to alkalosis similar to that found in other states, such as spasmophilia, certain cases of eczema, in anxiety neurosis, and in melancholia. Certain conditions tending towards acidosis are, on the other hand, often incompatible with asthma, such as acidosis of the last months of pregnancy, of prolonged vomiting, and of diabetes mellitus. He mentions that in 2,500 cases of diabetes mellitus asthma was recorded in only two cases. Tiefensee¹¹ found that the alkaline reserve during free intervals was normal, but that it was raised during an attack of asthma.

There may be a diurnal, seasonal, and sexual variation in vagus activity. McDowall¹² points out that when an individual is at rest vagus activity is at its maximum. Asthmatic attacks are certainly more liable to occur at night, during the week-end, or after a meal. The ionic environment of the bronchi may have a definite influence on bronchial spasm. Pottenger¹³ points out that calcium acts in harmony with sympathetic stimulation, and potassium—and to a less extent sodium—in harmony with vagus stimulation. Increased parasympathetic action presupposes a relative increase in potassium as compared with calcium ions in the cells, either an actual decrease in the calcium or an actual increase in the potassium. Pottenger found that the K/Ca ratio in the blood of normal persons is about 2, but that in asthmatics the ratio was always high (2.04 to 2.93, averaging 2.48). In only one case did it fall below 2.19.

Direct proof of calcium deficiency in asthma is lacking, and a large series of cases at the New York Hospital studied by Lemke¹⁴ shows no significant calcium deviations from the normal.

Review of Clinical Case

During the last four years 337 cases of asthma, which have been seen at the Asthma Clinic of the General Infirmary at Leeds, have had an anterior rhinological examination. In practically every case the rhinological examination has included a transillumination test, and in many cases also an x-ray examination. An examination of the nose and throat has been carried out irrespective of the type of asthma, and of whether or not nasal symptoms were present. In every case the patient has been referred to the ear, nose, and throat department of the hospital for the examination of the nose and throat. The largest proportion of cases was composed of adults, and only 15 per cent. (fifty-two cases) were children under 10 years of age. Of the adult cases 60 per cent. belonged to the first four decades and 25 per cent. were over 40 years of age.

For the purpose of this study it will be convenient to discuss the relation of the nose and throat to asthma under three headings—namely, nasal symptoms, type and frequency of nasal abnormalities, and value of nasal operations.

Nasal Symptoms

About half the patients complained at one time or another of vasomotor symptoms of the nose or throat

(see Table I). The most common symptom was sneezing (25 per cent. of cases). The sneeze was rarely single, but generally occurred in prolonged, violent, and paroxysmal seizures of ten, twenty, or more stertutations in rapid succession. Unlike hay fever or paroxysmal rhinitis, sneezing often occurred alone, and was not accompanied by rhinorrhoea or itching of the eyes. The attacks were more severe at certain hours of the day—for example, at night, or on first rising in the morning—but they also occurred throughout the day. In some cases sneezing

TABLE I.—General Symptomatology
(323 Cases of Asthma)

Symptoms	Number of Cases	Percentage
Sneezing	63	25.0
Rhinorrhoea only	19	6.0
Sneezing and rhinorrhoea	17	5.0
History of "colds"	41	12.0
Dryness or fullness of the nose	2	0.6
Seasonal hay fever	11	3.4
Sore throat	2	0.6
Hoarseness, aphonia	2	0.6
Ears, deafness (seasonal)	2	0.6
Total number of cases with vasomotor affections of the nose and throat	164	50.3

occurred independently of the attacks of asthma, while in other cases it represented the prodromus of an asthmatic attack. Occasionally, on looking back into the history of an asthmatic, one found that persistent sneezing had taken place many years before the asthma had actually started, and had been the first indication that the patient was an allergic subject. Another common vasomotor symptom was rhinorrhoea (11 per cent. of cases). In about half the cases it occurred alone, while in the other half it accompanied sneezing. Itching of the eyes, lachrymation, and photophobia were exceptional symptoms, unless the patient was also a sufferer from seasonal hay fever.

Patients frequently stated that the asthma first started from a "neglected cold," or that the attacks of asthma were heralded in by a cold, which afterwards "settled on the chest and caused the attacks of asthma." This type of history was obtained in 12 per cent. of cases. In the great majority of cases, however, what was described as a cold was not a true coryzal attack, but a vasomotor reaction of the nose representing the first stage of a general allergic reaction, which later manifested itself in an asthmatic attack. This is an important point, as many cases of asthma are erroneously attributed to an infective factor in view of a history of repeated "colds," and are treated by stock or autogenous vaccines, with little benefit, when the real cause is hypersensitiveness to an allergen, and the removal of, or the desensitization to, this allergen often dispels both the "colds" and the asthma.

The distinction between the vasomotor reactions of the nose in asthma and the common cold should not be difficult; in pure vasomotor rhinitis the secretions are always serous, whereas in the case of a true coryza the secretions are in a certain stage muco-purulent. Occasionally the pharynx may also become involved in an attack of asthma. The most common symptom is a dry, irritating, and hacking cough due to itching of the palate and of the upper portion of the trachea. More rarely, the pharynx and the uvula may become greatly inflamed and oedematous, and the patient may complain of marked soreness of the throat. The condition may also extend to the larynx, giving rise to hoarseness and to aphonia. Periodic and

sometimes seasonal deafness may also occur, due to the Eustachian tubes being involved.

All these vasomotor reactions of the nose and throat may precede, accompany, or follow an attack of asthma. The patient may remain free from asthma as long as the vasomotor nasal symptoms persist (especially the rhinorrhoea), but as soon as they cease the patient develops an attack.

Vasomotor affections of the nose were more frequently found in asthmatics during the first five decades of life. After 50 there was a distinct decline in the frequency, and only 7 per cent. of cases complained of nasal symptoms after this age. Vasomotor affections of the nose and throat occurred in all types of sensitivity and in sensitivity both to foods and to inhalants, but were definitely more common in pollen-sensitive cases when one included seasonal hay fever as well. In the other cases they occurred as frequently in subjects exhibiting positive skin reactions to one or more allergens as in those with negative skin tests, and indeed the latter showed a slightly higher frequency (see Table II). This may be explained by the

TABLE II.—Skin Reaction
(198 Cases of Asthma)

Skin Reaction	(a) Cases with Vasomotor Affections of the Nose or Throat	(b) Cases with Seasonal Hay Fever	Total with (a) or (b)	
			No.	Per cent.
Positive skin test to pollen (48 cases)	20	10	30	62.0
Total number of sensitive cases (124 cases)	48	10	58	47.0
Ca es wi h negative skin tests (74 cases)	37	1	38	51.0

fact that cutaneous and mucous membrane sensitivity do not always run parallel; thus, in the perennial form of paroxysmal rhinitis unaccompanied by asthma it is a common finding that skin tests are negative, even when there is a definite history of sensitivity to some allergen.

Nasal Abnormalities

In the present series of cases no fewer than 262 cases (77.9 per cent.) showed some abnormality of the nose and/or throat. In many cases, however, these abnormalities were casual findings or minor causal factors (see Table III).

TABLE III.—Nasopharyngeal Condition
(337 Cases of Asthma)

Type of Abnormality	No. of Cases	Percentage
Spur	15	30.9
Deflected septum	80	
Hypertrophy, inferior turbinals	48	24.0
Hypertrophy, middle turbinals	34	
"Tonsils and adenoids"	78	23.0
Antra dark:		
Explored positive (infected) ..	21	21.0
Explored negative	30	
Not explored	22	
Polypi	18	6.7
Recurrent polypi	5	
Rhinitis sicca	3	0.9
Chronic rhinitis	4	1.0
Nasal hyperaesthesia	3	0.9
Lingual tonsil	1	0.3
Pharyngeal tonsil	1	0.3
Nasopharynx normal	75	22.1

N.B.—Cases showing two or more abnormalities have been included more than once in this table. The number of cases appearing in the table exceeds, therefore, the number of patients examined.

Deflected septa or spurs were found in 105 cases (30.9 per cent.), but in a large number of cases the deformity was slight and of no significance. Inferior and middle turbinal hypertrophy was also a frequent finding, and was noted in eighty-two cases (24 per cent.). A third large group of cases showed tonsillar and adenoidal hypertrophy or infection, and this was observed in seventy-eight cases (23 per cent.). Lastly, opacity of one or more sinuses either to the transillumination test or to x rays was found to occur also with great frequency, and was present in seventy-three cases (21 per cent.). The antra were explored in fifty-one cases, and were found to be definitely infected in only twenty-one instances. In the remaining thirty cases the opacity was probably due to hyperplastic changes of the mucous membrane lining the antra, as exploration proved negative and no pus was found.

A striking example of such a condition was given by a patient who was specifically sensitive to rabbit hair. The antra were first examined while the patient was still exposed to the offending allergen and was continually having severe and frequent attacks of asthma. The antra were found to be completely opaque, both on transillumination and to x rays. One antrum was explored, but with negative result. The patient was then advised to avoid contact with rabbits (the husband was a keen rabbit breeder), whereupon she immediately ceased to have asthma, and the antra, examined a month later, were found to be perfectly normal and translucent again.

Polypi were not a frequent finding, and were observed in only twenty-three cases (6.7 per cent.). In five of these cases they had a tendency to recur, in spite of the numerous operations which the patients had undergone for their removal.

Rhinitis sicca, chronic rhinitis, and lingual or pharyngeal tonsils were only occasional findings. Definite nasal hyperaesthesia was also distinctly uncommon, and was observed in only three cases. An analysis of the incidence of nasal abnormalities among different groups of cases classified according to whether they gave a positive or a negative skin reaction showed that deflected septa and nasal spurs occurred with a remarkably constant frequency in all groups (see Table IV). This was to be expected,

TABLE IV.—Skin Reaction and Nasopharyngeal Condition
(213 Cases of Asthma)

Skin Reaction	Naso-pharynx Normal	Spur or Deflected Septum	Tonsils and Adenoids	H.R.*	Polypi	M.T.B.† Enlarged	Sinusitis
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Positive to pollen only (30 cases)	30	30	33	6.6	0	15	0
Protein-sensitive cases (128 cases)	25	30	22	14	7.9	10.9	0
Cases with negative skin tests (55 cases)	26.1	30	17.4	11.7	7.0	9.3	7.0

* Hypertrophic rhinitis. † Middle turbinate bone.

as these nasal abnormalities are not dependent upon any allergic cause, and are quite coincidental as far as allergy is concerned. With regard to conditions which might be the result of hyperplastic changes of the nasal mucous membrane (turbinal hypertrophy and opaque antra), they were found a little more frequently in protein-sensitive cases.

The cases with negative skin reactions gave instead the highest incidence of definite sinus infection. Cases exhibiting a positive skin reaction to pollen had the highest percentage of normals, and of thirty such cases reviewed not a single case presented polyposis or sinus infection. Kern and Donnelly,¹⁵ in discussing the incidence of paranasal sinus disease in hay fever, found that patients with uncomplicated hay fever and patients with hay fever and seasonal asthma showed an incidence

of sinus abnormality that was less than in the average (normal) population. Although pollen-sensitive cases of asthma present nasal symptoms with the greatest frequency, they have the lowest incidence of nasal abnormalities, and it is quite common to find that hay fever subjects and patients with seasonal asthma have perfectly normal noses.

Operative Results

Of the 262 cases showing some type of abnormality of the nose and/or throat, 135 cases have received operative treatment, and of these the results are known in 109 cases. These include thirty-one children.

The period of observation after the operation has varied from a minimal period of six months up to fifteen years, and the average period has been two and a half years. In 19 per cent. of cases the period of observation was under a year, in 25 per cent. of cases one or two years, and in 56 per cent. of cases over two years. All the patients were seen at the asthma clinic, or if they had ceased attending the clinic were circularized and asked to reply to a questionnaire.

Patients were deemed "cured" if they had kept completely free from asthma for a period of at least two years, and "improved" when the attacks of asthma had definitely lessened in severity and/or frequency. The latter do not include patients in whom the operation had improved the breathing but had left the asthma unchanged. In many cases it was impossible to say definitely whether the improvement was due solely to the nasal treatment, as the patients had received other forms of therapy as well, and in such cases one could only infer that the improvement had taken place with nasal treatment rather than by it.

The operative results show that forty-one cases (or 37.5 per cent.) improved after nasal treatment, and three cases (or 2.7 per cent.) were "cured" (see Table V). Another fourteen cases showed some temporary improvement, thus bringing the number of cases which somewhat benefited from surgical treatment of the nose and throat

up to 55 (or 50.4 per cent.). Of the cases which were improved only twenty-one have been kept under observation for a period of over two years, and can be regarded to have definitely benefited from the operation, while the remainder are still an uncertainty. Thus one may state that of 109 cases which received surgical treatment only about one out of five has been definitely successful.

Of the three "cures" one followed a tonsillectomy, another tonsillectomy and submucous resection, and a third occurred after the removal of a polyp. In all three cases there was some definite indication for operative treatment, and the "cure" could be attributed directly to the operation.

Among the failures, in two cases the asthma was made worse after the operation, and in five cases the asthma actually made its first appearance after the operation. In all these cases the operation had been either a tonsillectomy or a submucous resection of the septum, two operations which may be dangerous in asthma.

Tonsillectomy may prove harmful to an asthmatic when the tonsils are not definitely infected but are merely hypertrophied, as the tonsillar hyperplasia may be a protective mechanism in resisting infection. It is to be noted that pollen-sensitive cases and cases sensitive to inhalants have a higher percentage of "tonsils and adenoids" than any other group (see Table IV). A submucous resection of the septum may aggravate or even induce asthma by creating an irritable ethmoid area, because the mucous membrane covering this area may, in the course of the operation, have become contused and damaged, and the sensory nerve endings may have become unduly irritable.

Discussion of Treatment

The figures given above are somewhat disturbing, and unfortunately no more encouraging results can be obtained from a survey of the literature of the past twenty years. Although the results given by different observers vary considerably, and the percentage of improved cases ranges between 43 and 85, and that of "cured" cases between 1.6 and 48, on taking an average figures not very different from our own are obtained. Thus of a total series of over 700 operated cases reported in the literature, an average of 56 per cent. of cases have improved, and about 10 per cent. have been "cured" (see Table VI).

TABLE VI—Results with Other Observers

Author	Year	No. Cases Operated	Improved	Cure
			No. Per cent.	No. Per cent.
Dundas-Grant ¹³	1913	53	32 60.3	11 20.8
Heatley and Crowe ¹²	1925	62	53 85.4	1 1.6
Tod ¹⁰	1925	173	75 43.0	12 12.0
Lierle ¹¹	1926	21	17 80.0	2 10.0
Leopold and Fetterolf ¹⁴	1927	21	12 50.0	5 43.0
Rackemann and Tobey ¹⁵	1923	258	129 50.0	15 5.0
Lyon and Murray-Lyon ¹⁶	1930	115	77 66.9	10 13.3
Averages	—	706	56.0	10.0

Some authors take a very pessimistic view on the value of nasal treatment in asthma, and Piness and Miller¹⁸ state that in a group of 834 allergic patients 704 operative procedures on the nose and throat were done on 413 patients without relief, there having been no removal of the offending allergen. Kahn¹⁷ has also reported a group of ninety-four consecutive cases of asthma in which thirty-three received operative treatment. In fifteen cases relief of the nasal obstruction was obtained, but the asthma was unchanged.

TABLE V.—Operative Results
(109 Cases)

Operation	Total No.	Cured	Much Improved	Improved	Temporarily Improved	Unchanged	Worse	Asthma first appeared after Operation
Tonsillectomy	43	1	5	5	4	24	1	3
Tonsillectomy and middle turbinectomy	2	0	2	0	0	0	0	0
Tonsillectomy and inferior turbinectomy	1	0	1	0	0	0	0	0
Tonsillectomy and submucous resection	6	1	1	2	0	2	0	0
Submucous resection	11	0	1	2	1	5	0	2
Submucous resection and inferior turbinectomy	5	0	2	2	0	0	1	0
Submucous resection and antrum drained	1	0	1	0	0	0	0	0
Submucous resection and middle turbinectomy	3	0	1	0	1	1	0	0
Submucous resection and polyp removed	1	0	1	0	0	0	0	0
Inferior turbinectomy	8	0	2	1	1	4	0	0
Middle turbinectomy	3	0	1	0	1	1	0	0
Polyp removed	7	1	3	0	2	1	0	0
Polyp removed and antrum drained	1	0	0	0	0	1	0	0
Recurrent polyp; multiple curettage	4	0	0	0	0	5	1	0
Antrum drained	6	0	4	1	0	1	0	0
Antrum drained and inferior turbinectomy	2	0	1	0	0	1	0	0
Cauterization	4	0	1	0	1	2	0	0
Pharyngeal tonsil removed	1	0	1	0	0	0	0	0
Total	109	3	23	13	14	44	2	5

While indiscriminate operations on the nose and accessory sinuses of asthmatics should be condemned, they must, if attempted, be radical. Thus it is useless to remove a polyp without treating the underlying sinusitis, as the polyp will recur. Similarly, it is essential in the case of an enlarged middle turbinal, which is pressing on the posterior septum, to remove that portion of the turbinal which touches and irritates the sensitive part of the septum. Definitely infected sinuses should always be treated either surgically or more conservatively by means of intranasal irrigation, nasal packs (Dowling pack), inhalations, and sprays. The hyperplastic type of sinus disease should, however, never receive operative treatment, and should be left severely alone. The same may be said of swollen and oedematous turbinates which are not causing nose-block and are not impinging on the sensitive area. Polypi should be removed, but the operative results are distinctly poor on the whole, except for an occasional brilliant success. In some cases they have a great tendency to recur, and the patient undergoes numerous operations with very little benefit unless the accompanying sinusitis is treated as well. Tonsillectomy should be done whenever the tonsils are definitely infected, but not otherwise; in a certain number of children the results are gratifying.

As a corollary to nasal treatment it is most important that the patient should be educated to breathe correctly once a free air-way has been established. Many patients, who habitually or from some nasal block are mouth-breathers, have to be re-educated to breathe through the nose. Often these mouth-breathers rapidly develop a typical asthmatic chest, over-expanded in its upper half, narrow at the base, and taking the shape of an inverted flask. This deformity is due to the fact that during an asthmatic paroxysm the respiration in these patients is almost entirely of the upper thoracic type, the lower part of the chest remaining practically immobile owing to a spasm of the diaphragm. Expiratory breathing exercises and exercises devised to develop diaphragmatic breathing are of the very greatest value in such cases.

In concluding, one may say that nasal symptoms often do not disclose the part which the nose is playing as an aetiological factor in asthma, as they themselves may be due to an allergic reaction. The presence of nasal abnormalities in the nose and throat is of no greater help, as they are often coincidental or are also a result of the asthma.

1. In a series of 326 cases of asthma about half the number of patients complained at one time or another of nasal symptoms. These symptoms were mostly due to vasomotor affections of the nose and not true coryzal attacks.

2. Vasomotor affections of the nose and throat occurred in all types of sensitivity, but were definitely more common in pollen-sensitive cases of asthma.

3. Abnormalities of the nose and throat were found in 77.9 per cent. of cases, but were mostly coincidental and minor causal factors.

4. Turbinal hypertrophy and hyperplastic sinus disease were often the result rather than the cause of the asthma, and were found slightly more frequently in protein-sensitive cases.

5. Of 135 cases which received operative treatment, 109 cases were followed up, and of these 50.4 per cent. were improved and 2.7 per cent. (three cases) were "cured."

I am indebted to Mr. E. W. Bain and to Mr. W. Maxwell Munby for the rhinological reports of all the cases reviewed in this paper.

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THE TREATMENT OF BACTERIAL FOOD POISONING

BY

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Although bacterial food poisoning is by no means uncommon in Great Britain, it is in the more torrid portions of the world that it takes a really prominent place among the acute medical emergencies met with in practice. The low standard of personal and family hygiene among those who handle and cook food in many warm countries, together with the prevalence of flies and conditions of atmospheric temperature and humidity most suitable for the multiplication of the organisms concerned, lead to the high incidence of the *Salmonella* type of bacterial food poisoning.

Symptomatology

Many persons spend years of residence in warm countries without contracting malaria, dysentery, or other characteristically tropical diseases, but few escape one or more attacks of the condition now under consideration.

The following is a typical case from my records:

Of eight persons dining together in Rangoon one night in 1928 five partook of the savoury, at 9 p.m. All five suffered from bacterial food poisoning—the symptoms showing themselves in Mrs. A. at 3 a.m., Mrs. B. at 8 a.m., Mr. A. at 10 a.m., Mr. B. at 11 a.m., and Mr. C. at 4.30 p.m. The severity of the attacks and the rapidity of onset were definitely correlated—Mrs. A. having severe vomiting and diarrhoea and marked collapse, whilst Mr. C. had moderate abdominal pain and diarrhoea, without vomiting and collapse.

It is not only essential, therefore, that medical men practising in such countries should have a firm grasp of the principles of treatment, but it is important that those acting in an advisory capacity to services and firms with men working far from medical help in jungles and forests should issue "first-aid" instructions for the future benefit and protection of their clients.

In severe infections the incubation period is short (two to six hours), and although all those who eat the infected food may suffer acutely, one patient may be very much worse than the others. In such cases it is not unusual to find that the patient most severely afflicted has been suffering from a mild gastro-intestinal upset for some time.

Captain M., aged 25, staying at a hotel in India in 1920, had been suffering from loss of appetite, furred tongue, and mild diarrhoea for over a month without reporting sick. He

Aug. 18, 1934]

was awakened early one morning by violent abdominal pain. Severe diarrhoea occurred, and the motions, at first coloured, soon became "rice-water" in appearance and consistency. Violent vomiting ensued after the purgation had commenced, and a state of collapse was soon reached. The tissues were greatly dehydrated, the condition of "washerwoman's fingers" was noted, and, before losing consciousness, the patient complained of agonizing leg cramps. He ultimately recovered, but was confined to bed for three weeks. A number of other guests at the same hotel suffered from abdominal pain and moderately severe diarrhoea without collapse, but in Captain M. alone were the symptoms suggestive of cholera, which diagnosis was excluded by bacteriological examination, an organism of the *Salmonella* group being held responsible.

The notion that diarrhoea and vomiting may be treated by opiates only dies hard, and much harm has been done in the past by too early and too frequent recourse to the camphorodyne or laudanum bottles, with resulting intestinal stasis, multiplication of pathogenic organisms and their toxins, and rapidly developing toxæmia.

Principles of Treatment

The rules to be adopted in dealing with cases of bacterial food poisoning are:

1. Rest in bed.
2. No solid food.
3. Neutralize the effects of toxins already absorbed.
4. Prevent further absorption.
5. Allay the pain.
6. Ensure the removal of the infecting organisms and their poisonous products from the body.
7. Gradually work up the diet from liquid only, through stages of bland, non-irritating substances, to normal.

All but the very mildest cases should be dealt with as bed patients. Warmth is essential—general, as well as local to the abdomen, in the form of hot-water bottles or turpentine stupes. Nothing but fluids may be given by mouth until the diarrhoea has ceased.

The administration of an ounce of castor oil with a few minims of tincture of opium or camphorodyne has formed the basis of treatment for many years, and may still be employed in mild cases. It gets rid of the irritating and infective intestinal contents, and is followed by a number of doses of an astringent mixture. It very frequently happens, however, that the stomach will not retain castor oil or magnesium sulphate, and, in the presence of severe vomiting and collapse, it has been recommended that collapse and dehydration should be combated by intravenous salines, warmth, and opium, before any attempt is made to clear out the gut by means of purgatives. Delay is nevertheless dangerous, for whilst the existing toxæmia is being dealt with the gastro-intestinal condition is getting worse, and further toxins are being absorbed.

Use of Kaolin

For some years I have completely abandoned the early use of purgatives in bacterial food poisoning, and now rely completely on the adsorptive action of fine kaolin. Kaolin B.P. is rather a gritty preparation, does not make a very fine suspension in water, and is somewhat nauseating, but there are on the market a number of fine, smooth, "colloidal" preparations of kaolin which make a palatable and even suspension in water. These are not readily rejected even by the most inflamed and irritated stomach, and they serve to detoxicate the bowel contents whilst soothing and protecting the lining of the gut. In even the most severe cases, therefore, the work of detoxicating the gastro-intestinal contents may proceed *pari passu* with the treatment of the already established toxæmia.

If collapse and dehydration are marked the patient, in bed with warm bottles and blankets, is given gum-saline or Rogers's hypertonic saline intravenously at a very

slow rate. If the patient has previously been in a poor state of nutrition glucose may be added to the saline with advantage, so as to protect the hepatic cells from the action of toxins. At the same time the oral administration of fine kaolin—2 drachms to a wineglassful of water—is commenced, sips being given as frequently as possible. Morphine 1/6 grain to 1/4 grain may now be given subcutaneously without fear of increasing the toxæmia. The amount of fine kaolin which can be retained varies in different cases, but it is generally possible to give 4 drachms of the powder in the first hour of administration; thereafter 1 drachm is given every fifteen minutes, in as much water as the patient will take, until the diarrhoea is controlled. Gastric and colonic lavage, which were formerly practised in cases of vomiting as a preliminary to the administration of castor oil, are, I believe, no longer necessary.

In cases of less severity, without collapse, rest, frequent doses of fine kaolin, and large quantities of fluid by mouth, with morphine if colic is severe, result in very rapid improvement. With the introduction of fine kaolin treatment, the use of lead and opium, kino and catechu, and other astringent mixtures formerly used as a follow-up to castor oil administration, can be abandoned. A certain amount of judgement is necessary to avoid the production of constipation by the kaolin, but the judicious use of liquid paraffin or of a saline preparation along with the kaolin, on or after the second day, obviates this minor disadvantage of the treatment.

Great care must be taken in building up the diet after the diarrhoea and vomiting have been controlled. There is still too great a tendency to make excessively free use of milk in the early stages. Milk is a solid, not a liquid, food. Chief reliance for the supply of calories should be placed on the use of glucose water flavoured with lemon juice until the acute stage is over.

Thereafter, whey, egg albumen, and Benger's food may be added, and a normal diet be gradually built up with the proviso that flesh and fibrous foods should be withheld until convalescence is thoroughly established.

Conclusion

A large number of missionaries, forest officers, and jungle employees of timber and mining firms now carry a tin of fine kaolin as part of their regular camp equipment, and reports received from them confirm my opinion that the introduction of fine kaolin is one of the most important advances in practical everyday therapeutics of recent years.

In one case an outbreak of acute diarrhoea and vomiting occurred at a missionary conference in Burma in 1932 within three hours of the evening meal. A number of elderly men and women were affected, and with such an early and acute onset one would, in the pre-kaolin days, have expected severe collapse and a good deal of anxiety in the course of treatment. Fine kaolin treatment was instituted by a missionary before I was summoned, and on my arrival nothing more was necessary than the administration of morphine to two patients and an order to continue the treatment already instituted. All the affected persons were able to leave the station within a few days.

Mr. Arthur Evans of the Westminster Hospital has very kindly presented to the medical superintendent (Sir Thomas Carey Evans) of the Hammersmith Hospital his collection of pathological specimens illustrating diseases of the gall-bladder for the museum of the post-graduate medical school, which is at present under construction. Each specimen is beautifully mounted with a complete clinical history of the case. This will be most useful for teaching purposes, and will form the nucleus for the new museum. It is to be hoped that similar collections will be added to the museum in due course.

Clinical Memoranda

AN UNCOMMON MALFORMATION OF THE HEART

A female child, born in the Maternity Hospital, Sheffield, on August 20th, 1933, was cyanosed from birth, but no adventitious heart sounds were heard until September 18th, when a rather faint systolic bruit appeared over the whole of the front of the left chest. With lapse of time the cyanosis became much less, but on September 7th there was a sudden attack of cyanosis, pallor, and apnoea lasting an hour or so. From this time up to her death at the age of eight weeks there were several similar attacks. Some signs of consolidation at the base of the left lung were found on September 20th, and gradually increased. She died of bronchopneumonia on October 19th. During the eight weeks of life the weight increased by about one pound. A blood count on September 8th showed nearly five million red cells and 100 per cent. haemoglobin.

The thoracic contents were received by me after they had been dissected at the post-mortem examination. The heart shows a transposition of the aorta and the pulmonary artery. The pulmonary artery arises from a normal-looking left ventricle, whilst the aorta arises in front of it from the infundibulum of the right ventricle, which is hypertrophied so that it is of the same thickness as the left. The aorta is normal; from its arch spring the three great vessels, and there is only a doubtful coarctation immediately beyond the origin of the left subclavian artery. There are three cusps to the aortic valve—an anterior and a right and left posterior. The coronaries arise in relation to the last two cusps instead of the anterior and left posterior as in the normal. The pulmonary artery is wide and there is no stenosis, contrary to the common finding in these cases (Walsley). The ductus arteriosus was said to have been found closed at the post-mortem examination; it is now just patent, but has possibly been ruptured before receipt of the specimen. The venae cavae and the pulmonary veins open normally into the right and left auricles respectively. There is no anomalous vein as described by Harris, Gray, and Whitney. There is a small valved patent foramen ovale, and a patency in the interventricular septum that just admits a probe.

There are thus two practically closed circulations: blood leaving the right ventricle by the aorta returns to the right auricle by the venae cavae; that leaving the left ventricle by the pulmonary artery returns to the left auricle by the pulmonary veins. It is difficult to see how the child lived for eight weeks, often neither cyanosed nor distressed. Some interchange of blood obviously occurred through the foramen ovale and the patent interventricular septum, but neither of these passages was of much size: possibly also some blood was passing along the ductus arteriosus, but this must have been very small in amount. Owing to the extensive dissection before the specimen was received it has not been possible to inject the vessels, nor to trace the bronchial arteries and veins, which must have been of great importance.

Keith explains the occurrence of such malformations by a reversal of the normal atrophic and expansion processes in the bulbus; the pulmonary part undergoing an abnormal atrophy and the aortic part an abnormal expansion. There results thus a complete failure of rotation of the pulmo-aortic septum.

I am indebted to Dr. A. E. Naish for permission to publish these notes on his case.

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Reviews

A STANDARD WORK ON NEUROLOGY

In the production of his volume *Neurology*,¹ Professor GRINKER has rendered a signal service to his specialty, for it is one of the most important comprehensive works by a single author published in recent years. Within the scope of 1,000 pages is collected an abundance of facts welded together with much skill into a well-balanced whole. The reader is perhaps most impressed by the wisdom and mature judgement displayed by the author, which reflects, in addition to great ability, a deep knowledge of all those contributory subjects which make up neurology as a whole—anatomy, physiology, clinical medicine and surgery, pathology, and psychiatry. The augmentation in knowledge which has marked the last twenty years is carefully incorporated without sacrifice of the fundamental picture of disease processes that such a book needs to impart if it is to be of its true value to clinician and student. Throughout there is the mark of wide personal experience, which, together with the literary quality of the writing, consistently maintains the reader's interest. The literature is well reviewed and the chaff mercilessly winnowed from the grain. The text is accompanied by 400 illustrations, which are well chosen and of excellent quality.

The first 230 pages are devoted to a review of the anatomy, physiology, and clinical examination of the nervous system, which, while very adequate, does not reach so high a standard as the rest of the book. The statement that the Achilles' reflex is subserved by the spinal segments S_1 and S_2 is presumably a misprint, as two pages later the usual localization of S_1 - S_2 is given. Again, we think that an erroneous impression may well be given on page 157, where the author attempts to differentiate the spinal fluid findings in disseminated sclerosis according to whether the disease is clinically active or inactive, as most will agree that such changes as occur are unpredictable. In the next 250 pages follows a description of the clinical aspects of regional disease, the subject being studied from the point of view of localization rather than pathology. The sections on the vegetative nervous system and the extrapyramidal motor system constitute a particularly valuable review of what are admittedly two of the most confused subjects of neurology.

In the remaining 500 pages the approach is pathological. The section on cerebral tumours could hardly be improved on in the allotted space. Each pathological type is first described and its typical life-history discussed. Then follows a lucid account of the symptomatology of tumours in different situations. Towards their prognosis and surgical treatment the author maintains the cautious attitude of the physician who has seen many of them, realizing fully that in the nature of the disease the prognosis in the majority of cases is hopeless and that the dictum "*primum non nocere*" should constantly be kept in mind. A well-illustrated section on cerebral radiology, ventriculography, and arteriography is included. The description of the inflammatory diseases of the nervous system, pyogenic and non-pyogenic, is conspicuously full, although the classification of the non-suppurative encephalitis does not carry conviction.

In the section on diseases associated with blood dyscrasias it is of interest at the present time to note the author's emphatic view that in combined degeneration of the cord objective changes in the nervous system do not occur as a result of liver therapy, and that most of the clinical improvement is to be attributed to recovery of the patient's general health and strength, and to repair of the peripheral nerve damage. It is odd to find among

¹ *Neurology*. By Roy R. Grinker, M.D. London: Baillière, Tindall and Cox. 1934. (Pp. xii + 974; 401 figures; 38s.)

REVIEWS

AUG. 18, 1934]

the atrophic diseases so little space given to dystrophia myotonica, which is in fact hardly accorded a position as a distinct disorder.

In a work that is worthy of so much praise and deserving of so little criticism the function of a reviewer is difficult if brief. This is a book which should be read by everyone interested in neurology.

MELLOR'S CHEMISTRY

The thirteenth volume of Mellor's *Chemistry* is now ready.² Its contents are occupied entirely with Part II of the subject of iron. So extensive is the chemistry of iron and so extensively is it treated by Dr. Mellor that it has been necessary to divide the subject. Part I was treated in vol. xii. Notices have already appeared in these columns describing the twelve preceding volumes, and little is needed to supplement what has already been said in praise of the quality of the work. As has been mentioned before, it is quantitatively the most comprehensive that has yet been published on the inorganic section of chemistry. The work is remarkable for the manner in which the newest results of research are brought into juxtaposition with the observations of Faraday and others of his day. It is most useful both for immediate consultation and for finding references to original publications. All we need say is that in this volume both the qualitative and the quantitative values of the preceding volumes are maintained. We do not doubt there are many who look forward with some eagerness to the completion of the set.

DIETETICS

Since the discovery of the vitamins a wave of interest in dietetics is passing over many countries, especially Great Britain and North America. A new career of "dietitian" has resulted, and a spate of books on dietetics as well. Great caution should be exercised in accepting all that is being published. There is a danger lest complicated diets should be invented in order to prove the necessity for dietitians. In England complexity of diets and artificial difficulties in their preparation are likely to have the reverse effect. Dietitians will not be employed in hospitals if they bring with them some of the fantastic food fads which are already threatening sound and scientific dietetics.

In the United States there is apparently a large public which requires constant variety of foods and even greater variety of cooking. There is evidence of the demands of this public in the elaborate menus presented in Dr. M. A. BRIDGES's new book or *Dietetics for the Clinician*.³ Fundamentally the views of the author are sound, but he has been compelled to study the pet recipes and dietary fads of his own as well as of other countries. From this wide survey he has culled such material as he considers physiologically sound, as well as useful and essentially practical. With the aid of Miss Gallup, his dietitian, he endeavours to exemplify the principles of dietetics in the form of proper and palatable diets for the patient. He has succeeded well in his aim. The physiological principles which govern the art of selecting and preparing food in health and disease are ably presented. When, however, it comes to leaving the region of scientific principles and venturing into the realms of art it becomes obvious at once that tastes are too different to render the menus of New York palatable for the jaded appetites

of the English. The average practitioner in this country will derive little advantage from the study of the individual diets in this book. Too many foodstuffs are recommended which are never heard of in this country, and methods of cookery which are unknown. The number of "factory" foods advocated in the menus is, to our way of thinking, economically undesirable.

When dietitians are attached to the hospitals in this country it is to be hoped that they will not persuade our hospital managers to give up plain meat, bread, milk, fresh fruit, and vegetables for the expensive "factory foods." The danger is very real. Our present small band of dietitians have for the most part had to seek their training in American hospitals, or on American lines. English medicine must study its own problems of feeding and cooking in health and disease. Dr. Bridges's book may well be taken as a pattern to copy in its broad outline, and the menus it contains should be studied as illustrations of the manner in which different nations take their victuals and drink.

CHOLERA IN CHINA

Outbreaks of cholera still persist in countries such as Siam, India, China, the Philippines, and Indo-China, where a large proportion of the population still make free use of impure water. In Europe we have probably seen the last of it. A recent manual,⁴ compiled for the medical profession in China does not bring any new light to the subject. It will, however, be useful for the purpose for which it is designed, and as it is also published in Chinese it will reach a wider public, including the old-style practitioners, who are beginning to take an interest in the modern aspects and management of prevalent disease.

Cholera in China has shown an irregular periodicity, and epidemics have arisen subsequent to its appearance in India, but it is quite impossible to say if cholera in China is still solely due to importation or whether the disease has now become fairly endemic. A general view of the whole question points to the central basin of the Yangtze Valley as being the most suspicious focus of endemicity, and while investigations in Shanghai have shown absolutely negative results, even so far as the presence of non-agglutinable vibrios was concerned, yet this city, with its great inflow and outflow of people, must be regarded as the chief cholera-distributing centre of China. This volume is intended to be the first of a collection of practical manuals on the common epidemic diseases occurring in China. It marks a step in public health progress which mainly depends on the awakening of sanitary consciousness among the masses. There is yet much to do. While in most big Chinese towns there are many vastly improved public health measures, we find people drinking boiled water or tea exclusively, and yet using the most polluted water for washing fruits, vegetables, and utensils. Dr. R. Pollitzer deals with the cultural and biochemical properties of the vibrio, its serological reactions and toxins, and the bearing of laboratory findings upon the epidemiology of cholera. He adequately sums up the diametrically opposite views of various writers, especially with regard to the spread of cholera infection and the loss of agglutinativity of cholera vibrios. Perhaps the most important part of the volume is that by Dr. C. Y. Wu on education and propaganda. Dr. Wu sets himself to the task of scientifically guiding the national consciousness towards modern and proved ideas of clean living and disease prevention. He recounts the

² *A Comprehensive Treatise on Inorganic and Theoretical Chemistry* Vol. XIII, Fe (Part II). By J. W. Mellor, D.Sc., F.R.S. London: Longmans, Green and Co. 1934. (Pp. 948; 381 figures. 63s. net.)
³ *Dietetics for the Clinician*. By M. A. Bridges, B.S., M.D., F.A.C.P. In collaboration with R. L. Gallup. London: H. Kimpton. 1933. (Pp. xvi + 666. 32s. net.)

⁴ *Cholera: A Manual for the Medical Profession in China*. By Drs. Wu Lien-Teh, J. W. H. Chun, R. Pollitzer, and C. Y. Wu. Shanghai: National Quarantine Service; London: H. K. Lewis and Co. Ltd. 1934. (Pp. 197; 24 figures, 1 coloured plate. 5 dollars in China; 3 dollars in U.S.A.; 12s. in England, post free.)

experiences gained by public health bodies in Shanghai, and lays down the principles on which the next national anti-cholera campaign should be based. Dr. J. W. H. Chun discusses the clinical aspects of cholera in the light of all the modern findings and methods of treatment. He fully concurs with the dictum that almost anybody can be saved from cholera, which is merely a matter of nursing and careful attention to details of treatment. Where the cholera toxins abstract abundance of fluid by purging and vomiting there is no better or more logical means than the intravenous injection of hypertonic saline or normal saline solution. There is still plenty of occasion in the Orient for keeping in touch with the subject of cholera, as may be gathered from the data of the 1932 epidemic. There were 306 infected cities throughout China, with 100,666 cases and 31,974 deaths—a death rate of 31.8. The book is printed and published in Shanghai, and is well produced.

NORMAL SERUM

*Le Sérum Normal*⁵ is an encyclopaedia, and the bibliography, which numbers over 1,300 references, is witness that MM. Brocq-Rousseu and Roussel have spared no labour to collect all that is worth knowing about the normal serum. Owing to the frequent confusion between "plasma" and "serum" the authors have introduced the subject by a careful definition of what they mean by serum as a "liquide exsudé naturellement après coagulation du sang," and they qualify this by "un sérum normal est un sérum provenant d'un animal en bon équilibre physiologique, non soumis à des injections immunisantes."

The detailed account of the methods commonly employed in collecting serum from different species of animals—for example, horse, ox, pig, monkey, birds, and many others, including several invertebrate groups such as the crustacea—is interesting and useful. With this account are given the amounts of serum obtainable from these bleedings, the coagulation times of the bloods, and the contraction periods of the clots. It is rather curious to find the tortoise grouped with lobsters, and unfortunate that the method of bleeding a tortoise is omitted, as these animals are very difficult to bleed. After collection of the serum reference is made to "tyndalisation" and to "aging," and the methods of preserving are considered at length, desiccation being regarded as the best.

The principal sections of the book discuss the physical characters of the serum, its density, osmotic pressure, surface tension, viscosity, electrical conductivity, etc., including the various methods that have been devised for estimating their values. It is not possible in a short review to analyse the great mass of data compressed into these chapters; the information will certainly be of much use to research workers in physiological laboratories and in serum therapy institutions. To check the accuracy of the references would be a time-consuming task. In the bibliography we have noted several errors in spelling, which will no doubt be corrected by the printer in subsequent editions.

MANIPULATIVE TREATMENT

The subject of manipulative treatment is one which tends to excite among the laity an expectation of a miraculous cure by the sudden and dramatic putting back of a bone which has been out of place; among medical men it either arouses scepticism or awakens an interest which, owing to lack of literature and practical demonstrations, is difficult to satisfy. Dr. MARLIN's little book

*Manipulative Treatment for the Medical Practitioner*⁶ was written in response to many requests by interested colleagues, and presents an account of movements and manipulations all of which have been tested thoroughly and have had beneficial results. These procedures are clearly described, and photographs illustrating them show the most suitable grips for controlling movements, and the most advantageous positions for patient and operator, so that the reader will not have much difficulty in attempting similar manipulations. Where difficulty does lie, and where experience and skill count for so much, is in finding the right amount of force necessary to produce a certain adjustment and the precise moment at which to administer it. It is very doubtful whether a beginner in manipulative work would be able to produce enough muscular relaxation to allow of successful joint manipulation; for instance, attempts to stretch the tendo Achillis might result in stimulating stronger contraction.

The book contains chapters on joint manipulations in general descriptions of cases which have been treated successfully, directions for manipulation of soft tissues, and the technique of manipulating individual joints. Among the latter are described three methods of manipulating the sacro-iliac joint, four methods of treating a displaced internal semilunar cartilage, besides descriptions of procedures for treatment of tennis elbow, painful feet, and stiffness of the spine. The author disclaims any attempt to do something "magical," and considers manipulation in the light of applied physics, taking into account the shape of the articular surfaces and the leverages employed in their adjustment. Only in such a way can the fullest benefit be obtained. The book can be recommended for its open-minded approach to a difficult subject, and the practitioner who reads it will look forward with eagerness to trying some of these manipulations on the next foot-weary, stiff-backed patient who comes his way.

Notes on Books

The appearance of a fifth edition of *Diseases of Women*, by TEN TEACHERS,⁷ indicates that this well-known textbook is maintaining its deserved popularity. The principal changes in the new edition are in the section dealing with the sex hormones of the ovary and pituitary. The present knowledge of these subjects has been very fully and clearly summarized, and the need to avoid unwarranted expectations in regard to the therapeutic use of these hormones in the present state of our knowledge is clearly indicated. For the rest the book remains much as it was. It undoubtedly gives what the authors have intended—namely, "a well-balanced account of modern thought and practice in gynaecology." We have no doubt that this edition will maintain the prestige which its predecessors have won.

The late Dr. G. M. Gould's *Pocket Pronouncing Medical Dictionary*⁸ of the principal words used in medicine and the collateral sciences now contains more than forty thousand words and tables of arteries, bones, muscles, signs and symptoms, metric measures, and doses of drugs. The latter based on the tenth revision of the *United States Pharmacopoeia*. To British readers it will probably be most useful in explaining the meaning of rare words and synonyms, and especially of eponyms, of which there is a truly formidable collection, many of them quite new to the reviewer. It is compact, easily carried in the pocket or bag, and capable of supplying information in the shortest possible time.

⁶ *Manipulative Treatment for the Medical Practitioner*. By T. Marlin, M.D., Ch.B., D.P.H., D.M.R.E. London: E. Arnold and Co. 1934. (Pp. 133; 86 figures. 10s. 6d. net.)

⁷ *Diseases of Women*. By Ten Teachers. Under the direction of Comyns Berkeley, M.A., M.D., M.C., F.R.C.P., F.R.C.S., M.M.S.A., F.C.O.G. Fifth edition. London: E. Arnold and Co. 1934. (Pp. 568; 185 figures. 18s. net.)

⁸ *Gould's Pocket Pronouncing Medical Dictionary*. Tenth edition, revised by C. V. Brownlow. London: H. K. Lewis and Co., Ltd. 1934. (10s. 6d. net; with thumb index, 12s. 6d. net.)

⁵ *Le Sérum Normal. Récolte et Caractères Physiques*. Par Denis Brocq-Rousseu et Gaston Roussel. Paris: Masson et Cie. 1934. (Pp. 364. 75 fr.)

British Medical Journal

SATURDAY, AUGUST 18th, 1934

OCULAR HEADACHES

Ophthalmology, even when qualified as clinical ophthalmology, has obviously a wider range than the activities covered strictly by the term "ophthalmic surgery," and both studies and practice in this department have for the most part recognized that a broad outlook, rather than a restricted one, is necessary to meet alike the needs of the patient and the progress and extension of knowledge. In other words, pathological conditions in the visual apparatus often mean remote and sometimes detached consequences, or are part of a clinical picture that requires a wide and inclusive survey. In particular, there are areas where ophthalmology has a common frontier with general medicine, with neurology, with rhinology, and even with surgery, and the meeting along the boundary lines of representatives of the interests concerned may well mean mutual advantage and the settlement of doubtful issues. Recognition of these truths has not infrequently governed the arrangements of professional discussions with a view to secure both the presentation of the larger relations of ophthalmology and the consideration of these by practitioners who are not in a strict sense included within the technical ophthalmological ranks. Presumably motives of this order prompted the officers of the Section of Ophthalmology at the recent Annual Meeting to select as a topic for debate "Headache in Relation to Ocular Conditions," and the two opening papers of the discussion as printed in our present issue fully justify the choice.

In a preliminary remark Mr. Arthur Griffith expressed surprise that physicians so frequently fail to recognize faulty eye conditions as a cause of headache, and he quoted his own clinical records in support of his statement. The possible association between the two has often been affirmed, and, but for Mr. Griffith's challenge, it might have been regarded as accepted doctrine; and this all the more as it is difficult to imagine the absence of an ophthalmoscopic examination when the patient complains of headache, and, this position once reached, other ocular inquiries would seem to be almost inevitable. Perhaps the experience may be quoted as another illustration of the claim that even well-worn truths need occasional repetition and revival. When the existence of gross disease can be excluded it is principally in the direction of errors of refraction and of disturbed muscle balance that the source of ocular headaches is to be found. Of the former many are manifest when ordinary methods of testing are

applied, though it is important to note that, at least in the case of astigmatism, it is the minor rather than the major defects which give rise to headaches; in the one, compensation by ciliary effort is not attempted, for it would be in vain, while a relatively slight defect can be redeemed, though at the cost of effort, which in turn demands its penalty. Some few years ago it was not uncommon to hear of widespread and disastrous consequences attributed even to very minute degrees of astigmatism, and of the curative triumphs which correction of these secured. In these claims it would appear there must have been an element of exaggeration, for nowadays their advocates are by no means active. While errors of refraction as a cause of eye-strain and of consequent headache are within comparatively easy reach, the detection of imperfect muscle balance is often far from a simple matter, and may be secured only as a result of special experience. None the less it is a possibility that must be borne in mind, and this the more so seeing that, given an accurate analysis, the ability to provide relief is a fairly confident one. Mr. Griffith's remarks on this point have an eminently practical value.

The opening address presented two reasons why in the individual patient the possibility of eye-strain as a cause of headache is sometimes unrecognized. One is the fact that the symptom at times becomes troublesome, not when the eyes are actively engaged, but during or after a period of rest; and the other, the remote situation of the pain, as, for example, in the occipital muscles. The essential initial disturbance is excessive muscular contraction, and the delayed headache may therefore be regarded as comparable to other delayed pains which follow undue muscular stress. As an explanation of the occipital headache due to eye-strain Mr. Griffith suggests that for certain reasons patients acquire the habit of "screwing" their lids together: this means tension on the frontal muscles, and as these, through the epicranial fascia, pull on the occipital muscles there is stress on these muscles also, and consequently a condition of painful contraction. Whether this ingenious suggestion is or is not warranted, the fact of occipital headache under eye-strain illustrates the truth that not all headaches of ocular origin are referred to the eyeballs or their immediate neighbourhood. While it may be allowed that the primary source is strain in some part of the ocular musculature, the pain so produced may radiate over any of the branches of the trigeminal nerve, and occasionally, as just explained, be referred to the region of the occiput. With this generalization it is of course necessary to remember that not all pains or aches in these various regions are due to eye-strain, that even when eye-strain is part of the story it is not necessarily the whole of it, and that here as in other diagnostic ambitions it is the whole which must be known before a safe conclusion can be written.

Among other points of interest in the opening papers may be noted the conclusion that migraine, in spite of the suggestive visual disturbances which accompany it, does not depend on any refractive defect. Such defect may of course be present in a migrainous patient as in a non-migrainous patient, but little hope of relief can be placed on its correction. There are also neuralgias to which the same comment applies. One of these, named by Dr. Wilfred Harris "maxillary neurosis," is characterized by pain more or less persistent in the cheek and at the side of the nose and temple, and is almost peculiar to women; unfortunately it is very resistant to treatment, and neither operative intervention nor the injection of alcohol is of any avail. The possibility of pain, perhaps widespread pain, from acute glaucoma, and described by the patient as headache or neuralgia, is always a note in the practitioner's memory, and headaches as a prominent symptom of many general conditions are frequent experiences. What the present discussion emphasizes is that, when no obvious explanation presents itself, it is important, in face of a negative clinical examination, to remember that even though the history does not suggest the conclusion, eye-strain in one or other of its varied forms may supply the solution of the problem. Contributions from specialized departments of practice to the wider interests of general medicine serve the interest both of those who give and those who receive, and, still more important, they contribute to the welfare of patients.

INFERTILITY AND CONTRACEPTION

It may be of interest to consider together two recent publications: *The Twilight of Parenthood*,¹ by Dr. Enid Charles, and the fifth report of the International Medical Group for the Investigation of Contraception.² Dr. Charles's book is a brilliant and well-planned argument on a matter of great moment. If its facts, lessons, and conclusions could be brought home effectively to the statesmen, social workers, and people of Western Europe and America, it might prove epoch-making. The report, as Sir Humphry Rolleston says in his short introduction, is intended to give "an impartial summary of statistical and medical information about contraception as it becomes available in different countries." Dr. C. P. Blacker, who may be described as the editor of the report, and whom we congratulate upon the interest and value of its contents, says that "in the course of the last two years there has been observable a tendency for discussions on birth control to centre upon practical rather than upon moral issues," and with these practical issues most of the document is concerned. Information comes from Great Britain, from the United States of America, from Denmark,

from Germany, and from Russia. Probably the two most important sections are those which summarize books, or portions of books, by Dr. Enid Charles in this country, and by Professor Raymond Pearl in America, each published about two years ago. The German contribution to the report has a peculiar and immediate interest in that its author, Dr. Max Hodann, has had to leave Germany for Switzerland on account of his connexion with the birth control movement; he tells of the militant campaign against such control since the Nazis achieved power, and of the present position under their regime. The importance of the report as a whole, therefore, consists in the fact that it enables one to envisage in one fairly comprehensive view the existing actual practice of contraception over a considerable part of Western civilization, its methods, and the tentative results of those methods so far as they can be ascertained by imperfect means and with relatively small numbers.

The Nazi attitude, if credence is to be given to the public statements of more than one of its chief exponents, is not based upon any tenable biological considerations or on realization of a tendency towards underpopulation, but upon the desire to produce, in numbers preponderantly larger than other nations, male citizens who may in time be available for warfare. Professor Pearl states that "the mean number of pregnancies per white woman who practised contraception was 2.79; per white woman who did not practise it, 2.68. The mean number of pregnancies per negro woman who practised contraception was 4.15, and per negro woman who did not practise it, 2.94"—and this from as nearly random a sample of poor people as could well be obtained. Whatever weight may be attached to this finding, it is certain that the general advocacy and practice of contraception is based upon the opinion that large families are undesirable in themselves under modern conditions, and upon the belief that overpopulation is a national and world-wide danger. The untenable nature of this belief is demonstrated by Dr. Enid Charles. The title of her book, *The Twilight of Parenthood*, has the disadvantage of not indicating at once the nature of the subject dealt with. This may be stated broadly as the menace of underpopulation. "It unfolds the spectacle of a society which has lost the power to reproduce itself, is losing that power more and more, and must continue to dwindle unless a fundamental readjustment occurs within the human ecological unit." It is not, of course, an entirely new thing to expose Malthusian fallacies. A few of the papers and speeches made at the last International Population Conference held in London in 1931 were effectively directed towards this; but it was not a pronounced feature of that conference, and both biological and statistical advances have since then become more cogent.

The facts and arguments are marshalled by Dr. Charles in a masterly way and set forth in most interesting fashion. She shows, first, that the analogy with

¹ *The Twilight of Parenthood. A Biological Study of the Decline of Population Growth.* By Enid Charles, M.A., Ph.D. London: Watts and Co. (7s. 6d. net.)

² London: National Birth Control Association, 26, Eccleston Street, S.W.1. (2s.)

AUG. 18, 1934]

NEEDS OF THE UNEMPLOYED

biological conditions obtaining in regard to non-human species is vitiated by man's capacity to control both his own reproductive habits and the evolution of the animal and plant economy of which he forms a part. "The one thing man cannot avoid doing is interfering with the selective processes of Nature on a scale which no other animal has the power to do." Secondly, she shows by an amazing number of examples that there is, under modern conditions, no danger of food shortage even in a world with a population immensely larger than the present. "The world's food production could be increased many times without increasing the area of cultivation if mankind exploited to the fullest extent all the scientific knowledge at present available." Thirdly, she describes clearly and in relatively simple terms the new statistical methods of measuring fertility rates which we owe to Kuczynski. The gross reproduction rate is defined as the number of girl children likely to be born to a woman passing through the whole child-bearing period on the basis of the fertility rates prevailing in a given place at a given time. The net reproduction rate takes into account the probability of survival of such children to become future mothers. A population with a net reproduction rate of unity must, if rates do not change, soon become stationary. "A rate lower than unity means that a population is doomed to extinction"—again, if rates do not change. The United States, the British Colonies, and all Western European nations (including Germany and Italy) even now have rates below unity, and the rate is continuously diminishing. That of England and Wales is probably the lowest, at 0.75. "Once a stable age composition has been reached the population would be reduced to less than six millions in about 200 years. . . . If the rate were to fall further, say to 0.5, in the space of 300 years the population would be reduced to 45,000. . . . Our present knowledge makes such a possibility less incredible than any of the 'nightmares of population' which Malthus predicted."

In further chapters Dr. Charles discusses differential rates of reproduction between different classes of persons, and finds that apart from the fact that the urban rate is lower than the rural, any difference in rate between social classes is tending to disappear. Complete parity has in fact been reached in Stockholm. She deals also with the influence of contraceptive practice and technique, and with the physiological effects of civilized living, and finally discusses proposals for sterilizing defectives, and plans for "the reinstatement of the child in a planned economy." A point made by her is that it is the business of the biologist and scientific statistician to describe—perhaps sometimes to prescribe—but not to predict. We may be sure that all readers of her book will not be in full agreement with every suggestion made in the last chapter; but every reader must realize the great importance of the situation disclosed, must admit the force of the general argument, and must admire the ability with which the thesis is stated and supported.

NEEDS OF THE UNEMPLOYED

For some time now medical men and others who have interested themselves in dietetics have maintained that there are sufficient scientific data upon which to assess the minimum food requirements of the body, and that it is possible to translate those needs into pounds, shillings, and pence. As the cost of food consumed forms the major part of the outlay of any family near to or on the poverty line, the assessment of the cost of a minimum diet assumes great importance in the work of any public authority dealing with public assistance. In the past it has been the sociologist whose work has been accepted as the basis for calculation, and even to-day, in the recent social surveys of London and Liverpool, these same forty-year-old estimates, brought up to date as regards prices by use of the Board of Trade index, have been accepted as fundamentally sound. In future assessments it is essential that the estimates made by the British Medical Association's Committee on Nutrition,¹ or estimates based upon data provided by the joint conference of nominees from the Advisory Committee of the Ministry of Health and from the B.M.A.'s Committee,² be utilized. It will be remembered that the latter conference suggested greater latitude in interpreting the needs of the individual, and in some cases actually suggested an increase in the scale of allowances. A recent letter broadcast to the Press, lay and medical, signed, among others, by the President of the Royal Society, Sir Frederick Gowland Hopkins, who was chairman of the joint conference and is a member of the Ministry of Health's Advisory Committee on Nutrition, lays stress on the need for expert medical opinion in estimating "the minimum requirements of healthy living and the cost of satisfying them for families of various sizes."³ With this expression of opinion no medical man will disagree. The importance of such considerations at the present time lies in the fact that the new body, the Unemployment Assistance Board, has as its task to provide for the vast body of the unemployed according to their needs. The Minister of Labour who piloted the Bill creating this new board through the House of Commons stated that the function of the Board was "to meet the whole needs other than medical needs to the extent that the meeting of those needs requires."⁴ Clearly a standard of needs is essential to the fulfilment of the functions of the Board, and the major item of the standard is the figure for food requirement. How the other needs—fuel, clothing, cleaning, lighting, and rent—may be estimated, may be seen in a memorandum prepared by Miss Eleanor Rathbone, M.P., which has just been published.⁵ This is a very able summary of the functions of the Board, the pledges of the Minister in charge of the Bill, past and present estimates of needs, and suggestions for the future assessments of needs. Medical men interested in the physical welfare of the unemployed will do well to avail themselves of the valuable information and constructive suggestions so clearly set out in this memorandum.

¹ Supplement to the *British Medical Journal*, November 25th, 1933.
² Ministry of Health publication, January, 1934.
³ *British Medical Journal*, August 4th, 1934.
⁴ Hansard, December 5th, 1933, p. 1615.
⁵ Memorandum on the Scale of Needs. Submitted on behalf of the Children's Minimum Campaign Committee. Obtainable from the Committee, Room 116, Thames House, Millbank, London, S.W.1. 4d.

OCULIST AND OPTICIAN IN EUROPE

Not long ago the secretary of the French Association of Oculists appealed for information as to the fields of activity of these workers in different countries. The matter was taken up by the Association Professionnelle Internationale des Médecins, which has issued in the *Revue Internationale* for May the answers obtained from seventeen European countries to a questionnaire entitled "The Position of the Optician *vis-à-vis* the Oculist, and the Attitude thereon taken by the Medical Organizations." There are, as might be expected, many divergencies in the answers, but the secretary of the A.P.I.M. states that there is "sufficient analogy in them to justify a serious attempt to clear up the veritable anarchy which exists to the detriment of all concerned." The questions asked dealt primarily with the training and examination of the optician, his legal position, and the relations between opticians and the medical profession. In seven countries there is organized education of opticians, in nine nothing more than apprenticeship. The length of education averages a little over three years. In only three countries—Austria, Belgium, and Great Britain—is instruction of a medical nature given. In most countries there is a diploma, and therefore an examination, but in Denmark, Spain, Luxembourg, Poland, and Sweden there is neither. A diploma is necessary for practice in Austria, Danzig, Germany, Hungary, and the Canton of Vaud, Switzerland. In Germany, Danzig, and Great Britain the diploma specifically permits the use of both subjective and objective methods of examination, whereas in Hungary and Canton Vaud the objective method is specifically excluded. The practice of sight-testing is open to anybody in all countries except Austria, Bulgaria, Germany, Norway, and Canton Vaud, where it is reserved for those who possess a diploma. In Germany opticians must not give glasses (except on medical prescription) to children and to persons suffering from disease. In Bulgaria and Danzig there must always be a medical prescription—though in Danzig the rule is said to be often ignored. In Hungary the optician can supply without prescription glasses up to 6 dioptries, but no compound lenses, and no glasses at all to children and old people. In Canton Vaud the optician may only use the subjective method of examination, and must not supply children under 16 except on a prescription. Only in Sweden does there appear to be anything comparable to our Association of Dispensing Opticians, whose members pledge themselves to supply glasses only on medical prescription, while nowhere does there exist any practical co-operation between doctor and optician like our National Eye Service. It seems, moreover, that Great Britain is the only country in which there is a rate- or State-provided eye service for school children, though Germany reports something of the kind at Berlin and Munich. Summing up the opinions of the various groups questioned, the secretary of the A.P.I.M. finds general agreement that the opticians should be "technical collaborators" with the oculist. France is prepared to co-operate with the optician on the basis of "monopoly of prescription by the doctor and of supply of glasses by the optician." Many groups would be prepared to give a higher degree of recognition to the optician in exchange for evidence of greater

competence on his part. Denmark would be satisfied if opticians were allowed to prescribe only plain lenses. There would seem to be a tendency to permit the provision of glasses by opticians if they were allowed only to use the subjective method of examination. But the case against this is well stated by the Swedish Medical Association,* as follows:

"From the point of view of treatment, errors of refraction should be regarded as diseases. . . . If one tried to regard some of these errors of refraction as 'non-maladies' it would be necessary to make exact discrimination between the different categories of errors of refraction, leaving the optician to treat a certain number. But that is impossible, for such discrimination can only be arrived at by very careful examination of the individual. That being so, it is charlatanism for persons without medical education to take on themselves the treatment of errors of refraction. The general rule that a medical practitioner should not collaborate with a charlatan applies to collaboration with an optician who treats errors of refraction, and, moreover, all advertisement by such people ought to be condemned by the medical profession."

EVIPAN ANAESTHESIA

The arrival of a new anaesthetic on the market is usually a source of interest to the medical profession as a whole and to surgeons and anaesthetists in particular. Evipan has been no exception to this rule, and, since its discovery about two years ago, it has had extensive clinical trial both here and on the Continent. For the most part its use has been confined to surgical procedures of short duration, and little effort has been made to prolong anaesthesia for operations lasting for an hour or more. The experiences of various Continental surgeons with continuous evipan administration should therefore be of interest. Drs. Jentzer, Oltramare, and Poncet,¹ working in Geneva, have recently published their results of seventy-two major operations performed under evipan. In order to prolong anaesthesia for as long as necessary they devised the following technique. Each patient was given an initial dose of the drug intravenously, the amount varying from 6 to 10 c.cm. The injection was given slowly, the time taken being from three to seven minutes. After injection the syringe was disconnected from the needle, and its place taken by an apparatus for supplying a continuous drip of hypertonic glucose solution. This served the double purpose of supplying glucose to the liver and keeping the lumen of the needle patent. At the first signs of returning consciousness 1 or 2 c.cm. of evipan were injected into the rubber tubing conveying the glucose solution to the vein. This usually prolonged anaesthesia for about twenty minutes, and was repeated as often as necessary. By this means they were able to perform a gastrectomy by Finsterer's technique in rather less than three hours and with a total dosage of 27 c.cm. of evipan. Throughout the operation the patient's arm was kept steady in an arm-rest, and the needle was kept in position in the vein by means of an armlet. All the patients were given a preliminary injection of omnopon, which was repeated after the operation if the patient showed signs of restlessness. Some of their earlier cases required a few whiffs of ether to supplement anaesthesia, but with

* *Presse Médicale*, April 25th, 1934, p. 668.

increasing experience this became unnecessary. Drs. Menegaux and Secheyaye¹ have copied this technique in about seventy cases with satisfactory results. They also regard it important to give the initial injection slowly—1 c.cm. in approximately one minute. As soon as the patient's jaw relaxes a note is made of the quantity already injected, and a similar amount is again given at the rate of 1 c.cm. in thirty seconds. The rest of their technique is similar to that of Jentzer and his colleagues. Both sets of workers are satisfied that the method is safe in careful hands, and if it is not used in patients with hepatic disease. They both agree that from an operative point of view ano-rectal cases are the least satisfactory for evipan anaesthesia, owing to the occurrence of jerky movements of the legs. No untoward happenings were recorded, and the length of time for recovery after the anaesthetic was roughly in proportion to the dose of evipan injected. It would thus appear that short duration of anaesthesia, which has been one of the chief drawbacks to the use of evipan in major surgery, has now been successfully dealt with. Whether or not it will be used more widely on that account remains to be seen. There will no doubt be many who hesitate to give every surgical patient 20 to 30 c.cm. of a powerful barbiturate as a routine. Evipan deaths when they occur are not always explicable. Duboucher and his colleagues in Algiers recently gave a patient aged 60 about 5 c.cm. of evipan for the cure of a hydrocele. The operation was performed without difficulty, but the patient did not regain consciousness, and died twenty-two hours later. This was their sole death in 102 cases. They found evipan useful for Mohammedan patients, who regard inhalation anaesthesia as allied to intoxication, which is forbidden by the Koran—a point that may be noted by those who practise in the East, but is scarcely of importance to anaesthetists in this country.

SWIMMING BATHS

It is both seemly and hygienic that the water of swimming baths should be maintained in a condition approximating to its native purity. Since the ideal plan of constant replenishment, as in the case of a running river, is, on the ground of expense, excluded on the large scale, recourse is now usually had to the use of re-circulated water which is at the same time submitted to a process of continuous cleansing. A good account of the plant employed for this purpose is contained in the second edition of the work on swimming-bath water by Messrs. Wilkinson and Forty.² The next step is the removal of large objects by means of a strainer. Next, after the addition of aluminium sulphate, the water is passed through a mechanical filter—for the most part of the pressure type—at the rate of 250 gallons or more per square foot per hour; after filtration comes aeration to restore brightness and sparkle. The revived water is then subjected to the bactericidal action of chlorine gas, or alternatively

chloramine, ultra-violet radiation, or catadyn silver. It is not enough, as in the purification of drinking-water, that the bactericidal substance should be designed to kill off all germs in the water at the time of dosage. It must be administered in such excess as will destroy also those added to the water after its return to the bath. In the case of chlorine a residual concentration of 0.2 to 0.5 part per million is believed to be sufficient. The final procedure, before returning the water to the bath, is to re-heat it to, say, 72° F. In later sections of Wilkinson and Forty's book the chemical and bacteriological characters of bath waters are considered, and reference is made to the determination of alkalinity with a view to filtration and to the estimation of residual chlorine by means of the orthotolidin test. The chapters on construction and management are full of useful practical points. The book is recommended, for information and guidance, to medical officers, engineers, borough surveyors, sanitary inspectors, and all who directly or indirectly may have to do with the provision or control of swimming baths.

THE DEPRESSION AND HEALTH IN THE U.S.A.

The annual report for 1933 of the Surgeon-General of the Public Health Service of the United States¹ contains a note on the effects of the economic depression upon health. For several years past the Office of Statistical Investigations has obtained provisional mortality data from State health departments as a current index of the nation's health. Mortality has been decreasing in almost every State, but mortality in the general population does not truly reflect all the unfavourable factors. No change in mortality would be expected in that part of the population which is still employed: "the health of the unemployed is the real matter to be considered, and sickness is a better index of health than mortality." Information about sickness and deaths in a group of families was collected by house-to-house canvass and studied in co-operation with the Millbank Memorial Fund. A four-year history of employment and income and a three-month illness record permitted a comparison of families whose heads had been out of work for one, two, three, or four years with those not affected by unemployment. About 1,000 families were canvassed in each of ten localities, including eight large cities and two groups of villages. Communities were chosen that had been hard hit by the depression, and within the city the districts with the most unemployment and relief work were surveyed. Slum areas in which the "chronically poor" would be found in large numbers were, however, omitted from this survey. Within the selected sections every family was included, both employed and unemployed. Preliminary results indicate higher sickness rates among the poor, particularly in the case of the more serious illnesses that cause inability to work or confine the patient to bed. It appears also that families who were moderately comfortable in 1929 but who had been poor for two or three years suffered more from sickness than those who had only lately become unemployed and poor, while those now poor who formerly lived in moderate comfort reported more sickness than those who had been poor during the whole four-year period.

¹ *Press Médicale*, June 27th, 1934, p. 1036.

² *Swimming Bath Water Purification from the Public Health Standpoint With Special Reference to Plant and Equipment and Hygienic Education*. By F. Wilkinson, M.I.C.E., M.I.M.E., F.R.S.I., and F. J. Forty, B.Sc., A.M.I.C.E., M.R.S.I. With foreword by Professor H. R. Kenwood, C.M.G., M.B., C.M., D.P.H., F.R.S. London: The Contractors' Record Ltd., 1934. (Pp. 264; 58 figures. 12s. 6d.)

³ U.S. Government Printing Office, Washington, D.C. (75 cents.)

ONE HUNDRED AND SECOND ANNUAL
MEETING

of the

British Medical Association

HELD AT BOURNEMOUTH, JULY, 1934

THE SECTIONS

SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL the opening papers communicated to the Scientific Sections of the Annual Meeting at Bournemouth. The reports of discussions in this and previous issues are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE

Friday, July 27th

OEDEMA—ITS CAUSATION AND TREATMENT

With Professor J. G. EMANUEL (Birmingham), a Vice-President, in the chair, Dr. T. IZOD BENNETT opened the discussion on the causation and treatment of oedema.

Dr. Bennett said that the two main factors governing the passage of fluid from the capillaries to the tissue spaces were the intracapillary pressure and the colloid osmotic pressure of the plasma proteins. The intracapillary pressure was probably little affected by the arterial tension, but was easily increased by rise in the venous tension in any condition of back-pressure. As Starling had shown forty years ago, colloid osmotic pressure was of supreme importance, and was a constant drag on the passage of fluid into the tissues. Diminution occurred whenever there was loss of protein from the blood as in the case of extreme albuminuria, the loss of albumin being much more effective than loss of globulin. Increased permeability of the capillary wall was undoubtedly a factor in some cases, especially in urticarial conditions, but by itself it would not necessarily produce oedema. Sodium chloride had long been recognized as important: it had much to do with determining chronicity, but there was no group in which it was the predominant factor. It was the sodium ion and not the chlorine ion that was significant, and treatment must be based on these considerations. In cardiac oedema the main indication was to assist the output of the right ventricle. Rest was essential, and in the presence of auricular fibrillation digitalis was most valuable. Fluids must be strictly limited, and the diet should be free from salt. Careful comparisons of the fluid taken and urine excreted were a great help in control. Where these measures failed the mercurial diuretics, particularly salyrgan, were invaluable. In acute pulmonary oedema morphine and prompt venesection were often life-saving. The renal oedema which occurred as a terminal event in chronic nephritis was often due to cardiac failure; there was no renal failure. In such cases there was no contraindication to salyrgan. In the oedema that characterized the so-called nephrosis there was heavy albuminuria of long standing with reduction of plasma protein, but none of the changes in blood chemistry indicated renal failure. Here a high protein diet, particularly vegetable protein, was called for, and water and salt were to be strictly limited. Salyrgan was not contraindicated as a rule, but it must never be given in the presence of any indication of a progressive renal lesion. In acute and subacute glomerular nephritis the treatment was entirely different. With such progressive lesions all strain on the kidney must be avoided, and in acute cases complete

starvation was the ideal treatment. By limiting fluids to 20 oz. and food to small amounts of fruit, remarkable recoveries were to be achieved.

Dr. A. W. STOTT discussed the treatment of cardiac oedema. The diagnosis, he said, was usually simple, for there were always concomitant signs of general venous engorgement, and obvious evidence of myocardial failure. First thoughts must clearly turn to preventive treatment, but there was rarely any clue to the factor that precipitated failure in a heart that had hitherto maintained its extra burdens. Increasing dyspnoea, however, was a danger signal, and indicated the need for rest. Oedema itself, in its mild form, cleared up with rest and digitalis, and required no special treatment. In severe cases and in congestive failure with normal rhythm digitalis might give no great help; complete rest was essential, and this might be more easily obtained if the patient sat up in a chair rather than in bed. Food should be given in small and easily digested meals, and fluid and salt should be restricted. The saline diuretics were of little value, and those of the xanthine group were uncertain. The most satisfactory results were obtained from the mercurials, especially salyrgan, which should be given preferably intravenously. Treatment did not end with the relief of oedema, and borderline cases were considerably benefited by continued "prophylactic" doses of salyrgan.

Dr. H. GAINSBOROUGH said that the renal condition in which oedema was most evidenced was the so-called nephrosis. This conception had led many to regard the oedema as of extrarenal origin. In his view the condition was really an inflammatory one. In subacute and chronic cases the toxic-infective process was mild though persistent, the renal changes were slow and progressive, and the tendency to oedema might last for years. The toxic-infective process also exerted a selective action on the renal parenchyma, and in the end there might be nitrogen retention, hypertension, and death in uraemia. In acute nephritis the changes were rapid, and the condition resembled that in chronic nephritis after the tendency to oedema had disappeared. The treatment of oedema consisted in fluid and salt restriction, diuresis, and mechanical means, in that order. The best diuretics were urea, acidosis-producing salts, and salyrgan; the latter acted as a renal poison, and in renal oedema was only to be used in cases of dire necessity. The chronic underlying disease must be treated by diet, sun, air, and warmth; food must be ample, and nitrogen intake adequate for the body's needs. Healthy sanatorium life might sometimes bring complete recovery, even in severe cases.

Dr. GEOFFREY EVANS pointed out that oedema in nephritis might assume a variety of forms. In some cases it appeared in the cardiac form; in others there was evidence of a tissue metabolism factor in the symptoms of subthyroidism; while in others there might be indication of the distribution of angioneurotic oedema. In the cardiac form digitalis was of real value, and in some acute cases the results of venesection were dramatic. Thyroid extract might bring relief in subthyroid conditions, and in the toxic cases starvation, as recommended by Dr. Bennett, might be of great benefit. In every case of renal oedema, whatever the type of renal disease, it was essential to watch for all the known causes of oedema. The persistent oedema that accompanied nephrosis afforded opportunities of trying various remedies and also of noting their ill effects. Salt restriction, so valuable in many cases, was sometimes intolerable, and led to acidemia and uraemia. Salyrgan, too, must always be used with caution.

Dr. J. MAXWELL discussed briefly the chief factors in the causation of oedema of any type, with particular reference to the localized oedemas. In this group the chief instances were acute inflammation, the urticarial conditions, and some renal cases. In the urticarial group it was probable that the capillaries in the affected area were temporarily more permeable, and the phenomena were very like those which followed intradermal injections of histamine. It had been suggested that urticarial and angioneurotic oedema were the result of the local liberation of a histamine-like substance. In cases of angioneurotic oedema injection of adrenaline into the swelling often proved effective. Protein shock and autohaemotherapy were also successful sometimes, but the condition

AUG. 18, 1934]

was apt to recur. Cases in which specific desensitization was successful were, unfortunately, rare.

Dr. F. C. BOTTOMLEY (Bournemouth) drew attention to the old-fashioned remedy of heat, and cited a case—that of a child—in which hot-air baths had been rapidly followed by increased urinary output and diminution of oedema, with ultimate complete recovery. Professor Langdon Brown confirmed Dr. Bottomley's experience, and suggested that the effect of hot-air baths depended on the removal of salt from the tissues in the sweat. Analysis of the sweat lost showed a high content of sodium chloride. In cases which responded to fruit juice and glucose in acute gressively lower temperatures in the bath. He also advocated a diet restricted to fruit juice and glucose in acute nephritis. Dr. E. L. SERGEANT (China) asked whether the examination of the blood calcium would be of any help, and suggested that the administration of parathyroid and calcium might be a rational treatment. Mr. N. E. WATERFIELD (Great Bookham) advocated the use of auto-haemotherapy in the urticarial conditions. Dr. W. N. LEAK (Winsford) asked whether there was any evidence of vitamin deficiency in any of the forms of oedema that had been discussed. Dr. JOHN PARKINSON was unable to agree that rest, obtained by sitting in bed. Morphine might help to make rest in bed easier. "Dropsy" was a word of evil import to the layman, and it was therefore upon the patient the essential need for rest. Digitalis was not to be restricted to cases of auricular fibrillation; it was of great value in oedema with a normal rhythm, and its regular use in suitable cases helped to postpone the occurrence of oedema.

SECTION OF SURGERY

Friday, July 27th

HERNIA OPERATIONS

With the President, Professor G. GREY TURNER (Newcastle-on-Tyne), in the chair, Mr. C. MAX PAGE read a paper on physical efficiency after operations for hernia.

Mr. Max Page based his remarks chiefly on inguinal hernia. The practical surgeon, he said, would in the first place wish to determine the type of operation most likely to give a lasting cure. Radical cures were put first on a sound basis by Bassini, and his method and the others that followed were based on obliteration of the musculature of the canal. The next important advance was the use of fascial grafts and sutures. In spite of the amount of consideration given to the subject no common standpoint as to the best methods and their effectiveness had been reached. This was largely due to the lack of proper follow-up systems. Most surgeons were satisfied with their results, but he thought that a more critical follow-up would show a much higher recurrence rate than was imagined. Block's figures, based on the work of 650 different German surgeons, showed a recurrence rate of 4.2 per cent., employing the Bassini operation in over 13,000 cases. Block considered constitutional defect and poor tissue as the chief cause of failure, closely followed by suppurative and haematoma. He (Mr. Page) agreed with Block that the recurrences after operations for inguinal direct hernia were of the nature of internal direct hernias. Block, again, had found no definite ratio as to recurrence depending on the duration of recumbency after operation, or any relation between recurrence and the suture material employed. Mr. Page thought Block's figures, while valuable, were too comprehensive in assessing recurrence in adult inguinal hernia, since, by common consent, cure in women and children reaches a very high mark. American figures were even more optimistic. He (Mr. Page) himself assessed the recurrence rate in a healthy body of men, the Metropolitan Police, to be as high as 20.2 per cent. for indirect hernia and 25 per cent. for direct hernia. Whilst not sufficient time had elapsed for a clear assessment, it appeared that the use of fascial grafts and sutures were valuable in direct recurrence indirect hernias. His conclusions were that recurrence after operation in the young to middle-aged was much

commoner than was supposed. Whether this state of affairs was due mainly to differences of technique, failures of technique, post-operative complications, double hernias, or to hereditary or congenital weaknesses he was uncertain, and hoped that successive speakers would elaborate their opinions.

Mr. GEOFFREY KEYNES said that, practically speaking, there were few hernias for which cure should not be attempted. All recurrences were due to a failure of technique, and this in turn was largely the result of surgeons being too standardized in their methods. In this connexion a prolific cause of recurrence was the performance of the same operation after direct and indirect hernias. Physical efficiency after operation therefore depended on the surgeon having at his command an operative repertoire equal to dealing with every situation. The difficulties due to age or bronchitis could be circumvented by a varying anaesthetic technique. Mr. Keynes then showed slides illustrating all types and degrees of hernia.

Mr. HINDMARSH (Newcastle-on-Tyne) had investigated a series of 154 hospital cases. In 102 cases of inguinal hernia eighty-nine were completely cured; nine had recurrences (five bad and four slight); and four had pain in the scar. In thirteen cases of umbilical hernia eleven were completely cured, one had recurrence, and one complained of a painful scar. Of thirteen cases of ventral hernia eight were completely cured, four had recurrence, and one had a painful scar. Of twenty-six cases of femoral hernia twenty-three were completely cured, two had recurrence, and one had a painful scar. Workers in warm atmospheres, such as miners, found trusses unbearable, and demanded operation. He considered post-operative suppuration the chief cause of failure.

Mr. E. M. COWELL (Croydon) advocated wide resection of the hernial sac, taking away as much slack peritoneum as possible and covering the weak hernial opening with suitable fascial flaps, using fascial sutures. Mr. PHILIP TURNER, whilst agreeing that removal of the sac was essential, said that it was almost equally important to repair the defect in the transversalis fascia in adult cases. He had achieved this by, after removal of the sac, turning up a pedunculated flap under Poupart's ligament into the inguinal canal, and suturing it to the margins of the opening in the fascia. He had operated upon about one hundred patients by this method, with two small recurrences. Mr. McADAM ECCLES did not think that a truss, when such treatment was indicated, was a nuisance if properly made and properly applied. Speaking as an older surgeon, and referring to working-class adult cases, he doubted if selection of the type of operation was as important as attention to detail in asepsis and care in breathing exercises. Mr. WOOD POWER (Hereford) was not impressed with the fascial graft methods for ventral hernia. He split the rectus muscle obliquely and slid the anterior portion over to the mid-line. Mr. P. H. MITCHNER stated that because in adults there was a failure of the musculature of the inguinal canal to shut on exertion, post-operative recumbency after repair, best done by fascial graft, should be for at least three weeks. Thereafter strain or exertion should be avoided for three months. He considered the recurrence rate after any operation for femoral hernia was 5 per cent. Dr. JOHN RAMSAY (Launceston, Tasmania) supported the use of kangaroo tendon sutures. Professor A. W. SHEEN (Cardiff) said recurrences were mainly due to failure of removal of the deepest part of the neck of the sac by inexperienced operators. Mr. BLAIR (Hull) was in favour of three weeks' hospital convalescence after operation. Mr. MAX PAGE, replying, said the discussion had shown great variation on the points of technique, on the importance of technique, on the question of how long the patient should remain recumbent after operation, and on the importance of the various causes of recurrence. All the opinions expressed could not be right, and the subject could only be clarified by the adoption of proper follow-up systems.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 27th

DIATHERMY CUTTING CURRENT IN CERVICITIS

With Mr. S. GORDON LUKER (Bournemouth) in the chair, Mr. J. C. AINSWORTH-DAVIS read a paper on "The Treatment of Chronic Cervicitis by the Diathermy Cutting Current."

Mr. Ainsworth-Davis said that the palliative treatment of this condition was seldom successful, and surgical measures were more reliable. His own method was to remove the glandular tissue of the cervix with a wire loop, which was used as the diathermy cutting knife. A non-inflammable antiseptic must be employed, and the curette must be passed at least a quarter of an inch beyond the internal os. The loop was so constructed that the correct depth of tissue was removed in strips. There was no bleeding. If an erosion of the cervix was present deeper strips of tissue must be removed. The speaker illustrated his apparatus and his discourse by means of lantern slides. No distortion or contraction of the cervical canal occurred, but no opinion could be given as to the results the treatment would have on conception and pregnancy. Following treatment in one case the patient became pregnant for the first time after twelve years of married life. The subsequent pregnancy was normal. Chronic cervicitis was a common cause of infection of the urinary tract, and as such should first be treated. The strength of the current was adjusted to dial setting 4 on the genito-urinary endo-diathermy machine.

Mr. ALECK BOURNE said he had used the method described, and had experienced difficulty in controlling the depth of the cut. He also found that the bleeding was severe. Mr. W. S. RICHARDSON (Bournemouth) said that in his experience the immediate results of treatment were extremely good. Drs. H. J. McCURRICH (Hove) and L. M. JEFFRIES (Hove) also approved of the method. Dr. DUGALD BAIRD (Glasgow) doubted that chronic cervicitis and a chronic urinary infection could be so closely associated as had been suggested. Mr. S. GORDON LUKER (Bournemouth) expressed doubts as to whether the method might not interfere with the likelihood of ensuing pregnancy.

In reply, Mr. AINSWORTH-DAVIS said that the depth of the cut was judged by experience: dryness of the cut was ensured by the slowness with which it was made.

PYELITIS OF PREGNANCY

Dr. DUGALD BAIRD, in a paper entitled "After-histories of Pyelitis of Pregnancy, with Special Reference to Subsequent Pregnancy," stated that 208 cases of pyelitis of pregnancy had been studied over a period of one to five years, of which seventy-four had had no subsequent pregnancy. Fifty-two per cent. of those did not feel well, and 47 per cent. still had infected urine. Some of the cases with persisting infection of urine felt well, and some of those with sterile urine did not. Urological examination showed that in many cases there was permanent damage to the kidney substance, usually the right. Symptoms complained of were renal pain or pain along the ureters, usually worse before the menstrual period. Of the 134 patients who had experienced subsequent pregnancy, eighty-seven had had one, with pyelitis occurring in forty-six, and thirty-two had had two, fourteen of whom had had pyelitis with each pregnancy. As a rule, if the urine was sterile before the onset of a second pregnancy pyelitis would not recur. If the urine was infected an exacerbation would often occur, and this depended largely on stasis in the ureters. The exacerbation was practically always less severe than the original attack. In some cases the infection became less severe with succeeding pregnancies, and disappeared spontaneously. In others the infection persisted, giving rise to stricture, haematuria, calculus, and occasional accidental haemorrhage and uraemia. In a number of these cases termination of the pregnancy and subsequent nephrectomy had been required. (Dr. Baird illustrated his paper with lantern slides.)

Mr. GORDON LUKER said he had the impression that pyelitis had recently appeared to be less severe, and was frequently associated with toxæmia of pregnancy. Mr. CARNAC RIVETT thought that the condition was increasing in severity: he advised termination of pregnancy in cases that failed to respond to medical treatment. Dr. E. M. TOWNEND (Hull) had also terminated the pregnancy in a number of cases. Dr. R. A. R. WALLACE (Bishop's Stortford) felt that the condition occurred largely as a result of excess of carbohydrate.

In reply, Dr. BAIRD stated that induction of abortion was required in those cases which failed to respond to standard treatment: usually these were left far too long before the pregnancy was treated.

A CHLOROFORM INHALER

Mr. R. CHRISTIE BROWN described a simple chloroform inhaler for use in normal midwifery. This apparatus was first designed for those patients whose confinement was conducted by midwives.

Mr. Christie Brown thought that his inhaler was simple in use, cheap to manufacture, and could be administered by the patient. The principle was that of the unspillable inkwell. The inhaler was enclosed in a linen bag to prevent the chloroform splashing out. The air breathed was passed over, and not through, the chloroform. The inhaler had been tried out on 800 cases at the City of London Maternity Hospital, with considerable success. A mask which could be fitted to the instrument was demonstrated.

Mr. A. J. WRIGLEY felt that Mr. Christie Brown had produced an inhaler that was a great improvement on the capsules of chloroform. Mr. CARNAC RIVETT wondered why midwives should not be allowed to give anaesthetics. He thought that with adequate training they would do so safely. He also felt that the inhaler was an improvement on the capsules.

UTERINE RETROVERSION

Mr. GORDON LUKER read a paper on "Retroversion of the Uterus." He said that gynaecologists taught that mobile retroversion needed no treatment: he disagreed with this teaching. A congenital retroversion in a nulliparous woman seldom required treatment. In a married woman this condition might give rise to dyspareunia. Retroversion acquired after miscarriage or labour certainly did require treatment. This occurred in as little as 13 per cent. of primiparae. Failure to correct the retroversion in these cases led to a likelihood of prolapse. Backache was experienced, which was relieved by rest. Lastly, a group of cases was found in which the malposition was discovered at some distant time after childbirth. Retroversion with dyspareunia should be corrected by manipulation, but frequently it was impossible to maintain the anteversion with a Hodge pessary. Failure usually indicated operative treatment. Preventive treatment should be first used in acquired retroversion. A prone position should be adopted for at least two hours a day in the puerperal woman. The patient must have a post-natal treatment one month later, and the malposition corrected. The speaker preferred the Hodge pessary to the rubber ring pessary. Operative treatment was especially indicated when the uterus was fixed and the prolapsed ovaries were tender. An inquiry from the senior gynaecologists at the London teaching schools indicated that operation for the condition was seldom indicated or performed. The operation of choice was that described as a modified Gillian's operation.

Mr. R. CHRISTIE BROWN said that he had examined 1,000 women after confinement, and found only fourteen who had a retroverted uterus. No treatment was instigated, and in six months' time seven only had a retroverted uterus. He did not believe retroversion caused the symptoms associated with "uterine congestion." Dr. A. BLOOMFIELD said that most relief was gained when, at the operation for retroversion, other complications were found. Dr. CHISHOLM (Dundee) agreed that retroversion caused symptoms, and that alleviation of these symptoms occurred after operative correction. He did not think that retroversion predisposed to prolapse. Dr. HURTON

THE SECTIONS: SUMMARY OF PROCEEDINGS

AUG. 18, 1934]

(Orpington) had come to believe that retroversion caused more symptoms than was usually thought to be the case. He felt that postural treatment in puerperal women could not receive sufficient stress.

THE PROLAPSE SYNDROME
Mr. A. C. PALMER read a paper entitled "The Prolapse Syndrome: Its Treatment by Vaginal Hysterectomy, with Reconstruction of the Pelvic Diaphragm," with cinematograph demonstration.

The speaker said that when prolapse occurred in women who, in addition, had excessive uterine haemorrhage, the term "prolapse syndrome" was used. Usually two severe operations were required to deal with this syndrome. Mr. Palmer said that the combined operative treatment had been performed by him on sixty-two occasions. Urinary infection was common. It occurred in seventeen cases, but was less likely if a self-retaining catheter was employed. Secondary vaginal haemorrhage was seldom to be seen if the vagina was treated with a daily antiseptic douche. Before the operation was attempted the cervix should be mobile. The operation consisted of anterior colporrhaphy, hysterectomy, posterior colporrhaphy, and perineorrhaphy. He then illustrated the operation with a film to an admiring audience, who, if they were critical of its necessity and of the severity of the operation, were unstinting in their praise of the demonstration.

SECTION OF NEUROLOGY, PSYCHOLOGICAL MEDICINE, AND MENTAL DISEASES

Friday, July 27th

THE MECHANISM OF PAIN

With Mr. NORMAN DOTT (Edinburgh), a Vice-President, in the chair, Professor DAVID WATERSTON (St. Andrews) opened a discussion on pain.

Professor Waterston said that the mechanism of pain production was as yet unknown. We did not realize with certainty whether the thalamus was the centre—if indeed there was a "centre"—nor what the effective structures and end-organs in many structures were. Different structures had very different sensitivity to pain—for example, the skin and the alimentary canal. He believed the problem of the mechanism of pain in the viscera would not be solved until we knew more about its mechanism in the somatic tissues. He referred to his own experiments in which various tissues were tested with nerves and needles. The epidermis was well supplied with nerves and had many free nerve endings, yet it was not sensitive to pain. Its nerves might be injured or divided without pain resulting. The dermis gave an acute pain response; subcutaneous tissue was relatively insensitive; acute pain was caused by the passage of the needle through the fibrous aponeurosis of a muscle, but in the muscle tissue proper the sensation was a dull feeling of pressure. Pricking the wall of a vein usually caused little pain, but with arteries the pain was immediate, severe, and sickening. Pain arose from muscles which contracted without adequate blood supply, and Sir Thomas Lewis had discovered that there was produced locally in the muscle a chemical stimulus which he called the "p substance." Professor Waterston believed that some such substance was probably responsible for pain in other tissues too. "Referred," or, as he wished to call it, "heterotopic," pain might be abolished by the injection of local anaesthetics at its site, and it had been found that a similar result followed the injection of normal saline. This suggested that even "referred" pain might be due to a "pain substance" produced in the tissues.

Mr. JOHN MORLEY (Manchester), dealing with abdominal pain, said it was well known that while the gastrointestinal tract was insensitive to mechanical stimuli such as pin-prick, the peritoneum was very sensitive. He did not believe in the viscerosensory radiation of gastrointestinal pain in Mackenzie's sense. Every surgeon knew that in acute appendicitis the inflamed appendix would be found under the site of maximum tenderness, and this was variable, whereas the site of theoretical referred pain was fixed. He believed the pain was produced not from

the viscus but from the overlying peritoneum, and it was radiated to the more superficial sensory branches of the somatic sensory nerves which supplied the peritoneum.

Dr. MACDONALD CRITCHLEY, speaking of the psychological aspects of pain, said that preoccupation with the pain was constant, but other concomitants depended on circumstances. The sufferer's sense of time was disorganized. Depression was unusual. In rare cases there was stimulation of the special senses, especially the colour sense. He also spoke of the variations in susceptibility to pain. Refinement and education increased it, and on the other hand there were rare individuals who seemed to be devoid of all susceptibility to pain. One such man exhibited himself as the "human pin-cushion." These persons experienced at most a mild discomfort when needles were stuck into them, and they allowed their teeth to be extracted without anaesthetics of any kind.

Dr. H. CRITCHON-MILLER said that, while pain might be a definite form of sensation, different experiences, and the doctor's responsibility was to relieve whatever the patient complained of as pain. The fact that the patient confused a definite form of sensation with the subjective manifestations of mental conflict was not relevant. When a boy ate green stolen apples there might be both physical and mental resultant reactions—gastro-intestinal pain and fear of punishment—and confusion resulted in the boy's mind. It might be protracted subjectively, and similarly pain might occur as a reaction to any "shame unpublished." In other cases the complaint of pain was calculated—unconsciously—to secure an environment or promote a form of behaviour only appropriate to a less mature individual. Again, the evasive purposes of psychogenic pain might be very far-reaching.

Dr. T. GWYNNE MITLAND (Liverpool) said that as a result of conditioned reflexes neutral stimuli might be welcomed with signs of pleasure or received with signs of pain. This showed the adaptation of the organism, and there appeared to be no limit to the possibilities of "substitution phenomena." By frequent exposure to pain the threshold was apparently raised, as in the prize-fighter or the Indian fakir. The ecstasy of the martyr was explained by distraction, and this accounted also for the discomfort the football enthusiast would endure. Conversely, aggravation occurred. A mother's distress at a child's scratch or bloody nose made the child apprehensive. Soothing words and cuddling were not calculated to raise the child's endurance of pain. The Spartan mother made men of her sons, and this was not done by neglect. Those who had charge of children should give the hurt child merely what attention was necessary for remedial demands, and pain that was inevitable would then have its proper place.

Dr. J. PURDON MARTIN discussed the features and mechanism of certain forms of pain in organic nervous disease. There were no end-organs for the reception of pain stimuli in the central nervous system, and pain resulting from nervous lesions was apprehended pathologically as a result of lesions of the conducting system. The signs and symptoms in cases of lesions of the thalamus constituted the most remarkable pain syndrome in medicine. It consisted of spontaneous pain together with a peculiar over-reaction to pain stimuli. A similar reaction occurred during the recovery of divided nerves, and it began about ten days after the injury, which was roughly about the same time as changes might become apparent in the central cells. In trigeminal neuralgia we encountered pains that were excited by stimuli which were not "pain stimuli"—for example, light touch and muscular movement. The most intense experimental stimulation of touch organs did not give rise to pain, and he suggested that in neuralgia there must be an escape of impulses from one kind of nerve fibre to another.

In discussion, Dr. LIONEL WEATHERLY (Bournemouth), the President of the Section, described a case in which a woman committed suicide by covering herself with burning coals. Drs. MURDO MACKENZIE, J. S. MANSON (Warrington), E. FALKNER HILL (Manchester), and C. W. HUTT having spoken, Professor WATERSTON replied to the points raised in the discussion.

SECTION OF PATHOLOGY, BACTERIOLOGY,
AND BIOCHEMISTRY

Friday, July 27th

ANTISEPTICS IN CONTROL OF BACTERIAL INFECTIONS

With the President, Professor J. W. BIGGER (Dublin), in the chair, Professor C. H. BROWNING (Glasgow) opened a discussion on the value of antiseptics in the control of bacterial infections.

Professor Browning said that so far as ordinary bacteria were concerned success could only be looked for at present when the drug could be brought into close contact with a localized infection in a wound or cavity. Lister had used antiseptics primarily to prevent the access of organisms to wounds, and, though he applied carbolic acid to the soiled tissues of a compound fracture, he fully appreciated the harmful action of the antiseptics then known on living tissues, and never applied them to abscess cavities. The need of new antiseptics which would not damage tissues was therefore manifest. Professor Browning described the curative value of antiseptics on artificially infected wounds in guinea-pigs. The antiseptic was applied three-quarters of an hour to two hours after the infecting organism, and for a very short time. Of twenty-two such animals treated with acriflavine all but one survived, while five out of seven treated with phenol died, and fourteen treated with normal or hypertonic saline all died. Similar results had been obtained by other observers in skin wounds in mice. Even artificial infection of the mouse's peritoneum had been treated with some success by intraperitoneal injection of acriflavine up to an hour after infection. Local suppression was difficult to produce in laboratory animals and human results were difficult to control, but Graham had shown, in a case of multiple burns in the human being, that those dressed with acriflavine healed more rapidly than controls dressed with wet boric lint. No known antiseptic would sterilize infected kidneys, but of acriflavine combined with alkalinization. Sterilization of bile passages and of the meninges by antiseptics had not yet been achieved, and attempts to modify the intestinal flora had also been unsuccessful. No success had been achieved in curing generalized infections, with the sole exception of pneumococcus septicaemia in mice, which had been cured by optoquine. Professor Browning then discussed the characteristics required in an antiseptic. Rapidity of action was not essential, and organisms, though still viable, might be modified by the antiseptic so as to become susceptible to the defence forces of the host. An important property of some of the new antiseptics was that they retained their full activity in the presence of serum, and were not fixed by the tissues. Some of the new antiseptics were also distinguished by the high concentrations which could be used without causing tissue damage.

Dr. R. J. V. PULVERTAFT said that success in chemotherapy was more likely to follow research into bacteriostatic than into bactericidal values of antiseptics. Bacteriostatic values varied with the phase of growth of the organism, and a concentration which was effective if added before inoculation might be almost without effect if added in the phase of positive acceleration. There was need of standard strains of a number of organisms against which antiseptic activity could be measured. There was salts were useless in generalized infection; and so-called pyelitis was rarely benefited by so-called urinary antiseptics. Dr. G. W. THEOBALD said that we knew very little about the virulence of organisms or the resistance of patients, nor did we know how antiseptics acted. Bolton and Brown's experiments with heavy metals made former views untenable. In the body quinine killed malarial parasites, and emetine the *Amoeba histolytica*, in concentrations far below those necessary *in vitro*. This suggested that the best results would be obtained when the antiseptic reacted with the tissues to make the environment unfavourable to bacteria. Neither life nor antiseptic activity was purely a matter of physics and

chemistry. Dr. Theobald believed that puerperal pyrexia could be stamped out by free use of 1 in 1,000 solution of mercury biniodide, and that intravenous mercurochrome was of value in blood infections with the coli-typhoid group of organisms.

Dr. M. SYDNEY THOMSON, after discussing the work of Selli, Cornbleet, Hill, and White on the antibacterial properties of the normal skin, referred to certain applications of dermatological interest. Trichloroacetic and salicylic acids, zinc oxide, and ichthylol were dealt with. He mentioned the possibilities of interaction between chemicals and of sensitization. He emphasized the importance of physical damage to cells as determining a *locus minoris resistentiae*, which not only delayed healing, but also formed a site to which organisms from within or without could gain access, thus nullifying the effects of antiseptics.

Mr. V. ZACHARY COPE said that Lister had claimed to keep operation wounds aseptic by treating with antiseptics everything that came in contact with them. He never claimed to be able to purify by antiseptics wounds which were already septic. Almroth Wright had shown the futility of applying antiseptics to the surface of deeply infected tissues, and of attempts to obtain a direct bactericidal effect by intravenous antiseptics. Flavine was an advance, as it retained its bactericidal activity in the presence of serum, but the problem of dealing with deep infections was still unsolved. Antiseptics were of value where aseptic operative technique was unreliable, and when applied to superficially infected wounds within four hours of infliction.

Sir ARNOLD LAWSON dealt with eye infections, and said that the conjunctiva had a mild self-sterilizing power and partly to the bacteriolytic ferment, lysozyme, and therefore tended to cure themselves. Conjunctival infections assisted by bathing with a bland lotion, while in severe infections powerful antiseptics, especially silver salts, were valuable. Lavage was, however, the important thing in both conjunctivitis and corneal ulceration, and much harm was done by too energetic antiseptic treatment. For prophylaxis—for example, in burns—flavine was ideal, but its lack of penetration restricted its value in active lesions.

Mr. J. S. WOOD (Parkstone) said that different species of animal showed marked differences in susceptibility to infection, in response to antiseptics, and in power of healing. Continental reports were favourable to acriflavine for treating mastitis in cows. He found glycerine unequalled for treatment of wounds. Powdered permanganate diluted with starch powder was valuable for foul, necrotic wounds. He used saline baths extensively for foot wounds in horses.

Dr. L. P. GARROD said that though the therapeutic value of antiseptics was open to argument experimental work had established their prophylactic value in aborting infections in recent wounds. Browning's work was insufficiently known and appreciated. The clinicians' disclaimers based on imperfect technique and partly to the lack of accepted standards for testing antiseptics. There were no generally accepted methods for judging penetrative capacity, power of disinfecting skin, or even killing power in the presence of blood or serum.

STAPHYLOCOCCAL INFECTIONS

Dr. H. J. PARISH (Orpington) read a paper on the specific prevention and treatment of staphylococcal infections. He said that opinion as to the value of staphylococcal vaccines was still divided, and that both Besredka's local immunization by "antivirus" and the use of bacteriophage had been found wanting. This left toxoid and antitoxin for consideration. He discussed the properties of staphylococcal toxin, and said that its haemolytic activity to rabbits' cells was proportional to its dermonecrotic activity and to its lethal effect on laboratory animals. The relation between leucocidins and haemolysins was still uncertain, but the therapeutic and toxic sera in this country contained antileucocidin. Antitoxin could protect animals against many lethal doses of toxin, and gave them some protection against live

Aug. 18, 1934]

THE SECTIONS: SUMMARY OF PROCEEDINGS

virulent cultures. Circulating antitoxin was present in variable amounts in normal human beings, and superficial infections caused little departure from the normal. High titres were recorded in pyaemia and deep-seated infections, and following immunization with toxoid. Several observers had reported good results from toxoid injections in acne, furunculosis, and syphilis; others had been less successful. Some good results were reported with antitoxin in acute infections, but there were many failures. Our attitude, both to toxoid and to antitoxin, should therefore be one of cautious optimism.

Dr. D. S. MURRAY (Richmond, Surrey) had found that toxoid injections usually caused a rise in circulating antitoxin; the optimum effect was probably obtained by the sixth dose. Of his first 100 cases eighty-six showed clinical improvement, and nine out of twelve cases of blepharitis were rapidly cured. Dr. L. P. GARROD had had less encouraging results, and found that a rise in anti-haemolysin titre might occur without clinical improvement. Antibacterial immunity was probably important as well as antitoxic immunity.

SECTION OF RADIOLOGY AND ELECTROTHERAPEUTICS

Friday, July 27th

RADIOLOGY OF STOMACH AND DUODENUM

Under the chairmanship of the President, Dr. J. H. DOUGLAS WEBSTER, Dr. C. COCHRANE SHANKS opened a discussion on the stomach and duodenum after operation.

Dr. Shanks said that radiological examination of the intact stomach was easy, but this was not so after operation, on account of the difficulties in filling the organ, sphincteric control being abolished. He overcame this by using a truss and pad, which was applied to the abdomen and compressed the jejunum. After posterior gastro-jejunostomy there was immediate passage of barium into the jejunum, most of it having left the stomach in seven to thirty minutes. If this did not happen there must be something wrong with the stoma. The complications following posterior gastro-jejunostomy in various loading of the jejunal loop, recurrent ulceration in various situations, jejunitis, narrowing or malposition of the stoma, and duodenal ileus. Dr. Shanks described the x-ray appearances in these conditions, illustrating his remarks by a series of films. After partial gastrectomy by the Billroth II method or the Polya type, recurrent ulcers were less common than after posterior gastro-enterostomy. In cases of carcinoma, the efferent loop, cause obstruction of the whole stoma, the efferent loop, or the afferent loop. Dr. Shanks described the radiological appearances after the various modifications of the Polya operation. Overloading of the afferent limb sometimes occurred in the Polya-Moynihan operation, but never in the Polya-en-Y type. In complete gastrectomy there was sometimes considerable dilatation of the jejunum near the oesophageal stoma simulating the fundus of the normal stomach.

Dr. A. E. PAYNE (Leicester) stressed the importance of noting every feature of preliminary and preoperative radiological examinations in cases of ulcer and carcinoma. Here diagnosis was not enough. The extent, fixation, and outside connexions of such lesions were important because they influenced the desirability of a subsequent operation and its nature. The fluoroscopic methods of "graduated compression and aimed picture-taking" advocated by Gregory, Cole, and Berg had contributed much to the diagnosis of gastric and duodenal lesions. The mucosal rugae had a definite anatomical arrangement, and abnormalities in these folds, combined with the diagnosis more sure than by other methods. It was rarely wise to pronounce an ulcer healed, but the disappearance of the niche and of localized deep tenderness, combined with the disappearance of occult blood from the stools, was fairly reliable evidence of healing. It was the disappearance, and not the absence of tenderness that was important. Mucosal relief methods would not help much in the

diagnosis of new growths. Such cases were almost always so advanced when first seen that they were difficult to miss by ordinary methods. This state of affairs would not be remedied until every patient over 35 with gastric symptoms was thoroughly investigated within a fortnight of their onset. Dr. Payne showed many films to illustrate his paper.

Dr. G. VILVANDRÉ said that melaena was not necessarily the result of recurrent ulcer after gastro-enterostomy. He had had two cases in which diverticulitis was the cause. Indigestion and flatulence were sometimes due to a too high position of the stoma, so that the stomach emptied slowly. Erosion of a jejunal ulcer might give rise to gastro-jejuno-colic fistula, which was shown by the immediate appearance in the colon of barium when the patient swallowed it. Great tenderness over the ulcer was usually a feature of such cases. He had never found it a barium enema was dangerous. He had never found it necessary to use special apparatus for gastric cases. Biloculation of the stomach was usually due to ulcer of the lesser curvature, but adhesions and carcinoma sometimes gave similar x-ray appearances. Diaphragmatic hernia of the stomach could also simulate biloculation. He disagreed with Dr. Payne when he said that gastric ulcers rarely, if ever, became malignant. (Dr. Vilvandré showed films of a case in which this, he thought, had actually occurred.) The use of alkaline powders in patients suffering from gastric symptoms was dangerous in that valuable time was lost if such symptoms were due to carcinoma. Duodenal diverticula, although their discovery was a source of great joy to the radiologist, did not account for the patient's symptoms. Duodenal ulcers could be healed by medical treatment, but he thought that few cases were healed permanently without operation.

Dr. H. W. A. POST, discussing the mucosal technique in the diagnosis of some lesions of the stomach and duodenum, described the anatomy of these organs with particular regard to the mucosal rugae. He said that patients were placed in any desired position for screening. The essentials of the technique were adequate compression and ability to change quickly from fluoroscopy to radiography. The exact stage of a gastric ulcer could be demonstrated, including its depth in the stomach wall and the degree of extension outside it. This technique was also an aid in the diagnosis of malignant ulceration. The diagnosis of gastritis was difficult, and should, he thought, be made with caution. Spasm of the duodenal cap did not necessarily indicate duodenal ulceration, and the latter should not be diagnosed unless seen. Small ulcers of the duodenal cap might not give rise to spasm or deformity. Dr. Post exhibited films illustrative of the mucosal technique.

Dr. G. R. MATHER CORDINER said that demonstration of duodenal ulcer by ordinary methods was often indecisive and always a matter of chance. The classical deformities only existed in advanced and contracting ulcers. He used Berg's "dosed compression" technique which revealed the details of the mucosal relief. Duodenal ulceration could be excluded in the presence of a normal mucosal picture. The ulcer niche—the only sign on which diagnosis was possible—could be consistently demonstrated, usually in two planes—*en face* and *en profile*—and very small ulcers could be demonstrated. He thought it would be agreed that fluoroscopic evidence should be confirmed radiographically, and in this technique films could be exposed at any time during the screen examination by a quick-change device. Ulcer deformity was produced mainly by cellulitis in the adjacent mucosa, and there were many conditions which tended to obscure it. Dr. Cordiner exhibited films illustrating the ulcer niche in the *en face* and *en profile* views.

Dr. G. B. BATTEN asked Dr. Cordiner whether his films were taken in the upright or in the prone position. Dr. CORDINER replied that they were taken in any position which seemed desirable. Dr. A. C. MOONEY (Plymouth) asked Dr. Cordiner what percentage of ulcers with a normal duodenal cap were demonstrated by this method when they could not be shown by any other. Dr. CORDINER replied that the percentage was probably 30 to 40. Dr. VILVANDRÉ said that, although Dr. Cordiner

scoffed at screen examination, most eminent radiologists used it with success. Compression in these cases was not a new technique. It was not enough to demonstrate an ulcer. The radiologist must say whether it was early or late, and what was the condition of the stomach. Cellulitis in connexion with an ulcer was a new term to him. The PRESIDENT said that he was surprised that the use of belladonna had not been mentioned in the discussion. He was convinced of the value of re-examination after its administration. Dr. C. H. C. DALTON (Ipswich) said that duodenal examinations were always difficult, but never more so than in patients who were too well covered. Dr. SHANKS said that he agreed with Dr. Payne that it was the disappearance of tenderness that was the important point as a sign of healing in duodenal ulcer. He did not believe that a barium enema was dangerous in cases of gastro-jejuno-colic fistula. He had never seen perforation occur, although he had seen it happen during ordinary barium meal examinations. He thought that partial gastrectomy was a better operation than gastro-jejunostomy. The mucosal relief technique was interesting, but the results were not yet sure enough to warrant laparotomy on the radiological findings.

SECTION OF TROPICAL DISEASES

Friday, July 27th

TYPHUS IN THE TROPICS

With the President, Professor WARRINGTON YORKE (Liverpool), in the chair, Sir JOHN W. D. MEGAW opened a discussion on typhus fevers in the Tropics. His paper was printed in full in our issue of August 11th (p. 244).

Dr. J. L. GILKS (Petersfield) said that the first description of typhus in East Africa was given by himself in 1920. It was then suggested that the vector was a tick, though it was puzzling that the disease was almost entirely confined to Europeans, only one or two cases having been noted in Indians and only one in an African. Tonking (1932) showed that the typhus of Kenya was a tick, Rickettsia disease, and in 1933 Roberts and Tonking proved that the tick *Rhipicephalus sanguineus* was the transmitter. Europeans only are attacked, owing to the fact that other races are not dog lovers. In Zanzibar and Tanganyika Territory typhus was not a problem, but recent observations in Uganda had shown that there resembled the European variety of the disease, transmitted by lice, but differing from the ordinary epidemic form in its lower mortality and in the low titre of the Weil-Felix reactions.

Dr. WILLIAM FLETCHER described the two forms of typhus met with in the Federated Malay States—rat typhus, associated with urban conditions and transmitted by the rat flea, and a scrub typhus which was transmitted by a mite, *Trombicula*, which inhabited certain species of palm trees. *B. proteus* X 19 was not agglutinated, but the "K" strain was agglutinated in high dilutions.

Dr. A. FELIX dealt with the serological reactions of various types of Rickettsia. There was a complete cross immunity only between Rickettsia containing the X 19 antigen. The importance of agglutinin production in the rabbit was emphasized. The different members of the typhus group fell into the same group, whether classified according to insect vector or agglutinin reaction.

Major G. R. McROBERT, I.M.S. (Burma), said that typhus occurring in the hot season in Iraq and South Persia was more severe clinically than the same disease in cold weather. Variations in climate and race were responsible for wide differences in the virulence of any particular variety of typhus. In treatment it was important to protect patients from heat-stroke, to which they were particularly liable. Intensive hydrotherapy, both internal and external, was of great value, and treatment especially. Adequate sleep was essential, and treatment must not be stopped too soon. Lumbar puncture was useful in cases of severe delirium. After-effects of typhus were frequently unemphasized—they consisted of lack of

concentration, irritability of temper, and defective memory. Major-General D. HARVEY suggested that, though strongly suspected, the transmission of typhus by the tick in India had not yet been definitely proved. Dr. R. C. ROBERTSON (Shanghai) said that in China typhus was apparently of the louse-borne type. Infections due to *Bacillus pyocyaneus*, which was not uncommon in ear infections and in the intestinal tract of Chinese, sometimes gave a false positive Weil-Felix reaction. Dr. C. M. WENYON suggested that larval dog ticks might possibly feed on small rodents such as rats, and thus become infected with Rickettsia, since they also apparently acquired trypanosome infections from rodents. Sir S. RICKARD CHRISTOPHERS, on the other hand, believed that larval dog ticks always fed on dogs. Dr. H. A. YENIKOMSHIAN (Beirut) stated that in Syria epidemic typhus occurred in the winter, sporadic cases occurring in the summer and autumn.

Sir JOHN W. D. MEGAW, in reply, said that though in India there was no laboratory evidence of transmission by the tick, yet the number of cases that had developed typhus after tick bites was too great to be accounted for by pure chance. On the other hand, there was no evidence in India of direct transmission of typhus from man to man, though it was quite possible that other forms of typhus than the tick-borne typhus might occur in India.

SPRUUE

Dr. N. HAMILTON FAIRLEY read a paper on "Sprue and its Modern Treatment." Although the essential cause of sprue was unknown, the syndrome was explicable in terms of malabsorption of fat, glucose, and calcium in the small intestine, and defective gastric secretion implicating the intrinsic factor. The intestinal features were best treated by rest in bed and a graded series of high protein, low carbohydrate, low fat, and adequate vitamin diets: meat or milk protein was equally valuable. The megalocytic anaemia responded specifically to liver extract by mouth in adequate dosage. Parenteral injections of liver extract were less satisfactory. Tetany responded to the high protein diet, especially when reinforced by calcium lactate. Under this regime patients recovered in from six to twelve weeks, and were allowed to return to the Tropics after remaining well with a normal blood picture for six months after ceasing treatment.

Major G. R. McROBERT, I.M.S. (Burma), emphasized the importance of the institution of treatment at the earliest possible moment after the establishment of the diagnosis. Response to high protein and liver therapy was quite satisfactory in the Tropics, and immediate invaliding to Europe was not essential, and in the case of Anglo-Indians impossible. Dr. Q. B. DE FREITAS (British Guiana) stated that he had seen a case of sprue in a negress, while Dr. R. L. SPITTEL (Ceylon) had also seen the disease in natives. He advocated alkaline treatment and frequent colonic irrigation.

SECTION OF ORTHOPAEDICS

Friday, July 27th

ACUTE AND CHRONIC SPRAIN

With Mr. HARRY PLATT, the President, in the chair, a discussion on acute and chronic sprain was opened by Mr. W. ROWLEY BRISTOW.

Mr. Bristow said that in hospital practice, particularly as seen by the medical student, a sprained joint was too often regarded as an uninteresting and unimportant condition. After qualification, however, he found that his reputation as a good doctor would be made, not by his knowledge and management of cerebral tumours, but by his handling of the sprained wrist and the Colles fracture. From every point of view a sprained joint was an important condition worthy of the greatest attention. When a joint was threatened with injury the muscles that controlled it formed the first line of defence. When the strain, and were therefore liable to injury. Partial rupture—the tearing of a few fibres—was far more common

THE SECTIONS: SUMMARY OF PROCEEDINGS

AUG. 18, 1934]

than a complete rupture. Diagnosis presented little difficulty, and it was only necessary to exclude fracture by adequate x-ray examination. Mr. Bristow then considered the general principles governing the treatment of acute and chronic sprain, illustrating his remarks by reference to lesions of the ankle, spine, knee, and shoulder. The breaking down of adhesions was shown to be a relatively simple manoeuvre in the treatment of chronic sprain well within the province of the general practitioner. Unless the profession took steps to practise manipulative methods more widely, patients would continue to go to bone-setters.

Mr. C. GORDON IRWIN (Newcastle-on-Tyne) drew attention to the great importance of sprained backs in the iron workers and pit men. It had been found that thirty-nine out of every 1,000 injuries encountered in the iron trade were sprained backs, and that the average time off work was twelve weeks; in the coal trade the incidence was 70 per 1,000, with an average period of disability of twenty-two weeks. If these cases were not dealt with promptly, permanent disability resulted, and the patient was awarded compensation, which practically amounted to an annuity. He had found that few workers came with an acute back sprain; most of them had already spent a number of weeks in bed hoping for the best. Definite adhesions were present in the erector spinae, which in most cases could be broken down by manipulation without anaesthesia, and the result of such treatment was often a dramatic cure.

Mr. T. P. McMURRAY (Liverpool) pointed out that a sprained ligament usually gave way at one of its bony attachments. An effusion of blood and lymph occurred at the site of rupture, and when healing took place scar tissue formed. The object of treatment was therefore twofold: first, to protect the ligament against strain while healing was in process, and secondly, to ensure that the scar tissue which ultimately formed should not lead to limitation of movement in the joint. The first was best accomplished by protective strapping and the second by encouraging careful movement of the joint at the earliest possible moment. In acute sprain pressure by a pad over the point of rupture did more harm than good; it could only interfere with the local blood supply and so retard the processes of repair.

Sir MORTON SMART reminded the meeting that the inter-spaces between the bones, ligaments, and synovial membrane of a joint were filled with delicate areolar connective tissue which carried the small blood vessels, lymphatics, and nerves supplying the joint. The most trifling sprain invariably injured this areolar tissue. In acute sprain it became infiltrated with blood and lymph, which later underwent organization, with the formation of fibrous tissue. Thus in both acute and chronic sprain the elasticity of the areolar tissue was interfered with, so that the rapid adaptive changes that occurred in it during normal movement of a joint were no longer possible. This was the most prolific cause of persistent discomfort and imperfect function in sprained joints, and was often the result of over-rest. There was no doubt that treatment by rest was dictated chiefly by the presence of pain; but prolonged rest, continued long after the original effusion had taken place, always led to rapid wasting of the muscles. As the circulation in the peri- and intra-articular areolar tissue was largely dependent upon normal activity of the muscles, abolition of movement must inevitably delay the absorption of the effusion into the areolar tissue. He submitted that muscle action, as a means of assisting the natural processes of repair after injury, had not received the attention that it deserved. The benefit derived from the physiological changes resulting from painless muscular action, produced either naturally or by the correct type of electrical stimulation, could not be too strongly stressed. In many cases the patient was quite unable to perform just those movements known to be beneficial, and this was the point at which controlled electrical stimulation was called for. A more radical form of treatment for large joint effusions was described by Mr. ELDON TUCKER. He used a small trocar and cannula to pierce the skin and, after withdrawal of the trocar, passed an aspirating needle through the cannula

into the collection of fluid. In this way it was possible to draw off the blood-stained serum without the slightest risk of introducing organisms from the skin. In some cases of so-called muscle hernia following injury the swelling was really due to intramuscular haemorrhage, giving rise later to an encysted collection of serum which failed to absorb. This condition could often be successfully treated by aspiration. Mr. G. R. GIRDLESTONE (Oxford) was convinced that manipulation was often employed too early in the treatment of chronic sprain. For many weeks after an injury a ruptured ligament was surrounded by young, active, and vascular fibrous tissue. At this stage manipulation could only stimulate this tissue to further activity with the ultimate formation of even more dense adhesions. If a patient with a sprained shoulder of several weeks' duration came for treatment, and marked limitation of movement was found to be present, manipulation under anaesthesia ought not to be performed for at least three months after the original injury. Mr. WHITCHURCH HOWELL recommended traction in acutely sprained joints where a position of flexion was the only one affording the patient any comfort; such a vicious position had to be dealt with promptly to avoid the development of secondary contractures.

SECTION OF DERMATOLOGY

Friday, July 27th

THE TREATMENT OF LUPUS VULGARIS

Dr. RUFERT HALLAM (Sheffield), the President, who was in the chair, opened the meeting with a welcome to Dr. Svend Lomholt, who had come from Copenhagen, and to Dr. Wettenhall of Melbourne. The latter, who is to be a secretary of the meeting of the B.M.A. in Melbourne in 1935, wished him to convey to dermatologists a cordial invitation to Australia. Dr. Wettenhall then himself put forward inducements compensating the time required for the long voyage, which, however, could, if necessary, be satisfactorily done in ten weeks.

Dr. SVEND LOMHOLT opened the discussion on the treatment of lupus vulgaris. This paper is printed in full at page 291 in this week's issue of the *Journal*.

Dr. J. E. M. WIGLEY expressed his admiration for Dr. Lomholt's technique. The administrative routine, and particularly its economic aspect, was a more difficult problem in this country. He agreed with Dr. Lomholt that the efficient treatment of lupus vulgaris could only be carried out on patients who were kept in hospital for at least several weeks. He hoped that the London County Council would see its way to the establishment of a number of light stations in which this specialized therapy, and the equally important general carbon-arc baths, could be given regularly in association with adequate feeding. He urged the importance of school medical officers being familiar with the appearance of lupus nodules, so that cases should come under treatment in the earliest possible stage. He considered erosion of the nodules and packing with powdered potassium permanganate a valuable method in certain cases. He had been using the Finsen-Lomholt lamp at Charing Cross Hospital for four and a half years, with results superior to those he had obtained with the Finsen-Reyn lamp. These results, however, fell a good deal short of those which Dr. Lomholt was able to get in Denmark, and this he ascribed to the administrative difficulties indicated above.

Dr. W. J. O'DONOVAN submitted statistical information showing that of the cases attending the London Hospital as many came from the provinces as from the London area. In order that the administrative questions raised by his friend Dr. Wigley should receive due consideration it was to be remembered that the removal of the London cases would not relieve the clinics of their responsibilities for the provincial ones, nor would it lessen their overhead expenses to set up a new lupus clinic. With lantern slides he demonstrated his belief that ectropion of the lower lids was most commonly the sequel of radium or

THE SECTIONS: SUMMARY OF PROCEEDINGS

[THE BRITISH
MEDICAL JOURNAL]

x-ray therapy, and he stressed the opinion that lupus cancer was known and rare, but that cancer upon lupus after x-ray treatment was not well known, but was far from rare. He mentioned the value of salvarsan and mercury in some cases of lupus affecting the muzzle area. He illustrated the lamentable results of plastic surgery on lupus of the face when not performed by experienced plastic surgeons, and the satisfactory cosmetic effect of painted aluminium noses. His last slide was of a woman, aged 89, with extensive lupus of the face, who had had both legs amputated for tuberculous joints. She had had x-ray carcinoma in the root of her nose, treated by radon. She had been a patient of Koch in Berlin and of Sir Stephen Mackenzie, and, with her lupus still active, had survived two generations of dermatological therapeutic experience.

Dr. WETTENHALL (Melbourne) pointed out the rarity of lupus vulgaris in Australia, and, on the other hand, the frequency of rodent ulcer, both of which facts were attributable to the prevalence of sunlight. Nutrition in Australia was also of a high order, which might account partly for the absence of lupus vulgaris. He agreed that antisyphilitic remedies were often useful in obstinate cases of lupus vulgaris. Dr. H. SEMON advocated the more general use of tuberculin as a supporting treatment among out-patient sufferers. Regarding local applications he wished to draw attention to "pyotropine" (Lupusan Berlin). Its particular attraction was the excellent and cosmetically pleasing scar tissue produced. Dr. J. BEATTY (Cardiff) agreed that pyotropine was a valuable remedy, and mentioned that he had introduced a substitute, details of whose composition he had given in the *Journal* some years ago, because pyotropine was obtained only with difficulty in this country. He was of the opinion that Dr. Lomholt had put the matter too strongly when he said that curettage and cauterization never cured. Dr. NORMAN BURGESS (Bristol) recommended the following substance allied to pyotropine: calcium carbonate, one part; solution of potassium hydroxide, 50 per cent., two parts; and a half parts; ac. carbol. liq., one part. Dr. A. M. H. GRAY was of the opinion that lupus vulgaris predisposed to cancer, even in the absence of x-ray treatment. Where the Finsen-Lomholt treatment was not available he thought it best to give a general anaesthetic, scrape well, and apply potassium permanganate or pyotropine, rather than make repeated applications of a caustic without an anaesthetic.

Dr. LOMHOLT, in reply, agreed that an artificial nose was often preferable to a graft. Tuberculin treatment had been tried extensively at the Finsen Institute, but it had been abandoned. He had seen cases of carcinoma on lupus; in all but one x-ray treatment had been given. Dr. RUPERT HALLAM hoped that the paper which they had just heard from Dr. Lomholt, and the remarks of the other speakers, would have a far-reaching effect. All were agreed that the treatment in this country was lamentably unsatisfactory. In spite of medical inspection of school children few cases presented themselves in an early stage. He was afraid there was little chance of improvement unless the treatment was organized and controlled by some central body. He believed that the Finsen-Lomholt treatment was the treatment of choice. Failing the facilities and funds for this method he advocated a general anaesthetic and scraping with a sharp spoon, followed by the application of powdered potassium permanganate.

FUNGUS INFECTIONS OF THE FEET

Dr. A. M. H. GRAY, opening a discussion on fungus infection of the feet, said that inflammation of the skin might occur in two ways: (1) by the growth of the fungus in the horny layer; and (2) by the transmission of the fungus or its toxins from a local infection to a distant site: reactions of this type were spoken of as dermatophytids. The common types of fungus infection of the feet were: (1) the intertriginous, (2) the vesicular, (3) the hyperkeratotic. In the first type, the most common, the skin between and under the toes was affected; in chronic cases it became thickened into a white layer—

the so-called "soft corn." In more active cases an eczematous eruption spread on to the foot. This might be bullous; secondary infection was not uncommon. In the vesicular form the vesicles were small and deep-seated. Frequently the fungus could not be demonstrated in these cases; some belonged to the group of the dermatophytids. A thickened horny layer, which was very liable to fissuring, was found in the hyperkeratotic variety. Cure was not easy, probably because the hyperkeratosis prevented the penetration of fungicides. Reinfection was very common; this he believed was because the nails were frequently involved. In the acute vesicular types he favoured baths of 1 in 4,000 potassium permanganate. When inflammation had diminished he, personally, strongly recommended Whitfield's ointment. In hyperkeratotic cases 1/4 B dose of x rays was very helpful. Treatment must be continued for some months after apparent cure. The salicylic acid in Whitfield's ointment tended to produce a sodden appearance of the skin; it was his practice on this account to substitute, for alternating periods of a fortnight, boric acid powder for the ointment. Where the nails were found to be involved, they also must be dealt with. Avulsion seemed the only effective procedure. Recurrence might be due to re-infection. When cure was attained all old socks should be destroyed. Shoes should be scrapped if economic conditions permitted. Failing this they should be swabbed out with 2 per cent. formalin. Discussing prophylaxis Dr. Gray said that there were two main methods of prevention of infection: first, by preventing the naked foot from coming into contact with the floor, and, secondly, by using an antiseptic after contact with a possibly infected floor. The use of rubber shoes in swimming baths might well be made compulsory.

Dr. H. CORSI reviewed some aetiological factors underlying Dr. Gray's intertriginous type. It occurred only where skin surfaces were in contact and usually in those whose feet were hot and hyperidrotic and whose footwear did not allow good ventilation of the toes. It was rare, therefore, in women. It was common in well-to-do males, because they wore thick socks and well-fitting shoes of relatively impermeable leather. Young adults of this class spent much of their time at games: hence the term "athlete's foot." With advancing years sweating of the feet was less common, and the disease tended to spontaneous cure. The condition, therefore, was primarily an intertrigo. The fungus had been found in a host of fomites; perhaps it was ubiquitous.

Dr. H. SEMON took a pessimistic view of the possibility of extirpating the disease in the more chronic types of infection. He was gratified to note that Dr. Gray had emphasized the concurrent nail infection. There was no reliable method of dealing with tinea unguium; even avulsion was usually unsuccessful. As regards local disinfection of interdigital spaces he recommended para-nitrophenol applied after decortication treatment with 12 per cent. salicylic acid in spirit. He shared Dr. Corsi's views on the prime necessity of rendering the soil unfavourable to the growth of the fungus, and it seemed rational, if at present unconventional, to urge a more widespread use of the sandal. Dr. M. J. FENTON recommended avulsion of nails under a solution of iodine in alcohol. The vacuum created on raising the nail drew the fluid into the infected parts of the matrix. Dr. J. T. INGRAM (Leeds) suggested that cases fell into two categories: (1) those in which the organism was of prime importance, and (2) those in which the soil was of more importance. The parallel to seborrhoeic infections was close. In the first group simple measures commonly cured the patient with ease. In the latter, when great difficulties were encountered, fractional doses of x rays were of undoubted value. Familial infections were not uncommon. These would be avoided if a child or youth who had tinea cruris also received treatment for tinea of the toes. In schools the associated infection of the toes was commonly overlooked. Dr. J. F. L. WHITTINGDALE (Sherborne) stated that tinea of the toes was a great trouble in schools. General practitioners were not well informed on the subject. Consequently numbers of boys came to school

AUG. 18, 1934]

THE SECTIONS: SUMMARY OF PROCEEDINGS

THE BRITISH
MEDICAL JOURNAL 323

suffering from so-called eczema of the feet; sometimes even with tinea cruris. He had made it his practice, therefore, to examine all boys at the beginning of each term. Dr. LOMHOLT said the trichophyton test was regularly used at the Finsen Institute. One must remember it was not proof of the mycotic nature of the lesion then present. He had found fungus in the feet of 25 per cent. male and 18 per cent. female students. He recommended treatment with "mycocten," an ester of oxybenzoic acid (Bencard Ltd., London), a substance used also in food preservation.

SECTION OF MEDICAL SOCIOLOGY Friday, July 27th

DEFECTIVE HEARING AS A NATIONAL PROBLEM

With the President (Dr. H. GUY DAIN) in the chair, Dr. G. P. CROWDEN (lecturer in industrial physiology, London School of Hygiene and Tropical Medicine) opened a discussion on defective hearing as a national problem.

Dr. Crowden estimated that there were in this country two and a half million persons suffering from acquired deafness or defective hearing into the causes of rejection years ago, on making inquiries into the causes of rejection of recruits for the Army, he found that the chief single medical cause was old and current middle-ear disease. The causes of acquired deafness were disease, employment, accident, and advancing age, and each presented its own peculiar problems of prevention or correction. He described the use of a gramophone audiometer, developed by the Bell Telephone Research Laboratories in New York, which he had found an ideal instrument for the group testing of children and the detection of early signs of deafness. In a preliminary survey made by this means on elementary school children in Hornsey it was found that 6.6 per cent. of the children had defects in one or both ears, as compared with 0.42 per cent. shown in annual returns for the routine medical inspection of elementary school children. The use of the gramophone audiometer enabled a practical scheme for attacking the problem of defective hearing to be defined, including examination of cases and measurement of defects, medical examination and diagnosis, medical or surgical treatment, retesting of cases, and decision by medical and educational authorities in regard to subsequent care. The experience of the school medical authorities in the borough of Tottenham, where this routine had been followed for the past three years, was most encouraging, for it had proved both possible and practicable, not only successfully to treat a very large proportion of cases of early disease, but to restore hearing to normal in many cases in which the defects were severe.

Dr. A. R. FRIEL, dealing with the problem as seen in a children's clinic, discussed the possibility of reducing the amount of deafness due to diseases of the middle-ear tract. It was nearly always secondary to disease of the nose, throat, or mouth, and it was important to prevent disease by paying attention to the common inflammatory disturbances in these regions. The two common ear diseases found in a clinic were suppurative otitis media and catarrh. When a clinic was newly opened a large number of cases of chronic otorrhoea of a severe type would come forward. In all of these sepsis was at the root of the matter, and in the majority it would be found that the area of sepsis was accessible. For this condition zinc ionization was efficacious. When the area of sepsis was not accessible the patient was sent to hospital for operation. Suppuration and catarrh of the middle ear were both inflammatory in nature, the former being more acute than the latter. When there was a state of acute inflammation rhinitis or tonsillitis would often be found, or, if the child was very young, erupting teeth. In chronic otorrhoea or chronic catarrh of the middle ear, inflammatory conditions of the mouth, nose, or throat would often be found to be absent; they had passed away, but their effects might be lifelong. Recently a method of treatment called "diastolization" had been introduced from Paris, where it was devised by Dr. Gautier. A hollow,

soft rubber bougie, shaped like a comma, was introduced along the floor of the nose between the inferior turbinate and the septum. This acted as a gentle stimulus to the tissues, which stimulus was transmitted to the central nervous system. The vessels contracted, and the glands expressed their secretion. When the bougie was removed the patient, whose nose had been swollen and blocked, was able to blow his nose, and after a few treatments the catarrh disappeared, and the Eustachian tube and nasopharynx were also relieved. Politization was also used to open the Eustachian tube and restore the position of the drum membrane. When tonsils were definitely inflamed and had lost their regular outline they should be removed; he preferred that adenoids be left alone unless they actually obstructed the tubes. In conclusion, Dr. Friel gave some particulars of work at Tottenham, where the medical officer of health, Dr. Kirkhope, had instructed the school nurses to go regularly into the schools and examine the young children to see if they had rhinitis, and send them for treatment whether their ears were affected or not. Children who had been detected in routine testing in the schools or had been tested by the audiometer after coming to the clinic, were examined, treated, and retested. In the report of the medical officer of health for Tottenham, published in 1933, the results of treatment in children over 8 years of age were given. Of 135 ears showing from nine to eighteen units loss, of which ninety-seven showed catarrhal changes and thirty-seven the effects of suppuration, 124 were raised to normal.

Dr. A. H. GALE (Board of Education), speaking of children of school age and adolescents, said that from the educational point of view children with defective hearing might be divided into three groups: (1) totally deaf (outside the range of the present discussion); (2) partially deaf (while not totally deaf, still coming within the definition of Section 69 of the Education Act); and (3) children with defective hearing whose defect was not so severe as to prevent their being educated with hearing children in an ordinary school. It was probable that ascertainment of the total number of the partially deaf might be made more complete by a more vigorous application of ordinary methods. In the third group the medical aspect of the problem was more important than the educational. Nearly all these cases were due to tubotympanic disease. There were two ways in which such children might be found—namely, at routine medical inspection and by routine audiometer testing. Routine medical inspection should include a brief examination with an electric audiometer. Even then cases of early tubotympanic disease might still be overlooked. For the detection of these routine testing with the audiometer was very valuable. All cases of ear disease found at routine inspection or by routine audiometer tests should be examined by an aural surgeon, and before the institution of routine audiometer testing it was essential to see that the provision for skilled treatment was adequate. The ideal solution of the problem lay in the prevention of the disease which caused hearing impairment, but until such prevention was practicable everything possible must be done to detect and treat ear disease in its earliest stages. If the ordinary methods of detecting hearing defects were more thoroughly applied something might be done to decrease the number of those who left school with their hearing permanently injured.

Professor A. W. G. EWING (Manchester) said that, thanks to very elaborate investigations carried out, especially in America by the Bell Telephone Research Laboratories, it was possible now to correlate hearing for pure tone and hearing for speech in a very exact way. In some instances deafness was reported as due to otosclerosis or some form of disease or injury arising after school age, but the evidence showed clearly that deafness originating during school life was a very serious factor. Deafness might not be noticeable by the subject himself, or by his family or teacher, until it seriously diminished his ability to hear speech at conversational loudness. There were many records of children sent to schools for the mentally retarded or defective who proved on further tests to be partially deaf and capable of good progress by

appropriate methods of education. The danger of judging by a very brief test, in which speech sounds or words were used, was that one tended to use very familiar words, and these, as a rule, could be followed under quite severe conditions by a patient with a very considerable degree of deafness. The great developments in the physics of sound of recent years made the time ripe for concerted advance in regard to auditory deafness in which the medical profession and the educational technician could join.

Major-General P. H. HENDERSON (Director of Hygiene, War Office), in giving some account of the problem from the Army point of view, explained that the nomenclature for recording ear troubles of recruits had been changed since 1912 from "deafness" to "diseases of the middle ear," the reason being the deafness was generally merely a symptom of underlying middle-ear disease. In examination of the recruit the drum had to be visualized in every case. Aural examination, therefore, consisted of auriscopic scrutiny and a hearing test. Deafness, from the Army standard, was regarded as inability to hear with either ear, at a distance of 20 feet, a series of numbers including, at random intervals, the figures 66 (high note), 25 (medium note), and 44 (low note), uttered in a strong whisper. The ratio per 1,000 of rejections for deafness or diseases of the middle ear during the decennium 1904-13 was only 3.05, and the ratio per 1,000 discharges on the same account within less than three months' service was 0.42. In the decennium 1924-33 the ratio per 1,000 rejections rose to 45.45, and per 1,000 discharges (now within less than six months', instead of three months', service) to 5.48. Taking the years singly, the ratio of rejections remained fairly constant from 1904 to 1911, but then showed an increase, and an increase was again shown from 1921, when records again became available, to 1928, since which time the figures had remained fairly constant. The cause of this increase was part of a general post-war decline in health and physique among the youths born in or shortly before the period of the war, and the incidence of nearly all the other disabilities which caused rejection had increased in a more or less similar way. He could not accept the view that it was not a real increase, but the result of a stricter and more thorough examination of the ears, the use of electric auriscopes, and so forth. He was forced to the conclusion that the reason for the high incidence of middle-ear disease among recruits was to be found in its prevalence in the young male adolescent population.

Air Commodore A. V. J. RICHARDSON (R.A.F. Medical Service) confined his remarks to the recruitment of aircraft apprentices who were entered at school age for a life career in the technical trades, and to adult recruits, skilled or unskilled, disregarding entrants of the officer class. An analysis of 5,750 candidates medically examined at Halton in half-yearly entries from September, 1928, to January, 1934, showed that only seven per 1,000 were rejected on account of diseases of the ear, including defective hearing; while during the years 1925 to 1932 a total of only five aircraft apprentices were invalided on account of diseases of the ear from an annual strength varying between 1,900 and 1,200. For adult recruits the rejection rate on account of diseases of the ear for the years 1931 and 1932 was eighteen per 1,000 examined, while the invaliding rates for the total force for those years were 0.25 and 0.5 per 1,000. The reason why the Air Force figures were so much lower than those for the Army was probably that the Air Force recruits were drawn from a better class of life and one more likely to take intelligent notice of any disability such as a discharging ear, in its early stages. In the Air Force an endeavour was made, by prompt and energetic treatment, to prevent the acute type of ear trouble from becoming chronic. Such cases were admitted to hospital or kept under the oversight of an expert otologist. Dressings were carried out under aseptic conditions, by sight, and not left to the patient. As to whether work in the Air Force caused deafness, it must be remembered that the personnel were not kept continuously on a particular

type of work; in flying, adequate protection of the ears by properly fitting helmets reduced the damaging effects of noise.

Dr. PHYLLIS KERRIDGE (London School of Hygiene and Tropical Medicine), dealing with the calibration of hearing aids, said that it had long been known that hearing loss was rarely uniform for all pitches. She had recently had the opportunity of examining the graphs of hearing loss with pitch of over 1,000 adults who applied for hearing aids to a commercial firm; 52 per cent. of these persons had maximum loss for high tones, 37.5 per cent. for middle tones, 5.5 per cent. for low tones, and 5 per cent. showed approximately uniform loss. The mean amount of hearing loss of these persons over the range of frequencies most useful for speech was 62.5 decibels—that is, about 50 per cent. of total normal hearing at these frequencies, resulting in an inability to hear loud speech at the ordinary distance, but an ability to hear very loud speech near the ear. The figure worked out the same whether both ears were considered or the data for the better ear only were taken. About three-quarters of the people had losses between 40 and 60 per cent. (50-75 decibels). The above figures might be taken to indicate approximately the amount and character of hearing loss in deaf adults who asked for some compensation. She had obtained similar data on seventy children in a school for the deaf. Prescription of hearing aids had been advocated for some years. The obstacle had been the difficult physical problem of calibrating the hearing aids under conditions comparable to those in which they would be used. It might be said that the physical properties of both horns and microphones were such that the type of deafness with maximum medium tone loss was the most easy to correct at present. Until more data on the magnification of sound by hearing aids over the whole range of audible frequency was available, no rational progress along this line of research could be made. Such calibration involved knowledge and expensive apparatus which neither hospitals nor instrument-making firms had at their disposal. It was satisfactory to know that the National Physical Laboratory was willing to undertake the testing of hearing aids.

Wing Commander STANLEY TURNER mentioned that in 1904 he devised an almost identical apparatus to the audiometer which Dr. Crowden had demonstrated. Dr. H. G. DAIN (from the chair of the Section) said that this was a disability of which the persons who suffered it were not always conscious. The figures which Major-General Henderson had produced suggested that the incidence had gone up far beyond the point at which it could be explained on the ground of improved methods of detection. One manifest duty was to prevent as far as possible the common infections and constant catarrhs.

Dr. CROWDEN, in reply, said that with the audiometer it had been noticed that numbers like three, one, and six tended to be confused in the hearing of some children. In America Dr. Harvey Fletcher, many years ago, showed the link between defective hearing for certain words and vowel sounds and the defects associated with certain high frequencies. Dr. A. F. FRIEL said that diastolization greatly reduced the necessity for the removal of adenoids. In reply to Dr. Ashcroft he added that the rubber bougie was left in position for five minutes.

The Achille Sclavo prize of 10,000 lire, founded by the National Ophthoepathic Institute of Pisa under the patronage of the National Institution for Research, is offered for the best essay on one of the three following subjects: (1) comparative investigations on the total endocrine extracts and their hormones in their physiological and therapeutic aspects; (2) experimental and clinical contributions to the pathology of the thymus; (3) relations between the hypophysis and somatic and metabolic activity. The first prize will consist of 8,000 lire, and there will be two consolation prizes of 1,000 lire each. Two copies of the essay should be sent not later than May, 1936, to the Consiglio Nazionale delle Ricerche, Ministero della Educazione Nazionale, Viale Del Re, Rome.

FACTORIES AND WORKSHOPS REPORT

The report of the Chief Inspector of Factories and Workshops for 1933 devotes short chapters to questions of employment and welfare, but the main portions of the report relate to industrial accidents and diseases. The Chief Inspector (Mr. D. R. Wilson), in his introduction, says that he is chiefly impressed, not so much by the frequency and severity of the industrial accidents incurred, as by the number of them that are avoidable. The contempt for transmission machinery, such as smooth shafting in motion, is responsible for an almost incredible toll of death and disablement, considering that its dangerous character has been continuously emphasized from the very start of factory inspection. Fortunately, safeguards, which make physical injury an impossibility, are now provided for many machines. It is found that particularly dangerous machines such as guillotines for cutting paper sheets and meat-mincing machines can be fully guarded, and steps are being taken, in conjunction with the trade associations, to extend the provision of such guards universally. The use of some of these dangerous machines is not confined to factories, and it was found that of 10,000 butchers' shops visited more than 7,000 failed to comply with the agreed standard of protection in their mincing machines.

ACCIDENT FIGURES

In addition to mechanical safeguards an enormous field is still open in the direction of education, such as is taken by the National Safety First Association. Through the introduction of safety committees at factories, the display of accident posters, and in other ways it has been found possible to reduce the frequency and severity of the accidents incurred in some factories to less than a half in the course of two years.

The improvement in accident rates in most branches of industry has been tested by the Factory Department by tabulating all reported accidents for two sample years, together with information concerning the numbers of workers employed. The data relate to about five million workers in each instance, and it was found that in 1932 the accident rate per 100,000 persons employed was 2,090, as compared with the rate of 2,780 observed in 1928. The fatal accidents decreased in like proportion, so it is evident that the improvement has been very substantial in recent years. The accident rate is naturally much heavier in some industries than in others. For instance, in metal extraction and conversion, shipbuilding, and constructional engineering it is more than ten times greater than in laundries, bakeries, and factories for wearing apparel.

INDUSTRIAL HEALTH

The chapter on health by the Senior Medical Inspector, Dr. J. C. Bridge, gives detailed statistical information about various industrial diseases which should prove of great practical value. For instance, about 150 cases of epitheliomatous ulceration are notified every year, of which about forty are fatal. The majority relate to cotton-mule spinners, but a substantial number occur at patent fuel works, where pitch and tar are the carcinogenic agents. By periodic medical examination of the workers in the fuel industry in one area, and suitable treatment when necessary, fatal results were entirely prevented in the year under consideration. Again, it is found that the workers in certain chemical factories, where intermediate dyestuffs are manufactured, have a mortality rate from cancer of the bladder which is thirty-eight times higher than that of the general insured population of the district. The early stage of the disease is a papilloma of the bladder wall, and if this is removed successfully a complete cure may be looked for.

Silicosis and Asbestosis.—The subjects of silicosis and asbestosis are dealt with at length, and 469 deaths from these causes, or from silicosis combined with tuberculosis, are tabulated. These deaths are a sample collected during the last few years, and do not represent the total deaths incurred, but judging from their number they appear to indicate a greater mortality than that induced by all the other tabulated causes of industrial disease put together

(lead poisoning, anthrax, epitheliomatous ulceration). The fatal termination of silicosis cases ensued on an average after thirty-three years of employment, while that of asbestosis cases ensued after only eleven years. All the asbestosis cases are attributed to exposure prior to the introduction of the Asbestos Industry Regulations, and a great reduction of fatalities may be expected in the future.

The most fatal of all the causes of silicosis is sand-blasting, a method of cleansing or etching surfaces by directing the abrasive on to the article through a nozzle by means of compressed air at a pressure of 30 lb. to 100 lb. per square inch. The operator is protected by a helmet supplied with fresh air, or the process is performed in an enclosed cabinet, but inevitably the air breathed contains an excess of sand particles. Exact information of the number of men engaged in sand-blasting in the Midlands area was obtained, and it was found that of the 441 men concerned no less than 5.4 per cent. died from silicosis in the space of three and a half years. In order to avoid the risk it is suggested that the sand should be replaced by some other abrasive, and it appears that steel grit can be substituted in many instances.

Dermatitis.—Of the non-fatal industrial diseases described dermatitis is responsible for about 1,000 reported cases per year, and it is pointed out that such cases could usually be prevented (a) by placing a protective film of ointment between the skin and the industrial irritants, and (b) by thoroughly washing the skin after work, but without recourse to cleansers (except in the case of contamination with oil). The workers' hands ought to be regularly inspected, so as to detect early signs of skin irritation.

CONDITIONS OF EMPLOYMENT

In the chapter concerned with employment it is pointed out that the recrudescence of industrial activity is, unfortunately, accompanied by an increase of illegal employment. In a number of cases young persons have been compelled to work disgracefully long hours. A boy in a dry-cleaning works was employed 156½ hours in eleven days, including spells of work of twenty-two and a half and thirty-seven and a half hours. Girls of 14 and 15 were employed from 8 a.m. to 12.30 p.m., and then during the night (when such work is absolutely forbidden by law) from 6 p.m. or 7 p.m. until 3 p.m. on the following afternoon. Needless to say, the employers were prosecuted and substantial fines inflicted.

As regards shift work, the two-shift system of employment is being used to an increasing extent, and 318 fresh Orders were made by the Home Secretary in 1933. These Orders covered a very wide range of industries, and they are likely to be extended greatly in the future, as they enable the employer to keep his plant running for eighty-two hours a week instead of the usual forty-eight hours. The overhead costs are so much reduced that it is possible to pay the workers as much for the shorter working week as for the longer one, and it is found that the majority of them, once they have settled down to the change of habits involved, prefer the system because of the gain in leisure.

It will be realized that this brief summary necessarily omits any reference to most of the vast body of inspections and other work carried on by the staff of 240 inspectors attached to the Department. The number of factories and workshops subject to inspection was no less than 285,284, and it is astonishing that so limited a staff are able to accomplish their work so efficiently.

The Association d'Enseignement Médical des Hôpitaux de Paris announces the programme of its course in cardiology, which will be held at the Hôpital Broussais from October 8th to October 20th, 1934. This particular course deals with the arrhythmias, and is directed by Dr. Ch. Laubry, with the assistance of Professor Doumer and Drs. Marchal, van Bogaert, and Aitoff. The fee is 150 francs. A time-table is issued covering the whole two weeks. Facilities are given for examination of cases daily at 4 p.m., and students may obtain a diploma at the end of the course. Further particulars may be had from Dr. Lemant, Hôpital Broussais, 96 rue Didot, Paris (14).

England and Wales

The L.C.C. Medical Staff

The establishment of medical staff at general hospitals under the management of the London County Council was fixed in January, 1932, but it is now found that developments have rendered an increase necessary. The type of case treated in the general hospitals is altering, and there is continually more acute and operative work to be carried out. The general standard of medical care, moreover, is steadily rising. The improved facilities for pathological work created by the new laboratory services encourage the more elaborate investigations required by modern hospital methods, and thus there is an increased demand on the time of the medical officers. The wider and freer use of consultants under the recently organized consultant and specialist scheme has had the effect of raising the standard of treatment and increasing the amount of care and time devoted to the cases. Further demands on the staff have resulted from the developments in out-patient work, as, for example, in the ante-natal and post-natal clinics and in diabetic and other special clinics. A careful survey has therefore been made of each hospital, and at the last meeting of the Council before the summer recess the Hospitals and Medical Services Committee brought forward proposals for an increase, as from October 1st, of the fixed establishment of medical staff by four positions of senior assistant medical officer (from thirty to thirty-four), twenty of assistant medical officer (from twenty-five to forty-five), and seven of house-physician, house-surgeon, or clinical assistant (from twelve to nineteen). Proposals for additional medical staff at Hammersmith Hospital have not yet been made, but it is stated that there is no doubt when the works of adaptation and enlargement at that hospital are completed, and the post-graduate medical school is opened, the medical staff will have to be strengthened. The medical staff employed at special hospitals was fixed in July, 1932, but here also it has been found that the number of permanent staff available cannot be considered adequate during periods of high incidence of various diseases, and it has been found impracticable during these periods to avoid having a higher proportion of temporary staff on duty than should be the case. At Colindale Hospital and King George V and Pinewood Sanatoria, where cases of pulmonary tuberculosis are treated, the staff has proved inadequate. The treatment of tuberculosis, it is pointed out, has undergone very great changes. The various forms of collapse therapy and chemotherapy, the greatly increased use of radiological examination and blood examinations in guiding treatment and estimating prognosis have made treatment more individual and intensive. The work of the medical staffs has been thereby increased to an extent which now throws an undue strain upon the medical officers concerned. It is proposed to increase the fixed staff at special hospitals by two positions of senior assistant medical officer (from twenty-one to twenty-three), and by making five new positions of assistant medical officer. The appointments of assistant medical officers (Grade II) are limited to one year only, in accordance with the recommendation of the Askwith Conference. This limitation has been found unsatisfactory to the Council and to the officers themselves, and it is proposed to renew their appointments for a second year, endeavouring to ensure that a large proportion of the second year shall be spent in another hospital, or that the officer's duties are varied if he is to be retained at the same hospital. It also appears that the Council's stipends do not attract, at the existing salaries, the type of medical officer for which the positions of house-

physician, house-surgeon, and clinical assistant are intended. These positions are to be maintained, but the rates of pay, which are £80 a year, with residential emoluments, for house-physicians and house-surgeons, and £100 a year, with meals on duty, for clinical assistants, are to be raised to £120 and £150 a year respectively. The financial effect of these proposals for increase of staff and of certain salaries will be £5,345 for the current financial year and £10,810 for 1935-6.

Radiotherapy at University College Hospital

A new appointment was made in 1933 in the radiotherapy department at University College Hospital, an assistant radium registrar being entrusted with the superintendence of the working of the 1-gram radium unit. Four beds in the surgical wards—two for male and two for female patients—have been set aside for those undergoing this form of treatment, which is now in almost continuous operation during the night as well as the day. Previously time was lost in transferring the bomb from ward to ward, and the number of those skilled in its use was limited. Each exposure lasts about two hours, and most patients tolerate this without great discomfort. When the treatment was given in bed constant supervision was required, since the patient tended to move and the alignment had often to be altered. The couch now employed is fitted with an adjustable head-clamp, and, if the patient is arranged comfortably at the beginning of treatment, he is relieved of the strain of voluntarily maintaining his position relative to the bomb. In the report of the work of this department for 1933 it is stated that the calculation of dosage of radium administration remains largely empirical, but the recent increase of dose has improved the immediate results. At present sixteen to eighteen hours' intermittent exposure is given to each field where two or three adjacent fields are employed, and twelve to fourteen hours each to four or more fields. An average dose for one side of the neck or one groin is fifty hours, or 100 hours to both sides. With this increased dosage a fairly severe skin reaction is generally produced, and moist desquamation occurs about two weeks after the cessation of treatment. The skin heals readily if protected with a greasy application. There is rarely any marked constitutional reaction. Of fifty cases treated with this 1-gram unit since August, 1932, twenty are recorded as improved, eight as not improved, and thirty-one as dead. In the period 1921-32 radium treatment for malignant disease was used in 937 cases. Of these patients 321 are still alive, ninety-six having survived for five years or more after treatment, and 225 for less than five years. A change has also been made in the distribution of the radium stock, an 11-mg. needle on loan from the Medical Research Council having been converted into the more useful form of ten small needles. To maintain the constant control of x-ray dosage the physicist has continued to standardize weekly the intensity output of the deep-therapy tube. The American deep-therapy Coolidge tube in Dean's twin coil unit was used only for a few hours, the stabilivolt unit being found to be both safer and quicker. The Siemens water-cooled tube worked 1,163 hours in 1933. The total working hours of this tube are now 2,056, which is considered to be highly satisfactory. In comparison, the lives of three air-cooled tubes used in 1931 totalled only 227 hours. A filter of 0.5 mm. of copper and 1 mm. of aluminium was employed with a kilovoltage of 150. The copper filter was doubled when the kilovoltage was raised to 190. An even darker erythema was taken as a standard for the U.S.D. With a kilovoltage of 190 and a filter of 1 mm. of copper and 1 mm. of aluminium this was found to be 1,000 international r units when esti-

ENGLAND AND WALES

AUG. 18, 1934]

mated with back-scatter. The intensive split dose method was used for nearly all malignant cases, the fractional dose method being confined to non-malignant conditions. The duration of treatment in the former ranged from one to five weeks. The single, or massive, dose was only used for carcinoma of the skin. In the arrangement of the statistical side of this annual report that of the summary of reports issued by the Medical Research Council is followed. The diseases treated are classified in fourteen groups, while a further subdivision of the sarcomata has been added. The new patients during the year totalled 321, 226 of whom had malignant disease. Of the malignant cases eighty-seven were treated with radium, seventy-four with x rays, fifty-eight with radium and x rays, and seven with x rays after treatment with radium elsewhere. Of the ninety-five non-malignant cases fifty-five were treated with radium and forty with x rays. The old patients at the commencement of the year numbered 103, of whom seventy-seven had malignant disease. Radium treatment was given to thirty-six of these malignant cases, x rays to thirty-three, radium and x rays to seven, and x rays to one who had had radium treatment elsewhere. Of the twenty-six old patients with non-malignant disease eight were treated with radium and eighteen with x rays.

Pathological Research in Leeds

The annual report for 1933 of the department of pathology and bacteriology of the University of Leeds has been compiled by Professors Matthew Stewart and J. W. McLeod, and is published with an abstract of a report on experimental pathology and cancer research drawn up by Professor R. D. Passey. There has been a large increase in the general routine work, chiefly in connexion with the General Infirmary, and of a bacteriological kind. No fewer than 30,000 examinations were made in the department, an increase of 2,000 over the previous maximum in 1931. On the research side, a report on the pulmonary fibrosis of haematite miners has been prepared and presented to the Industrial Pulmonary Disease Committee of the Medical Research Council. The sputum of asbestos workers is being examined as opportunity serves, and a growing body of evidence points to the presence of clumps of asbestos bodies as an important indication of a destructive lesion of the lung, and, *ipso facto*, of pulmonary asbestosis. A suitable procedure for urea-clearance determinations and their application to the investigation of renal disease has been devised, and is now in routine use in the General Infirmary at Leeds. It is believed that this offers the best available method of ascertaining the state of renal function. Some success has been forthcoming as regards the devising of a method of determination of the "non-haemoglobinous" iron of blood on the basis of the technique already in use for estimating the amount of iron in the blood, tissues, and urine. This technique has been adapted for use with haemoglobin-free blood plasma, and it is believed that it will soon be available for determination of the iron content of the blood plasma in the study of the various forms of anaemia. Two types of lesion of the epithelium of the cervical canal have been singled out for special study as being possible precursors of carcinoma—namely, leucoplakia of the portio vaginalis and squamous metaplasia of the cervical canal epithelium. The glycine-tolerance test for liver damage has been modified and applied to the human subject. It has been shown that the subcutaneous administration of 1 gram of glycine is innocuous, and capable of indicating sometimes the existence of hepatic disease. The use of higher doses is likely to prove more reliable, and is being investigated. The attempt to correlate bacterial type with clinical severity in diphtheria

has now been in progress for more than three years. The observations indicate that the *B. diphtheriae gravis* type is associated with severe diphtheria in all places where it predominates; it is the most constantly animal-pathogenic of all forms, and has been found to be definitely predominant in all definitely endemic diphtheria areas. The intermediate type of bacillus has been shown to be the predominant strain in both severe and mild diphtheria, but not to be associated with marked epidemics. The *mitis* form has only rarely been found associated with severe toxic diphtheria, the majority of fatal cases in which it was present having been complicated by obstructive lesions or bronchopneumonia. A wider fluctuation in animal pathogenicity was detected among *mitis* strains than among those of any other types.

Liverpool Psychiatric Clinic

The Liverpool Psychiatric Clinic was founded in April, 1924, in two rooms in a dwelling-house, and a review of the work accomplished in the last ten years has now been issued. In all 1,348 cases have been investigated, the number of patients' attendances being 13,728. After the first three years the clinic was removed to an entertaining hall, and in 1929 the present more commodious premises were obtained. While active psychological treatment was its primary aim, its functions had soon to be extended to include diagnosis and advice in the treatment of cases of advanced mental disorder and functional disturbances. The clinic only receives patients from medical practitioners or some responsible social organization after the presence of physical disorders has been excluded; the patient remains under his care or in that of a hospital while any such disorders are in need of treatment. In this way is preserved continuity of treatment on a team basis without the need for dispensary or laboratory departments. The clinic undertakes the preparation of detailed reports upon cases of delinquency and the investigation of problems peculiar to childhood. There has been a steady increase in the proportion of adolescent cases, indicating a growing tendency for patients to be sent for investigation at a relatively early stage in their neuroses, and at a time when the duration of treatment can often be shortened. Thus, in the first 1,200 consecutive cases, 114 out of 548 males and 175 out of 652 females were between the ages of 10 and 19. During the past twelve months lectures have been delivered to outside course of lecture—the medical staff, and an official course of lectures for social workers and other trained observers was held at the clinic during April and May of this year. The medical staff is entirely honorary, but it is hoped to engage upon a remuneration basis the part-time services of junior medical graduates who have undertaken to specialize in this work.

Mental Disease Research in Birmingham

In a prefatory letter to the annual report for 1933-4 of the Joint Board of Research for Mental Disease of the City and University of Birmingham the chairman, Sir Gilbert Barling, announces that there is a good prospect that the University will be able to provide accommodation for the research work of the Board in the new buildings when the medical school is established at Edgbaston. He also states that, in order to promote interest in the pathology of mental disease, there has been brought into being a new organization—the Midland Mental Pathological Society—to which it is hoped to attract especially the medical officers of the local mental hospitals, and by which should be advanced the projected formation of a strong board of research for the Midland area. The director of the

Board, Dr. F. A. Pickworth, reports that researches have been continued into the blood supply of the brain in mental patients, and that over 330 photographic records have been prepared of sections of brain stained to show the distribution of the capillaries. In continuation of the Board's work on nasal sinus infections residua of past infective processes were found in 54 per cent. of post-mortem examinations; in twenty out of fifty-nine cases actual pus was present in one or more of the sinuses. *Streptococci*, *B. coli*, and the influenza bacillus were the organisms most commonly recovered. Agglutination investigations disclosed responses to Aerttrycke and Gaertner infection in no fewer than ninety specimens; these represented seventy of 656 new cases (10.7 per cent.). This evidence of previous infection (mostly without clinical symptoms of enteritis) with organisms of the food-poisoning group in mental patients is considered especially important in view of the information published already by the Board with regard to the diminution in the oxygen capacity of the blood in Gaertner infections. A roughly quantitative method for the detection of minute amounts of blood in serum has been developed, and applied to the determination of haemoglobin in sera sent for routine Wassermann testing. Graphs constructed of the incidence of blood in the specimens obtained from Wassermann positive and negative sera showed no significant difference. The same test applied to the detection of corpuscular haemolysis by cultures has rendered it possible to isolate a number of haemolytic streptococci and staphylococci.

Scotland

Eradication of Bovine Tuberculosis

At the annual congress of the National Veterinary Medical Association of Great Britain and Ireland, which was held in the Royal (Dick) Veterinary College, Edinburgh, during the week following July 30th, several subjects bearing upon human medicine and public health were discussed. Major A. Douglas, M.R.C.V.S., Ayr, opening a discussion upon the eradication of bovine tuberculosis, said that free tuberculin testing and advice, together with a small premium on Grade A (T.T.) milk, would give the best results within the next few years. The report of the Cattle Diseases Committee had suggested that as an inducement to owners a higher price should be guaranteed for the tubercle-free cow, and that loans should be given to farmers towards the purchase of animals to replace those showing a positive tuberculin reaction. Mr. G. P. Male, Reading, said that the present policy aimed at the total eradication of bovine tuberculosis, at first by voluntary methods of free testing, advice, and bonus to induce producers to clear their herds; but in five years' time the local authorities should be given powers to pasteurize all milk except that coming into their areas from tubercle-free herds. In the meantime it was proposed that routine clinical inspection of dairy herds should be made compulsory. Dr. W. A. Lethem of the Ministry of Health drew attention to the financial benefit that would accrue to farmers if public confidence in milk was established and the demand for it increased. Great Britain was at present the second lowest milk-consuming country in Europe, and the medical profession could not conscientiously recommend the public to drink more milk, because ordinary milk, on an average of 5 to 10 per cent. of samples, contained living tubercle bacilli. The establishment of confidence would depend largely on the work of the veterinary profession, and then the demand for milk would increase and the farmer would benefit. Sir W. Dalrymple-Champneys, Senior Medical Officer to the Ministry of Health, said that the

veterinary practitioner must be the spear-head of the attack on bovine tuberculosis, and that pasteurization and eradication should go hand in hand. Mr. William Nairn, M.R.C.V.S., referring in his presidential address to the Milk Marketing Scheme, said that the interests of the consumer, as well as those of the producer, must be kept in mind; if the veterinary profession were successful in rendering milk free from infection, the producer would then be able to offer a safe milk at a cheap price. It was hoped that in dairying districts the payment of a bonus for tubercle-free milk would stimulate this movement. Various other subjects, such as the application of biochemistry to veterinary practice, the causes of mortality among calves, and the toxin of grass sickness, were also discussed by the congress.

Royal College of Physicians' Laboratory, Edinburgh

The annual report of the Laboratory of the Royal College of Physicians at Edinburgh for 1933 shows that there has been considerable development of relations on the research side of this laboratory with the Department of Health for Scotland, the Home Office, and the Health Section of the League of Nations. Research has been carried out in vital statistics and epidemiology, in industrial diseases, bacteriology, histopathology, chemotherapy, and carbohydrate metabolism. Twelve papers have been published from the laboratory during the year, and five more are in the press. Research has been conducted by eighteen workers upon twenty-two different subjects. In the reporting department 14,203 reports have been issued as compared with 13,988 in the previous year.

Public Health in Aberdeen

In his annual report for 1933 on the health and sanitary conditions of the county of Aberdeen, Dr. H. J. Rae, county medical officer of health, refers to a recent co-ordination of medical services which comprised: amalgamation of the county bacteriological services with those controlled by the Aberdeen Town Council; co-ordination of the veterinary services of the county and the town; and internal reorganization of the sanitary department, whereby the county has been divided into four sectors—similar to those of the Roads Department—each having a divisional sanitary inspector and an assistant. In 1932 there was a concentration of the institutional accommodation for infectious diseases, the number of hospitals being reduced from twelve to five. No inconvenience resulted, despite an abnormally high incidence of scarlet fever in the second half of the year under review. None of the abandoned institutions has yet been reopened for other purposes, but it is hoped that one or more may be found useful when it becomes possible to segregate more efficiently such different classes of the community as able-bodied poor persons, the sick, maternity cases, mental defectives, and lunatics, which are at present being dealt with collectively in public assistance institutions. The respective councils of Aberdeen county and town agreed in 1930 on a scheme of co-ordination, the county council of Kincardine being admitted, at any rate for the present, on a customer basis. The medical and lay team work which has resulted therefrom during the last three years has conduced to economy in time and money, as well as definitely increasing efficiency. Difficult cases which could not be properly treated in the county council's own hospitals are transferred to those of the town council, where specialist services in every branch of medicine and surgery are available. The transference of patients to central institutions is now rendered easy and safe by modern methods of transport. The scarlet fever outbreak was conveyed usually by direct contact, but the milk supplies were involved in some instances. Notification

AUG. 18, 1934]

CORRESPONDENCE

AUG. 18, 1934]

of cases and correlation of the milk suppliers concerned resulted on one of these occasions in the detection of a milker who was a carrier; the epidemic ceased at once when he ceased this occupation. Dr. Rae remarks that stoppage of the milk in such cases is never practised, the usual efficient method being immediately to change the milkers, and to retain the substitutes until such time as the previous ones can be certified free from infection. He adds that this increase in scarlet fever notifications during the latter half of last year, which was general throughout Scotland, was associated with an exceptionally fine summer, indicating that good weather and freedom from the ordinary infections do not necessarily go hand in hand. While ample evidence was obtained of the value of Schick-testing and of injections of toxoid-antitoxin mixture as a preventive of diphtheria, the efficacy of the similar scarlet fever prophylaxis was found to be more debatable. Dr. Rae thinks that it would ultimately be an economic proposition to have a small temporary

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medical staff to Schick-test school children, and to immunize the susceptibles and the children of the pre-school age period. It is claimed that the Aberdeen Council has availed itself more than most local authorities of the advantageous provisions of the Housing (Rural Workers) Acts of 1926 and 1931. A progressive housing policy has been adopted, but new houses are only provided where there are adequate water supplies and drainage facilities. Through a judicious decanting process few cases have been encountered where real difficulty has been experienced in meeting increased rentals. Financial considerations have limited activities mainly to reconditioning or demolishing unfit properties, and the problem of overcrowding has hardly yet been tackled, but a survey is being made of overcrowded houses in the villages and hamlets. It is considered useless to make a survey of overcrowding in cottar houses, since many farm servants, irrespective of the size of their families, form a floating population.

CORRESPONDENCE

Sodium Evipan Anaesthesia

Sodium Evipan Anaesthesia

SIR,—I have read with great interest the paper by Dr G. Slot and Mr. A. H. Galley in your issue of August 4th (p. 201) dealing with sodium evipan anaesthesia. There is one point, however, upon which I should like to join issue with the writers. This is with regard to its margin of safety, which they maintain is a wide one. I have now administered evipan on about seventy occasions, and this short series has taught me that, although undoubtedly of great usefulness in selected cases, it should not be regarded as a routine substitute for gas or gas-oxygen for operations of short duration. The comfort and ease of induction appeal most strongly to certain patients, and I foresee a very real danger of their demanding evipan and I foresee a very real danger of their demanding evipan narcosis for operations such as simple dental extractions, where nitrous oxide administered by the nasal route would be the anaesthetic of choice. After all, the mortality from gas is negligible, whereas that attributable to evipan already assumes rather alarming proportions. To this list I intend to add yet one more.

An elderly man, complaining of dysphagia, was admitted to the Royal Surrey County Hospital for an oesophagoscopy. He was in a very frail and cachectic condition, and had been unable to swallow fluids for some days. Five c.c.m. of a 10 per cent. solution of evipan were injected into a vein, and at once his pulse became thready and finally unperceptible. In spite of artificial respiration and the usual resuscitative measures he died. Post mortem his stomach was found to be solid with carcinoma, which involved the cardiac orifice.

Admittedly this was an extremely bad risk, but I have had two other cases which caused me much alarm on account of their pulse irregularity and deep anaesthesia with small doses. Conversely, there have been two patients in my series who were almost completely unconscious after the injection of 10 and 15 c.cm. respectively. One of these was for diathermy of the tongue, rendering the subsequent use of ether impossible, and as chloroform is contraindicated with evipan the operation had to be postponed. Three days later it was performed comfortably under gas-oxygen anaesthesia with a little chloroform, given by the endotracheal route.

Dr. Slot and Mr. Galley do not state in their paper on how many occasions they have administered evipan. But it is a drug of fairly recent introduction, and their series cannot total many thousands. Nevertheless they report six cases of respiratory failure or spasm (one patient

died); three cases of complete failure of anaesthesia; two cases of inflammation at the site of injection (one leading to abscess formation); and several cases of muscular twitchings, headaches, emotional crises, etc. Surely such findings must strengthen the opinion that sodium evipan should be used in selected cases only and with great caution, and, above all, must not be regarded as a substitute for nitrous oxide or ethyl chloride, the safety and convenience of which have been proved in thousands of operations.—I am, etc.,

A. BARNESLEY.

Guildford, Aug. 5th.

A. BARNESLEY.

Thrombosis of the Penis

Thrombosis of the Penis

SIR,—In his paper in the *Journal* of August 11th (p. 249) Mr. Clifford Morson writes: "There are three diseases which may lead to clotting of the blood in the cavernous spaces. They are malignant disease of the left kidney, lymphatic leukaemia, and arteriosclerosis."

Personally, I can remember having seen only two leukaemic patients who had, or had had, "persistent priapism," and both of them were examples of undoubted myeloid, not lymphatic, leukaemia.

One of these patients was a boy, aged 11 years, demonstrated by Dr. Pearse Williams at the Royal Society of Medicine (Section for Study of Disease in Children) on April 25th, 1924 (*Proceedings*, xvii, 55). The spleen was greatly enlarged, and of the 643,000 leucocytes (per c.mm. of blood) 18 per cent. were myelocytes. The other patient I saw many years ago with the late Mr. E. Michels, F.R.C.S. He had typical myeloid leukaemia, and during the year preceding one in which I saw him he had suffered from "persistent priapism" for eighteen days—until a surgeon incised the penis. I referred to this latter case in a discussion (*Proceedings*, Royal Society of Medicine, Section of Medicine, 1912, v, 105).

I have not had time to look up references to recorded cases of persistent priapism in leukaemia, excepting that of E. C. Hadley (*Clinical Journal*, 1915, xlv, 141), in a miner aged 27, and that of H. O. Ruh (abstract in *Lancet*, 1913, i, 843) in a painter aged 36, both of these were examples of myeloid leukaemia. Mr. Morson would apparently prefer to term all such cases "pseudo-priapism," but I can see no reason (compare, for instance, definition in the New Sydenham Society's *Lexicon*) why they should not be still classed under "persistent priapism" (due to thrombosis.—I am, etc.,

F. PARKES WEBER.

London, W 1, Aug 17th

F. PARKES WEBER.

Asthma in Children

SIR,—In support of Sir James Dundas-Grant's moderate view of the importance of attention to the nose in asthma (*Journal*, August 4th, p. 231), two cases which have come under my care during the last month are good illustrations. As it happens, both are from London, and have been seen by specialists there and elsewhere.

The first, a young man of 26, asthmatic from childhood and with "pigeon" chest, has consulted about a dozen doctors, who missed the important facts that his right antrum was full of curdy pus and his septum so badly deviated as to cause mouth-breathing. The sinusitis has probably lasted from childhood. All treatment was hopeless without attention to these, especially to the sinusitis, which, however, was promoted by the septal obstruction. He is already much better.

The second case is a lady of 53. Her nose is normal and needs no attention. But she wears dentures, and has only three of her own teeth, grossly septic. Despite this she had been given as major treatment a vaccine prepared from her sputum—a comparatively useless measure in most cases, and certainly in this one until the teeth are extracted.

The lesson is that the nose should be examined in all asthmatics. In asthmatic children it rarely needs direct treatment, as they mostly become perfectly well with simple detoxicating measures and attention to hygiene, including diet—and this no matter what the history is as to allergy and heredity. If, however, they are mouth-breathers, this ought to claim early attention—usually for tonsils and adenoids—for asthmatic mouth-breathers are apt to be difficult to cure—further evidence of the importance of the nose in asthma.

The fact that asthma in animals—cats, dogs, horses, and canaries—yields to hygienic treatment without attention to the nose supports the view of those who hold that nasal treatment is often overdone. My latest case of this sort was a badly asthmatic dog—harsh pelt, spasms of cough, and dyspnoea when it attempted to walk across the floor, and 20 per cent. eosinophils in blood. In a month it was, as its owner said, "another dog," with glossy coat, lively, and free from respiratory trouble: eosinophils 4 per cent. The treatment was the same as for children—diet, mercurials, iodide, and belladonna.

Those who overemphasize heredity and allergy as important factors in asthma will find food for reflection in such cases in animals. On the other hand, those who minimize the nasal factor will find sane and penetrating statements on the subject in the writings of Sercey of Zagreb and of Hofbauer of Vienna. Finally, those who decry the toxic factor will be surprised at the dramatic results sometimes obtained in severe and constant asthma from the colonic douche as advocated by Dr. A. J. D. Cameron—a measure, of course, not needed for children.—I am, etc.,

Glasgow, Aug. 6th.

JAMES ADAM.

Increased Mortality from Diabetes

SIR,—I am much interested in the questions raised under the above heading in the *Journal* of July 28th and August 4th, especially as I was on the point of writing to the *Journal* commenting on the very noticeable increase in cases of this disease coming under my own observation.

Within the last few years, in a small scattered community, eight cases (excluding a young woman of 23 who died three years ago) have been diagnosed, only one of these being under 40 years of age. The oldest patient is 65. The cases are equally divided as to sex. So used have people become to what was hitherto very rare that the layman gossips casually of how many units of insulin So-and-so requires daily as compared with Mrs. X. The

patients' occupations are as follows: ex-service man 1, indoor worker 1 (aged 29), ex-hotel worker and farmer 1, estate worker 1, and housewives 4. All save two are on insulin; the remainder maintain fair health on diet. In striving to find a common factor in the lives of these people one characteristic stands out—they are all possessed of unusual energy, quick, restless, nervous people who are always doing things. They are not exposed to any undue strains, and there is certainly sufficient quiet and absence of rush in their surroundings. The women all have grown-up families (from one to four in number). None of them (the women) smoke, nor have they been excessively keen on sweetstuff.

Some time ago I read of an American surgeon who had derived excellent results in diabetes by damping down the action of the adrenals and pituitary body by means of x rays. It seems to me a fairly reasonable explanation that there is an increased hormonal excitability—of the adrenals particularly—which manifests itself in the restless energy of these cases, and that this excessive secretion swamps and exhausts the pancreas. Why this should occur is, of course, the problem. Exhaustion and strain are so much the portion of many people that there must be some other factor, probably toxic in origin, awaiting discovery. One world-wide toxin we do have in the epidemics of influenza which visit us in varying forms but with unflinching regularity every spring. It penetrates to the most remote hamlet, and the great majority succumb at some time or another. It is quite possible that these recurrent illnesses in susceptible individuals may exercise a selective toxic effect on the pancreatic island tissue.

I feel that there is a long slow mounting of the pathological condition which ends in the diabetic state, and that if we could recognize this in time the disease itself might be averted. There is always a vague history of long-standing absence of well-being, sometimes of some years' duration, not sufficient in itself to cause the patients to seek medical advice until the onset of the graver and characteristic symptoms. I await with great interest further observation and discussion on this subject.—I am, etc.,

FLORA L. MACDONALD, M.B., Ch.B.

Aros, Isle of Mull, Aug. 6th.

Injection Treatment of Complete Rectal Prolapse

SIR,—I should like to support Mr. Arthur S. Morley in his plea for a wider recognition of the method of treating prolapse of the rectum by injection (*Journal*, August 4th, p. 204). I would also recommend that its efficacy be invariably tested before resort is had to more serious operative procedures. I first learned of the method in 1919, from the late Professor D'Espine of Geneva, where it had evidently been in common use for many years. Since then I have had the opportunity of treating many cases in childhood, and comparatively seldom have I known it to fail. Although the principles of the operation employed by Mr. Morley and that recommended by Professor D'Espine are the same—namely, the introduction of an irritant into the perirectal tissues, so that adhesions are set up with an anchoring of the bowel—the nature of the fluid introduced and the route of injection are different. Mr. Morley employs carbolic acid in almond oil, and apparently injects through the rectal mucosa. Professor D'Espine recommended absolute alcohol, and injected it into the perirectal tissues via the perineum.

I have previously published the technique employed and the results obtained (*Brit. Journ. Child. Dis.*, 1921, xviii, 83; *Lancet*, 1923, i, 76; *The Clinical Study and Treatment of Sick Children*, 1934, p. 141). The following is a description of the operation from the last source.

"In order to avoid all straining the operation must be performed under full anaesthesia, and it is advisable to empty the lower bowel by means of an enema. The prolapse, if down, is reduced and the perineum washed and sterilized with iodine. With the finger in the rectum to act as a guide, 1.5 c.cm. of absolute alcohol are then introduced on each side into the perirectal tissues at a depth of two to two and a half inches. An ordinary exploring syringe is employed, the needle being inserted on each side about a quarter of an inch from the anal margin. The needle punctures are sealed with collodion, a pad placed in the perineum and kept in position by strapping the buttocks firmly together. Instructions are given that the child must move the bowels only while in the recumbent position, the faecal matter escaping by the side of the dressing. The pad and strapping are reapplied daily for a week; by this time it has been found, as a rule, quite safe to discard all appliances. Occasionally the operation has to be repeated once, or it may be twice. There would seem to be no danger with this procedure, as untoward after-effects have never been observed."

—I am, etc.,

London, W.1, Aug. 6th.

LEONARD FINDLAY.

SIR,—I was much interested in Mr. Morley's treatment of rectal prolapse (*Journal*, August 4th, p. 204), as for several years I have treated these cases by a combination of a similar method, which I once saw described in *Annals of Surgery*, with another which I saw described somewhere else. Though it is difficult to assess final results with Indian patients—who find little sense in seeing the doctor again if he has cured them, and still less if he has not—the method seems to have been successful.

One c.cm. of rectified spirit is injected submucosally at each of four points (3, 6, 9, and 12 o'clock) round the anus at a depth of $1\frac{1}{2}$ to 2 inches from the anal skin, the depth being proportionately less in a child. A silkworm-gut suture, with a large curved needle on each end, is now taken, and the rectum slung to the coccyx by a stitch passed on each side from within the rectum and out through the skin on each side of the coccyx, over which it is tied. The stitch is passed about two inches above the anus, and is left in place for about ten days. It holds up the rectum while adhesions are forming, and if any sepsis occurs round the stitch the resulting fibrosis is a help.—I am, etc.,

Dorchester, Aug. 7th.

H. WILLIAMSON,
Major I.M.S.

SIR,—Concerning Mr. A. S. Morley's valuable paper in the *Journal* of August 4th on the above subject, I was interested in his remark that many writers have stated "that cases of haemorrhoids with marked prolapse are unsuitable for any treatment short of operation except as a palliative."

In common with other physicians engaged in electrotherapy, I can vouch for the value of interrupted faradism with a sausage-shaped metal electrode, combined with rectal high-frequency, as advocated by my father, the late Dr. Samuel Sloan, a quarter of a century ago. For masses of protruding haemorrhoids ionization is a most reliable and satisfactory treatment. A zinc electrode is dipped into a 10 per cent. solution of sulphuric acid, immersed in mercury, and afterwards in water. The haemorrhoids are cleansed and treated with a solution of cocaine. The zinc electrode is attached to the positive pole, and the negative plate can be attached to the leg. A current of 6 or 8 milliamperes for six to eight minutes is applied to the pile, which should give no further trouble. Other haemorrhoids can be similarly treated every five or six days. Haemorrhoids recur after operation and after injections—or new ones appear. I have recently had a case of an old lady of 77 years whom I treated five years ago for prolapse and a mass of external

haemorrhoids. She had no pain or discomfort until a few weeks ago. Three or four treatments ought to ensure comfort for the rest of her life.—I am, etc.,

ELIZABETH SLOAN CHESSEY, M.D.

London, W.1, Aug. 8th.

Complete Prolapse of the Rectum

SIR,—I sympathize with Mr. A. S. Morley (August 4th, p. 204) in holding that the standard procedures in the treatment of this condition are far from satisfactory; nor do I feel that his method of injection will advance matters much. In India we see very many more of these cases—advanced cases—than are seen in Europe. In my early days I was orthodox, and very soon became gravely dissatisfied with orthodoxy on this question.

One morning, after returning a prolapse of six or eight inches, I observed that the rectum was a real rectum—that is, that the bend of the ampulla and anus were there no longer and that I could shove my fist up the opening in the breach. It was at once evident to me that the proximal cause of the condition was rupture of the posterior half of the perineum—that is, from the central point to the ano-rectal wall, and that there was no longer a floor of the pelvis for the ampulla of the rectum to rest upon, as in health. I thereupon incised from the central point of the perineum back to the anal margin, from which point I incised backwards around each side of the anus, well back, and dissected up to expose the levator ani, pushing the rectum well back out of the way. The floor of the pelvis was split forwards. (There is no laceration of the skin in these cases.) With a large curved needle threaded with silkworm-gut I entered through the skin, lifted the lateral connective tissue and the two borders of the levator ani muscle on it, and came down and out, lifting the connective tissue and skin on it. I inserted a sufficient number of such stitches to make the repair of the floor sound, and finished up with a few skin stitches, in all reducing the outlet so that it was rather smaller than in health.

The result was so good that I followed it in all other cases. I am convinced that the procedure is just as sound as is the repair of the ruptured perineum in the female. And why should it not be? They are both dealing with the causation, whereas the standard procedures in rectal cases do not. These cases of prolapse of the rectum are always cases of a ruptured perineum. I apologize to the orthodox.—I am, etc.,

HENRY SMITH,

Sidcup, Aug. 6th.

Lieut.-Colonel I.M.S. (ret.).

Thrombosis of Internal Saphenous Vein

SIR,—I have read with interest the letters of Dr. Stanley Parkinson (*Journal*, July 28th, p. 183) and Mr. A. Dickson Wright (*ibid.*, August 4th, p. 232) on treatment of thrombi of the internal saphenous vein. A few years ago I suffered from thrombus of this vein at the left knee. There was much swelling and oedema of the leg. A surgeon suggested rest; I asked him to remove the thrombus by ligature; he refused. I was confined to bed for over seven weeks. Then again, a few months ago I had a sudden pain in the calf of the same leg, and as the pain and hardness did not disappear in a few days I showed it to a distinguished surgeon. He told me to rest it and come to see him in three days. Under a local anaesthetic, he removed a large thrombus and ligatured the vein. The operation took about ten minutes. The surgeon told me to rest the leg and to get a locumtenent for a fortnight at least. I disobeyed his instructions, and carried on my work as usual, and had no trouble and no pain.

I thoroughly agree with the letters written that it is bad treatment to wait for a thrombus to disappear by rest, and that the ambulatory treatment after removal is

the best. The objection I have to Mr. Wright's treatment by bandaging is that you may not get rid of the varix. The vein may remain patent. In removal and ligation you get rid of the varix and prevent recurrence.—I am, etc.,
Walton-on-the-Naze, Aug 8th. J. P. DEE, M.D., D.P.H.

Treatment of Phlebitis

SIR,—In reference to the recent correspondence on thrombosis of the internal saphenous vein, may I say that for several years I have been treating phlebitis of the superficial veins of the lower extremities by bandaging and advising the patients to "keep about." An elastoplast bandage is applied from the toes to well above the upper limit of the phlebitis. All cases have been successful; the pain is quickly relieved, the patient's occupation is not interfered with, and so far there has been no instance of embolus. A doctor whom I treated in this way not only carried on with his practice, but actually played golf while under treatment. I think the above method is a great advance on the usual one of rest in bed with local applications.—I am, etc.,
London, W.1, Aug. 11th. J. D. P. McLATCHIE, M.D.

Action of Ultra-short Waves on Tumours

SIR,—At the International Conference of Radiology held recently at Zurich Dr. Reiter has reported that the ultra-short high-frequency waves of 3.4 metres have a specific action on tumours growing in experimental animals. The claims and observations he has described may be summarized as follows:

1. The ultra-short waves of 3.4 metres arrest and destroy the growth of the Jensen rat sarcoma tumour as tested *in vivo*.
2. A weak dose of ultra-short waves of 3.4 metres, applied to a growing carcinoma in mice, renders such tumours more sensitive to the lethal action of gamma rays of radium irradiated *in vitro*.
3. If a weak dose of ultra-short waves of 3.4 metres is applied to a small Jensen rat sarcoma tumour growing in living rats, the tumour is made more sensitive to the action of a weak dose of gamma rays of radium, and the growth of the tumour is arrested.

I do not agree with these observations. While Dr. Reiter has continued his work in this country at the laboratory of the St. John Clinic and Institute of Physical Medicine I have closely followed his experiments, for I have supplied him with rats and inoculated growing tumours, and also carried out biopsy and histological examination of the animals. During his experiments over 60 per cent. of the rats have died as the result of necrosis of normal tissues and sloughing of tumour, or as a result of secondary bacterial infection following ulceration and suppuration of the tissues. If the exposure to the ultra-short waves is sufficient to cause heating and necrosis of the normal tissues the tumour will also be damaged, and similarly undergo necrosis. This effect is in no way specific to any special wave-length, and the same effect can be produced by longer wave-length—4.5 metres—provided that the intensity and dosage is adequate. The same results can be obtained with the ordinary diathermy currents of 300 metres, as has been previously proved by Westermarck. If the site irradiated is thoroughly cooled, so that there is no local heating, and consequently no inflammatory damage to blood vessels or normal tissues, the Jensen rat sarcoma tumours will all grow in the normal way. The exposure to ultra-short waves causes a local hyperaemia, and stronger dosage produces inflammation and necrosis of the skin, followed by secondary infection and sloughing. The effects may penetrate through the

abdominal wall to the peritoneum or pleura, and areas of necrosis of the edge of the lobe of the liver, the kidney, and isolated areas of haemorrhage and necrosis of the intestines and duodenum are seen. The animals are collapsed and gravely ill following irradiation, and the majority die as the result of toxæmia or secondary bacterial infection following the tissue necrosis.

If it is true that ultra-short waves of 3.4 metres are specific in their destructive action on tumour cells the superaddition of gamma rays is surely unnecessary. The action of ultra-short waves is similar to other agents which damage the metabolism of cells. In this way, as Cramer and Crabtree have shown, the action of gamma rays of radium may be augmented and increased when tumours are treated with ultra-short waves are irradiated *in vitro*. However, so far as I know, the effects of ultra-short waves of longer or shorter wave-length than 3.4 metres have not been tested, so that the claim for any specific action of this wave-length remains unproven. Regarding the experiments with gamma rays carried out *in vivo*, it is possible that the hyperaemia produced may render experimental tumours more sensitive to the action of gamma rays. This fact has already been demonstrated by other means by Mottram and myself. It is, however, very premature to suggest that there is any scientific evidence to support the fact that the wave-length of 3.4 metres has any specific action on tumour cells. All the ultra-short waves appear to act in the same way as the diathermic currents of longer wave-length, and cause heating of the tissues. This view is supported by the researches of R. V. Christie and A. L. Loomis, and by Schereschewsky, who fully studied the effects of these wave-lengths on growing tumour cells.—I am, etc.,
London, W.1, Aug. 12th. ALBERT EIDINOW.

The Swab in Diphtheria Diagnosis

SIR,—One fears that Dr. James (*Journal*, August 4th, p. 230) cries in the wilderness. The practice of swabbing throats of patients seriously ill with diphtheria, instead of their immediate admission to hospital being secured on clinical grounds, has long continued to be the despair of physicians engaged in preventive medicine. Dr. James's suggestion that the opinion of one familiar with the disease should be available was also made by Dr. R. A. O'Brien (*Public Health*, August, 1934, p. 357), who, in a discussion on the control of the common infectious diseases, urged the appointment of "area diphtheria specialists," in diagnosis. Superintendents and medical officers of isolation hospitals are undoubtedly able to perform such a function, and it is to be regretted that their services are not in much greater demand in the areas which surround their hospitals.—I am, etc.,
East Ham, Aug. 11th. JAMES CRAWFORD.

SIR,—Does Dr. James seriously advise that the policy of swabbing sore throats should be abandoned? It is surely common knowledge that diphtheria may be, indeed often is, spread by "carriers," whose throats defy diagnosis clinically even by those most familiar with the "diphtheritic throat." In my experience the disease does not always follow the textbook laws of signs and symptoms. I suggest, therefore, that every sore throat is a "doubtful case" but that many do not require the expense and trouble of hospital observation or antitoxin, unless swabbing confirms their infection or infectivity. I do not wish to contend that swabbing is necessary in cases presenting the typical diphtheritic throat—it is the contacts

CORRESPONDENCE

Aug. 18, 1934]

who then require swabbing; but any policy not involving the free use of the swab is scientific heresy indeed. On the assumption, then, that prevention is better than cure, my advice to family doctors is to continue to swab not only doubtful cases, but also all contacts, and give large doses of antitoxin only to those typical cases, familiarity with which it surely did not take long in general practice to acquire.—I am, etc.,

ALISTAIR R. FRENCH.

Greenford, Middlesex, Aug. 10th.

SIR,—One question in the letter (*Journal*, August 4th, p. 230) under the above heading is most opportune. I would even go further and say that, if one is sufficiently impressed by the state of a doubtful case to take a swab, one should inject antitoxin at once. The time lost in waiting for the result of the swab examination, especially after culture, can be, and sometimes is, fatal.—I am, etc.,

PRESTON R. WALLIS.

Jersey, Aug. 7th.

Occupational Therapy

SIR,—I was much interested in Dr. A. S. Brock's comments on this subject (*Journal*, August 4th, p. 231). He states that it is not a new idea, it does not require a psychological specialist to study it, and that he referred to it in the *British Medical Journal* in 1910.

In a book which I hope will soon be published I mention it. When I became medical officer of Bradfield College in 1899, and started a country practice in the neighbourhood, I found that when a patient was on his "club" he was not allowed to do any work whatever, not even to draw water from the well in his own garden. I at once saw the necessity of getting rid of that trouble, and ordered my farm labourer convalescents to do two hours' work a day in their gardens. Also I saw at once the necessity of getting the boys some occupation when they were convalescing from measles and other complaints. That was one of the reasons why I started the Natural History Society there in 1899, and I am glad to know it is still going strong.—I am, etc.,

NORMAN H. JOY.

London, W 10, Aug. 4th.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on August 4th the degree of B.M. was conferred on W. F. Fawcett.

UNIVERSITY OF CAMBRIDGE

At a congregation held on August 4th the following medical degrees were conferred:

M.D.—C. G. H. Campbell, J. K. Monro, W. G. Oakley, B. C. Tate, K. H. Uttley, J. M. Graham, A. W. Langford, M.B., B.Ch.—J. D. Ferguson, W. H. Lewis, K. Robson, A. Kekwick, A. C. Rumsey, M.B.—P. I. Cooper, C. M. Carr, R. C. F. Catterall, *A. H. Dunkerley, *M. K. Martyn, *J. Martin, W. A. Elliott, M. W. L. Owen, T. A. Ratcliffe, *C. J. Barrett, J. R. Chambers, J. G. Connell, T. B. L. Bryan, J. F. Edwards, R. E. K. Levick, C. G. Pantun, R. J. Sall, E. A. M. Halsted, L. A. Hawkins, J. P. S. Peck.

* By proxy.

UNIVERSITY OF LONDON

The following have been recognized as teachers of the subjects indicated in parentheses, and have been assigned to the Faculty of Medicine: Mr. J. H. Deggart (Ophthalmology) and Dr. G. W. Mitchell (Radiology), St. George's Hospital Medical School; Mr. M. L. Hine (Ophthalmology), Charing Cross Hospital Medical School. Probationary recognition as a teacher of bacteriology at the London (Royal Free Hospital) School of Medicine for Women, for a period of two years from July, 1934, has been granted to Mrs. Joan Taylor, M.B. B.S.

The Senate on July 18th resolved that University Readerships in Medicine, Surgery, Obstetrics and Gynaecology,

Pathological Chemistry, and Bacteriology, tenable at the British Post-Graduate Medical School, be instituted in accordance with the regulations on university titles (*Calendar*, 1933-4, pp. 235-46).

The following grants were made out of the Thomas Smythe Hughes Medical Research Fund and the Beaverbrook Fund for 1934-5 for researches to be carried out at the college or institution indicated in parentheses:

To Dr. R. C. Lightwood, the sum of £50 for apparatus, materials, and for histological and microphotographic expenses, for the continuation of haematological and pathological investigations concerning haemolytic anaemias in children, and the effects of erythrocyte stroma administration in dyshaematopoietic anaemias. (Research Department, Hospital for Sick Children.)

To Mr. T. W. Mimpriess, the sum of £34 for glass electrode apparatus, animals, etc., for an investigation into the relation of the growth of bacteria in the intestine to the hydrogen-ion concentration of the intestinal contents, in cases of obstruction in dogs. (St. Thomas's Hospital Medical School.)

The Ph.D. Degree in Anatomy has been conferred on A. A. Abbie (University College), and the Ph.D. Degree in Bacteriology on D. W. W. Henderson (Lister Institute of Preventive Medicine).

The regulations for exemption to students from other universities (*Red Book*, 1933-4, pp. 234-7), were deleted, and the following substituted therefor:

Exemption from courses of study for the First Examination for Medical Degrees and for the Second Examination for Medical Degrees, Parts I and II, in whole or in part, may be granted to students of other universities. All applications, which must be submitted on a form to be obtained from the Academic Registrar, will be considered on their merits.

Exemption from the First Examination for Medical Degrees and from the Second Examination for Medical Degrees, Part I, in whole or in part, may be granted to students who have passed all the examinations for a Science Degree of another university and to other applicants in exceptional circumstances only. All applications, which must be submitted on a form to be obtained from the Academic Registrar, will be considered on their merits.

The regulations relating to the award of a University Medal at the M.D. Examination (*Red Book*, 1933-4, p. 227; *Blue Book*, September, 1933, p. 273) and the M.S. Examination (*Red Book*, 1933-4, p. 232; *Blue Book*, September, 1933, p. 278), as amended in October, 1933 (*London University Gazette*, November 8th, 1933, p. 20), were further amended by the addition of the following words:

"or he may receive a replica of the Medal in bronze, and books to the value of the balance of the £20, selected by him and approved by the University."

It was resolved that the regulations relating to (a) the External Teacher's Diploma (*Blue Book*, September, 1933, p. 172), (b) the External Diploma in Public Health (*Blue Book*, September, 1933, p. 311), and (c) the External Diploma in Clinical Pathology (*Blue Book*, September, 1933, p. 323), be amended by the insertion after the word "Diploma" in the first sentence of each of these regulations of the words "of post-graduate standing."

Dr. F. D. Turner has been appointed governor of the Colchester Royal Grammar School.

Dr. L. W. Hackett, Assistant Director of the International Health Division of the Rockefeller Foundation, has been appointed Heath Clark Lecturer for 1934, the lecture to be given in December.

The Diploma in Public Administration has been conferred on Dr. W. E. Roper Saunders.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD

The following awards of Medical Entrance Scholarships and Exhibitions have been made on the results of the Board's examinations:

King's College
Warneford Scholarships: R. G. Evans (Bootham School, York); J. L. Lawrence (Sir Walter St. John's School, Battersea). *Sambrooke Scholarship*: G. T. E. Jenkins (Harrow County School).
King's College Hospital Medical School
Science Scholarship: R. P. Crick (Latymer Upper School, Hammersmith).
London Hospital Medical College
Price Scholarship: D. A. Miln (Alley's School, Dulwich)

ROYAL COLLEGE OF PHYSICIANS OF LONDON

On August 2nd licences to practise (additional to those granted on July 26th) were conferred on five candidates, whose names were printed at the end of the report of the meeting of the Royal College of Surgeons of England, in our issue of August 11th (p. 288).

Obituary

ROBERT LAWS, C.M.G., M.D., D.D., LL.D.

With the death, on August 6th in a London nursing home, of the Rev. Dr. Robert Laws—doctor, missionary, and statesman—is severed an almost distinct link with David Livingstone, but although the life-work of these two Scotsmen was centred in Africa they never actually met.

Laws was born in Aberdeen in 1851, the son of a cabinet-maker, and soon came under missionary influence. Paying his college fees with the money earned by his hands, he took the M.A. and M.D. at the University, and went to Edinburgh to attend the United Presbyterian Theological College, where he completed his course in 1874,



the year Livingstone was buried in Westminster Abbey. He at once offered for service in the mission field in Africa, but, like Livingstone, he had to wait before his opportunity arose. During this interregnum he joined the Glasgow City Mission and acted as resident physician at the small-pox hospital. In 1875 his chance came, when at the age of 24 he was chosen with seven others to go to Nyasaland and found the Livingstonia Mission of the United Presbyterian Church. After

navigating the Zambesi River in the steamboat which they had brought with them in sections from Scotland, the mission made its first station at Cape Maclear, at the southern end of Lake Nyasa, first reached by Livingstone sixteen years before. On the borders of this lake Laws spent most of his life, and for fifty-two years he was the moving spirit and head of the Livingstonia Mission.

Though he put the preaching of the Gospel before everything else, Laws found that his versatility and immense energy could also be directed into other channels. His knowledge of carpentry and building was of great use, as was his familiarity with medicine; he was the first man to administer chloroform in inner Africa, and the first to introduce coinage into Nyasaland. He was, moreover, a great advocate of education, industrial and literary. Immensely patient, the foundation of his success with the natives was systematic and thorough training, whether a man was to become a carpenter or a clerk—he was always content to wait for results. The first convert came after five years of hard work, and a year later the mission moved to the more central position on the western shore of the lake. It was at this time that Laws's activities were particularly directed towards grappling with the problem of the slave trade. It has been estimated that some 40,000 slaves were annually ferried across the lake on their journey to the coast, and the lives of those in the settlement were always in great danger from marauding Arabs as well as from the climate. The mission, however, prospered and extended westwards, until it now has 803 schools, with over 1,500 teachers and 44,000 pupils; there are also twelve hospitals and dispensaries registering 80,000 attendances a year. Industrial training has been provided for the natives in carpentry, ironwork, agriculture, milling, electrical engineering, forestry, and numerous other trades.

In 1879 Dr. Laws married Margaret Troup Gray, with whom he had been associated in his early training, and who laboured with him in Africa for forty-two years.

In 1908 Dr. Laws's missionary work was recognized by his being elected to the Moderatorship of the United Free Church of Scotland, the highest honour that this Church can bestow. The Great War caused an interruption in the mission work, which afterwards spread across Lake Nyasa into what had previously been German East Africa. In 1923 the C.M.G. was conferred upon him, and he also received the honorary degree of LL.D. from Aberdeen University. In the spring of the present year he published *Reminiscences of Livingstonia*, which contains an illuminating account of the characteristics, beliefs, and superstitions of the people in East Africa, as well as a valuable description of the flora, fauna, and physical characteristics of the country. His other publications include a translation of the New Testament into Nyanja, an English-Nyanja dictionary, and various school books in the latter language and in Tonga.

Dr. Laws was a great pioneer of Empire, and in the widest sense of the word a great doctor; his strong character and broad sympathies stood him in good stead, and his life's work was done for love of humanity at large.

[Photograph by Far and Near Press Bureau.]

WILLIAM EDWARD COLLINS, C.M.G., M.B.LOND.

Consulting Surgeon, Wellington Hospital, New Zealand

We regret to record the death, on August 11th, of Colonel the Hon. W. E. Collins at his home in New Zealand, where he had reached high rank as a surgeon and a legislator, been a pioneer worker for the Red Cross Society, and rendered valuable services to the British Medical Association.

Born in 1853 at Monghyr, India, the son of the late Dr. J. G. Collins, I.M.S., he received his education at Cheltenham and St. George's Hospital. In 1876 he obtained the diploma M.R.C.S., and in the following year graduated M.B.London. He played for England in five Rugby internationals between 1874 and 1876. In 1878 he went out to New Zealand and commenced general practice, specializing in surgery; two years later he joined the New Zealand Forces. The institution of the Volunteer Bearer Corps was in considerable degree due to his initiative. By 1896 he had reached the rank of surgeon colonel. For thirty years he was surgeon to the Wellington Hospital, and for many subsequent years consulting surgeon. Since 1904 he had been a member of the senate of the University of New Zealand, and was its examiner in surgery for three years. In 1914 he was chairman of the special committee on syphilis set up by the Australasian Medical Congress. He had been a member of the Legislative Council of New Zealand since 1907. Volunteering for service on the outbreak of the last war, he was placed in command of the hospital ship *Maheno* on her first voyage in 1915. He later commanded the hospital ship *Marama* on two commissions, and did not go on the retired list until 1920. He became president of the New Zealand Pensions Board, being awarded the C.M.G. in 1917.

An outstanding interest of his later life was the work of the Red Cross Society. He devoted many years of strenuous work to it, and contributed generously to its financial support. In recognition of his work he was elected in 1932 the first honorary life member of the New Zealand Red Cross Society. He joined the British Medical Association in 1888, and from 1901 to 1908 he was chairman of the council of the New Zealand Branch. On two occasions, in 1904 and 1916, he was president, and was elected an honorary member of the Branch in 1930. Physically strong above the average, he was a keen athlete and an enthusiastic supporter of various sports. Indefatigable and resourceful, he attained eminence in several walks of life simultaneously, his unusual breadth of outlook and capacity for co-operating with others fitting him well

for the high administrative positions he attained. He played a great pioneer part in New Zealand during its time of rapid but well-founded expansion, and leaves behind him a treasured memory.

SIR WILLIAM DONOVAN

Major-General R.A.M.C. (ret.)

We regret to record the death in London, on July 31st, of Major-General Sir William Donovan, K.C.B., late R.A.M.C., at the age of 83. Sir William was born at Killarney in 1850, the son of the late Staff Surgeon James Donovan, R.N., was educated at Fermoy College and Trinity College, Dublin, and took the L.R.C.P.I. and L.M., L.R.C.S.I. in 1871. He entered the Army as assistant surgeon in 1872, and became colonel in 1901 and surgeon general in 1904, retiring in 1909.

Sir William had a long record of war service. He obtained the medal during the Afghan War of 1879-80; he was in the Boer War in 1881, and took part in the Chitral Relief Force on the North-West Frontier in 1895, being mentioned in dispatches and obtaining the medal with clasp. In the South African War, 1899-1902, he acted as P.M.O. to the Cavalry Division, taking part in operations in the Transvaal, the Orange River Colony, and Cape Colony, including the relief of Kimberley and the actions of Paardeberg, Poplar Grove, Dreifontein, Karee Siding, Zand River, Johannesburg, Pretoria, Diamond Hill, Riet Viel, Belfast, and Colesberg. He was mentioned in dispatches in 1901 (Queen's medal with six clasps, King's medal with two clasps, and C.B.). Sir William was again P.M.O. in South Africa from 1905 to 1908, and in the Northern Command from 1908 to 1909.

In the Great War he served as D.D.M.S. of Embarkation at Southampton, during the tenure of which office he had to handle all the sick and wounded men who arrived at that port. It was his duty to allocate and dispatch them to the various hospitals having available beds, having to make up his ambulance trains from the reports received. During the battle of the Somme in 1916 he dispatched as many as 165 trains in seven days, which gives some idea of the pressure of work to which he was subjected. A contemporary describes him at this time as showing "an energy and a capacity beyond praise."

He received the K.C.B. in 1917, and also the rank of Commander of the Crown of Belgium. He was twice married, in 1909 to Anne, widow of the late Hopewell Morrell, who died in 1925, and later, in 1931, to Annie Becher, daughter of the late R. W. de la Cour, barrister-at-law. A requiem mass was celebrated at Holy Trinity Church, Brook Green, on August 3rd, and the burial took place at St. Mary's Cemetery, Kensal Green.

WILLIAM MACDONALD, M.D.

On August 3rd the town of Swansea and its neighbourhood suffered a great loss through the untimely death of Dr. William Macdonald, at the age of 55 years.

A native of Inverness, Dr. Macdonald graduated M.B., Ch.B. at Edinburgh University in 1909, and proceeded to his doctorate in 1913. His early appointments were as house-surgeon to the Queen's Hospital for Children, Hackney Road, and as resident medical officer to Queen Charlotte's Hospital. Early in 1914 he commenced practice in Swansea, and soon obtained a wide circle of patients, who also became his friends. Soon after the outbreak of war he joined the Forces, and served as a captain in the R.A.M.C. until the cessation of hostilities. On his return he was appointed to the medical staff of the Swansea General Hospital, and later he was made an honorary physician. His hospital patients were devoted

to him, and his energy and painstaking methods always won the admiration of his house-physicians. His death has interrupted a most efficient term of office as chairman of the hospital staff. Always a keen member of the British Medical Association, he made a most dignified and capable chairman of the Swansea Division three years ago. Socially he was deservedly popular, for, besides possessing a most engaging personality, he was a sound golfer and played an expert game of bridge. During the past twelve months his health had steadily failed, and those of us who realized that his condition was hopeless marvelled at his refusal to accept the inevitable, and at his remarkable attempts, even until a fortnight ago, to carry out both his hospital and his private work. He leaves a widow and two young children, for whom his colleagues and friends feel the sincerest sympathy.

Dr. CONSTANT GUSTAV LOGAN DAHNE, who died on July 28th, was born in 1866, the son of Captain F. W. Dahne and Mrs. Dahne of Clasmont, Morriston, Glamorganshire. His father was of Danish descent, and his mother came from an old Stirling family which had settled in Wales. Dr. Dahne was educated at Bishop Gower's Grammar School, matriculated at London University, and did his medical training at St. Bartholomew's Hospital, obtaining the L.S.A. in 1897. In his younger days he was a keen athlete, being a good boxer and Rugby football player, and a fine rider. Later in life he took up shooting and became no mean exponent of the art. He had practised at Pontardawe, near Swansea, for over thirty-three years, and was greatly respected there, both for his medical skill and his kind nature. He is survived by a widow and son.

Dr. SIDNEY BERNSTEIN, who died on June 30th, after a short illness, was born in Johannesburg in 1903. He was educated at King Edward VII School, Johannesburg, and afterwards entered University College, London, where he was awarded the Fellowes Gold Medal in 1925. He took his M.R.C.S., L.R.C.P. in 1926, later holding the posts of house-surgeon, registrar, and first assistant to the ear, nose, and throat department at that hospital. He was also house-surgeon and assistant registrar to the Central London Throat, Nose and Ear Hospital, and house-surgeon and casualty officer at the Royal Northern. At the time of his death he was surgeon to the ear, nose, and throat department, Gloucestershire Royal Infirmary, surgeon to the Gloucester County Mental Hospital, Gloucestershire Joint Tuberculosis Hospital, Gloucestershire Fever Hospital, Lydney District Hospital, and Gloucester District Nurses' Society. Dr. Bernstein was a member of the British Medical Association, in which he took a keen interest, a Fellow of the Royal Society of Medicine, and a member of the otology and laryngology section, on which council he had just been elected. He came to Gloucester in October, 1929, on the death of Mr. Smurthwaite, and by hard work built up the present ear, nose, and throat department in the new buildings of the Infirmary, which buildings owe so much to his valuable advice and foresight. He was a very hard worker, and this probably had much to do with his early death. He was a loyal colleague, loved by his fellow practitioners, and listened to with interest. He endeared himself to doctors and patients alike by his personality, charm, and kindness. He leaves a widow, to whom we offer our deepest sympathy.

The following well-known foreign medical men have recently died: Dr. CLEMENT CLEVELAND of New York, past president of the American Gynaecological Association and of the New York Obstetrical Society, aged 90; Dr. ARNANDO ANGELUCCI, professor of ophthalmology at Naples; and Dr. LOUINIÈRE HARWOOD, dean of the medical faculty of the French University of Montreal and professor of clinical gynaecology at the Hôpital Notre Dame.

The Services

THE SERVICES

[THE BRITISH
MEDICAL JOURNAL]

DEATHS IN THE SERVICES

Colonel John Garvie, K.H.S., Bengal Medical Service (ret.), died at Bideford on July 24th, aged 71. He was born on May 3rd, 1863, the son of William Garvie, manufacturer, of Perth, and was educated at Edinburgh, where he graduated M.B., C.M. in 1885. Entering the I.M.S. as surgeon on March 21st, 1887, he became colonel on March 24th, 1917, and retired on March 25th, 1922. He was appointed honorary surgeon to the King on June 20th, 1920. He served in the Zhoib campaign on the North-West Frontier of India in 1890.

Lieut.-Colonel George Speirs Alexander Ranking, C.M.G., Bengal Medical Service (ret.), died at Caversham on July 14th, aged 82. He was born at Hastings on January 9th, 1852, the son of Robert Ranking, Esq., surgeon, and was educated at Aldenham School, Herts, at Bart's, and at St. Catherine's College, Cambridge, where he was a scholar. He took the M.R.C.S. and L.S.A. in 1874, and graduated at Cambridge as B.A., with honours, in the Natural Science Tripos, in 1873, as M.B. in 1875, and as M.D. in 1879. I.M.S. as surgeon on March 31st, 1875, passing first out of Netley, where he won the Herbert prize; became surgeon lieutenant-colonel after twenty years' service, and retired with an extra compensation pension, on May 31st, 1905. During his first years of service he served for some time in the Bengal Cavalry; in 1892 he acted as professor of chemistry in the Calcutta Medical College, and as chemical examiner to the Government of Bengal; and in 1898 he held the post of surgeon superintendent of the Presidency European General Hospital, Calcutta. From early in his service he devoted himself to the study of Oriental languages, and from 1894 to 1905 held the post of examiner to the Government in Oriental languages, and assistant secretary to the Government of India. He was the author of many works on Oriental languages: *Hidayatu-l-Hukuma*, 1878; *Arabic and Persian Prosody*, 1885; *Tahm-i Zabani-Urdu Dictionary*, 1905; edited and translated *Tawarikh-i-Badaoni*, 1889; and one small professional work, *On Preservation of Health in India*, 1903. After retirement he settled at Oxford, where he was lecturer in Persian from 1909 to 1920. On March 15th, 1909, he was appointed lieutenant-colonel in the R.A.M.C. (T.F.), and commandant of the Third Southern (Oxford) General Hospital, a post which was probably considered a sinecure at the time, but became one of hard work and of great importance during the war. He was mentioned in dispatches in the *London Gazette* of July 27th, 1917, and received the C.M.G.; and later the Territorial Decoration in 1923. He retired from the Territorial Forces on September 19th, 1923. In 1875 he married Elizabeth Maunsell, daughter of John Duncan, Inspector-General, Royal Irish Constabulary. She died in 1927, leaving one son.

Lieut.-Colonel George Henry Baker, Bengal Medical Service (ret.), died at Bournemouth on May 22nd, aged 74. He was born on May 11th, 1860, the son of George Philip Baker of Portsea Island, Southampton, was educated at Charing Cross Hospital, where he was Golding scholar, and took the L.S.A. in 1884 and the M.R.C.S. in 1885. Entering the I.M.S. as surgeon on October 1st, 1885, he became lieutenant-colonel after twenty years' service, and retired on December 24th, 1913. Most of his service was spent in civil employ in the United Provinces. He served in the Burmese campaign of 1886-7, in the 6th Brigade, and received the frontier medal with a clasp; and in the Tirah campaign of 1897-8 (medal with clasp). After retirement he rejoined for service in the war of 1914-18.

Major Robert O'Kelly, R.A.M.C. (ret.), died at Crecon, County Limerick, on June 14th, aged 49. He was born on January 16th, 1885, and was educated in Dublin, where he took the L.R.C.P. and S.I. in 1907. Entering the R.A.M.C. as lieutenant on February 4th, 1908, he became major after twelve years' service, and retired, on account of ill-health, on March 30th, 1927. He served in the war of 1914-18.

Major John Hay Duguid, R.A.M.C. (ret.), died on May 27th, aged 57. He was born on July 13th, 1876, and was educated at Aberdeen, where he graduated M.B., Ch.B. in 1901. Entering the R.A.M.C. as lieutenant on January 31st, 1903, he became major on October 31st, 1914, and retired on February 10th, 1923. After retirement he was in practice at Walford. He served in the war of 1914-18.

Medical News

The annual dinner of the Chartered Society of Massage and Medical Gymnastics will be held at the Café Royal, Regent Street, W., on Wednesday, September 26th, at 7.30 p.m.

The programme for the fifty-third post-graduate course of the Medical Faculty of Vienna has now been issued. This course will extend from September 24th to October 8th, and will deal more particularly with recent advances in general medicine and therapeutics. Copies of the programme can be obtained from the office of the Medical Faculty in the University, Ring des 12 November, Vienna 1.

The next lecture-demonstration arranged by the Fellowship of Medicine and Post-Graduate Medical Association (1, Wimpole Street, W.) will be given by Dr. Clark-Kennedy, at 11, Chandos Street, W., on August 21st, at 2.30 p.m.; the subject will be asthma. The following lecture will be on August 28th, on loss of voice. Forthcoming courses include infants' diseases at the Infants Hospital, September 3rd to 15th; chest diseases for the specialities at the Westminster Hospital, September 17th to 29th. The Panel of Teachers provides daily instruction in various branches of medicine and surgery.

The Fellowship of Medicine announces that a course in infants' diseases, specially arranged for medical officers of welfare centres and others interested in nutritional disorders and dietetics, will be given at the Infants Hospital, Vincent Square, Westminster, S.W., from September 3rd to 14th. The fee for the full course is £3 3s., and the names of qualified practitioners wishing to attend the course (the number is limited to fifteen) should be sent to the Secretary, 1, Wimpole Street, W.1, by August 30th.

The first International Congress of Electro-radiobiology will take place from September 10th to 15th in the Doge's Palace at Venice under the presidency of the Marquis Guglielmo Marconi and Count Giuseppe Volpi di Misurata. The object of the congress is to hold joint discussions between physicists, chemists, biologists, and physicians, on biological actions of all radiations, in order to co-ordinate the respective investigations, in order to learn from the physicist the theoretical and experimental basis of physical researches on the vibratory and corpuscular phenomena. The physicist what are the influences that these phenomena have on cellular elements, on complex tissues, and on organic processes. The applications of radiations to medicine will not be examined and discussed. Further information may be obtained from the general secretary of the congress, Dr. Giocondo Protti, S. Gregorio 173, Venice, Italy.

The thirtieth congress of the Italian Society for Otorhino-laryngology will be held at Padua from September 6th to 8th, when the following subjects will be discussed: the surgery of the ethmoid, introduced by P. Carco, G. Lugli, and M. Silvagni; and the lymphatic tissue and its importance in the development of laryngeal tuberculosis, introduced by R. Motta, G. Salvadori, and V. Tanturri.

The fourth congress of the Latin Oto-rhino-laryngological Society will be held at Brussels from September 20th to 25th under the presidency of Dr. E. Buys.

The eighth congress of the French societies of otoneuro-ophthalmology, which was to have been held at Barcelona this year, has been postponed to next Easter, when it will probably be held at Nice.

The Industrial Welfare Society (14, Hobart Place, Westminster, S.W.1) has issued a pamphlet on the scope, administration, equipment, and staffing, etc., of works laundries.

Major-General D. J. Collins, C.B., C.M.G., D.Sc., M.D., has been appointed a deputy lieutenant for the County of London.

AUG. 18, 1934]

LETTERS, NOTES, AND ANSWERS

After providing for a bequest of £500, the will of Mr. Gerald B. Atkins, Brentmead Place, Hendon, who left £11,041 (net personalty £10,035), leaves the residue upon trust to pay the income between Guy's Hospital, St. Bartholomew's Hospital, Moorfields Eye Hospital, St. George's Hospital, and the Mildmay Maternity Nursing Association. If either ceases to exist or ceases to be supported by voluntary contributions by reason of its being taken over or run by the State or the L.C.C., or any local or other authority or public body, such interest is to cease.

An institute of public health has recently been founded in Rome, consisting of laboratories for chemistry, bacteriology, biology, and sanitary engineering, a library, and a museum.

By a recent ministerial decree every cinema in Spain has been ordered to exhibit films of a public health character, supplied by the Subsecretary of Health and Welfare, for at least twelve minutes at each performance.

Geh. Med. Rat Professor Emil Abderhalden, director of the Physiological Institution of Halle University, has been elected a corresponding foreign member of the Vienna Academy of Sciences.

Dr. J. L. Faure, professor of clinical gynaecology, and Dr. Brindeau, professor of clinical obstetrics, in the Paris Faculty of Medicine, have been elected members of the Académie de Médecine.

Professor Emile Gallemaerts, a former president of the Belgian Académie de Médecine, has been nominated an officer of the Legion of Honour.

that this can be induced to nail reactivity by fine, minute punctures of the scar tissue, stage by stage, and dressing with iodox?

Nail-biting

"LIBERTAS," in reply to "M.B.Ed." (August 4th, p. 240), writes: Let the child of 11 years old be shown daily that her nearest and dearest care. Let her be shown that the cure is in her own hands, and that the habit is her slave and not her master. Let her be told gently and in confidence that other habits—for example, masturbation, lurk ready for the uncontrolled. If still necessary, when much older, let her know that nail-biting is among the possible symptoms of mental deficiency.

Dr. A. G. BUCHANAN (London), in reply to "M.B.Ed.," writes: I have cured a large number of cases of nail-biting by hypnotic suggestion.

Major H. WILLIAMSON (Dorchester) writes in reply to "M.B.Ed.": I recently had a similar case, which was cured when the child's mother gave her a manicure set and taught her to take a pride in her nails. The set included "liquid nail polish," which particularly pleased the child, and a pair of nail clippers which could be used with either hand.

Insect Bites and Iodine

Dr. T. M. CUTHBERT (Gidea Park) writes: I can endorse Dr. Pringle's finding. All my cases of septic insect bites have been "first-aided" with iodine. One had commencing erysipelas when first seen four days after the bite—the patient died from septicaemia. I feel sure iodine ought not to be applied to insect bites, but it seems a universal treatment, probably originating in a newspaper article.

Spermatorrhoea when Bathing

Dr. ALISTAIR R. FRENCH (Greenford) writes in reply to "M.D., D.P.H.'s" inquiry concerning the above condition: I suggest that he might obtain some help from the perusal of Dr. Max Huhner's book *Disorders of the Sexual Function*, published by the F. A. Davis Company of Philadelphia.

Over-smoking

"A. K." (Gravesend) writes: In reply to your correspondent's inquiry on this subject, it may be of interest to record the following instance in which I was successful in effecting an improvement. Some time ago, having to meet an in-coming ship, I noticed on the bridge a bowl containing numerous cigarette ends. The captain, whose hands were very shaky, and who admitted that he should cigarette smoking, agreed to my suggestion that he should substitute caramels for the smoking of cigarettes. The next time I saw him on his ship the bowl was full of caramel wrappings instead of cigarette ends. His hands were steady and his smoking had been reduced to a very moderate amount.

Dr. E. N. SAYWELL (London, N.W.1) writes: Has "F. C. R.'s" patient tried complete abstinence from tobacco for forty-eight hours? I know of several cases completely cured of the craving by this means. If the patient wishes to continue moderate smoking, Paton, in his *Hormone Therapy*, gives a remedy which he has found efficacious, but I have not tried it.

G.P. Laboratory Equipment

"W. F." writes in reply to "Q. R. S.'s" inquiry (*Journal*, June 2nd, p. 1015): The following information may be of use to your correspondent. An egg incubator, which can be bought second hand, working with gas or oil, is perfectly efficient; regulators and lamp heaters can be obtained which keep a very good and regular temperature. For a sterilizer a "pentecon" may be used; size 5 is, however, too small. There is an efficient centrifuge, made in Germany, which is quite cheap; test tubes 1/2 in. by 5 in. are suitable, and smaller Wassermann tubes can also be used. Of dyes, the dried media are useful, and, if one only uses small quantities, cheap. The "tabloid" brand is again to be recommended. Storage trouble can be diminished by cutting slides into three and mounting temporarily on another slide for examination. Sedimentation tubes, which can be made at home, are cheap to buy. A home-made colorimeter can be made from plasticine with a screen of paper having slots cut in it. Suitable measuring apparatus can be obtained from Baird and Tatlock. As regards renal function tests, it is better to buy the tube. Bromine can be obtained in ampoules of 1 c.cm., and four samples can be examined with

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

Regeneration of Nail Tissue

F. F." (Bromley) has a case in which, owing to an accident some two months ago, the skin on the dorsum of the thumb was caught and wrenched up just above the nail matrix. The entire nail was pulled up off its bed and dragged up to the pulp of the thumb, the flap involved remaining attached. At this stage "F. F." saw it, and replaced the flap. Subsequently the entire remains of the thumb nail appeared to be fine scar tissue. The matrix is by what seems to be fine scar tissue. The matrix is proliferating a new nail from the proximal end of the scar tissue, or nail groove, and the nail is being reproduced from the sides of the nail groove (more so from the inner side). There is, however, a comparatively large area of the scar tissue in the nail groove which does not, so far, show signs of proliferating nail. Is it likely that there is a stratum of nail epithelial cells below this scar tissue, and

each ampoule. Capillaries made from broken test tubes are useful for doing coagulation times. Sugar estimations are easily done with a burette and Benedict's solution in a dish. There is a cheap blood nitrogen set on the market. Analysis of stomach contents is quite simple to do with indicators and the burette: solutions are easily made up. For the laboratory bench, a kitchen table, equipped with spirit-lamp and bought test-tube racks, suffices. Glass slides rubbed with sandpaper and turpentine give a good surface for writing labels. A sheet of glass should be fixed on the table, with paper, half white and half black, gummed underneath.

Pruritus with Jaundice

Dr. J. WATKIN EDWARDS (London, S.E.20) writes: I am interested in the inquiry made in the *Journal* of June 16th concerning the treatment, or relief, of pruritus associated with jaundice, and am reminded of a case which came under my observation some years ago in a patient who had been a medical student in London. This man had an attack of jaundice (after fish or pork, I forget which), very marked, and complicated by this maddening itching of the skin, which nearly drove him frantic. I tried the usual treatment for catarrhal jaundice, and soothing applications to the skin, with very unsatisfactory results. After a few days, finding no improvement, he expressed a wish to come to London to see one of his old teachers. I readily consented, and he chose that his old physician the late Sir William Broadbent. After an examination, Sir William assured him that the itching would have disappeared by the next day. Although it is now many years ago, I distinctly remember that the chief ingredient in the prescription (which definitely did remove the pruritus by the next day, and without any relapse) was sodium phosphate. This good old-fashioned medicine is rather badly neglected in these days. I have never forgotten its usefulness in the above case, and often find it valuable in liver troubles. I write this letter in the hope that it might be of some value to revive the use of a good medicine and to meet the needs of your correspondent "P. J. M."

Income Tax

Assessment in Excess of Return

"SENEX" made a return and has been assessed in excess of the amount returned. (Apparently the "demand note" to which he refers was a formal notice of assessment issued to give opportunity for objection to be lodged.) He has been requested to supply particulars of expenses—and presumably a statement of gross receipts—but the inspector will not say how the original assessment "made by commissioners" had been arrived at.

* There are two bodies of commissioners, who sit at infrequent intervals: (a) the additional commissioners, who are responsible for the making of assessments; and (b) the general commissioners, who hear objections thereto. If the former did not have the return when the assessment was made, or thought it inadequate, they would make an assessment on estimate. Presumably something of that sort happened. "Senex" was formally notified, and now has the alternative of coming to an agreement with the inspector or of appealing to the general or special commissioners, who will personally consider any evidence he may wish to put forward. We suggest that a personal discussion at the inspector's office will probably be the best way of reaching a proper settlement.

LETTERS, NOTES, ETC.

A Campaign Against Rats

An account of their campaign against rats in Beyrouth, where bubonic plague has been endemic for more than a decade, is given by L. V. R. JUDÉ and J. V. H. LUBER in *Arch. de Méd. et de Pharmacie Militaires* for February, 1934. In 1920 there were sixty-two cases, in 1921 there were twenty, and in 1932 as many as forty-nine cases. The campaign included all the measures hitherto advocated. Among 214 rats examined between May, 1932, and September, 1933, eleven were found to be infected. Although rats were destroyed by the thousand by trapping, etc., it was realized that for a town with a population of 200,000 inhabitants something more radical must be done. Preliminary tests were accordingly made with the Danish virus ratin, and with the highly toxic preparation of squill, known as ratin. The system adopted was to distribute the bait, impregnated with ratin, all over the town, and, after three weeks, to provide the survivors with bread, fish, or cheese impregnated

with ratin. A credit of 200,000 francs was provided for the purchase and distribution of these two poisons, and fifty persons were employed on the preparation of 12,000 baits every day. They were put down in the evening, and the few that were left untouched were removed next morning. In the course of one year three million such baits were distributed. The exploration of certain burrows revealed many dead rats, whose bodies had dried up without smelling of decomposition. Though no exact figures could, of course, be quoted, it was the unanimous opinion of the inhabitants that the rat population had been greatly reduced. During 1933 there were only four human cases of plague—a result which the authors are inclined to attribute to their vigorous campaign against Beyrouth's rats.

"Revue de Rhumatisme"

Recently a new periodical, devoted to the study of rheumatism, has been started in France, under the title of *Revue de Rhumatisme*. The policy of the editors is to include authoritative articles, by well-known specialists, on rheumatism, reports of societies and abstracts of articles on rheumatic subjects, and reviews of appropriate books. The first number contains a long article by Drs. Fernand Bezançon and Mathieu-Pierre Weil on the pathology of joints. This must prove a most valuable summary of recent views on the influence of capillary circulation and the autonomic vascular control are summarized, and the differences in the pathological process underlying osteoarthritis and rheumatoid arthritis are described. From these considerations the rationale of modern treatment held for the future success even in this chronic and disheartening disease. We welcome this venture, and hope that it will contribute to the relief of the social scourge which is its subject.

A Family Record of Hospital Service

There has recently been issued a revised list, alphabetical and local, of the old students of St. Thomas's Hospital, S.E.1. The compilation of this book has been the work of Robert S. Hopkins, School Bedell, and this number represents his last effort before retiring, on August 11th, after fifty-four years of service to the hospital. A London correspondent writes: Hopkins's family holds a remarkable record at St. Thomas's: in 1880 he himself was appointed as a messenger at the age of 14, his father served as porter from 1843 to 1880, while his grandfather, who worked in connexion with the medical school at the old hospital in St. Thomas's Street, was employed from 1823 to 1843. The combined services of the family thus cover 111 years. During his fifty-four years Robert Hopkins has worked for six medical secretaries, while a wealth of student material has passed through his hands. He is rightly credited with an almost infallible memory for names and faces, and he recorded that however much time may have elapsed since he last saw an old student he never fails to recognize him. One mistake is, however, alleged in the case of a tw brother, but even this has been denied.

High Carbohydrate Diets and Insulin Efficiency

A Correction

Dr. H. P. HIRSWORTH writes: In my article on the above subject, which appeared in the *Journal* of July 14th, 1934 (p. 57), I have unfortunately made a mistake in the references. The second reference, concerning the glucose equivalent of insulin, I attributed to F. M. Allen; it should really have been attributed to F. M. Allan of Lahey Clinic, Boston. Dr. Allan has drawn my attention to this error, and I should be grateful if you could publish a correction of my mistake.

Correction

Professor F. J. BROWNE writes: Will you please let me, in justice to the Central Midwives Board, correct an error that has crept into my paper "Are we Satisfied with the Results of Ante-natal Care?" published in your issue of August 4th, on page 196. The percentage of failures in the examinations of the Central Midwives Board is there stated as ten. This should be seventeen.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 36, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 148.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, AUGUST 25th, 1934

CLOSED ANAESTHESIA*

BY

W. B. PRIMROSE, M.B., CH.B.

SENIOR ANAESTHETIST, ROYAL INFIRMARY, GLASGOW; SENIOR ANAESTHETIST, PRINCESS LOUISE
HOSPITAL FOR EX-SERVICEMEN, ERSKINE

Closed anaesthesia has lately been attracting considerable attention, and investigation shows that many workers have interested themselves in this method during the last few years. The present discussion of this method is entirely due to the thought and experiment of these workers, not all of whom have published their views and results. It may be as well first to state what is meant by the term "closed anaesthesia," for, as it stands, it does not convey very much in the way of definition or of special meaning. Most anaesthetists are accustomed to conduct general anaesthetics which cannot be described otherwise than as "closed," so that some definition of the term is required to indicate the special light in which this form of anaesthesia has now come to be regarded.

Closed anaesthesia is general inhalational anaesthesia maintained indefinitely by the continuous rebreathing of a relatively small fixed amount of anaesthetic gas, which is constantly kept in a respirable and life-supporting condition. This definition implies some special treatment of the gases in the closed system by which the anaesthetic gas is recovered in a state of purity for reinhalation. The closed system may also be called the "recovery principle," which term conveys the additional fact that the anaesthetic gas is recovered from the breath, is used over and over again by the patient, and is not allowed to escape into the general atmosphere during the anaesthesia.

Gas-recovery is not new, the absorption of carbon dioxide from the breath being well known as a method employed in physiological research, as also is the fact of the chemical stability of the anaesthetic gases. It is not remarkable, therefore, that the idea of applying these facts to the management of gaseous anaesthesia should have occurred to many workers both at home and abroad. What does seem strange, however, is that the principle of carbon dioxide absorption, which seems so simple and effective, has not produced more decided results and established itself as a workable and reliable method.

The idea presented itself to me originally less as a method of using the anaesthetic gases with improved effect than as a means of making gas-oxygen apparatus portable. The construction of apparatus of manageable weight had interested me for several years, but there seemed to be no means by which cylinder dead weight might be reduced until the recovery principle was thought of and tried. With this scheme working successfully, it should be possible to make a really portable apparatus, since it would no longer be necessary to carry about the large supplies of gases required by the "flow" principles.

There might also be other advantages from the working of a completely closed system.

Mechanical Difficulties of Administration

At the outset it was seen that there would be no great difficulty in making a machine that would be gastight, but would it be possible to get the necessary security of joint between the machine and the patient? This was a matter of great importance, for, if leakage could not be controlled, the system could not be kept completely closed, which is a condition demanded by the recovery principle. On reviewing the various instruments which have been described, I cannot help thinking that this joint between the machine and the patient has proved a great difficulty, and, from my experience in dealing with it, there seems to be little doubt but that this detail has held up the development of this method from the beginning.

A very early conclusion reached by me was that the joint could not be maintained for the purposes of the principle by any means applied to the face. A mask might be necessary for induction, but other means would have to be used to maintain the closure of the system upon which the recovery principle depended.

Gas Supply Connected Directly with Pharynx

The obvious solution to this problem appeared to be the fitting of some tubular device into the pharynx immediately behind the tongue, the tube having an inflatable cuff or tyre at its free end for making contact with the pharyngeal wall upon distension. Experiment at once showed this to be quite feasible.

It was found that such a device, when made to correspond with the general configuration of the throat, filled the cavity completely, and, by being made to expand laterally, did not open the oesophagus as might be expected. When connected with the instrument this gastight joint was capable of withstanding all the higher pressures used, even up to 30 mm. Hg without leakage. This throat tube therefore provided the means for joining up the patient with the machine, and so fulfilled the condition of complete closure.

An outstanding difficulty in connexion with the making of this tube was to find the rubber which, in a tyre of the small size required, would stand the inflation often needed for capacious throats. Elasticity of rubber is apt to be variable, with the result that a weak spot may develop with use, and soon rupture. This difficulty threatened failure for a considerable time, but ultimately a suitable rubber was found, which was more than equal to the conditions imposed upon this small tyre, and the tube is now manufactured successfully by the India Tyre and Rubber Company of Inchinnan. The rubber used is

* Read in opening a discussion in the Section of Anaesthetics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

remarkably durable, and is capable of doing many dozens of cases; in fact, I have not yet reached the limit of durability of a single tube which is used for almost every one of my cases, and which is boiled after each occasion. This property of sterilization by boiling is unique for rubber, and of the utmost importance in the use of such an instrument.

Absorption of the Carbon Dioxide

Another matter requiring consideration was the most suitable method of absorbing the carbon dioxide. Generally speaking, there are two methods in use: (1) the granular or dry method, using a soda-lime compound, which operates most successfully as an absorbent in the various kinds of respirator, particularly those which have to be carried about on the person; and (2) absorption by means of a strong solution of caustic soda or potash. The latter method is impossible for use for most purposes, yet the special conditions of general anaesthesia make it the most suitable.

The solution is undisturbed during use, so that there is no danger of its escaping into different parts of the tubular system, and its avidity for carbon dioxide is high and very constant at all rates of breathing. It is also possible to apply a simple test to the solution to ascertain the need or otherwise for renewing it. This latter is a point of importance, particularly in hospital practice, where an anaesthetist may wish to use a machine, the absorbing capacity of which may be quite unknown to him. This estimation is a very uncertain matter with even the coloured granular absorbents when used occasionally as in the case with anaesthetic apparatus, and their use entails considerable waste under these circumstances.

Simple Method of Estimating Limit of Absorption

The devising of a suitable test for the limit of absorption of the liquid gave some concern, for the usual double titration method of estimating the increasing percentage of carbonate as it formed was quite unmanageable by the anaesthetist who wanted to use the machine without delay. The method also failed to operate after a little over 16 per cent. of carbonate was formed, for in the cold solution crystallization took up the excess over this figure. For the purposes of the anaesthetist it was necessary that a result be quickly arrived at by simply adding a sample of the absorbent to an indicating reagent of some kind. This was finally achieved by modifying the double titration method, and the test now consists of adding 1 c.cm. of absorbent to 1 c.cm. of 80 per cent. hydrochloric acid in water, using two drops of phenolphthalein as indicator. If the purple colour remains the solution may be used for at least two hours. If the colour is discharged the solution should be changed, although it is not actually exhausted.

This point of discharge was fixed arbitrarily by ascertaining when the absorbing solution allowed 3 per cent. of carbon dioxide to remain unabsorbed from exhaustion of the soda, and, considered along with the lowered metabolic activity of the average case during an anaesthesia, it provided a good margin against the point being overreached. The machine has also another means of dealing with such possible oversight. As the unabsorbed carbon dioxide accumulates along with the other gases the pressure in the system rises, and relief is given by the blow-off valve.

A Machine for Administering Closed Anaesthesia

A machine constructed according to the foregoing principles is exhibited here and known as "anaesthetor M 7." It represents the results to date of my investigations into the recovery or closed method of using the anaesthetic gases. It consists of a basal part, which is the absorbing tank, on the removable lid of which are

mounted the tubular and valve parts, sight-feeds, etc. In front are the two turret valves which interrupt the metal part of the respiratory tube for the purpose of diverting the breath through the ether chamber, absorbing tank, or both, or of directing it straight through to the breathing bag at the extreme left end of the tube. At this point also are seen the blow-off valve, which consists of a spring-loaded ball capable of adjustment, and also the nitrous oxide inlet. Behind are the sight-feeds for the anaesthetic gas and the oxygen; these are of simple design, for in the closed system there is no measuring or portioning of the gases, since they do not flow as in the other methods. The stable nitrous oxide is an atmosphere like the nitrogen of the air, and is therefore absolute; oxygen is merely added to the requirements of the patient as these vary. The other fittings are, the ports to the ether chamber and the absorbing tank placed at either corner behind, and the level and levelling screws seen in front.

The lid is removable from the absorbing tank by undoing the six straining clips, and, when removed, reveals the shallow ether chamber and the baffle, which is fixed to its underside, and surrounded by four limiting walls. The baffle divides this box-like space equally but irregularly into two parts, each of which communicates with one of the two passages seen to lead up to the turret valve above. The free edge of this baffle is deeply serrated throughout its length by triangular serrations. These, along with the surface of the solution into which they dip almost entirely, constitute a device whereby a series of apertures is formed through which the breath has to pass as it moves through the machine. These triangular apertures vary in their size with the volume and the strength of the breath passing through them, and, being open below, cannot become occluded with crystals of carbonate as happens with round holes. It is the need for the even dipping of this baffle into the solution that necessitates the use of the level and levelling screws.

The absorbing tank works with one litre of solution, which may be made up in the tank by dissolving the contents of a 1 lb. tin of caustic soda in a sufficiency of water, and, when cool, filling up with water to the line marked on the inside. The baffle is arranged to work only with this amount, as it ensures effective absorption with the lowest resistance to the breathing. This quantity of solution keeps the unabsorbed carbon dioxide down to 1.5 per cent. for about eight hours, after which it slowly rises until the test gives indication that the 3 per cent. point is passed. Ten anaesthetic hours represents the usual range of absorption of this amount of solution.

The apparatus is connected with the patient by the corrugated rubber tube, which ends in a swivel-valved joint. To the rotating part of this joint can be attached a mask for induction purposes at one point, and the throat tube for the maintenance of the anaesthesia at the other, with, of course, provision for breathing to the air. Attached to a small nipple on the inside of this valved joint is the delivery tube from the oxygen sight-feed, which is seen to enter the side of the respirator tube. By this means oxygen is supplied directly to the mouth of the patient. A mouth prop of oval tubular pattern keeps the mouth open during induction for the passage of the throat tube at the proper time. This prop is held in place by the sponge rubber covering of the mask, so that it cannot be ejected by the patient as he "goes under." The throat tube is in two parts: a rustless steel oval wire coil fixed to a coupling, and a rubber tubular covering which is pulled over the coil and also fixed to the coupling by a rubber ring. The free end of the rubber tube shows the tyre from which the small inflating tube passes along one side to end in the strong pressure tube, to which the inflating bulb is attached when in use.

Aug. 25, 1934]

The Machine in Use

From what has already been said certain preliminaries are essential before attempting to use the machine. In the first place, the absorbent must be tested unless it is known that this is unnecessary: ether should show on the indicator seen through the glass top of the filler cap, and the gaseous supplies must be adequate and under complete control. When placed beside the operating table the instrument must be levelled by using the screws at each corner in front. A bagful of gas may now be admitted, and then forced through the absorbing tank by hand pressure to remove as much of the air as possible, and also any ether that may have been left from the previous case. The swivel valve at the end of the respirator tube allows of this "washing through" when set to either extreme position, but when set to "air" the machine is closed, and may now be filled with gas ready for use.

With the mouth prop in position, induction is effected with the mask. Breathing on "valves" is secured by having the absorber "on"; the small resistance so set up to expiration causes the breath to escape through an expiratory valve on the mask. Closing this valve stops off a trace of ether when required, the throat tube, previously assembled, is fitted to the swivel valve, and, at a suitable moment, is swung round and inserted into the throat, where the small tyre completes the joint on being inflated. After this the nitrous oxide will be turned off unless raised pressure is required; the oxygen will be regulated to suit the requirements of the patient, and ether used to suit those of the surgeon; and in the average case the absorber will be turned "on."

When anaesthesia is established the first point to require attention will be the throat tube. It is necessary that the tyre be not over-distended, and to avoid this one finds the lowest sealing pressure. In one case over-distension which inadvertently occurred, and was allowed to continue, resulted in some pharyngitis, which, however, soon passed off, but the experience provided the lesson in its avoidance. The lowest sealing pressure is easily found by deflating the tyre until breath is heard to escape in the throat, when one pressure of the bulb will close the joint. The joint may be tested in this way once or twice during a lengthy anaesthesia; the muscles of the pharynx tend to relax as time goes on, and to accommodate themselves to the tyre more readily, so that combined with lower pressure in the instrument, less tension is required in the tyre. Attention of this kind ensures the complete absence of pharyngeal irritation, even after prolonged anaesthesia. A special soapy lubricant made by Allen and Hanburys facilitates the insertion of this tube, but no oily or greasy matter should ever be used, as these substances attack the rubber very quickly.

When the closed system has been established and the patient is breathing quite clearly, relaxation—for example, of the abdominal muscles—will call for the use of ether. Along with this the pressure of the gases should be raised by admitting nitrous oxide up to pressure indication. This pressure may be as great as 20 mm. Hg, or even more in the case of a very strong man suffering from an acute upper abdominal lesion. Pressure greater than this usually stops breathing, however, especially as the ether takes rapid effect, and embarrassment to the breathing must be removed by lowering the pressure. With the production of relaxation the ether is discontinued, and the pressure maintained at about 10 mm. If further effect is required, say, to close the abdomen, it is better to add a little more ether than to use raised pressure again.

The further use of much ether or pressure is rarely called for owing to a peculiarity of the closed system. The ether that has been added to it in the early stages of an operation mostly remains in it, except for a little that is absorbed into the tissues. In many cases the ether tension in the patient's circulation and in the machine would appear to become stabilized and to remain uniform. The patient's vitality in these cases does not remain constant but diminishes, and in so doing makes him more susceptible to the etherized atmosphere. Relatively to the patient, therefore, the original effective dose of ether now becomes an overdose, as shown by the depressed breathing with inspiratory tugging of the chin and the dilating pupils.

This situation, so easily seen developing in such cases, is as easily dealt with and corrected. The breathing bag is emptied by hand pressure through the blow-off valve, and filled with fresh gas. Ether is exhaled into this gas, which may be renewed once or twice more at four- or five-minute intervals. Normal conditions are soon re-established, and a more definite gas-oxygen anaesthesia supervenes until the end of the operation.

This relative overdosage makes its appearance slowly, as a rule, and some time after the ether has been turned off. It seems to occur in patients of the nervous type, whose reserves of nerve energy are not great. In the stolid types of patient the ether used is absorbed to a much greater degree, so that light anaesthesia tends to supervene, with its vigorous breathing and smallish pupils. This lightness of anaesthesia may also be detected by turning on the ether full for one breath or so, when its irritating effect on the larynx produces a kind of grunting on expiration. A few breaths of ether stop this noise, and restore the deeper state of anaesthesia. Occasionally a patient may phonate continuously throughout a long anaesthesia, in spite of other signs of adequate depth.

In using the instrument conditions may arise in the patient which call for the closure of the absorber in order to accumulate carbon dioxide for purposes of stimulation. It is interesting to observe the restoration of blood pressure under these conditions, and the general improvement in vitality in enfeebled cases. The pressure gauge on the instrument gives a remarkable amount of information about the patient after one has become familiar with it. It indicates the fact of clear breathing by its steady movement to and fro on either side of the zero mark. When the absorber is switched on the needle vibrates at either end of its excursion, owing to the passage of the breath past the baffle. If the instrument is level, this disturbance is equal on either side. At normal pressure good breathing imparts a swing of about 10 mm. to the needle, so that one can form an idea of the respiratory vigour under most conditions. If overdose with ether begins to appear the negative side of the excursion representing inspiration will increase and be more active than the expiratory or positive excursion. This corresponds with the jerky inspiration previously referred to.

As regards metabolism, a very good relative idea as to its changes in the course of an anaesthesia is obtained from the visible amount of oxygen required to keep the complexion well coloured. Metabolism inevitably diminishes as an anaesthesia and operation proceed, and, of course, some patients show this more than others. The machine shows it through the pressure gauge. At the beginning of an operation a given supply of oxygen maintains a steady anaesthesia with steady carbon dioxide absorption, but it may be noticed after a little that the pressure of the system is gradually rising. This is due to the fact that in the closed method the oxygen supplied for metabolic purposes is not all being used up by the patient. It collects, and thereby raises the pressure of

the system. On cutting down the supply a little, the pressure returns to the previous reading. The use of ether, with depressing effect on the respiration, frequently shows this rise of pressure in the system. Finally, pressure must rise when the absorbent becomes exhausted or is put out of action for any length of time, but the ball-valve relieves this as previously explained.

Experience with the Closed System

The true criterion of the success or otherwise of any method is the general opinion based on actual experience of the use of that method. My experience of the closed system is based entirely upon the use of the instruments with which I have experimented; it is therefore necessarily limited, and my attitude towards the system may not be quite free from bias. It is unfortunate that experimental conditions do not allow of the distribution of such instruments, even among anaesthetists, in order to get a collective opinion. On this account I have frequently felt the want of collaboration with some of my colleagues, particularly on clinical matters. However, the experience I have gained will, I think, be of interest, and may incline others to turn to this field the attention that is necessary to develop it.

My experience with this machine, and one or two of its less successful predecessors, covers about 350 cases of the usual surgical type. Owing to the convenience of "receiving nights" at hospital for trying out this machine with its innumerable alterations, a great many of the cases were the usual urgent abdominal conditions—appendix, strangulated hernia, perforation of gastric and duodenal ulcers (usually in strong men), and the other odds and ends of a receiving night theatre. The management of such cases very soon showed the capacity of the instrument for dealing with them, and also its limitations.

Positive pressure, one might imagine, would so increase the solubility of nitrous oxide in the blood that its anaesthetic effect would be correspondingly enhanced. This, however, only takes place to a limited degree, merely producing an increased steadiness of the gaseous anaesthesia. Positive pressure does not profoundly deepen the anaesthesia with gas, but let it be used with ether and the strongest man very soon succumbs to its influence. For ordinary work, however, a pressure of 10 mm. is quite sufficient, and this may need to be reduced in some cases. Positive pressure reduces the amount of ether required for muscular relaxation. With this control over ether, it will be understood that difficulty in managing any acute case such as may occur when using an open anaesthetic does not arise, and this is one of the great advantages of the closed system.

Many of the patients were seriously ill, and constituted definite risks with the usual open anaesthetic; with this apparatus, however, they revived, or appeared to do so, on the table under the influence of their own carbon dioxide, which was collected for them by closing the absorber. The stimulated conditions so produced are apt to give a misleading idea as to the patient's true condition, but they may make a desperate operation possible, and so extend the patient's chances of recovery.

Two such cases are of interest in this respect. One was that of a man of 92 with a perforation of a large simple duodenal ulcer. Owing to contraindications to other methods, gas-oxygen was asked for. It so happened that this apparatus with its throat tube was not available at the time; the ordinary apparatus was rendered useless owing to the patient having a profuse beard, and the usual open anaesthetic using some chloroform was resorted to finally. Everything went well with him for the first four days, when his heart began to fail. It was believed that here was a case in which this closed apparatus with its

throat tube would have turned the balance towards a more successful issue. The other case was of a woman of 53, acutely ill from gangrene of part of the small gut. After a rapid anastomosis, ten feet of bowel were removed, and in spite of the usual surgical experience of this condition, the patient survived. It was believed of this case that the patient would not have survived with an open anaesthetic.

The experience of routine surgical cases covers some of considerable length; two, each lasting two and a quarter hours, are notable. One was of a difficult gastrectomy, and the other of an extensive bone graft; both patients did very well. Other cases were of the usual duration—for example, gastro-enterostomies, gall-bladder cases, and the various operations of the lower abdomen, including an abdomino-perineal excision of the rectum. The instrument has also been used for operations on the kidney, breast, and thyroid gland. In toxic cases of the latter, reliance should not be placed entirely upon the anaesthetic, some infiltration being desirable. Nasal operations are successfully dealt with, as the throat tube occludes the pharynx and remains out of the operator's way.

So far as one can see the effects of the method upon the patient are not markedly different from those produced by the other methods. Recovery is quiet and remarkably free from sickness, especially when nembutal is used. It is to be noticed, however, that an opiate as a preliminary drug provides calmer respiratory movements than does the barbiturate, and so may be preferred by some abdominal surgeons. An excessive dose of an opiate should be avoided, for a general anaesthetic may develop its power to a toxic degree, as shown by depressed respiration and sighing, which may last from some hours to two or three days. Such extreme medication is quite suited to the use of spinal and local anaesthetics.

The other aspect of the closed system upon which I may comment is its economics. In this field the closed system is quite supreme. The use of gas-recovery makes it possible to carry out up to thirty cases with 100 gallons of nitrous oxide, as was found when the working costs of the principle were under consideration. Oxygen, of course, is used continuously, but as none can be wasted during anaesthesia on account of the closure of the system, only the smallest amount required for the purposes of metabolism is used. Taking the above thirty cases as generally representing twenty-five hours' anaesthesia, the oxygen required for them amounted to about ten cubic feet. The ether works out at about twelve cases to the pound, but this figure must necessarily vary. The other commodity required is caustic soda. One pound lasts about ten anaesthetic hours, as compared with granular absorbents, which last about half this time.

From these facts there can be no question as to the difference between the recovery principle and the "flow" principle, and with the greater flexibility of the former as a result of the use of the throat tube, a method of using the gaseous anaesthetics is now available which it will be most advantageous to develop.

Conclusion

The advantages of the closed system may be briefly summed up. As a method of using an anaesthetic gas such as nitrous oxide there is some improvement in the steadiness of the anaesthesia, and a little more oxygen is permissible in the average case. One cannot say that the anaesthetic effect of the gas is greatly exalted, even with positive pressure. The need for ether still leaves us with the desire for a more potent gas, and in this connexion we are beginning to hear of one, cyclopropane. The employment of positive pressure is a great advantage, but its use is limited.

AUG. 25, 1934]

X RAYS IN DISEASES OF THE GENITO-URINARY SYSTEM

THE BRITISH
MEDICAL JOURNAL 343

With the closed method less ether is required per case, since to a very great extent it is retained within the system, where it quickly becomes warmed. The use of the throat tube, while making the system workable, assures a clear and adequate airway in any position in which the patient may be placed, and also prevents saliva and other matter from reaching the lower air passages. The anaesthesia is conspicuously dry, even where atropine has been omitted and saliva has flowed profusely. The use of the tube extends the scope of surgery to the head and face, including the teeth. The apparatus used is compact and light, easily handled, and simply constructed. There are no fine adjustments to become deranged. The working costs are the lowest possible, as consumption of anaesthetic gas is independent

of the duration of the anaesthesia, being estimated at so much per case. Where working costs have to be considered, as in most hospitals, the recovery principle provides the usual gas-oxygen anaesthesia for less than the cost of open anaesthetics in cases of average duration. The necessary apparatus and supplies are easily portable.

Reviewing the position as it appears to me from a limited experience of this closed system of anaesthesia, I think we have gained access to a new field of anaesthetic administration sighted by others a long time ago. We must now set about its exploration by developing apparatus and technique, and, with the possibility of finding newer and more potent anaesthetic agents, no one can say what further advantages the closed system has to give.

X-RAY TREATMENT OF DISEASES OF THE GENITO-URINARY SYSTEM*

BY

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The x-ray treatment of diseases of the genito-urinary system is a somewhat wide subject, and one that cannot be dealt with adequately in the time at my disposal. It is a little difficult to decide where to begin, but it will be well perhaps, in the first instance, to say a few words about technique.

Unit Skin Dose

There is still a good deal of controversy and confusion as to what is implied by a unit skin dose—a skin erythema dose; the number of r units which represent these doses, etc., so many factors, and the grade of erythema produced varying considerably in different clinics. All this is too controversial to enter into in this short communication; nevertheless, it is advisable for me to give some idea of what I am talking about when I refer to an erythema dose. Personally, I mean a dose which, when applied to the skin of the abdomen of an adult, produces a slight redness within three weeks after the application, followed by some bronzing or pigmentation of the skin, but no desquamation. This is at least 25 per cent. less than that often given and described by many as an erythema dose, and may perhaps be described as the mild or minimal.

After some thirty years' experience, however, I have been much impressed by the importance of preserving the integrity of the skin, and would rather limit the skin dose and increase the number of ports of entry wherever possible than run the risk of causing damage. I am well aware that this is not always possible, and there are cases where the dose mentioned may have to be exceeded, but one must be careful not to produce a cure which is worse than the disease, many such having come under my notice. I know that those who advocate a so-called epidermicidal dose say that complete repair takes place; but is this permanent? I doubt it, as most patients so treated do not live long enough to tell the tale. There may be those here, however, who may be able to show that I am wrong.

The dose I have mentioned, if applied at a single sitting, in a certain time, at a certain distance, and at a certain kilovoltage, is a fairly definite one, and is what is implied when I refer to a unit skin dose in this paper; if spread over several days the total exposure required to produce the same effect will be greater. Levitt has stated that a 100 per cent. dose given in one day if spread over

one week would require 150 per cent., and spread over a fortnight some 220 per cent. to produce the same effect. From my own observations I would say that this is a fairly accurate estimate, and important to remember when mapping out a dose that has to be spread over an interval of time. Different diseases require different techniques in order to obtain the best results, and having decided on what is likely to be the most beneficial dose in a certain case, the next thing to consider is the best way to administer it, and we have various techniques to choose from.

Fractional Dose

This is by far the oldest method, and is still largely used, chiefly in the treatment of benign conditions. It consists in giving fractional doses of one-third to four-fifths or so of the unit skin dose at intervals of a few days, a week, or longer, and kept up, in some cases, for a considerable period of time.

Single Massive Dose

This method created a great stir when it was first introduced into this country, and some very exaggerated claims were made for it, which were not substantiated. Its aim is to apply uniformly throughout a malignant growth the largest dose which the tissues will tolerate, the whole dose being given in one day. I tried the method when it was first introduced, in a few cases of malignant prostate, but very quickly abandoned it on account of the practically constant, and often somewhat alarming, constitutional upset which resulted. It still has certain uses, as in the treatment of rodent ulcer, etc., but not, to my mind, in any disease of the genito-urinary system.

Divided or Split Dose

This is a modification of the preceding method. The dose, instead of being given in one day, is spread over an interval of time, at daily or two-day intervals, according to circumstances; and here it must be remembered, as I have already pointed out, that the actual dose given at each exposure will depend upon the time over which the treatment is to be spread. This is the method I consider to be the most suitable in the majority of cases.

Saturation Method

The saturation method is one I have never used. Its aim is, after a maximum dose has been given, to keep up the effect by giving further daily doses of some 15 per cent. of the unit skin dose for several days.

Protracted Fractional Dose Technique (Coutard)

This method is also one of which I have no personal experience. Malignant genital tumours so treated have been reported by Schumacher, who states that although

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

the bladder and intestine have received as much as 2,000 to 2,500 r when this procedure was applied to the lower pelvis, the reaction of these organs was astonishingly little. Possibly our president, who has had some experience of this method in the treatment of cancer of the larynx, may have used it in some genito-urinary case; if so, his experience and that of anyone here who may have tried it will be very interesting.

Various factors which influence the biological effect of a dose of x rays, such as the time taken, the interval between the doses, the quality of ray, etc., are still very controversial, and cannot be entered into in any detail. Generally speaking, it seems to be assumed by most radiologists at the present time that, in the treatment of malignant cases at any rate, the hardest rays possible should be employed—180 kV upwards—and the object aimed at should be to give uniformly throughout a tumour 100 per cent. of the unit skin dose without damage to the surrounding tissues. This, of course, in many situations is extremely difficult, but were it always possible I, personally, doubt if we should find that a cure could be effected—there are so many factors of which, as yet, we know nothing. I could quote quite a large number of cases of breast carcinoma in the early days of x-ray treatment, when a gas tube and 12-inch or 16-inch spark-coil were used, in which recurrences in the region of the scar completely cleared up. Needless to say, the kilovoltage here was nothing like 180; the lesions, true, were superficial, but they disappeared under this type of radiation. I am not one of those who hold that low kilovoltages should be employed in the treatment of malignant disease. Far from it, for various reasons; but I must say that I doubt whether the quality of the ray from high kilovoltage machines is as important as the fact that with such we are able to give a more uniform depth dose.

Another curious fact I have observed on several occasions may be exemplified by quoting two similar cases of bone metastases which came under my care at the same time. In the one the lesion was attacked by giving a unit skin dose through several ports of entry in an attempt to deliver as large a dose as possible; there was no good result—in fact, rather the opposite. In the other, only one erythema dose on the skin over the lesion was given, and the condition completely cleared up, as evidenced by x-ray examinations carried out before and after treatment. How are we to account for this if a 100 per cent. dose is necessary in all cases? And are we not inclined, in these days, to be too mathematical in our dosage, forgetting that the human body is a very variable factor, and that one man's food may be another man's poison? As you know, large doses of x rays are destructive and have an injurious effect upon the patient, the body being able to tolerate only a certain amount of what, for want of a better name, we may call the x-ray poison; small doses, however, have a stimulating effect, as I shall show later. There is one thing I am certain of, and that is that whenever large doses are considered to be necessary they should be so regulated as to avoid, as far as possible, any lowering of the general resistance of the patient, since there is no doubt that many who have received too big a dose go downhill rapidly. Therefore, the ports of entry should be as small as is compatible with efficient radiation; and if on a trial dose there is any upset, the intervals between the doses should be increased from one to two, three, or more days, regulating the dose accordingly, rather than risk this lowering of vitality. It should never be forgotten, as Dr. Gilbert Scott has humorously remarked, that there is a patient attached to the tumour!

Diseases Treated by X Rays

So much, then, for a short survey of general principles. We will now go on to consider the various diseases treated by x-ray therapy, and, in the first place, the kidneys. These organs, situated as they are in the upper abdomen in close relation to the liver, spleen, suprarenal capsules, and large and small intestine, present considerable difficulties, and quite often severe constitutional disturbances are encountered. On this account no attempt should ever be made to give a single massive dose, and the effect of divided ones must be carefully watched, since practically the only conditions radiologists are called upon to treat are growths. There is no doubt that the advance of pyelography and excretion urography has enabled the diagnosis to be made much earlier, such growths as hypernephromata giving a characteristic picture. If an early diagnosis is made x-ray treatment should never be recommended, barring some contraindication, in place of operation; but in advanced inoperable cases such treatment is to be recommended, for although, so far as I am aware, no cure has been reported, there have been cases where a marked reduction in the size of the growth has taken place and been maintained for some considerable time.

Growths of the Bladder

Here again operation is the procedure of choice. The only cases that have come under my care are those where diathermy or operation has failed, or where the growth is considered for some reason or other to be inoperable, and I must say that x-ray treatment in such cases has proved most disappointing. From the experiences published by Sir John Thomson-Walker it would appear that pre-operative radiotherapy, with the idea of reducing the size of the growth, is not to be recommended, as the bladder becomes spasmodic and contracted, and the limits of the growth difficult to define. Neither is immediate post-operative treatment to be recommended when there is an open wound, on account of the risk, a very great one, of increasing urinary infection. In the case of growths unsuitable for operation, or in recurrent growths, x-ray treatment should be tried, and a few good results have been reported, though, as I have said, they are as a rule very disappointing. The split dose method is the one to employ, and the effect of each exposure must be carefully watched; it is advisable, to my mind, to spread the dose over a period of ten days or a fortnight.

Simple Enlargement and Malignant Growths of the Prostate

In my experience simple enlargement of the prostate is very favourably influenced by x-ray treatment, but the results cannot be said to be certain or constant. In view of the fact that in skilled hands the modern operation for enlarged prostate is so successful, I would say that radiotherapy should not be recommended as against operation, unless there is some definite contraindication. Nevertheless, I know of several medical men who, when their own prostate becomes enlarged, preferred to try x-ray therapy rather than submit to operation, and in some cases the results have been most encouraging. One has to remember in these cases that, although the growth is non-malignant, quite a large dose is necessary, in the region of 90 per cent. of the erythema, if the best results are to be obtained. All my cases have been treated through six ports of entry—three anterior and three posterior.

In the case of the malignant prostate the operation is a very severe one, and the results not very encouraging, and in such cases x-ray treatment may be said to compete with surgery. The most usual result of such treatment is, I fear, a temporary improvement with some diminution in size and often reduction of the hardness.

Aug. 25, 1934]

X RAYS IN DISEASES OF THE GENITO-URINARY SYSTEM

THE BRITISH
MEDICAL JOURNAL 345

The latter, however, is not permanent; a relapse usually takes place quite early, but occasionally not for a year or two, or even longer; five years is the longest in my own series. At times, however, one gets a case where the growth appears to disappear completely. In such cases the question of incorrect diagnosis always crops up, but even if the growths are non-malignant, which I doubt, then we have some further proof of the good results in simple enlargement, and the existence of such cases gives ground for hope that with some modification in technique we may find a means of making our numerous temporary improvements permanent.

The bulk of the cases of malignant prostate which have come under my care have been treated by the six field method, sometimes supplemented by a perineal field, the dose being the erythema described on the skin of each area: size of ports, 6×8 cm.; distance, 30 cm.; kilovoltage, 180; filter, $1/2$ mm. zinc or copper + 2 mm. aluminium—the dose being spread over ten days to a fortnight according to circumstances.

In all cases of prostatic enlargement, and the same applies to bladder growths, great care must be taken to reduce urinary infection to a minimum, and if this cannot be done I would say that x -ray treatment is contra-indicated. There is no doubt that urinary infection is accelerated by x -ray exposures, and in not a few cases a general urinary infection following x -ray treatment has been the cause of death. The dose I have mentioned may be repeated after an interval of from six weeks to two months, preferably the latter. It must be pointed out, however, that reaction is generally more marked when a further series of doses is given; therefore the doses should be somewhat reduced and the results carefully watched. All patients should be kept in a nursing home or under medical supervision while the treatment is being carried out, so that any emergency arising from reaction, such as retention of urine, may be promptly dealt with.

Growths of the Testicle

Although some of these are quite radio-sensitive, they should, in my opinion be removed surgically, and x -ray treatment to the glands should follow. The results of such treatment are quite encouraging, and I know of one case where the glands were very definitely enlarged. This was many years ago, and the patient is still perfectly well.

Tuberculous Epididymitis

This condition responds very favourably to quite small doses of x rays, and one patient, treated in 1932, appears to be completely cured after four doses only of $1/2$ B.S.N., 120 kV, 1 mm. aluminium filter, ten days interval between the first and second doses, and three weeks between the third and fourth.

Carcinoma of the Cervix

We will now go on to consider the x -ray treatment of diseases of the female genital organs, and take malignant conditions first. Of these carcinoma of the cervix is by far the most common, and is undoubtedly favourably influenced by x -ray treatment. In quite a fair proportion of cases the disease appears to clear up completely, but here again a recurrence sooner or later, which is much more resistant to radiation treatment, is the rule rather than the exception, though one does occasionally see patients who remain in good health for years after x -ray treatment alone.

A good deal of controversy still exists as to the best form of treatment. There are those who hold that in suitable cases operation in the hands of a skilled surgeon is the procedure of choice; others hold that radium is superior to x -ray therapy; while others hold that a combination of x -ray therapy and radium affords the best

hope of success. At the moment I am against radiation treatment in any malignant condition where an operation can be efficiently carried out, but in cases where, for some reason or another, operation is contraindicated I would say that the combined x -ray and radium treatment offers a better prospect than either given alone. Most frequently at my own hospital radium has been applied in the first instance, and after a suitable interval the patient is sent down for x -ray therapy. I am of opinion that this order should be reversed, radium being applied some six weeks to two months after a thorough irradiation by x rays. I feel that such a procedure would reduce the number of cases in which a recurrence takes place after x -ray treatment alone.

Carcinoma of the Body of the Uterus

On the whole this condition is less favourably influenced by radiation treatment than cervix cases, though quite a number respond quite well. Failing operation for choice I consider that x -ray treatment is superior to radium, and the same applies to sarcoma. The divided dose technique is the best procedure to adopt, though I believe in cervix cases some radiologists still employ the single massive dose as originally worked out at Erlangen.

In the case of the ovary the type of growth met with is very variable, and some growths are undoubtedly radio-sensitive. Nevertheless, if the case is operable I would strongly advise surgical removal, followed by a course of x -ray therapy. In all inoperable cases x -ray treatment is indicated, and, in a few, very remarkable results have been obtained, the patients remaining well many years after. This, however, is the exception rather than the rule, and no doubt the results depend largely on the type of malignancy. It is advisable in all these cases to irradiate the whole pelvis by the divided dose technique.

Non-Malignant Conditions

We now come to certain non-malignant conditions, such as menorrhagias of the menopause, menorrhagias at other periods with no definite pathological condition of the uterus, menorrhagias associated with fibroids, and cases where, owing to dysmenorrhoea or other conditions, sterilization is considered advisable. I have put all these cases together, as the dose in each is practically the same, and may perhaps be called the sterilization dose; it is about 35 per cent. of the erythema dose to each ovary. In this class of case x -ray treatment is, in my experience, most successful, and if we omit certain cases of fibroids we may claim almost 100 per cent. of cures without any undue upset.

Personally, I give a rather larger dose than that mentioned—namely, 40 per cent. through four ports of entry, one anterior and one posterior over each ovary. In very obese subjects this has, at times, been supplemented by a postero-lateral field in each side. Since with efficient apparatus, one-third (or even more) of the dose applied to the skin reaches the ovary, it is evident that these results can be obtained without producing any skin reaction. There are two ways of carrying out this treatment: the total dose may be given at one sitting, in which case it is advisable for the patient to go into a home or to remain in bed for two or three days, or the dose may be reduced to some 25 per cent. and spread over three months at monthly intervals. This causes practically no upset whatever, and the results are excellent in both cases.

I would like to emphasize the importance of having every case thoroughly examined by a gynaecologist before commencing the treatment, and I make it a rule never to undertake a case that has not been so examined, for obvious reasons. As I stated early in this paper, small doses of x rays are stimulating, and this fact may be

made use of in the treatment of cases of sterility with ovarian hypoplasia, in amenorrhoea, and other minor menstrual disturbances. In a series of cases treated at St. Mary's Hospital and elsewhere the procedure has been to give one-tenth of the erythema dose to the skin over each ovary through an anterior port at intervals of one month, and repeated three or at the most four times. The treatment can do no harm, and has proved successful, so far as I can judge at the moment, in a little under 25 per cent. of cases; it is therefore well worth trying. I shall be very interested to hear if anyone present has tried the treatment, and with what results.

There is another minor, but sometimes most distressing, complaint, which frequently responds very favourably to small doses of x rays, and that is pruritus vulvae. A large number of patients get relief, and not a few are cured, but some, for reasons unknown, do not respond at all. My practice has been to give $1\frac{1}{2}$ B.S.N., $1\frac{1}{2}$ to 1 mm. aluminium filter, 120 kV, once a week for three doses, followed by a further dose of $4\frac{1}{5}$ B.S.N. through 3 mm. aluminium some three weeks later. This latter dose I have used also in cases of leucoplakia, but the results, on the whole, have not been very encouraging. Cases of carcinoma of the vulvae referred for radiation treatment are best treated, I think, by radium, followed by a thorough irradiation by x rays of the inguinal glands.

I realize that this communication is incomplete, and deals with the subject in a somewhat scrappy manner, but I hope some points have been raised which will lead to discussion.

THE DIAGNOSIS OF INTRACRANIAL TUMOUR*

BY

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There is no doubt that many members of the medical profession still consider cerebral tumour to be a rare disease which hardly ever occurs in the ordinary run of general practice, and that its manifestations are obscure and unlikely to be recognized. In fact, however, cerebral tumour is rather common, and gives rise to signs and symptoms which are often easy of interpretation. Although the exact localization of the tumour within the brain may be a matter of considerable difficulty, and indeed it may be impossible, the fact that the cranium does contain a tumour can often be diagnosed at an early stage.

Frequency of Cerebral Tumours

It is always difficult to arrive at a figure which expresses with any accuracy the incidence of a disease in the general population, as there are always so many variable factors which affect such a figure; but in conjunction with Mr. Armitage I have made an attempt to reach some conclusion as to the frequency of cerebral tumour, though these figures are still admittedly open to criticism. We have analysed the records of 13,000 necropsies performed at the General Infirmary at Leeds during the last twenty years, and this series consists of cases of all possible types. We have published a detailed analysis elsewhere,¹ but we were able to draw the following conclusions. There were 3,533 cases in which the brain had been examined (27 per cent.), and of these 264 contained a tumour. Now the brain is examined in any patient who showed cerebral symptoms during life, so that most of the cerebral tumours must have

been discovered; on the other hand, a certain number of symptomless tumours may have been missed. The percentage of brains examined which contained a tumour is 7.45 and the incidence of cerebral tumour in the whole series of 13,000 cases is 2.02 per cent. These figures relate to pathological masses within the skull, and of course a number of these were tuberculomata; the incidence of actual neoplasms is 1.34 per cent. Table I shows the number of cases of cerebral tumour compared with the incidence of other common lesions of the nervous system in the 3,533 cases examined.

TABLE I

Disease Condition	Number of Cases
Purulent meningitis	373
Tuberculous meningitis	356
Cerebral tumour	264
Cerebral haemorrhage	211
Cerebral abscess	165

For the figures contained in Table II I am indebted to Dr. Georgiana Bonser; they are taken from the same series of necropsies. In this table the number of cases of cerebral tumour is compared with the number of cases of other common tumours.

TABLE II

Cancer of colon	26 per cent.
Cancer of stomach	2.5 "
Cancer of lung	1.2 "
Cerebral tumour	2.0 "
Cerebral neoplasm	1.3 "

The conclusion one can draw from this table is that a mass inside the skull is almost as common in the post-mortem room as a cancer of the stomach or of the colon, and that 66 per cent. of these are true neoplasms. These figures, then, give some idea as to the frequency of cerebral tumour, and it is interesting to compare them with some clinical figures from the National Hospital, Queen Square, published by Walshe²: of 1,309 cases admitted in one year cerebral tumour heads the list of classified diseases with 163 examples, disseminated sclerosis being second with 133, and neurosyphilis, of all forms, third with 113.

The third table shows the relative frequency of the different pathological types of tumour compared with similar figures quoted by Walshe,⁴ which refer to cases operated on at the National Hospital and by Cushing at Boston.

TABLE III

Type	Leeds	London	U.S.A.
Glioma	35.9	40.5	41.5
Metastases	11.3	6.4	4.0
Meningioma	5.6	13.5	12.2
Neurofibroma	1.5	11.5	8.5
Pituitary	3.3	13.1	25.2
Tuberculoma	33.8	2.6	2.8

It will be seen that in all cases the glioma is the commonest type of tumour, but the most striking difference between the lists is with regard to the tuberculoma. The reason for this has been pointed out¹; it is because tuberculoma does not give rise to physical signs until it is complicated by tuberculous meningitis, and for this reason practically never reaches the surgeon's hands. It appears that tuberculoma of the brain cannot

* A lecture delivered to the Halifax Division of the British Medical Association, March 15th, 1934.

be diagnosed during life. I do not propose to discuss the other pathological types save to say that there was only one example of gumma, which serves to emphasize how uncommon this condition is.

Symptoms of Increased Pressure

The manifestations of cerebral tumour can be discussed under four headings—namely, those due to increased intracranial pressure, focal symptoms, epilepsy, and mental changes.

With regard to the first group I would like to mention briefly the reasons why a cerebral tumour produces an increase of intracranial pressure. Owing to the skull being rigid the volume of the brain must remain constant, and this volume depends on the mass of the brain, and the volume of the blood and of the cerebro-spinal fluid. The mass of the brain is increased by tumours, but in the slowly growing types this may be very slight. Pressure of a tumour on surrounding veins produces oedema as well as congestion of more distant veins, and, lastly, the circulation of the cerebro-spinal fluid may be obstructed directly—for example, by a tumour compressing the aqueduct of Sylvius. Now the pressure of the cerebro-spinal fluid can be measured very easily by means of a simple graduated glass tube and a lumbar puncture needle. With the patient lying on his side the pressure in a normal person varies from about 80 to 120 mm. of water; this figure, of course, represents the pressure within the skull, and in cases of cerebral tumour it may be 500 mm. or more.

Headache.—The commonest manifestation of increased intracranial pressure is headache, which occurs in nearly 90 per cent. of cases. The headache is paroxysmal in the early stages, being worse when the patient is lying down; it is particularly severe on waking in the morning, and often passes off during the day. The pain is increased by excitement, laughing, coughing, or sneezing, and as the condition advances the headache tends to become continuous. But there are other types of headache seen in cases of cerebral tumour; there may be a localized pain due to pressure of the tumour on the skull, and in this case there may be tenderness on pressure over the site of the pain. In pituitary tumours there is frequently bitemporal headache, and in posterior fossa tumours pain is sometimes referred down the back of the neck, but, on the whole, headache has little localizing value. Headache commencing in adult life which is severe and progressive should arouse suspicion of cerebral tumour, and it may be the patient's only complaint for weeks or months.

Papilloedema.—The next most common manifestation is papilloedema, which is seen in three-quarters of the cases. Papilloedema, which is a true oedema of the disk due to venous obstruction, shows itself as redness, blurring, and eventually swelling and haemorrhages; in the early stages there is little or no impairment of vision, but later the visual acuity diminishes, the visual fields contract, and blindness results unless the pressure is relieved. Papilloedema may start in one eye before the other, but this is of no localizing value. A patient may present himself on account of failing vision, but this is unusual, and by the time vision is impaired there are nearly always other signs and symptoms. Papilloedema is seen in conditions other than cerebral tumour; any cause of increased intracranial pressure will produce it—for example, meningitis or cerebral abscess—and I have seen a high grade of papilloedema develop within two hours of a severe head injury; it occurs, of course, in uraemia and in septicaemia, but the most difficult cases are those associated with arteriosclerosis of the cerebral vessels; in the past two years I have seen six cases with papilloedema associated with gross changes in the retinal vessels and raised blood pressure, but in each there was

a cerebral tumour as well as cerebral arteriosclerosis. One concludes, therefore, that if a patient has marked papilloedema and has no renal disease he is probably suffering from a cerebral tumour whether he be an arteriopath or not.

Vomiting.—The third most common symptom of increased pressure is vomiting, which occurs in some 60 per cent. of cases. Like headache and papilloedema, it may be the only symptom at first, and in this connexion I should like to say that the triad of headache, vomiting, and papilloedema is not seen in complete form in more than half the cases of cerebral tumour. Although vomiting of cerebral origin is said to be projectile and unassociated with nausea this is not true in many adult cases; there may be severe nausea and retching. The vomiting is usually worse in the morning at the time when the headache is most severe. Vomiting occurring in an adult without dyspepsia should always arouse suspicion of cerebral tumour, and if it be associated with headache the diagnosis is almost certain.

Vertigo is a less common symptom of increased pressure; it is usually little more than a feeling of unsteadiness and, though it may be severe in cases of cerebellar tumour, it has little localizing value. There are no changes in the pulse rate, respiration rate, blood pressure, or temperature which are in any way characteristic of increased intracranial pressure, but in the terminal stages the pulse is usually slowed.

Focal Signs of Cerebral Tumour

The second group of manifestations of cerebral tumour consists of the focal signs. In the greater proportion of cases a tumour presents pressure symptoms first and focal symptoms later; sometimes the focal symptoms appear at a very late stage, and sometimes never at all. But in some cases the patient presents himself on account of some disorder which is clearly due to a focal lesion of the brain, such, for example, as progressive hemiplegia, progressive speech defects, defects in the visual fields, or unilateral sensory changes. The exact interpretation of these signs demands a full knowledge of the anatomy and physiology of the brain, and forms too large and complex a subject to discuss here; further, when focal signs are associated with pressure symptoms, certain false localizing signs may appear, and an accurate diagnosis becomes increasingly difficult. But what I wish to emphasize is that when a patient shows evidence of an increasing localized lesion of the brain he is probably suffering from a cerebral tumour, despite the absence of headache, vomiting, and papilloedema. I have recently seen a woman who complained of pain down the left side of the body for many months; there were no symptoms of increased pressure, but she was suffering from a tumour involving the right optic thalamus.

The tumours which present themselves by virtue of their anatomical position more often than any others are, perhaps, the pituitary tumours, so that a word about their manifestations is not out of place. These tumours may produce symptoms either on account of diminished pituitary secretion, less commonly because of over-secretion, or from pressure on surrounding structures; an adenoma of the pituitary gland, unlike tumours arising from the pituitary stalk, rarely produce general pressure symptoms, at least not until the late stages. The changes associated with hypopituitarism are obesity, increasing smoothness of the skin, falling out of the hair, somnolence, fall of blood pressure and of metabolic rate, amenorrhoea, and impotence; any one of these may be the first symptom for which the patient presents himself. In addition, there may be great thirst and polyuria, the condition known as diabetes insipidus, and this again may exist for years as an isolated manifestation. Hyper-

pituitarism exhibits itself as gigantism in the young or as acromegaly in the adult. The type of pituitary dysfunction depends on the histological characters of the tumour, and this does not concern us here, but hypopituitarism is sometimes seen in cases of cerebral tumour remote from the pituitary gland. When there is a marked degree of internal hydrocephalus the third ventricle may be enormously distended; it bulges forwards and downwards, erodes the sella turcica and then compresses the pituitary gland. I have recently seen a case in which a girl complained of headache, failing vision, amenorrhoea, and increasing obesity; she had very large pupils, which were fixed to light, and a high degree of papilloedema; *x* rays showed that the sella had been completely disintegrated. At post-mortem examination the distended third ventricle presented at the base of the brain as a large cyst, which had eroded the walls of the sella. The tumour was a small glioma lying in the corpora quadrigemina.

Then there are the manifestations of pituitary tumour which are produced by local pressure, and the most important of these results from pressure on the optic chiasma; such pressure produces changes in the visual fields, the most usual being bitemporal hemianopia; less commonly homonymous hemianopia may occur; if untreated this condition progresses to complete blindness with optic atrophy. Then the enlarging tumour distends the sella turcica; this can be seen by *x* rays, when the sella is ballooned out, though it preserves its shape. As the tumour expands it may cause expansion of the root of the nose; there is often a complaint of mucous discharge from the nose or of epistaxis, and rarely of cerebro-spinal rhinorrhoea. These, then, are the manifestations of local pressure, and I would particularly emphasize the changes in the visual fields. There is one other common symptom of pituitary tumour, and that is headache; this is not the headache of increased intracranial pressure, and it is usually bitemporal and often very severe.

Epilepsy and Mental Changes

The third way in which a cerebral tumour may present itself is epilepsy. Epileptic fits are common in the late stages, when there is marked increase of pressure. There may be fits of the Jacksonian type when the tumour involves the cortex, such fits being of great localizing value. But perhaps the most important condition is epilepsy which antedates all other symptoms of a tumour for months or years. There is nothing about these fits which serves to differentiate them in any way from what we call "idiopathic" epilepsy, and the underlying tumour may lie in any part of the cerebrum. There have been cases in which epilepsy preceded other symptoms for as much as eighteen years,¹ and Walshe² considers that when epilepsy occurs for the first time in adult life cerebral tumour is the most likely cause of it. I have recently seen an adult epileptic in whom *x* rays revealed a large calcified mass in the substance of the right frontal lobe, almost certainly a tumour of some kind.

And lastly, there may be mental symptoms. A large proportion of cases of cerebral tumour exhibit mental symptoms at some time or other, although the proportion of cases in a mental hospital suffering from a cerebral tumour is small. The commonest cause of mental symptoms is the increased intracranial pressure, but there are cases in which mental symptoms depend on the anatomical position of the tumour, and they may antedate the symptoms of increased pressure. Tumours of the pituitary stalk are often associated with marked apathy and drowsiness, and tumours in the left hemisphere (in right-handed people), producing speech defects, often

show mental changes at an early stage. But the tumours most commonly producing mental changes are those of the frontal lobes and the corpus callosum. The pattern of the mental changes appears to have no localizing value, and the psychotic picture may be of various types. In the late stages, when pressure is much increased, the patient is usually drowsy and apathetic, and this often indicates the beginning of the end. But there may be lack of concentration, failure of attention, indifference, and loss of memory for recent events; sometimes there is incontinence of urine, with regard to which the patient is usually quite indifferent ("mental incontinence"), and this is often seen in cases of frontal tumour; in other cases there may be facetiousness and euphoria, and others may show depression.

Differential Diagnosis

We have to bear in mind that any condition producing a rise of intracranial pressure, or any localized lesion of the brain, may in certain circumstances simulate cerebral tumour. One of the first conditions to consider is renal disease, in which there may be headache, vomiting, and papilloedema, sometimes associated with transient hemiplegia or monoplegia; the diagnosis here depends on examination of the urine, the blood pressure (which is always raised in such a case), and the blood urea. Cerebral abscess does not often give rise to difficulty, as there is usually a history of recent ear disease; an important point to remember is that papilloedema is often absent in cases of cerebral abscess. Hydrocephalus following meningitis should not give rise to difficulty, but sometimes hydrocephalus complicates middle-ear disease; this condition, which is called otitic hydrocephalus,³ is associated with high-grade papilloedema, and is of doubtful origin. Cerebral aneurysm rarely simulates tumour, for the reason that aneurysms are usually small, and only give rise to symptoms when they rupture. Neurosyphilis may simulate tumour in several ways: the early mental symptoms of a tumour sometimes resemble those of G.P.I., and in both epilepsy may occur. As I have already said gumma⁴ is a rare condition, but there was an instance in Leeds recently where a gumma presented as a case of cerebellar tumour. Careful examination of the pupils, combined with serological tests of the blood and cerebro-spinal fluid, should prevent an error in diagnosis. Lastly, cerebral arteriosclerosis unassociated with renal changes produces an infinite variety of clinical pictures which may resemble cerebral tumour, and it is probably the frequency of vascular disease that makes the diagnosis of cerebral tumour much more difficult in middle-aged and older people.

Conclusion

In conclusion, then, cerebral tumour is a common disease which occurs at all ages and produces a variety of signs and symptoms, which may be equivocal in the early stages. But if cerebral tumour be always kept in mind careful examination of the nervous system, together with examination of the cerebro-spinal fluid, will suggest the diagnosis in the great majority of cases; it is very important to make a diagnosis at an early stage, as many types of intracranial tumour are now suitable for surgical treatment, but surgical treatment can never hope to be of much value when there has been great and permanent damage to the brain.

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HEADACHE FOLLOWING LUMBAR PUNCTURE

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The phrase "Post-punktioneller Meningismus" has been used in the German literature to describe the syndrome that may consist of headache, neck pains, giddiness, tinnitus, nausea, vomiting, and occasionally sphincter disturbances, following, with a certain latent period, lumbar puncture. The word "headache" will be used briefly to connote the above syndrome in this paper.

Historical

Von Quincke¹ introduced lumbar puncture in 1891, and it was soon recognized that headache was an occasional sequel and a definite drawback to its use. In cases of cerebral tumour headache might be succeeded by death, which was apparently the result of a low pressure in the spinal subarachnoid space allowing the high pressure in the cranial cavity to compress the medulla and cerebellum in the foramen magnum. Sicard,² in 1902, first assumed that these phenomena were due to leakage through the hole made in the spinal dura, and he found that rest in a bed with the foot raised obviated headache entirely.

Although the leakage theory is not generally accepted, it is supported by the experiments of Strecker,³ Ingvar,⁴ Weed,⁵ etc. It is well known that withdrawal of large quantities of cerebro-spinal fluid will in itself produce headache, and this, like post-lumbar puncture headache, can be relieved by injection of saline into the spinal canal (Jacobaeus and Frumerie⁶). The latent period before headache, together with an occasionally observed increase of cells in the fluid, have led some writers to postulate an aseptic meningitis at the puncture point. On either theory the use of a thin needle seems indicated, and a



FIG. 1.—Dattner needle ready for use. (Half size.)



FIG. 2.—Dattner needle. Inner cannula pressed forward; stylet of inner cannula removed.

double-cannula needle was advocated by Hoyt; it was first investigated by Antoni⁷ in Sweden, who took spinal fluid from thirty ambulant patients with no consequent headache. Dattner,⁸ using the same needle, found that out of 106 patients giving normal fluids only six suffered severe headache, while out of ninety-four with pathological fluids there were only two instances of it.

Investigation

On Colonel L. W. Harrison's suggestion the writer investigated, with the Dattner lumbar puncture needle, 127 cases of treated syphilis as regards the incidence of headache. This instrument consists of an outer cannula, diameter 1 mm., and an inner cannula, diameter 0.5 mm., the latter being provided with a stylet. The inner cannula may be fixed within the outer by means of a screw. It is of rustless steel, but platinum is possibly a better material for the inner needle. The instrument is made by Messrs. Down Bros.

So far as is known to the writer no similar investigation has hitherto been published in this country.

Note on Technique

The sitting or lateral lying position may be used. The advantage of the former is that, as the result of the higher pressure, the fluid flows relatively easily through the small-bored inner cannula, and thus quickly appears on the removal of the stylet when the subarachnoid space has been reached. A disadvantage is that syncope may interrupt the operation in the sitting position. In order to procure tranquillity in the patient during the entry of the needle local anaesthesia is recommended, but is not essential. The cutting end of the inner cannula should be orientated to separate rather than to transect the fibres of the dura or ligamenta flava.

The outer cannula enters to within a short distance of the dura, the screw fixing it is loosened, and the inner cannula is then pressed forward. If no fluid is obtained on withdrawing the stylet the inner cannula is brought back and the outer further advanced before another attempt is made to pierce the dura. When flow is established a syringe attached to the inner cannula expedites withdrawal of fluid. In cases of obesity, spinal curvature, calcification, or ossification of the ligaments, and where there is possibly some pathological change within the canal, it may be difficult or impossible to perform satisfactory puncture in one space while it is feasible in the space above.

Patients are rested face downwards for twenty minutes after the operation and given analgesics to be used in the unlikely event of headache supervening. In such a circumstance they are instructed to lie down if possible, or to come back to the hospital, where they may receive an injection of 40 c.cm. of distilled water intravenously, as recommended by Brain and Strauss.⁹

Results

The table below shows the results as regards headaches, contrasting two different methods of obtaining cerebro-spinal fluid. It may be noted here that the cell counts of fluid obtained with this needle are quite probably smaller than those obtained with larger-bored needles, for the inside of the inner cannula cannot be properly polished, and cells will tend to adhere to it.

Number of Cases	No Headache	Slight Headache	Severe Headache Causing Loss of Working Time
Using correct puncture with inner cannula:			
25 Pathological fluids	22	3	1
50 Normal fluids	75	15	1
Using incorrect puncture with outer cannula:			
1 Pathological fluid	—	—	1
10 Normal fluids	5	1	4
Total	103	17	7

Indications

The use of the Dattner needle is particularly indicated where fluid has to be obtained for qualitative examination from ambulant patients. Since it takes about ten minutes for fluid to fill the usual manometer, owing to the small bore of the inner cannula, pressure and its changes are not easily registered. The double-cannula needle is recommended by Dattner for cisternal puncture.

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DEFECTIVE HEARING AS A NATIONAL PROBLEM*

BY

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I conceive it to be my duty in this opening paper to make it clear in what respects defective hearing is of national significance, to define the scope of our deliberations, and to indicate, in outline only, the many and varied aspects of the problem which will be dealt with in detail by those who have come here to-day to give to us the knowledge and information they have acquired by special study and experience.

Man is dependent on his special senses for his awareness of his environment and his appreciation of his fellow men, for the possession of sensitive and delicately balanced sense organs linked with the central nervous system enables him to pick up and interpret the varied physical stimuli of the external world, and to react in a way which we describe as normal. If his organs of reception of stimuli are less sensitive than those of his fellows he is at a disadvantage in the struggle for existence, the handicap being particularly severe if the special senses of hearing and vision are involved. Advances in medicine and surgery, the application of physics to the study of defective vision, and the routine inspection and care of the vision of the school child, have reduced the individual and national handicap of visual defects very markedly. The same, however, cannot yet be said of defective hearing, and therefore the Section of Medical Sociology of the British Medical Association is giving this subject special consideration in the hope that the lines of progress towards a solution of the problem will become clear, and that professional and public interest will be aroused to take action for the good of individual sufferers and of the nation as a whole.

At the outset, lest there be any misunderstanding, I must make it quite clear that the special question of the congenitally deaf does not fall within the scope of our deliberations, since this has been given, and is receiving, careful and detailed attention and study by those authorities and individuals who have made it their life-work to help such unfortunate sufferers. It is, however, our duty to concern ourselves with the problems which arise when we consider the incidence, causes, and individual handicap of acquired deafness and defective hearing; to appreciate the grave significance of the problem as a whole to the nation, and to define, if possible, ways and means and methods of prevention and alleviation.

While it has been computed¹ that in Great Britain there are at the present time approximately 40,000 totally deaf, the number of individual adults and children suffering from acquired deafness or defective hearing in one or both ears, and described as the deafened, the partially deaf, or the hard of hearing, is largely a matter of conjecture. We should not, I think, be underestimating the number if we placed it at 2,500,000, for reasons which I hope to make clear when dealing with the question of the detection, assessment, and incidence of defective hearing. It must not be assumed, however, that every man, woman, or child among these two and a half millions is seriously handicapped in everyday life, employment, or education by inability to hear satisfactorily. Many of them have impaired hearing in one ear only; others have such minor degrees of deafness that they themselves do not notice it; while in certain cases—for example, in some noisy trades—it may be a positive advantage to the worker to

be in a measure deaf to noises which cause distress to others with normal hearing. It is true, nevertheless, that a very large number of adults and children are severely handicapped by acquired deafness, which tends to isolate them more and more from their fellows according to the severity of the condition, to hinder them when seeking employment, and, in the case of the child of school and pre-school age, not only to interfere with educational progress, but to retard or prevent the development of normal speech.

It is clear even from this very brief examination of the position of the partially deaf that special problems of social life, education, and employment have to be faced, studied, and dealt with in detail in any comprehensive scheme for the lessening of the handicap to the individual. However, were our deliberations limited to the consideration of the hardship to the individual directly due to impairment of hearing function alone we should fail to see the wood for the trees, and should lose sight of that aspect of the subject which appears to me to be of grave national importance—I refer to the fact that in the majority of cases the cause of defective hearing is disease. In studying acquired deafness we are at once confronted with problems of disease, and in the interests of the health of the nation, therefore, it is essential that the subject should be approached from the points of view of both preventive and curative medicine.

The National Aspect

One has only to consult the statistics that are available for the routine medical inspection of recruits for the Services, and consider the causes of subsequent discharge of men from the Army during training, to become convinced of the seriousness of the present state of the health and physical fitness of the young manhood of the nation, and to have driven home to one's mind the grave significance to health of the widespread incidence of conditions of disease which find their first outward expression in impairment of hearing function in one or both ears. Five years ago I made inquiries into the causes of rejection of recruits for the Army, and consulted the official reports on the health of the Army which are compiled every year by the War Office authorities. It was a matter of some surprise to find that the chief single medical cause of rejection of men applying for service was old and current middle-ear disease. At that time the ratio of rejections per 1,000 men medically examined was 41.38, and the following table, taken from the Report on the Health of the Army for the year 1932, shows that in recent years the ratio of rejections for middle-ear disease, including deafness, has increased to over 50 per 1,000, while these same conditions head the list of causes of discharge within six months of enlistment.

Principal Medical Causes of Rejection and Discharge of Men from the Army during 1931-2 and 1930-1²

Diseases	1931-2		1930-1	
	Ratio per 1,000 Rejected on Examination	Ratio per 1,000 Discharged within Six Months of Enlistment	Ratio per 1,000 Rejected on Examination	Ratio per 1,000 Discharged within Six Months of Enlistment
Diseases of middle-ear (including deafness)	51.20	5.24	53.97	5.53
Defects of lower extremities	41.90	2.46	38.48	2.0
Loss or decay of manvteeth	43.24	2.18	35.04	1.50
Insufficient weight	28.77	0.15	25.57	0.22
Other diseases of heart	27.01	0.90	25.36	0.77
Defective vision	24.26	1.70	21.74	1.50
Valvular disease of heart	18.98	0.68	17.53	0.70
Flat feet	20.81	1.12	15.48	1.08

* Read in opening a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

The strain of Army training is not great, and, provided the individual is physically fit, the benefit which should be derived from such training is enormous. On the other hand, if some infection is sapping his strength, the recruit will prove unable to profit from the regular life, physical training, and open-air conditions associated with the healthy environment and life of the soldier in peace time; while on active service it has been found that men suffering from middle-ear disease are extremely liable to fall sick. In fact it has been proved to be a bad investment to enroll anyone showing evidence of middle-ear disease or defective hearing, although in civil life even such obvious evidence of infection as discharging ears is apt to be lightly regarded by individuals themselves, and, I regret to say, even by parents.

Reliable figures in respect of the state of physical fitness of the general population are not readily available, and it is therefore very fortunate indeed that the data obtained in the systematic and searching examinations carried out by the Services are published in their annual reports by His Majesty's Stationery Office. In 1928, out of 53,075 applicants for service in the Army, 2,568 were rejected as physically unfit on account of diseases of the middle ear and deafness. In 1932, 54,159 men were examined and 2,993 rejected for the same reason, while a further 290 were discharged as unfit on these grounds within six months of enlistment. It is apparent, therefore, that, even among the young men of the nation, between 5 and 6 per cent. show definite evidence of diseases which are associated with impairment of the hearing mechanism, and that these conditions constitute a major cause of physical disability in the nation.

I have emphasized this, the national aspect of the problem of defective hearing because, in the face of the indisputable evidence quoted from official sources, it is abundantly clear that the subject merits the immediate and closest attention of those who are concerned with the nation's health.

Causes of Defective Hearing

Although disease must be recognized as the principal cause of defective hearing, it must also be borne in mind that cases of material hardship due to acquired deafness without impairment of health are not uncommon among certain classes of industrial workers—for example, boiler-makers, in whom bilateral defective hearing is directly attributable to the nature of their employment. To a lesser degree also accidental injury to the hearing apparatus is a cause of deafness, but unless both ears are damaged the individual handicap is slight, and common experience teaches that in later years all of us must expect a progressive decline in acuity of hearing which, according to the severity of the condition, necessitates correction by appropriate electrical or mechanical aids, the scientific prescription of which is still in a very elementary stage.

From the medical point of view it is the incidence of defective hearing in one or both ears associated with conditions of disease which is significant. In the individual child of school age it is the presence of bilateral defects of hearing of varying degrees of severity which needs special consideration, for, provided the better ear of the child possesses good hearing, the educational handicap is slight. To the sufferer the health aspect is of first importance, but bilateral impairment of hearing function may occasion social hardship. From the point of view of industry the severity of the defect, the impairment of health, and the nature of the individual's employment are factors which determine the handicap to the worker.

Disease, employment, accident, and advancing age are causes of acquired deafness. Each cause and condition

presents its own peculiar problems of prevention, cure, or correction of the defect, or amelioration of personal handicap according to the individual or group of individuals concerned; and while I propose to deal with prevention in respect to the first and second of these causes, I am leaving it for those who follow to consider such subjects as medical treatment and care of partially deaf children, education, the correction of hearing defects, and questions of vocational selection and employment.

Prevention of Deafness Due to Disease

Diseases of the internal and middle ear and pathological conditions of the nose and throat predisposing to infection of the hearing mechanism affect the hearing and health of the individual, and therefore the preservation of both must be the objective of any comprehensive scheme of prevention. While the prevention of the occurrence of these pathological conditions may be a matter of great difficulty, the checking of the progressive impairment of hearing and of health by the early detection and appropriate treatment of cases and potential cases has already proved of value.

Before any steps could be taken in the direction of preventing and limiting the ravages of diseases affecting the hearing mechanism, it was essential to know the common age of onset of the pathological conditions in question, and to have a reliable routine method for the detection of the earliest signs of defect. Consideration of the figures given in the Army reports previously referred to led to an examination of the data published in the annual reports of the Chief Medical Officer of the Board of Education, in order to ascertain if the high incidence of defects of hearing and middle-ear disease in young men was present among children of school age. The returns of the routine inspections of school children appeared to show that this was not the case, for in 1928⁴ the incidence of defects of hearing was 4.2 per 1,000 children examined, and of middle-ear disease 5.4. Even when the defects found in special inspections were taken into account the incidence of these conditions in children of school age appeared to be only one-quarter or one-fifth as great as that found among applicants for service in the Army. Was it possible, therefore, that cases of minor impairment of hearing associated with disease in its early stages were passing unnoticed, for it has long been known that the common infections of childhood are frequently followed by middle-ear disease? A very cursory inquiry revealed the probability that, owing to the difficulty of testing accurately the hearing of school children, ear by ear, in the time available and by the methods then in vogue, it was highly probable that a number of children with minor impairment failed to be detected as needing special examination and treatment by the otologist for conditions of potential disease or actual early disease of the hearing mechanism.

Detection of Defective Hearing by Audiometer

On the occasion of the International Physiological Congress in America in 1929, by the courtesy of the Bell Telephone Research Laboratories in New York, I was given the opportunity of inspecting, and witnessing demonstrations of, various types of audiometers which they had developed, and it appeared that the 4A gramophone audiometer was an ideal instrument for the group testing of children and the detection of early signs of deafness. The American research workers introduced me to their English representatives, the American Telephone and Telegraph Co., and the Western Electric Co. in London, who had had one of these audiometers in their possession for a year or so, and who very kindly loaned the instrument for a preliminary test on children in the borough of Hornsey. It was apparent at once that we

could not obtain satisfactory results with a gramophone record of American speech, and on informing the Western Electric Co. of this they arranged for us to make our own record.

By means of the audiometer, speech sounds of known intensities are delivered to the ear by standardized telephone receivers, forty of which may be linked up without any diminution in the intensity of the sound from each. It is possible, therefore, to test the right ears and left ears of as many as forty children at one time, the record being played once for each ear. There is obviously no opportunity for lip-reading, and as the speech sounds used are numbers, which are written down by the child on a prescribed form, no difficulty of spelling is encountered, and a permanent record is made of what the child has heard. Numbers of two or three digits are used, each figure of which is spoken separately—for example, 526 is heard as five-two-six, and each successive group of digits is stepped down in intensity by a known amount. The level at which the child fails to hear and record the numbers accurately gives a gauge of the acuity of hearing for speech sounds. It is possible easily to test the hearing of 100 children per hour in groups of thirty-two or forty, so that as the whole of a class is dealt with at one time in the space of about 15 to 20 minutes, little disturbance of educational routine is occasioned.

Dr. A. H. Gale collaborated with me in the preliminary survey on the elementary school children in the borough of Hornsey, the results of which were published in the *Medical Officer* for September, 1930.³ That investigation showed that, by means of the gramophone audiometer, not only were all the known cases of hearing defects picked out, but a very large number of children, unknown to have any defect, also failed to pass the hearing test. Subsequent special examination by Dr. Friel showed that in these new cases there existed conditions which needed treatment. In brief, 6.6 per cent. of the children were found to have defects in one or both ears, as compared with 0.42 per cent. shown in the annual returns for the routine medical inspections of elementary school children. It is true to say that a number of these children had very minor impairment, which would pass unnoticed by the ordinary watch tick, whisper, or voice tests, particularly if conducted in the short time available for the individual in the routine medical inspection of school children. None the less, the cause of the impairment could be detected, diagnosed, and appropriately treated with a high probability of restoring the hearing to normal and eradicating the cause before serious damage had been done or a chronic condition had developed.

Subsequent to the initial inquiry in the elementary schools of the borough of Hornsey, further audiometer tests were carried out in the same area, which substantiated the previous findings. An analysis of the results of tests on 1,368 boys and 1,240 girls—2,608 children in all—ranging in age from 7 to 16, revealed a percentage incidence of defective hearing in one or both ears of 6.8.⁴ Independent use of the audiometer by the school medical authorities in the borough of Tottenham,⁵ where 10,000 children have now been tested, and the results of tests in some of the schools of the London County Council all point to the important conclusion that already among children of school age the incidence of defective hearing associated with conditions of disease is as high as that revealed in the medical examination of applicants for service in the Army, and that therefore, to be really effective, measures of prevention must be devised to include children of pre-school age.

From the evidence which has been collected it appears that if the general population of the country were systematically examined for impairment of hearing it

would be found that from 6 to 8 per cent. possess some defect in one or both ears, and that in the majority of cases these defects in young adults or children are directly due to early or chronic conditions of disease. Applying this percentage incidence to the total population of Great Britain, it is apparent that to estimate that two and a half million adults and children have some detectable defect of hearing is not unreasonable. Even if the number were half this figure it would be a formidable task to provide the medical attention which is called for on grounds of the physical disability caused, quite apart from the problems which arise when we consider the lessening of individual handicap.

Prevention of Deafness Due to Employment

It is well known that workers in certain noisy trades—for example, boiler-makers and riveters engaged on ship construction or other work—tend to become deaf, and in a recent investigation for the Industrial Health Research Board⁶ I was able to satisfy myself, by direct observation with the audiometer, that workers of fifteen or more years' standing do tend to develop a bilateral impairment of hearing which in some cases amounts to a material social handicap, though not affecting the man at his job. In employment of this nature, measures for the prevention of defective hearing are not concerned with disease but with the physical characteristics of the environment of the worker at his work; for the continuous noise, the air vibrations, and pressure changes caused by the rhythmic action of the pneumatic tools he uses frequently place too great a strain on the delicate hearing apparatus, with the result that the hearing mechanism ultimately protects itself and the individual by becoming less sensitive to the noises themselves as well as to the sounds which the individual wishes to be able to hear in ordinary life.

Among seventy-six riveters, whose duration of service ranged from about five to forty years, I found thirty-three with defective hearing in both ears. In some of these the impairment for speech sounds was of a severe degree. Among fifty-eight non-riveters, mostly fitters, turners, and machinists at the same shipyard, who had similar lengths of service, only four were found to have bilateral defective hearing. It is clear, therefore, that in the case of riveters we must either protect the hearing apparatus of the individual or control and limit the excessive air vibration and noise in the working environment so that the strain on the hearing mechanism is not too great. In both directions efforts are being made to protect the worker against this cause of deafness—namely, by protecting each ear of the individual by a suitable defender, and using silencers or less noisy tools for the work. Various ear defenders are available, and some of these I have tested under conditions of excessive noise between decks on a boat under construction in H.M. Dockyards at Devonport, and also in the boiler shops of the L.N.E.R. at Stratford. To be of use in practice, any ear stop or defender must be comfortable to wear for long periods. I place this condition first when we consider work in industry, for unless this is the case, however good a defender may be, the worker will naturally not use it if discomfort or pain is caused. Secondly, it must be easily fitted so as to give good protection; and lastly, it must not be costly, for frequent replacement will prove to be necessary. A very simple ear-stop of cotton-wool and wax, devised by W. R. Luxton, my technical assistant, fulfils all these conditions, and judging by the voluntary use of these stops by riveters, holders-up, and rivet boys, and their appreciation of the protection afforded, I feel sure that the workers in excessively noisy trades would derive material benefit from their systematic use.

Conclusions and Routine Measures of Prevention

In planning any general scheme for the prevention of defective hearing there is one fact of outstanding importance which must be borne in mind—namely, that certain conditions of disease arising in early childhood are commonly associated with very minor impairment of hearing function in one or both ears, and that in later life not only may deafness of severe degree develop, but serious injury to health will result if disease in its early stages is left untreated.

Measures of prevention must therefore be effective during pre-school and school age, for it cannot be too strongly emphasized that the evidence which has accumulated during the past five years proves that in a very large proportion of cases minor defects of hearing are among the earliest detectable signs of the existence of pathological conditions, which may, and in fact often do, remain unnoticed unless attention is drawn to them by refined methods of testing hearing and assessing the hearing acuity of each ear of the child in relation to some reliable physiological range or standard of normality.

The investigation on elementary school children in the borough of Hornsey in 1929-30 proved that the first essential step in prevention, the detection of early cases, could be achieved by the routine use of the gramophone audiometer, and enabled a practical scheme for attacking the problem of defective hearing in both its medical and educational aspects to be defined as follows:¹⁰ (1) detection of cases and measurement of defects by audiometer tests; (2) medical examination and diagnosis; (3) medical or surgical treatment; (4) retesting of each case by audiometer to assess the effects of treatment; (5) decision by medical and educational authorities in regard to the subsequent care of the child.

The experience of the school medical authorities in the borough of Tottenham,⁴ where this routine has been followed for the past three years, is most encouraging, for it has proved both possible and practicable not only successfully to treat a very large proportion of cases of early disease, but to restore hearing to normal in many cases in which the defects were severe. If this can be done in one area among a child population of some 25,000, it can be done generally, and is in fact being done in several other areas, and if our discussion to-day results in stirring the public conscience in the interests of the children of the nation, and in enlisting the co-operation of medical, educational, and scientific authorities, it will not be many years before there will be a material decline in the incidence of defective hearing, a lessening of the handicap to the individual sufferer, and an improvement in the health and fitness of the general population.

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- ³ Report on the Health of the Army for the Year 1932 (H.M. Stationery Office, 1934), p. 56.
- ⁴ Annual Report of the Chief Medical Officer, Board of Education, 1928 (H.M. Stationery Office, 1929), p. 13.
- ⁵ *Medical Officer*, 1930, p. 113.
- ⁶ *Proc. Roy. Soc. Med.* (Section of Otolaryngology), 1934, xxvii, 26.
- ⁷ *Journ. Laryngol. and Otol.*, 1934, xlix, 247.
- ⁸ Annual Report, School Medical Officer, Tottenham, 1932.
- ⁹ Thirteenth Annual Report, Industrial Health Research Board, 1933, p. 9.
- ¹⁰ *The Teacher of the Deaf*, 1931, p. 75.

The University of Durham College of Medicine has arranged a special post-graduate course to be held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, from September 10th to 21st (Saturday and Sunday excluded), from 9.30 a.m. The course includes demonstrations, etc., at the Babies' Hospital, City Hospital, and Princess Mary Maternity Hospital on the Monday, Tuesday, and Thursday afternoons.

Clinical Memoranda

PRESERVATION OF THE UMBILICUS IN THE RADICAL CURE OF UMBILICAL HERNIAS IN CHILDREN

The radical cure of umbilical hernia is very rarely called for in children, in whom the natural tendency to cure is very great. Nevertheless there remain cases which neither undergo a spontaneous cure nor respond to treatment by a truss, and consequently operation is indicated.

It is customary in this operation to make an elliptical incision around the umbilicus and remove it entirely. Such a procedure leaves an abnormal and unsightly abdomen, and in children especially may result in serious psychical symptoms in time to come. The absence of an umbilicus in a child at school must call for comments from other children which are apt to make the child self-conscious, resulting in its avoidance of all forms of sport in which this part of the body is liable to be exposed—for example, bathing, sun-bathing, and so on. This in time may make the child morose and shy, so that it will shun the society of other children, and this may be the origin of a "repression" which affects its entire existence.

The removal of the umbilicus in this operation is entirely unnecessary, and in the words of Victor Bonney—to whom I am indebted for the suggestion to apply it to this condition—"the best surgery is not only efficient, but constructive and artistic as well." When Bonney requires a long abdominal incision he makes it through the umbilicus in the mid-line, re-forming the umbilicus at the conclusion of the operation. I have applied his technique to the treatment of umbilical hernias in children and have found it entirely successful. He tells me that he has used this incision for a great many years, and has applied it to the treatment of umbilical hernias in adults, in whom, I think, it is very desirable, though not of such great importance as in children.



In cases where the umbilicus has been removed at some previous operation, and in which he has to reopen the abdomen, Bonney leaves a little tab of skin on either side, which is turned in to make a new umbilicus. He has not so far described this technique, but it will appear in the new edition of Berkeley and Bonney's book on *Gynaecological Surgery*, which will be published in the autumn.

Spitzzy's operation is designed to save the umbilicus, but I have not found the results so good as when I have followed Bonney's method. This consists in making a vertical incision in the mid-line which traverses the umbilicus, and dissecting the skin off the sac on either side. The sac is then cleared, removed, the peritoneum closed, and the rectus sheath sutured in the usual way. In suturing the skin of the umbilicus the needle is inserted at one edge, it next passes through the fascia in the mid-line, and finally through the skin on the opposite side. When this suture is tied it draws the skin down to the fascia, and as a consequence the depression of the umbilicus is re-formed as shown in the accompanying photograph. If there is redundant skin, some of it may be removed before the sutures are introduced, provided the line of excision follows the natural contour of the skin.

I would like to express my gratitude to Mr. Victor Bonney for prompting me to publish these notes, and I feel that if this technique is more widely practised removal of the umbilicus will come to be regarded as a surgical crime. I am also indebted to Dr. S. N. Varma, house-physician at the Herefordshire General Hospital, for his excellent photograph.

Hereford.

R. WOOD POWER, F.R.C.S.I.

Reviews

LEPROSY

Professor JEANSELME, who was the president of the third International Conference on Leprosy in 1923, has published a sumptuous and comprehensive work, *La Lèpre*,¹ which seems destined to hold for long the first place in the world as an authoritative exposition of the subject. It opens with a very complete historical section with numerous references at the foot of each page, and the author critically examines the evidence and concludes that the oldest known references in the ancient literature of Egypt, Palestine, and India are all open to doubt, but he traces the spread over Europe and the Western Hemisphere from the fourth century B.C. The geographical distribution at the present day is dealt with in an equally comprehensive and up-to-date manner, and the recent knowledge that there are several early unrecognized cases for each typical advanced one is brought out. The next section deals with the leprosy bacillus, and here once more we find recorded all that is best in the literature of this difficult subject, from Hansen's to work that appeared only just before this book, including the evidence regarding the possibility of the existence of a filterable form of the virus. In a similar manner the serology, Wassermann reaction, Rubino's test and the diagnostic reactions of Mitsuda and Bargehr are fully dealt with, together with immunity and allergy. In the section on aetiology the critical acumen of the author is well displayed, and after weighing the evidence on both sides in all disputed questions he is rightly cautious in coming to any definite conclusion on points regarding which proof is still lacking. Thus, he records many examples pointing to infection by inoculation through the skin, but he does not accept any of them as furnishing conclusive evidence that this is the usual mode of infection, and wisely leaves the point open.

The longest section is devoted to a combined anatomical and clinical description of all the stages and forms of leprosy. In this Professor Jeanselme describes and illustrates the particular condition, and then gives its microscopical characters with drawings in the text, mostly taken from the author's own collection, together with fourteen beautiful coloured plates at the end of the work showing both the naked-eye appearances of the patients and the microscopical details of their lesions, commencing with the earliest signs and going on through the macules and the tuberculoid form of Darier to the advanced nodules in the dermal variety, the various lesions of nerve cases, and eye and other complications; the whole constituting a full descriptive atlas of the disease. After dealing with the evolution, prognosis, and diagnosis of leprosy, he describes the prophylactic measures in force in various countries of the world, many of which he has visited in the course of years of investigation. Here once more he gives an impartial survey of a very controversial subject. While he attributes the decline of leprosy in the Middle Ages in part to the rigid and cruel segregation then enforced, and rightly gives credit to the humane Norway system in reducing the disease in Scandinavia, he points out that improved treatment has led to the abandonment of rigid segregation as the one panacea in all countries except Japan, Venezuela, and Colombia, and records the adoption of treatment of early cases at hospitals and dispensaries, and the colony systems in Madagascar and elsewhere.

The section on treatment is equally well balanced, and although the results of the modern injection of chaulmoogra preparations are fully recorded, their limitations

are also brought out, and the place of general hygiene and diet is recognized. In short, this work is a monument of industry and erudition, and should find a place in every library and be indispensable to all serious workers on leprosy, in spite of its necessarily high price.

LEONARD ROGERS.

PULMONARY TUBERCULOSIS

Professor DIETLEN's short textbook on Tuberculosis of the Lungs² gives a well-documented and up-to-date account of the pathological anatomy of the countless forms of pulmonary tuberculosis in human beings, and of the various ways in which the different lesions found arise, or may be thought to arise. The number of the classes into which the patients may be divided is very large, and no doubt, from the point of view of the specialist in pathology and classification, is very satisfactory; the medical practitioner will find little to help him with their diagnosis in Professor Dietlen's pages. A short and generalized account of the treatment of phthisis is given at the end of the book, which is furnished with an index. The volume will be read with interest by all medical men and pathologists concerned with the progress of the theoretical pathology (if one may so call it) of phthisis.

Dr. MARIE's pamphlet on the Gold Treatment of Pulmonary Tuberculosis³ describes the more recent and successful forms of the gold treatment, noting that the claims originally made for sanocrysin (gold sodium thiosulphate) proved later to be excessive. There seem to be no contraindications for the gold cure, which is admirably suited to phthisical patients with pregnancy or diabetes as a complication, with the exception of infancy, cachexia, tuberculous enteritis, albuminuria, jaundice, and a tendency to haemorrhages other than haemoptysis. The gold salts employed are two in number: sanocrysin, given intravenously, and allochrysin (thiopropional sulphionate of gold and sodium), administered by intramuscular injection. With febrile patients the initial dose is of 5 cg.; one injection is given each week, the dose increasing weekly by 5 cg. to a maximum of 50 cg., and in the course of the treatment from 5 to 12 grams of the gold salt are given. If the fever is high two injections may be made each week, the dose being increased as before. In apyretic patients the maximum dose should be 25 cg. of the gold salt. Even with these relatively small doses complications may occur, such as pruritus, erythema, or stomatitis, which demand interruption of the treatment or reduction of the dose; nausea, a transient rise of temperature, abdominal pains, and diarrhoea may also occur, and are in general to be disregarded. Exceptionally such grave complications as oedematous desquamative erythrodermia, acute nephritis, jaundice, and a tendency to haemorrhages may result from the gold treatment. Dr. Marie quotes a number of cases in which the treatment has been successful, and he recommends it strongly to those who are responsible for the treatment of phthisical patients.

In his little book on Intrapleural Pneumolysis⁴ Professor SAYÉ of Barcelona sets out clearly and at length what can be done to increase the scope of the artificial pneumothorax treatment of pulmonary tuberculosis by dealing with the adhesions that so often limit its utility. More than twenty years ago Jacobaeus of Stockholm introduced

¹ *Medizinische Praxis*. Band xvii. *Die Lungentuberkulose*. Von Professor Dr. Hans Dietlen. Dresden and Leipzig: Theodor Steinkopff. (Pp. 141. RM 8; geb., RM 9.)

² *La Chémothérapie de la Tuberculose Pulmonaire*. Par Dr. Julien Marie. Paris: J. B. Baillière et Fils. (Pp. 35; 16 figures. 6 fr.)

³ *Pneumolyse Intrapleurale*. Par Louis Sayé. Paris: Masson et Cie. (Pp. 242; 119 figures. 40 fr.)

⁴ *La Lèpre*. Par Ed. Jeanselme. Paris: G. Doin et Cie. 1934. (Pp 680; 259 figures, 14 coloured plates. 600 fr.)

the method of severing these adhesions by the use of the galvano-cautery, and in 1923 recorded 200 cases, with the occurrence of severe haemorrhage in three instances and serious pleural complications in about 11 per cent. of the cases. The method has been improved by Maurer of Davos, and Professor Sayé gives a full account of his own experience in the division of pleural adhesions in patients requiring the artificial pneumothorax treatment, with illustrative skiagrams. He also employs resection of the phrenic nerve and treatment with sanocrysin in suitable cases, with success. The book is well written, and should be in the hands of all surgeons practising the artificial pneumothorax treatment.

In their account of the Reactions of the Tissues of the Lung in Tuberculosis⁵ LEURET and CAUSSIMON describe how the lung acts as an excreting organ in getting rid of foreign bodies or tubercle bacilli brought to it either by the blood stream or the bronchi. The foreign body, whether a grain of lycopodium or a tubercle bacillus, is attacked in the lung by histiocytes and the cells lining the alveoli, and if all goes well is excreted into an alveolus for expectoration. Numerous admirable microphotographs illustrate the authors' argument, which is based on material obtained from experimental animals as well as from human beings.

RESECTION OF THE PROSTATE

In his Endoscopic Resection of the Prostate,⁶ Dr. E. PAPIN summarizes all that it is essential to know on this subject. Omitting any historical references, he begins by considering the anatomy and pathology of obstructions in the region of the bladder neck. The literature has now assumed tremendous proportions, and Papin's simple classification of lesions in this neighbourhood will be extremely helpful to those who have found the pathology of this subject confusing. The instrument he employs is the McCarthy resectoscope. The description of his technique has been considerably shortened by the inclusion of numerous excellent plates showing the resectoscope and the operating theatre with the patient on the operating table. The technique of cystostomy under local anaesthesia is also given, because Papin employs this as a preliminary measure in 25 per cent. of his cases. The mortality table at the end of his work explains this frequent use of suprapubic drainage, since it shows that the chief danger of the operation is sepsis. For anaesthesia he uses the epidural method, injecting 40 c.cm. of 1 in 1,000 percaine. In the majority of cases post-operative treatment consists of tying in a catheter for eight to ten days.

In order to give some indication of the risk of the operation, the author appends various statistics from American clinics. The discrepancy in the figures furnished from these different clinics is considerable, ranging from three deaths in 515 cases to eighteen in 125. In his own clinic he states that he lost three cases out of the first twenty-nine on which he operated, but that in a subsequent thirty there was no death. On the important subject of the indications for perurethral resection he comes to the conclusion that it is the operation of choice for minor enlargement of the prostate, for prostatic bars, and in patients suffering from marked impairment of renal function, cardiac and pulmonary lesions, and diabetes. It may also be used when the patient refuses other operations.

Papin's brochure, which contains only sixty-six pages, provides a masterly summary of this important subject. It is clearly written, well printed, and profusely illustrated.

⁵ *Les Réactions du Tissu Pulmonaire dans la Tuberculose*. Par E. Leuret et J. Caussimon. Paris: Masson et Cie. (Pp. 85; 55 figures. 30 fr.)

⁶ *La Résection Endoscopique de la Prostate*. Par Dr. Ed. Papin. Paris: Gauthier-Villars. 1934. (Pp. 66; 47 figures. 30 fr.)

EXTERNAL DISEASE OF THE EYE

There are few parts of the body where the effects of fatigue and of disease can be observed more readily, with such nicety, and with complete freedom from interference, as in the superficies of the eye and its associated structures. An observer with keen vision, mental and ocular, with or without the aid of suitable magnifiers, has a wide field of structures of the utmost delicacy under view. It is no wonder many have found the external disease of the eye a fascinating study and an opportunity for recording and portraying their observations. The latest and most industrious exponent is Dr. DONALD T. ATKINSON of Texas, whose book, *External Disease of the Eye*,⁷ is a noteworthy production. The title gives a somewhat limited idea of the range of the work, for of the 700 pages some 250 are devoted to the consideration of orbital growths, iritis, cyclitis, glaucoma, cataract, squint, and a variety of operative measures. It is not usual for all these to be embraced within the range of "external disease," though it is true that many of the symptoms of these diseases may be observed without the use of the ophthalmoscope.

The book is written from the personal standpoint, though there are ample references to the observations and researches of others, so that the reader is impressed with the feeling that the author is putting himself into his work with an enthusiasm that is captivating. Further, by means of his artistic skill with brush and modelling wax, he is able to present his impressions in a most vivid manner. We have met with few books so profusely illustrated, albeit some of the reproductions of photographs are somewhat gruesome. The author has given special attention to the various fungus diseases which are so common in the Southern States, and also to ocular manifestations of yaws and leprosy, with which the medical officer in the Pacific Islands must be familiar. Treatment, both medical and surgical, is considered in detail, and there are useful bibliographies. The book is sure to command attention in the United States.

MAN'S FOREBEARS

Although Dr. L. S. B. LEAKEY has named his book *Adam's Ancestors*,⁸ its chief subject is not the origin of man but the origin and evolution of stone cultures. No one has a better right than Dr. Leakey to instruct the public concerning the handiwork of prehistoric man.

Although only just escaped from his "twenties," this author has accomplished more than most men do in a lifetime. He has led three archaeological expeditions to East Africa and made discoveries there of a most surprising nature. Kenya Colony and Tanganyika Territory he found to be richer in deposits of the last period of the earth's history—the pleistocene period—than any other known part of the earth. As the pleistocene period, to which Dr. Leakey gives a duration of a million of years, covers the evolution and differentiation of humanity it is clear that East Africa offers great inducements to those who are in search of remains of early man. Dr. Leakey found evidence of the existence of man in East Africa throughout the whole of the pleistocene period; he discovered stone tools in the oldest as well as in the latest of the deposits of that period which exist in Kenya Colony and Tanganyika Territory. He found not only the stone tools but also fossil fragments of the men who shaped and used those tools. He assigns these fossil fragments

⁷ *External Disease of the Eye*. By Donald T. Atkinson, M.D. London: Henry Kimpton. 1934. (Pp. 704; 479 figures. 35s. net.)

⁸ *Adam's Ancestors. An Up-to-date Outline of What is Known about the Origin of Man*. By L. S. B. Leakey, M.A., Ph.D., F.S.A., F.R.A.I. Foreword by Sir F. Gowland Hopkins. London: Methuen and Co., Ltd. 1934. (Pp. 244; 30 figures; 12 plates. 7s. 6d. net.)

to men of the modern (neanthropic) type, and is of opinion that this type was evolved in Africa. He also holds the view that East Africa was a centre in which various stone cultures found in Europe were invented and elaborated.

Adam's Ancestors throws much light on the early stone cultures of the pleistocene period. Seeing that this period is supposed—and there are valid reasons for the supposition—to have lasted for a million of years, and that already man was a tool-maker at the very beginning of the period, it is clear that the various "cultures" invented and utilized during this long era cannot be grouped under the six or seven simple headings which do duty at the present time. Dr. Leakey shows that under the term "Mousterian" are grouped a series of distinguishable cultures. He deals, too, with the factors which bring about the evolution of new cultures. It is quite clear that the story of man's stone cultures, when fully told—as is certain to be the case some day—will be very long and very elaborate.

In the course of his student days at Cambridge Dr. Leakey prepared himself for his self-appointed task. In the field he continually added to his knowledge, experience, and equipment, so that now he is our leading authority on all that pertains to a scientific search for stone cultures, fossil remains, and prehistoric habitations of man. In this book he places a summary of his methods and of his views before the English-speaking world. The book is just what a young medical man requires—if he wishes to know the latest concerning the history of the evolution of early humanity and the methods which must be learned and adopted if he would join in the search for fossil human bones and crudely worked prehistoric tools.

Notes on Books

The second edition of WHITBY'S *Medical Bacteriology*⁹ only contains a few more pages than the original book, and has the same character and arrangement. The first part, entitled "Descriptive Bacteriology," has proved itself a useful guide for medical students preparing for their examinations, and the second part, dealing with applied bacteriology, has been a convenient source of information for doctors wishing to find out what bacteriological tests can be of assistance in different diseases. A new feature in the present book is a chapter on bacterial variation and its relation to immunity. It is advised that this chapter be omitted by the junior student during a first reading, and not many undergraduates are likely to disregard this warning. More serious students who are settling down to try to fathom the mysteries of flagellar and somatic antigenic structure and haptenes would be grateful for the addition to this chapter of a fairly extensive bibliography or reference to other books in which these questions are considered at greater length. The same criticism might be made of other chapters: without adding much to its bulk the value of the book would have been increased by references to additional reading. However, these are minor points. The great merit of Dr. Whitby's work is that it gives within a moderate compass a clear and reliable account of medical bacteriology, and, in the opinion of many who know it well, it is the best introduction available to the bacteriological section of clinical pathology.

By this time the little book entitled *Parenthood*, by MICHAEL FIELDING, is well known.¹⁰ A third edition has just been issued, and the book has been very carefully revised and somewhat enlarged. It is described as "a manual of birth control," and may be accepted as not only the most popular, but the best presentation and

exposition of the subject from the point of view of those who have no doubts of the propriety, advantage, and general effectiveness of the practice which it advocates. This is frankly the aspect from which the book is written, but it is by no means an extravagant or one-sided statement of the case. As Mr. H. G. WELLS says in a preface: "It gives very clearly and completely, with all the decency of a scientific textbook, exactly what is clearly known and what is not clearly established about preventive methods. It is never vague, sloppy, lyrical, nor shamefaced." There is another side to the question, from the moral standpoint, the strength of which the author does not seem able fully to appreciate; nor does the real danger of under-population appear to be thought worthy of any reference; but if these points are borne in mind, and information upon them sought elsewhere, the reader of this little book should be able to form a reasonable judgement on the subject, and, should he wish to apply this in practice, to do so with clear and reliable knowledge of the methods, successes, and limitations of birth control. The revision has brought the manual fully up to date, and there is an interesting chapter on "Methods of the Future."

In *The Lighter Side of the War*¹¹ Dr. A. CECIL ALFORD gives an account of his varied experience during the period August, 1914, to December, 1918, drawn from diaries and notes taken at the time. He was first in South Africa, and gives an interesting account of the rebellion there in 1914, which tells the reader much that is probably but little known, having been, naturally, so overshadowed by the European debacle. Then in the campaign in German South-West Africa, where he records how a colonel refused to have him as a medical officer because he did not play bridge. After a brief period of training at home he served at Salonika and in Macedonia, where he had an extensive experience of malaria in the Struma Valley, and wrote a book, published in 1919. Finally, he was a short time in France. This record, very frankly written, of personal contacts shows the reactions of an independent civilian to Army routine, and contains many quite fearless comments on men and manners.

Dr. FERRIER'S booklet on *The Cure of Tuberculosis*¹² connects the development of tuberculosis with phosphaturia and with the consumption of acid-producing diets. His treatment is dietetic; the food taken should be largely proteinaceous, and articles of diet that tend to produce acids in the stomach or intestine are not to be allowed. These include milk, fats, fresh fruits, and wine. There should be three meals a day, plenty of water should be drunk, and insoluble calcium salts are advised to combat the decalcification that results from excessive acidity. Dr. Ferrier has found treatment on these lines to be no less efficacious in leprosy.

MISS REYNARD'S *Institutional Management and Accounts*¹³ is a brief guide in matters of finance for the use of managers of residential institutions such as students' hostels, schools, residential clubs, and the like. It shows how the budget should be kept and what the ideals to aim at should be, as judged by the analysis of the accounts of a number of men's and women's hostels of various sizes. The forms in which accounts should be kept are considered at the end of the volume, which is well set up, clearly written, and thoroughly practical. It may be warmly recommended to those for whom it has been written.

The thirteenth edition of *How to Drive a Car* has been published by the Temple Press, Ltd. (2s. 6d.). As the title suggests, this handbook is intended primarily to assist the newcomer to motoring to acquire road sense, together with skill in the handling of a car. Details of how to take particulars after an accident are given, but, more important still, a chapter is devoted to the art of avoiding accidents.

⁹ *Medical Bacteriology, Descriptive and Applied, Including Elementary Helminthology.* By L. E. H. WHITBY, C.V.O., M.A., M.D., F.R.C.P., D.P.H. Second edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 338; 74 figures. 10s. 6d.)
¹⁰ *Parenthood: Design or Accident? A Manual of Birth Control.* By MICHAEL FIELDING. Preface by H. G. Wells. Third edition, revised and enlarged. London: Williams and Norgate, Ltd. 1934. (Pp. 208. 3s. 6d. net; paper cover, 2s.)

¹¹ *The Lighter Side of the War.* By Dr. A. Cecil Alford. London: Hutchinson and Co., Ltd. 1934. (Pp. 290; 17 illustrations. 18s.)
¹² *La Guérison de la Tuberculose.* By Dr. P. Ferrier. Second edition. La Charité-sur-Loire: Robert Thoreau. 1934. (Pp. 125.)
¹³ *Institutional Management and Accounts.* By H. Reynard, M.A. London: Longmans, Green and Co. 1934. (Pp. 31. 5s.)

THE BATHING POOL AND DEAFNESS

BY

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The rush to the swimming pools during the recent heat wave has brought in its wake the inevitable crop of infected ears and sinuses. The public is still unaware of the potential seriousness of these infections, and it behoves us all to stress the importance of prevention as well as of prompt treatment.

From the standpoint of ear infections patients fall into the following groups:

- (a) Those with healthy mid-ears and outer ears.
- (b) Those with a tendency to external otitis.
- (c) Those with old healed otitis media, with or without perforation.
- (d) Those with active middle-ear disease.
- (e) Those with so-called catarrhal mid-ear deafness.

It is highly desirable that bathers should be grouped and advice given to them in accordance with their conditions. Wherever impacted wax is found it should be removed, if necessary after soaking for a few days with guttae No. 1. Keratosis obturans is even more dangerous and obstinate, but perseverance with these softening drops will enable it to be evacuated by gentle syringing, and certainly no bathing can be permitted till the outer ear is quite healthy. In syringing use equal parts of saturated solutions of borax and boric acid, as hot as can comfortably be borne. Hot solutions are far more efficacious than colder ones, and never produce troublesome labyrinth irritations.

The danger of these conditions lies in the fact that, should otitis media occur, it is infinitely more difficult to treat.

Otitis externa has various clinical manifestations, but the commonest is a dry seborrhoeic eczema, commonly associated with a similar condition of the scalp. Treatment should always be in collaboration with a dermatologist. Unfortunately, the patient commonly presents himself after an infection has occurred, with swelling and weeping tissues and possibly even furuncle formation. In general, wetting the ear is to be avoided, but treatment may be instituted with gentle syringing. This should never be repeated unless excessive debris accumulates later. Much the most efficient treatment afterwards is to fill the ear with guttae No. 2 and then pack in ribbon gauze soaked in ung. hyd. ox. flav. This is repeated daily. When the acute condition has subsided a simple spirit and boric drop is useful, or in cases with much pruritus or a tendency to lichenification, guttae No. 3.

Mid-ear infections are, of course, far more serious, and patients with mid-ear disease, active or quiescent, should be made aware of the risks they run. Unfortunately, the practice of plugging the ears is regarded in general as sufficient prophylaxis. I believe this is a dangerous fallacy. Whilst admittedly the entrance of infected water into an unhealthy middle ear via a perforated tympanic membrane is clearly one method of infection, nevertheless I am strongly of the opinion that the commonest method is via the Eustachian tube. In those who dive or swim much under water, but above all in the indifferent swimmers who breathe at the wrong moment, there is always a liability to get a "noseful" as well as a mouthful. A swallowing action then takes place in an effort to inhibit further respiration (the physiologist's "respiration of deglutition"), and the opened Eustachian tube is liable to be flooded with infected water. Further passage

into the mid-ear can occur, more particularly if the tympanic membrane has a perforation to act as a bung-hole. If this is correct, it means that plugging the ears has little value. My own advice to such patients is to avoid diving and under-water swimming. However, if one does get a "noseful" he must on no account swallow or snort or blow. The best plan is to hold the head slightly forward and breathe gently through the widely opened mouth until the nasopharynx has dripped clear.

Patients in group (d) and, to a less extent, group (c) must realize that unless they are exceptionally good swimmers the utmost danger attaches to such strokes as the "trudgeon" or the "crawl." A simple breast stroke is the only one permissible, and actually I always attempt to dissuade them from swimming at all.

The progress and treatment of acute otitis media and its complications are well known, but it is not sufficiently realized that much deafness can occur insidiously as a result of a pathological process quite unaccompanied by the dramatic symptoms of pain, otorrhoea, and so on, and which is therefore allowed to progress unchecked. The underlying cause, I believe, is again the entry of brine into the middle ear. Normally an exudate in the tympanum should be evacuated via the Eustachian tube. Such drainage is very readily impeded by swelling of the mucosa lining the tube, or by interference with ciliary action. We have only to notice the congested eyes of so many bathers to realize what can occur in the much more delicate columnar ciliated epithelium of the middle-ear cleft. If at the same time some brine has become trapped in the tympanum, it will, by its hypertonicity, induce an exosmosis, so filling the ear more or less completely with an aseptic exudate.

Patients with this condition complain of "hearing through cotton wool." They have no pain, or at most an occasional stab or prick, and their temperature is not raised above 99°. On inspection, the drum is quite typical: congestion involving the lower half, distorting the cone of light, but hardly interfering with the appearance of the short process or of Shrapnell's membrane. Occasionally a fluid level is visible and more rarely actual bulging of the lower half of the drum.

Apart from the liability to infection, this condition is of supreme importance in that it aggravates and accelerates all forms of mid-ear deafness, and indeed it is probably the actual initiating factor in many cases. Treatment should clearly be preventive, but we must above all avoid such heroic measures as myringotomy. Of course, if infection occurs the case is treated on the classical lines for acute otitis media; otherwise twenty-four hours in bed in a cool airy bedroom will enable the insulted mucosa to regain normality and to absorb the exudate. The hearing should, however, be carefully tested subsequently, when it will be found only too often that some diminution has occurred. Theoretically one would expect it to show lowering of the upper tone limit, suggestive of round-window lesion, but I have no conclusive findings on this point. Treatment must, of course, be left to a competent aurist.

GUTTAE

No. 1.	Sodii bicarb.	...	...	...	gr. x
	Glyc. acid. carbol.	...	...	...	5 i
	Glycerin.	...	...	...	5 iii
	Aq.	...	...	...	ad 3 i
No. 2. Crooke's mercurochrome for aural use.					
No. 3.	Liq. picis carb.	...	...	...	℥ v
	Ung. hyd. nit. dil.	...	...	...	3 i
	Sp. vini rect.	...	...	...	3 i
	Paraff. liq.	...	...	...	ad 3 i

THE HEALTH SERVICES OF THE NATION
ANNUAL REPORT OF THE MINISTRY OF HEALTH

The annual report of the Ministry of Health¹—not to be confused with that of its Chief Medical Officer—is a matter-of-fact document presenting in their baldest form the manifold activities of a department which is not only the guardian of the public health, but has oversight of the local government in general, and shares with the Home Office the functions of Ministry of the Interior. How varied are the duties which the Ministry is called upon to perform is shown in outline in this report. They include the inspection and supervision of food, measures to deal with water shortage, flood prevention, sewage disposal, public cleansing, the welfare of the blind and of the deaf and dumb, the control of infectious diseases, national health insurance, health education and propaganda, local government finance, relief for distressed areas, town and country planning, and—a matter on which the Ministry has been much criticized during the year—housing and slum clearance.

Official intervention in housing is taken by many people to mean only the erection of new working-class houses in an unending procession. But a very important piece of work by the Ministry, or by the local authorities under its inspiration, is the inspection of existing houses, and action to make them fit for continued habitation. During 1932 one and a half million houses were inspected by local authorities in England and Wales, and as a result of action, formal or informal, by the owners or by the local authorities in their default, 559,000 of them were rendered fit. A prudent use of the powers of local authorities in this respect can prevent the gradual deterioration of houses and the formation of slums, and the Minister urges that inspections for defects should be carried out in a more systematic way. With regard to new houses, the number of houses having a rateable value not exceeding £78 (£105 in London) built since the armistice with State assistance is 1,177,863, and the number built without such assistance is closely parallel—namely, 1,150,522. There seems reason to believe that the Government's reliance upon private enterprise as the main source of supply in the future, as testified by the discontinuance of the housing subsidy, will be justified.

RESULTS OF LOCAL GOVERNMENT ACT, 1929

The most interesting section of this year's report is entitled, "Special Survey of Public Health Services." The Local Government Act, 1929, cloaked under its prosaic title a vast measure of social reform, which is destined to have yet more profound effect upon the public health services as time goes on. Its greatest operation was to abolish boards of guardians and transfer their duties and resources to the councils of counties and county boroughs. Services which could, as a matter of law, be performed by public authorities were thereupon to be separated from the Poor Law; means of co-operation were instituted between local authorities and voluntary hospitals; and, finally, a more active interest by county councils in public health matters was contemplated as a result of the new responsibilities which were placed upon them. The main intention of the Act was to concentrate the medical services of an area in the same hands, not merely to transfer certain functions to the local authorities, but to ensure that those functions, so far as they related to health, were integrated with the already existing public health side of the local authorities' work, especially by the appropriation of transferred institutions as general hospitals or for other public health uses, and by the association of the medical officer of health with the administration of the Poor Law medical services.

As a condition of the payment of block grants from the national exchequer to the local authorities in respect of health services, the Minister is required to satisfy himself that reasonable standards of efficiency and progress are being maintained. As soon as the Act was passed, therefore, general surveys of these services began to be undertaken.

¹ Fifteenth Annual Report of the Ministry of Health, 1933-4. H.M. Stationery Office, 1934. (6s. net.)

taken by the medical officers of the department as the best means of combining the enlarged local responsibility with adequate central supervision. These surveys of counties and county boroughs have now been practically completed, except for London, which is to be reviewed in the next annual report. For the first time, therefore, we have, in the present report, some authoritative general impressions of the early years of a new public health era. The old boards of guardians provided for the sick by a domiciliary service through district medical officers and by institutional services. For the domiciliary service the local authorities have at present no alternative statutory authority, so that it must continue to be provided under Poor Law powers. The most usual arrangement is to employ general practitioners as part-time medical officers, but in some areas the post of district medical officer is combined with that of officer of the institution, and in a few places the service is conducted by whole-time officers. A few authorities have desired, as an experiment, to adopt a panel system, enabling the patient to obtain the services of a doctor of his choice—a method suggested to local authorities by the British Medical Association. During 1933 the Minister sanctioned departures from the Public Assistance Order necessary for this purpose in the case of certain districts in the counties of Kent and Wiltshire and Newcastle-upon-Tyne, and it is stated that several other schemes of an experimental nature are under consideration. A number of local authorities have an open mind as to the most suitable method of administering these services, and the Minister intends to cause some special inquiries to be made by a medical officer of his department into the various methods of working. The surveys, however, have shown that the need for a liaison between the district medical service and the facilities available under other health services of the local authority has been insufficiently appreciated by a number of public bodies; and the Minister hopes that, as a result of representations he has made on the subject, action will be taken to remedy this defect.

APPROPRIATION OF INSTITUTIONS AS GENERAL HOSPITALS

Twenty-seven county borough councils have each appropriated one or two Poor Law infirmaries as general hospitals under the Public Health Acts. In the counties the position is by no means so favourable to early appropriation on a large scale, and up to the present only one county council outside London (Salop) has appropriated a transferred institution as a public health hospital, though it is understood that Middlesex is proposing to take steps with a view to the appropriation of its six Poor Law hospitals within the next two years. Where appropriation has been found practicable the problem of securing full association between the appropriated hospital and the public health work of the council has been greatly simplified. The Minister lays stress upon the need for associating the medical officer of health with the work of the transferred institution, whether appropriated or not. Indeed, the most striking fact which has emerged from the surveys is the predominant importance of the medical officer of health as a factor in the health organization of the local authority. "A capable medical officer of health," says the compiler of the report, "is by far the greatest asset which any health authority can possess." The number of medical officers of health in England, by the way, is 1,149, of whom 401 do not engage in private practice.

As for other medical officers, it appears to the Minister that, with the increasing use of the council hospital for "acute" work, and the increasing realization of the need for careful diagnosis and definite curative treatment, the amount of medical supervision necessary for these hospitals must continue to grow; but in some of them the salary paid to the part-time medical officer presupposes an amount of medical supervision which is inadequate for the proper needs of the hospital. On the subject of co-operation with voluntary hospitals, the Minister states that in some areas the provision for consultation by the local authority with a representative committee of the voluntary hospitals has been regarded as a somewhat unpleasant statutory duty which can

be discharged once and for all by a formal meeting, without any practical measures for consideration. The view of the Minister, however, is that there should be close and continuous co-operation, and a readiness on both sides to regard their respective resources as units in a single hospital service.

Broadly speaking, the surveys do not suggest that in the county boroughs any great or general expansion of accommodation to meet the immediate demands for hospital treatment is urgently required. In the counties, too, taking them generally, the surveys have not disclosed any great evidence of an actual shortage of beds, but there is a considerable amount of accommodation at present used for the sick which is not entirely suitable for the purpose. The need is felt for further institutional provision for advanced cases of tuberculosis, and the beds provided for sanatorium cases are frequently occupied by cases not likely to respond to such treatment. The surveys confirm the view that infant welfare centres have taken their place as an integral part of the health service, and it is also considered gratifying that county borough councils generally have appreciated the importance of including an ante-natal service in their maternity work. During 1933 the number of expectant mothers who attended at ante-natal centres represented 42.2 per cent. of the number of notified births. The number of such centres provided by public authorities in the county boroughs has increased during the last four years from 242 to 281, and by voluntary agencies from fifty-eight to sixty-three, and the number of women attending has grown from 93,000 to 126,000, while in the counties the increase, both in number of clinics and in attendances, is proportionately even more striking.

MATERNAL MORTALITY: INFECTIOUS DISEASES

After all this it is disappointing to find the rate of maternal mortality still advancing. For 1933 the rate per 1,000 live births and stillbirths was 4.32 (being 1.75 for deaths from puerperal sepsis and 2.57 for deaths from other causes). In 1932 the rate was 4.04, and in 1931, 3.94. The infant mortality rate for England and Wales was 64 per 1,000 births, almost the same figure as for 1932, and a little below that for 1931.

A slight diminution is noted in the proportion of the known tuberculous population dealt with under the schemes of the local authorities. An increase in the number of consultations between tuberculosis officers and practitioners is remarked as encouraging. A slight increase in the number of deaths from pulmonary tuberculosis is attributed to the prevalence of influenza during the first quarter of 1933. The number of attendances at treatment centres for venereal diseases continues to increase, the total in 1933 being the highest recorded since the institution of the schemes. The notifications of cases of infectious disease reveal an increase in the prevalence of scarlet fever in the latter part of the year, concurrently with a rather less marked increase in the prevalence of diphtheria. The decline in the incidence of small-pox continued, and in England and Wales only 631 cases were notified during the year, with two deaths. The tables, however, relate only to the calendar year, while the report itself carries the story to March 31st, 1934, and it is recorded that this year has seen the first outbreak of severe small-pox in this country since May, 1929. This occurred at Blackburn in January, where twenty-six persons suffered from the disease, and there were four deaths. There is some ground for suspecting the source of infection in cotton from Egypt. The number of vaccinations expressed as a percentage of total births (38.2) was the lowest recorded, and the declarations of conscientious objection (47.5) the highest.

The Welsh Board of Health, whose report is appended to the main document, comments on the decreasing mortality from pulmonary tuberculosis in Wales. On comparing the years 1931-3 with 1921-3, in only two counties (Brecon and Monmouth) has there been an increase, and in each case only slight, whereas in all the others, and in all the county boroughs, the mortality has decreased, in some areas very largely, as, for example, by 34.6 and 32.6 per cent. in the counties of Cardigan and Carmarthen respectively, and 20.3 per cent. in the

county borough of Swansea. The puerperal mortality rate in Wales was 5.75 per 1,000 births, compared with 5.91 for 1932, but infant mortality swung the other way, being seventy-four as compared with sixty-nine. Midwives attended 93.5 per cent. of the total births registered (73.6 per cent. as midwives and 19.9 per cent. as maternity nurses). It is mentioned that eight authorities in Wales have now made arrangements in their maternity and child welfare schemes for giving advice on contraceptive methods.

CLEAN RECORD OF NATIONAL INSURANCE PRACTICE

The delinquencies of insurance practitioners, of which much has been heard in the past (although they were never considerable when the magnitude of the service is borne in mind) are reaching vanishing-point. A few further figures, as they carry so admirable a moral, may be given. There were in England in 1933 some 15,500 doctors engaged in insurance practice, and the number of insured persons entitled to benefit was over fifteen million. Yet in only seventy-two cases (in the previous year the number was 109) was remuneration withheld on account of transgression, and the amount withheld—namely, £455—compares with £1,015 the previous year. The offence in eight of the cases was negligence, as defined by the regulations; in forty it was failure to keep or return proper records, or furnish required information; in fifteen it was infringement of certification rules; and in six the improper charging of fees. In two cases the doctor was absent from his practice for more than a week without notification, and in one other case there was an irregular issue of both prescriptions and certificates. Only one case came forward during the year on the representation of the insurance committee that the continuance of the practitioner's name on the list would be prejudicial to the service; this case had not been decided when the year ended.

In Wales there is a similar story. The 923 insurance practitioners in the principality accounted between them for no more than twenty-five breaches of the terms of service, for which amounts from £1 to £10 were withheld, and in no case was any representation made as to removal from the list. Similarly with excessive prescribing, just under sixty million prescriptions were issued in England during the year (the increase of 6 per cent. on the year before is attributable to influenza), and the regional medical officers paid 914 visits to doctors whose prescribing appeared to call for explanation, but either the explanation was satisfactory or a hint in time saved proceedings afterwards, for only two cases proceeded to penalty. Another remarkable instance of accord is that in every one of the 990 cases in which the question of range of medical service arose the local medical committee and the insurance committee were in agreement—in forty-nine cases that the service was, and in 941 that it was not, within the scope of medical benefit.

The *International Quarantine Directory*, published by the International Health Office, Paris, is a volume of over 1,000 pages, which contains information from one hundred countries, comprising almost every seaport in the world of any importance. It represents the second edition of the *Quarantine Annual*, which was published in 1930 on a smaller scale, and contains details of the sanitary services of the various ports; the methods ordinarily adopted in the case of arrivals from infected areas; the ports designated to undertake deratization and certification, and the actual work undertaken in this respect; ports which are open to infected ships; and the special arrangements made between individual countries in order to facilitate the working of the International Sanitary Convention of 1926. An English translation of the official French edition of the *Directory* is now obtainable from the Ministry of Health, price one guinea, post free. While it will be of special interest to port sanitary authorities and medical officers, it should also be found useful by shipping companies, masters of ships, and ship surgeons, who will be glad to have information conveniently to hand on port sanitary dues, costs of fumigation, quarantine anchorages, boarding stations, arrangements for medical treatment, and the various other matters relating to the health organization of the various ports at home and abroad.

British Medical Journal

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"CLOSED" ANAESTHESIA

When during the later years of the last century the work of Clover and others demonstrated the markedly increased safety during administration of ether over chloroform, it was the common practice to employ methods which involved rebreathing to a greater or less extent, and this was termed "closed," in contradistinction to "open," anaesthesia. The "closed" method was evolved very largely in connexion with a preliminary nitrous oxide induction; and as oxygen was then seldom, if ever, introduced along with the nitrous oxide, it was always necessary to limit the amount of rebreathing so as to avoid the asphyxial element, and to admit air at frequent intervals into the closed chamber whose contents the patient was respiring. Although at the time the effects of carbon dioxide in stimulating the respiratory centre had not been fully studied by physiologists, in practice this result was attained by accumulation of the patient's own carbon dioxide in the Clover bag, and this partly contributed, in all probability, to the popular esteem which the method attained. In the early years of the twentieth century there was a swing of opinion towards "open" methods of administering ether, in which the rebreathing element was reduced to a minimum, and about the same time the work of Hewitt and many others drew attention to the great value of nitrous oxide with oxygen, which also was usually administered by methods devoid of any intentional rebreathing. Both these popular methods came into favour because they had definite advantages, of which increased safety for the patient was the most obvious and the most important; but they are both rather expensive by reason of the large consumption of ether, or nitrous oxide, or oxygen which is entailed.

In a paper read at the recent Bournemouth meeting of the British Medical Association, and published this week at page 339, Dr. W. B. Primrose sets up a new canon of "closed" anaesthesia, which differs a good deal from the conceptions of Clover's day. His definition draws attention to the economy which results by making the patient inspire over and over again a relatively small quantity of anaesthetic vapour, kept constantly in a life-supporting condition. This proviso is ensured by special treatment of the gases in the closed system, by which the anaesthetic gas is recovered in a state of purity for reinhalation. This would be impossible if in the process of producing anaesthesia the drugs used underwent any change in the metabolism of the patient. As regards ether, nitrous oxide, and oxygen, this is not the case: they are excreted through the lungs unchanged, and can therefore, if collected,

be used over again and so *ad infinitum*. The ingenious apparatus devised by Dr. Primrose for this purpose, and the way in which it is worked, are described in his paper. The description may remind some London anaesthetists of a cartoon which has long adorned the ante-room to the operating theatre of a well-known nursing home, depicting the anaesthetist of the future as a bored technician holding an oil-can in one hand and a lump of cotton-waste in the other, lolling against a complicated engine of dials, cranks, and levers: but actually this machine is of fairly simple construction. It obviously needs scrupulous attention to its working, but will not on that account fail to obtain careful consideration and trial at the hands of those interested in new developments in anaesthesia. In particular, the details of the methods employed to absorb from the closed system as much of the patient's own exhaled carbon dioxide as is deemed desirable by the administrator will receive close attention; and next after that the packing of the pharynx which is necessary to ensure that the "closed" system is really closed. Dr. Primrose realizes what some inventors of new procedures in medicine are apt to forget—namely, that the only just criterion of his method is the results of putting it into practice. He records his own experiences, as far as he has at present got with his researches; and he asks for an extended trial before a verdict is finally passed upon the usefulness of his machine. Clearly, great economy in the use of anaesthetic drugs is one of its advantages, and it is claimed that a greater steadiness of anaesthesia is also attainable. The metabolism of the patient, it is stated, can also be very carefully studied, through changes in the amount of oxygen intake and by watching the pressure gauge: the earliest commencement of overdosage is easily detected.

One passage in the paper raises issues highly interesting in themselves, but requiring much research before an answer can be given. The author notes that "relative overdosage"—a phenomenon long familiar to anaesthetists—which means, in a sentence, that a given saturation of the blood by anaesthetic agent produces a deeper level of anaesthesia in the later than in the earlier stages of an administration, occurs much more noticeably in nervous than in stolid patients. Dr. Primrose believes that in the latter type a larger proportion of the drug used is absorbed into the blood. Here, it would seem, lies ready to be explored a new field for research, if this view turns out after investigation to be well founded. Clearly, if the bloods of different individuals absorb, under similar conditions, differing amounts of vapours supplied to them there must be some physical differences between these bloods. If at the same time it can be shown that the classification of such bloods coincides, even roughly, with a classification of the temperament (which is merely reaction to environment) of the individual, new light might well be thrown both on mental health, on mental disorder, and on haematology. It would be premature and unwise to say more; but a vista for further research is patent to all.

HYPERPITUITARISM AND GRAVES'S DISEASE

The nature of exophthalmic goitre, first observed by Caleb Hillier Parry in 1786 and described by Graves in 1835 and von Basedow in 1840 and by others, has been regarded in various lights ; at first as a cardiac disorder or neurosis, then as an affection of the nervous system, a view endorsed by Grainger Stewart and G. A. Gibson and by Gowers in 1893, the year in which Greenfield gave the first convincing account of the characteristic microscopical changes in the thyroid. The thyroid origin had been previously advocated, especially by Möbius in 1886, and explained as due either to an excess of the normal secretion or to a secretion abnormal in quality (dysthyroidism), a discussion still going on, although there is not any proof of the existence of a thyroid secretion different from the normal. In this century H. S. Plummer has restated the dysthyroidism thesis, and the case against it has been clearly put forward by Harington,¹ who also discussed with scientific caution the rather widespread belief that the histological changes in the thyroid are not primary but the result of some as yet undetermined factor or stimulus. Among the possible underlying causes which have received attention and a considerable amount of experimental investigation are: (1) inadequacy of the adrenal cortex and the resulting loss of inhibitory influence believed to be thus exerted over the activities of the thyroid ; and (2) overactivity of the anterior lobe of the pituitary, and so an excess of the thyroid-stimulating principle called by Max Aron thyreo-stimuline, and now more generally known as the thyrotropic hormone. Experimental injection of an extract of the anterior pituitary has been found to produce in the cells of the thyroid the hyperplasia of the Golgi apparatus characteristic of Graves's disease (Krogh, Lindberg, and Okkels²).

Professor Drouet³ of Nancy has recently published an account of clinical work which points to the conclusions that overactivity of the anterior pituitary is responsible for the changes in the thyroid, and that Graves's disease is a combination of primary hyperpituitarism with secondary hyperthyroidism. It is shown that in a number of cases there was heterogeneous bitemporal restriction of the field of vision which was ascribed to slight pressure exerted by an enlarged pituitary on the optic chiasma. Examination of the urine by Collin and Drouet (1933) revealed the presence of the principle, found in the distal portion as well as in the pars intermedia of the anterior lobe, which contracts the pigment cells of frogs. Diminution of the thyreo-stimuline in the urine of patients with Graves's disease had been previously pointed out by Aron, who suggested that there are two forms of Graves's disease, one solely

due to the thyroid, the other, rare, caused by excessive activity of the anterior pituitary ; Drouet, who contests the validity of such a conclusion, discusses the rationale of a fall in the urinary thyreo-stimuline. In a later paper Etienne and Drouet⁴ lay stress on the persistence, after thyroidectomy, of the contraction of the visual fields and of the urinary reaction for the melanophor-contracting principle. Further, they record the benefit obtained, in four cases, by x-ray treatment alone of the pituitary, not only in the general state but also in special respects, such as a fall in the metabolic rate. The evidence, however, in these articles of structural change in the pituitary in Graves's disease is second-hand, and scanty at that. They recommend treatment of both the pituitary and the thyroid by x rays, and of the thyrotoxicosis by Lugol's solution and hématothyroidine.

Drouet also discusses the neuro-vegetative syndrome, or para-Basedowism, described by Marcel Labbé and his collaborators,⁵ who recognized two constituents in Graves's disease—namely, hyperthyroidism and a neuro-vegetative syndrome which does not respond to remedies potent against hyperthyroidism, but should be treated by sympatholytic drugs, such as the alkaloids of the yohimbin group. This condition may occur spontaneously or follow Graves's disease successfully treated by the established methods, such as thyroidectomy. Drouet, who has found contraction of the visual field and the melanophor-contraction principle in the urine, regards the syndrome as hyperpituitarism without hyperthyroidism. Treatment by x-ray exposures of the pituitary also reduced the blood pressure to normal.⁶

THE STUDY OF ANIMAL LIFE

At a recent educational conference at Oxford it was contended by the opener of a discussion on biology teaching that the dissection of animals by the pupils was an essential part of such instruction ; and the statement was made that " his own boys began cutting up animals as a regular part of the course at the age of 13." He declared truly enough that " biology was a subject which particularly required a practical method of approach. Immediately the teacher began to talk of a nerve, a cell, or a gland he ran the risk of being completely misunderstood unless the student had seen the objects to which the words referred." It may be doubted, however, whether actual dissection by the student himself during the stage of elementary instruction is necessary to this end, and whether demonstration from a dissection otherwise carried out would not be even more effective. Further, it may be argued with very great force that the consideration of anatomical detail is not the best method of approach to the subject ; and that, just as the demand is becoming more insistent that human anatomy should be taught

¹ Harington, C. R.: *The Thyroid Gland: Its Chemistry and Physiology*, p. 186, London, 1933.

² Krogh, Lindberg, and Okkels: *Acta Path. et Microbiol. Scand.*, 1932, ix, 21.

³ Drouet, P. L.: *Rev. Franç. d'Endocrinol.*, Paris, April, 1934, xii, 101.

⁴ Etienne, G., and Drouet, P. L.: *Bull. de l'Acad. de Méd., Paris*, July, 1934, cxii, 86.

⁵ Labbé, M., Villaret, M., Justin-Besançon, L., and Schiff-Wehrhauser, H.: *Bull. de l'Acad. de Méd., Paris*, December, 1933, cx, 759.

⁶ Drouet, P. L.: *Bull. et Mem. Soc. Méd. des Hôp. de Paris*, February, 1934, 3 S., xiii, 139.

to medical students largely on the living subject and not mainly on the cadaver, so it should be the behaviour of living things and the relation of their active functions to their structure that should form the foundation of the study of biology. This thesis is not explicitly stated, but is very strongly suggested by Dr. E. S. Russell in *The Behaviour of Animals*.¹ The book is based upon lectures given at University College, London, last year; and its object is stated to be "to interest students and other people in the problems of animal behaviour, and to make clear the principles on which observations should be interpreted." Dr. Russell does not, of course, belittle the need for anatomical knowledge or the value of suitable laboratory experiments, but his main points are two: that it is the careful observation and study of animals in their natural environment which is not to be explained or interpreted as a purely mechanistic or physiological result of a bundle of specific responses to separate stimuli but as arising from the needs of the animal as an entity in relation to situations felt as a whole.

"The animal is regarded as essentially active, not as acted upon, as exhibiting directive activities in relation to its needs and under the guidance of perception, not as an automaton moved this way and that by the direct action of impinging stimuli. . . . The theory that all behaviour can be satisfactorily accounted for as a concatenation of reflexes, conditioned or unconditioned, receives little support from the facts of development. Early behaviour does not arise through the addition and combination of originally separate reflexes. . . . Separate reflexes can be distinguished by analytical artifice, but analysis lets slip the essential thing, the continuity and directness of the action taken as a whole. In the perceptual field, in the same way, we have to recognize a wholeness and unity which is destroyed by physiological analysis."

This point of view and method of approach are set forth with a clarity of statement and a wealth of illustration and reference which make the book not only important in its general thesis, but very helpful as an introduction to its subject.

FUNCTION OF THE SUPERFICIAL OCULAR BLOOD VESSELS

The June and July issues of the *British Journal of Ophthalmology* contain, in two parts, a fifty-six-page illustrated article on "Certain Clinical Features of the Normal Limbus," by Mr. Basil Graves of Bournemouth. The author describes various minute structural features which he has recorded in the past relating to this region of the living eye, the majority of which are only of specialized interest to the ophthalmologist. The article, however, contains an account of certain vascular features which, together with some of the conjectures based on them, may be of much wider interest when considered in conjunction with the fact that the observations were all made on the living human eye. A very detailed account of the capillary blood vessels of the limbus and of the conjunctiva covering the globe is accompanied by various diagrams under a linear magnification ranging from $\times 28$ to $\times 135$. These

¹ *The Behaviour of Animals: An Introduction to its Study*. By E. S. Russell, O.B.E., D.Sc., F.L.S. London: Edward Arnold and Co. (10s. 6d. net)

illustrations show that the "ordered complexity" of the vascular system of the ocular conjunctiva can, in principle, be reduced to multiple long loops springing from the region of both the limbus and the fornix. In the territory between these two sources the loops meet and interdigitate, and here the blood circulation may be seen to hesitate, reverse, or alternate in the direction which it takes in these "zones of equipoise." Each of these loops embodies a fine arterial afferent component—so fine that it can easily be overlooked—in which the blood flow is very rapid, and a coarser efferent channel with relatively dilatory circulation, to which, as the author suggests, the word "venous" should be applied only with reservation: he suggests the term "metabolic vessels" for the efferent components of these loops. At the limbus these long loops have reduced counterparts in the form of shorter and shorter loops—some being so short that they are only stump-like and sessile—accommodated in grooved and crypt-like contours of the basal layer of the surface epithelial cells. The epithelium which separates these conjunctival vessels from the air is only three cells deep, and the author suggests that the vascular system of the conjunctiva has become specialized to form a local primitive superficial "respiratory" mechanism. He mentions an acute affection of the conjunctiva, unrecognized except that it gets labelled "conjunctivitis," and characterized by great dilatation of the metabolic components of the conjunctival vessels, and alludes to a possibility of treating certain surgical and pathological conditions of the eye on the basis of these conjectures. He does not feel that the conjunctival vascular architecture is ideally specialized to facilitate aerial oxygenation of its blood to the fullest capacity, but rather that, among the factors which have contributed to the evolutionary specialization of the design, a partial subservience to this particular function may have contributed to the moulding of the phylogenetic material available. In the interpretation of various features in the conjunctival vessels, the author makes use of observations which he has recorded concerning the behaviour of pathological vascular invasion in the homologous plane of a neighbouring tissue—the cornea—in the course of their living creation. He shows some of the evolutions which vascular afferent-efferent loops undergo in the process of their advance, and, reasoning from these, makes various suggestions as to the correlated significance of features in the normal neighbouring vessels. Thus the arterial and metabolic components of the afferent-efferent conjunctival loops cross one another so frequently in the same relative rotatory sequence as to indicate a significance in this entwined formation, it being suggested that in the course of development these crossings occur when a "reactivation" in the process of advance follows upon a transient lull of the ingressive activity," and it seems probable that a determining factor in the direction of "twist" at these crossings lies in a balance between the two opposed factors of intravascular centrifugal force and the enveloping tissue tension. It is emphasized how the underlying factors influencing many of these simple visible processes are beyond present conception. While the article contains much that is conjectural, the hypotheses put forward are based on precisely defined original clinical observations.

CRYSTALLINE CORTIN

The existence of an active hormone of the suprarenal cortex is now well established, and its presence in any given extract can be more or less accurately standardized on the suprarenalectomized dog. The hormone is essential to life, and if administered in adequate quantities to the suprarenalectomized animal the latter can be kept indefinitely in practically normal health. Deficiency of the cortical hormone is the cause of the series of symptoms associated with Addison's disease, and theoretically the latter should be controllable by replacement therapy. Excess of the active hormone (cortin) may be associated with hyperplasia of the suprarenal cortex or with adenomatous (in some cases adenocarcinomatous) new growth. The series of symptoms due to an excess of cortical hormone is in many respects similar to that found in pituitary basophilism (Cushing)—namely, obesity, hirsutism, weakness, amenorrhoea, and hypertension. The analogy with the various derangements of the thyroid gland thus seems to be complete, definite syndromes being associated with hypofunctioning and hyperfunctioning of the cortical tissue. Surgical measures in cases of hyperfunction or tumour of the suprarenal cortex have met with great success in the hands of certain American surgeons. Replacement therapy in cases of hypofunction of the cortex is complicated by the facts that the amount of active hormone in a single animal (beef) gland is very small, and that the process of extraction is still costly. So much is this the case that, in the opinion of the Mayo Clinic workers¹ in this field, "no method of extraction from the gland will solve the financial aspect of the problem." These workers therefore set out to prepare the hormone in a pure form, to determine its composition and structure, and to prepare it synthetically. Three years' work has led to the crystallization of the hormone. After passing through a period in which they thought that their results indicated that the cortical hormone contained a derivative of adrenaline, the authors established that all traces of adrenaline and its derivatives could be removed from the extracts and the effects upon the survival of adrenalectomized dogs still be retained. They conclude finally, therefore, that the cortical hormone cannot contain adrenaline as a part of its structure. After a series of washings and extractions the active principle can be taken up in ether, then in acetone water, then in water. Traces of xanthine are carefully removed, and the hormone is again taken up in ether. Crystallization is carried out from a water solution to which is added sodium bisulphite and saturated with sulphur dioxide. The crystals appear to have the formula $C_{20}H_{30}O_5$, and its properties point to its being an α -hydroxyaldehyde existing in two forms: a monomolecular form soluble in water and having aldehydic properties, and a polymeric form insoluble in water and not possessing aldehydic properties. The authors find that the compound thus obtained will keep suprarenalectomized animals in normal condition, and that the composition is constant, so that they were not dealing with an adsorption compound. Both forms of the hormone appear to have the same physiological activity. It thus

appears that we are not far from the realization of the task set themselves by these authors—namely, the identification of the structure of the hormone and its synthesis.

THE TREATMENT OF FRACTURES IN THE NEWBORN

At a recent meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine, Drs. Eric Pritchard and Jean Smith presented a paper, now printed in the *Proceedings*,¹ which contains some unorthodox views on the treatment of fractures of the long bones in newborn infants. The authors' interest in the matter was aroused by the example of an infant in whom there were more than a dozen fractures, involving the ribs and limbs, where surgical methods of splinting were clearly inapplicable, and yet at the age of 18 months, following entire liberty of movement and general hygienic measures only, with special addition of vitamin D and calcium, there was apparently complete cure, so that no evidence of bony disease was to be discovered clinically or radiologically. As a result of this experience several infants with fracture of the femur have now been treated on similar lines and carefully followed by x-ray examination. Usually showing severe degrees of deformity at first, skiagrams have demonstrated the throwing out of abundant callus followed by a straightening of the bone and the gradual appearance of a united, perfectly straight femur without any obvious shortening. In the cases recorded crawling and walking have occurred at the normal expected age, and in a cinematograph film, shown at the meeting referred to above, a child of 18 months was seen walking about actively without any limp. As was pointed out on this occasion Nature has been healing fractures ever since the appearance of man on this planet, and the tissue culture experiments demonstrated in Dr. Ronald Canti's now famous film, include one striking illustration of how a piece of cartilage, taken from an embryo chick, will develop into a perfectly shaped bone under proper nutritive conditions. Dr. Pritchard's essential point is that perfect anatomical reduction is not necessary for complete functional recovery, and the restraint imposed upon the infant by complicated apparatus leads to such restrictions of liberty of movement that nervous irritability and possibly secondary nutritional disturbances may easily follow. The traditional method of dealing with neonatal fracture of the femur is to bandage the thigh up against the abdomen in the "foetal" position. Nursing becomes very complicated in these circumstances, and it is doubtful whether much is to be gained by the use of the body as a splint. The application of plaster-of-Paris splints to a rapidly growing baby also presents practical difficulties, and if, as is claimed by Dr. Pritchard and Dr. Jean Smith, entire liberty of movement is not followed by shortening, then there seems nothing in favour of retentive apparatus. This is the crux of the matter, and there were certainly some surgical doubts expressed at the meeting on this point. One of the illustrations in the published paper (Fig. 6) would seem to bear this out, but the clinical observers maintain that no shortening is present, nor is there any

¹ E. C. Kendall, H. L. Mason, B. F. McKenzie, C. S. Myers, and G. A. Koelcher. *Proc. Staff Meetings, Mayo Clinic*, April 25th, 1934.

¹ *Proc. Roy. Soc. Med.*, May, 1934, p. 835.

limp. The method certainly has the merit of simplicity, and is worthy of more extended trial. Careful x-ray control, however, is essential, or the practitioner lays himself open to an obvious action for negligence in which orthodox surgical evidence might possibly triumph over Dr. Eric Pritchard's appearance as an expert witness for the defence!

EFFECTS OF X RAYS ON THE LUNGS

Medical literature contains records of many cases in which the lungs of human beings have been injured by long exposure to the action of x rays, conditions such as pleurisy, pneumonia, "Roentgen pleuropneumonitis," and fibrosis of the lung being among those recorded. Engelstad¹ has recently investigated the action of x rays in different doses on the lungs of rabbits, and describes in detail the analogous lesions produced thereby. He finds that doses that do no or but slight injury to the skin usually leave the lungs almost unaffected. Doses causing inflammation of the skin lasting up to six weeks produce grave and often fatal disorders in the lungs, such as bronchitis, bronchopneumonia, generalized inflammatory changes, the production of cartilage, and fibrosis, and these may not all have come to an end six months after the exposure to the x rays. Still larger doses often produce pneumonia, which may be rapidly fatal or may result in extensive fibrosis. Full histological details of the pulmonary changes are given, and they are illustrated by a number of excellent microphotographs. The pleura is more resistant than the pulmonary tissue, and Engelstad finds that fractionation of the dose lessens the injury done to the lungs.

A TREATMENT OF HAEMOPTYSIS

Haemoptysis in pulmonary tuberculosis may broadly be classified into three types. Associated with an early exudative lesion, and loosely said to be due to capillary congestion, it is often fairly copious, generally single, and never fatal. Caseous lesions causing ulceration of small vessels frequently produce small haemoptyses which are sometimes repeated, and, also, never directly fatal. On the other hand, bleeding arising from the aneurysms of unsupported vessels in cavities are copious, repeated, and not uncommonly lead to death. In all cases, however, the symptom is alarming, injurious to the general condition of the patient, and, particularly in the last group, dangerous because of possible dissemination of the disease. Drugs have little or no effect on haemoptysis, and an artificial pneumothorax may be impracticable owing to bilaterality of disease, to difficulty in determining the side of bleeding, or to the presence of adhesions. Moreover, rigid walls of a cavity may fail to collapse. In a recent article Courcoux² describes a method of treatment based on a case reported by Ravana, Benzaquen, and Bibas,³ who obtained arrest of a repeated and very copious haemoptysis after causing extensive subcutaneous emphysema of the chest following failure to induce

an artificial pneumothorax. Courcoux has treated thirty-four successive cases of haemoptysis by injecting 300 to 600 c.cm. of oxygen in a single dose under the skin of the thorax, preferably on the same side as the source of the bleeding—if known. In twenty-five patients the haemoptysis, "often abundant," ceased "immediately and definitely" without recourse to any other form of treatment. In six the injections had to be repeated on several consecutive days in order to obtain a result. The bleeding was unchecked in seven patients (the figures do not appear to tally). The injections, which may be carried out by means of an artificial pneumothorax apparatus, are said to be well supported by the patients, in whom, even when they are ineffective in arresting the bleeding, anxiety is relieved and a "state of euphoria" may even be produced. The method was most efficacious in recent progressive lesions (*poussées évolutives*). No theory is brought forward to account for the beneficial effect, which appears to be found only in those cases in which one would expect the haemoptysis to be in any event a self-limited single episode. It is instructive to note that Pierre-Bourgeois⁴ claims, on the basis of a total of five cases treated, to have obtained equally good results by injecting the oxygen subcutaneously in the thigh.

THE EDUCATIONAL NUMBER 1934

Our next issue, dated September 1st, will be the annual Educational Number of the *British Medical Journal*. Its contents, as in previous years, will include a full account of the requirements of the General Medical Council and of the universities and other licensing bodies in Great Britain and Ireland, as well as information about the opportunities offered by the various medical schools and other teaching institutions, and the fees charged by each. The details given have been revised and brought up to date by the authorities concerned. These sections, the object of which is to furnish a handy guide to intending students of medicine, are supplemented by articles intended for newly qualified practitioners on such matters as post-graduation study in Great Britain, the public medical services, tropical medicine, psychological medicine, and the various special diplomas. The opening article for this year's Educational Number is by Sir Henry Brackenbury; it is entitled "The Training of the Medical Practitioner."

The King has renominated Sir George Newman to be a member of the General Medical Council for five years from October 9th, 1934.

The Harveian Oration will be delivered on Thursday, October 18th, at 4 p.m., before the Royal College of Physicians of London, by Dr. James Collier, whose subject is, "Inventions, and the Outlook in Neurology."

As we go to press we learn that Professor G. Grey Turner, professor of surgery at the University of Durham, has been appointed to the university chair of surgery at the British Post-Graduate Medical School at Hammersmith.

¹ *Über die Wirkungen der Röntgenstrahlen auf die Lungen.* Von Rolf Dull Engelstad. Acta path. et microbiol. Scand. xix. Stockholm: P. A. Norstedt and Söner, 1933, i, 405.

² *Presse Méd.*, July 4th, 1934, p. 1068.

³ *Rev. de la Tuberculose*, 1933, i, 405.

⁴ *Rev. de la Tuberculose*, 1934, ii, 160.

HEALTHY LONDON CHILDREN

HEALTHY LONDON CHILDREN

THE L.C.C. REPORT

London is a problem of the first magnitude. Nowhere is there such an aggregation of people; nowhere are there such problems in health; and nowhere might mistakes or sins of omission be fraught with such disastrous consequences. The report of the School Medical Officer for London, Sir Frederick Menzies, shows what is being done for the betterment of the health of the host of children who are being trained in the numerous schools. The report is a record of almost unbroken successes in every department of school activity. There is no page in it that is not a condensed account of strenuous endeavour and achievement. To the Council and its small army of doctors the work is a great credit, only measurable by those who know what the conditions were among children of these schools thirty years ago. It is convincing evidence of the good that can be done by the earnest, thoughtful, and continuous application of scientific health methods.

PERIODIC EXAMINATIONS

There are some 380 doctors and ninety-seven dentists engaged in the work, many of whom are specialists in their own departments. The work needs to be highly organized and, at the same time, elastic and human, and the association of voluntary agencies is found to be of the highest benefit in this regard. Under the Education Act local authorities must make provision for the medical examination of children at entrance to school, and at such other time as the Board of Education prescribes. Thus there is a routine examination at the ages of 8 and 11. In London there is a further examination in the term before the children leave school. More than 80 per cent. of all children are examined each year. The Council finds there are some disadvantages in the year ages selected, and it is experimenting with examinations at the ages of 7 and 11. Refusals on the part of parents to allow their children to be examined are so few as to be negligible; there were only seventy-five such last year, and of these independent medical reports were obtained in the cases of twelve children.

NUTRITION AND CLEANLINESS

Unremitting attention has been given to the state of nutrition of the children. The long-continued depression with its attendant unemployment has produced acute anxiety lest the children should suffer. A special inquiry was made of 10-year-old children in schools selected as likely to be those where influences of malnutrition might be manifest. In this group 93.5 per cent. were considered well nourished and 6.5 per cent. poorly nourished. The work was undertaken by a skilled observer, and his findings in this *ad hoc* examination compare very well with the results of general medical inspection.

The general examinations have revealed an excellent maintenance of the high standard of cleanliness. Dirty heads are few, and body vermin are found in only one in a thousand. While bad clothing and bad footwear are distinctly less frequent than formerly, there has been a transfer from the "good" column to the "fair" column of from 1 to 8 per cent. The indications from this survey are that while indigence has been alleviated, things are "tighter" among those above the poverty line, and clothing has suffered to some extent in order to provide sufficient food.

The year was one of overflowing sun; this, no doubt, contributed to the healthy state of the children. Fewer defects than ever before were reported. Further, the last has been seen, so far as the elementary schools are concerned of the weakly children of the war.

N. 3084 London County Council Annual Report of the
C. 1933 Vol. III (Part II), Public Health. Report for the
Year 1933 of the School Medical Officer. London. P. S. King and
Sons (18 6d)

DENTAL CARE

There has been a slight falling off in the number of children brought for dental treatment, and this despite the excellent propaganda work of the Dental Board's demonstrations in the schools, which are highly appreciated. A new experimental dental centre has been established in an East End school financed by the Manor Charitable Trust. The work is mainly prophylactic and conservative; no general anaesthetics are used. The idea of the Trust is to demonstrate that the most efficient and economical method of dealing with the problem of dental treatment is to form a small clinic at each school, where most of the children can be dealt with on the spot. By such means a complete oversight of the whole school with a healthy condition of the mouths is obtained. But even this scheme has not overcome the apathy of the parents and the repugnance of the children to the dental chair!

CHRONIC INVALIDITY

The school attendance department reports each month the names of children who have been absent from school for three months or more on account of illness. The number absent on account of rheumatism, chorea, and heart disease still forms a very high proportion of the total, and proves how largely this group of diseases is responsible for ill-health in childhood, especially among girls. On account of the greater incidence of the rheumatic disease among girls (386 as against 222 boys), the total invalidity of girls to boys is 1,007 to 813. Ringworm, formerly the chief cause of prolonged absence from school, accounts for four cases only, compared with 129 in 1919. This is due to the success of x-ray treatment.

EPIDEMICS

Scarlet fever was epidemic in London during the latter half of the year, and this is reflected in the number of cases (11,357) reported. At one centre a number of cases occurred after operation for tonsils and adenoids, despite every care exercised by the staff. Thereafter the children were immunized against streptococcal infection and diphtheria before operation, and no cases either of scarlet fever or of diphtheria have been reported since this procedure was inaugurated.

There were 531 cases of small-pox notified in London in the year, of which 170 were in school children. All cases occurred among unvaccinated children. Facilities for vaccination on the school premises were granted whenever applications were received, and, at the written request of the parents, about 400 children in four schools were vaccinated. The special arrangement, which has now been in force for some years, whereby home contacts of small-pox are allowed to attend school if in a healthy condition has been continued; contacts are kept under daily supervision.

DIETARY OF BOARDING SCHOOLS

An important section of the report deals with the dietary of children in residential schools and homes. The diet was altered in 1932, and superintendents and medical officers were asked for criticisms after a trial of eighteen months. There were practically no adverse criticisms, but complete unanimity in praise of the diet as a whole. Suggestions for slight alterations were made and adopted. The medical officers all remarked on the improved condition of the children, and the absence of skin eruptions, which used to be so prevalent in Poor Law homes, was especially noted. This is important, as unhealthy skin conditions are associated with a diet which, though ample in bulk, is deficient in quality. One of the Council's consultants made a special investigation into physique, and observed the general improvement in stature during the past year as being especially gratifying, since the children as a whole appeared formerly to be stunted in growth compared with normal children. Full details of the "Standard Dietary Tables" are given in the report.

HOSPITALS AND COUNCIL

Special note is made on the arrangements of the school service. It is said that the general care of the children in the London elementary schools is carried on by a social service, consisting of voluntary workers organized in school care committees, assisted and directed by paid organizers. This system prevents the work of medical inspection and treatment and the wider work of general physical care of the child becoming stereotyped and bureaucratized, a fault which might otherwise be difficult to avoid. Friendliness and co-operation with the parents are the keynotes of this service. The teachers, whenever possible, give much assistance, and in many cases it is entirely owing to their help and devotion that the care committee work in the schools is possible.

London is abundantly rich in voluntary hospitals which provide extensive services for the poor, and it has been the aim of the school medical service to work in co-operation with these. In a number of hospitals a member of the Council's Care Committee attends regularly and keeps the hospital in touch with the social services of the schools. This association makes a great difference in the results of hospital treatment.

A warning is attached to the report. Great national disturbances have effects which are both immediate and remote. The remote effects of the war on children born during that period are known. Similarly, though the immediate effects of the prolonged depression appear from a consideration of the massed statistics to be surprisingly satisfactory in comparison with what might have been expected, yet there may have been some undermining of the health of the children which will show itself in insidious ways in the future.

PORT SANITATION AND COMMON SENSE

BY A SHIP SURGEON

It is generally agreed that in no sphere of human activity is tradition stronger than on the sea. Sailors are everywhere, and rightly, regarded as ultra-conservative beings who cling to old-established ways and customs, and are very slow to adopt new ways of doing things. This attitude of the seafarer has affected those who control him, resulting in the continuation of methods which, it is the purpose of this article to show, are now obsolete.

This obsolescence is particularly marked in the health aspect of ships and ports. Consider first the present basis of port sanitation in regard to an in-coming ship—the bill of health. One can well understand the need for this in earlier times, when means of communication were slow, and ships might visit ports subject to no sanitary control. Nowadays, with almost instantaneous spread of news regarding epidemics, and with universal isolation of infectious diseases, the bill of health, with its archaic phraseology, is surely out of date. Nor is it a case of one bill of health. Take the case of a ship proceeding from Liverpool to Palma (Balearic Islands), calling at Gibraltar en route.

THE BILL OF HEALTH

A British bill of health must be obtained at Liverpool certifying that "Whereas the ship — is about to proceed over-seas . . . know ye that the plague, cholera, or yellow fever does not prevail in this port, etc." This must be endorsed (for a consideration to his Government) by the Spanish Consul at Liverpool. At Gibraltar another British bill of health must be obtained, and also a Spanish one, issued by the Spanish Consul at Gibraltar, who presumably has knowledge of Gibraltar's public health inaccessible to the British authorities. Moreover, the Spanish Consul must endorse (again for a consideration to his Government) the British bill of health. From this it will be seen that one arrives at Palma with quite a sheaf of much-vised and stamped documents

(hardly looked at, by the way, by the authorities), and all this so, that a few healthy innocent passengers may disembark and a few others may have a look round the town. The reader will easily imagine how this process multiplies on itself with visits to further ports. As a source of revenue to the countries concerned it may be valuable; as a method of port—and ship—hygiene I maintain it is cumbersome and anachronistic in the extreme. Indeed, I have never been able to see the object of a bill of health at all, save as a possible reflection on the public health authorities of a port. Suppose plague or cholera *did* prevail in Liverpool. Surely the said authorities would take immediate steps to isolate cases and confine the outbreak sufficiently to prevent ships' crews running any appreciable risk of infection. In any case, what large port is there in the world which has not a permanent isolation hospital containing, it may be, cases of typhoid, small-pox, or other infectious diseases? But no ship is thereby prevented from entering or leaving such a port.

One can envisage here a new system altogether. Medical science knows no frontiers, and small-pox or plague is the same disease at Singapore or Southampton, Bombay or Birkenhead. The Health Organization of the League of Nations, or perhaps preferably the Office International d'Hygiène Publique, placing health officers in every large port of the world, might issue a sanitation card to each ship at its original port of departure, the sanitary condition of each port subsequently visited to be stated thereon by the respective health officer. This may be a Utopian ideal, but it is not beyond the bounds of possibility. By international agreement an excellent system now prevails whereby a seaman suffering from venereal disease can continue his course of treatment by applying at the various clinics established for this purpose in all large ports, the details of each treatment being marked on a card supplied to the seaman and presented by him at each clinic.

SHIP HYGIENE

Consider now the question of ship hygiene. By long-established custom a ship is still regarded as an infectious thing, either potentially or actually so. This feeling is particularly strong among the Latin races, perhaps for reasons not unconnected with the personal habits of their nationals. A glance at the form to be filled up at any Mediterranean port (for example, Marseilles) will show this. It refers to disinfection of cabins, disposal of the effects of sick persons, deaths, and coffins. To Latin eyes, too, all illnesses occurring in a ship appear as infectious disease, an extraordinary attitude which rises to its height in South American ports. I have seen a port doctor at Rio de Janeiro hesitate to come on board on being told that one passenger on board was "seek." Apart from the absurdity of this behaviour, it is a sad commentary on local medical ethics. It is incredible that any British doctor would hesitate to enter a house on the ground of its containing infectious disease.

If ships are such dangerous potential carriers of disease, why, may I ask, is no attention paid to trains and aeroplanes? The Orient Express, on its return journey from Constantinople to Calais, passes through many countries on its way, yet no sanitary control whatever is exercised over the passengers, the staff, or the train itself. It certainly does not obtain a bill of health on leaving Constantinople, hardly to be described, I think, as a very salubrious city, certainly no cleaner than Liverpool. A person, too, sickening for small-pox or yellow fever might well travel from the East to this country by aeroplane; yet, so far as I know, no sanitary control is exercised over aeroplane passengers either.

Surely it is time this absurd attitude towards ships and their inhabitants was dropped. The days are now long past when, as a matter of course, a ship returned from an oversea voyage with half or more of the crew dead or dying from scurvy, plague, or small-pox. A modern ship is an eminently hygienic affair, with her regular inspections of quarters and crew by commander and medical officer, her constant washings and cleansings, her exposure to the

AUG. 25, 1934]

ACCIDENTS IN SEWERS

antiseptic action of sunshine and ozone, her periodic fumigations of holds, etc. Indeed, she is a much more hygienic affair than many a house is ashore. Moreover, it should be remembered that sailors spend by far the greater part of their lives in ships. It follows that they are liable to almost any of the diseases found in general practice ashore, and that they may occasionally die of one of these, of pneumonia, heart failure, typhoid, or some serious accident.

PORT AUTHORITY AND SHIP SURGEON

May I then plead for a somewhat more common-sense attitude on the part of port sanitary authorities (especially foreign ones) to such illnesses (and possibly, deaths)? After all, the surgeon on board knows at least the fundamentals of his job; indeed, in these days of enhanced status and increased pay for ship surgeons, as like as not he will be found to be highly efficient and trustworthy. (The day of the old-time ship surgeon, rarely sober, whose main duty on board seems to have been that of jester and entertainer, is now past, though he has left a nasty taste in the mouth of the travelling public.) He is therefore quite capable of distinguishing prickly heat from measles, domestic collywobles from yellow fever. Do not, therefore—I suggest to port authorities—ask of him that most aggravating of all questions for a ship surgeon, "Have you had any cases of illness on board, whether of an infectious nature or not?" What sort of reply is expected to this question? Are details desired of the bo'sun's lumbago, the carpenter's rheumatism, the chief mander's indigestion, the fireman's whitlow, the chief engineer's boil, the stewardess's debility, the third officer's cold in the head, the steward's diarrhoea, the A.B.'s bronchitis, etc.? It is inconceivable that the authorities should have either the time or the patience to peruse such a recital, even if their health declaration form gave sufficient room for its insertion. Personally, I decline to attempt a reply to this question, and simply state—"A few cases of minor illness." Nor can I see what possible bearing such maladies can have on the public health of a port or country.

I trust I shall not be misunderstood. The important point at issue is the early detection of infectious or contagious disease, and on this the interests of port authority and ship surgeon coincide. I am therefore all for the tightening of regulations and examinations, in so far as these serve this end. But I desire to protest strongly against the *futilities* which are everywhere apparent in foreign ports: the deep suspicion with which every case of minor illness is regarded; the answering of questions which suggest that a ship is necessarily a hotbed of filth and corruption; the needless reduplication of health declarations—for example: Why should a ship be obliged to fill up a health declaration form at both ends of the Suez Canal,* whether north- or south-bound? Why should a ship which has made a complete health declaration at Capetown be required to repeat this at all ports on its way round the South African coast, so that at Durban one may be giving particulars of the illness during the outward voyage of some person who has long ago disembarked and reached his home in the interior of the country? Surely, having made a declaration at Cape town, all that should be subsequently required is notification of any further contagious or "prohibited" disease. Why should the same thing occur at British ports, each port authority treating the ship as if she had arrived from say, Hong-Kong, instead of London or Liverpool, no consideration whatever being attached to the fact that she has already been examined and has received "free pratique" at previous ports of call? It is against such *futilities* that I protest, and there are many of them.

* This involves answering eighteen questions at Port Said, thirty-three at Suez, some of them quite ridiculous—for example: "Have you picked up anybody or thing (sic) during the voyage?" If so, where? Give bearings. Imagine a liner stopping to pick up a "thing," and taking bearings on the occasion!

ACCIDENTS IN SEWERS

PRECAUTIONS FOR SAFETY

A report on the precautions necessary for the safety of persons entering sewers and sewage tanks has been issued for official use by the Ministry of Health. It is the joint work of seven representatives of the Home Office and the Ministry, who were appointed a year ago, the chairman being Mr. R. G. Hetherington and the medical members Dr. Thomas Carnwath and Dr. E. L. Middleton. The decision to make the inquiry was reached because of fatal accidents at Upminster and Southend, and because there was no record of an investigation having been made or advice given previously by any Government department. Since then further fatalities have occurred at Northallerton and Coventry. It appeared that while some of the larger authorities issue fairly comprehensive instructions to their employees there is a lack of uniformity in the instructions given, and many local authorities have done little or nothing.

The dangers to be anticipated in sewers and sewage tanks fall naturally under two heads: (1) flooding; (2) gases. In regard to the former, it is agreed generally that bars or chains should be provided at all manholes in sewers, so that they can be fixed across the sewer at the manhole below the point at which any man is working. Gases are grouped into asphyxiating, poisonous, and inflammable. The composition of the air in sewers normally differs little from that of the outside atmosphere, but it may be much modified as a result of stagnation in the sewer due to structural defects, or by the admission of gases or liquids which readily vaporize. Where stagnation occurs the solid matter undergoes fermentation and absorbs oxygen from the air in the sewer. Fermentation or digestion of sewer solids gives rise to very objectionable odours, and if there is little ventilation the evolved gases collect and gradually displace the air, so that the sewer atmosphere becomes irrespirable owing to the reduction of its oxygen content. Of the gases found at times in sewer air due to direct admission, coal gas is the commonest, but acetylene from the decomposition of unspent calcium carbide is occasionally found; both may give rise to explosive mixtures. Of the readily vaporizable liquids that gain access to sewers inflammable wastes from dry cleaning works, etc., are occasionally met with, but petrol is by far the most common, and may cause devastating explosions. Speaking generally, the gases to be feared in sedimentation tanks are those produced in the early stages of the precipitation of sewage solids—namely, CO_2 and H_2S ; whereas the gases to be feared in septic tanks are those evolved in the later stages of fermentation—namely, methane (CH_4) and CO_2 . The danger of asphyxiation by irrespirable gases can only be removed by adequate ventilation of sewers and tanks. In this country the greatest risk encountered is that of poisoning by H_2S . The first and principal remedy is to prevent the accumulation of sewage or sludge by cleaning out tanks and (where necessary) sewers at frequent intervals.

With reasonable care accidents should not occur. The tests and precautions for ensuring safety are relatively simple and ought to be strictly observed. Tests must then be made for H_2S (by exposing lead acetate paper for five minutes), for asphyxiating conditions (by a safety lamp), and for inflammable gases (by a detector lamp). All the men should be well versed in the tests and a life-line should be worn by the first man entering a sewer or tank until safety has been established. So long as any man is in a sewer the three manholes (the one entered and that on either side) should be kept open and two men posted at the entry manhole. Smoking and the use of naked lights are forbidden. Rescue kit should be carried by every travelling sewer gang, and kept apart from the tools and ordinary tackle, the man in charge of the gang being responsible that the kit is at hand and in working order. It should include at least two life-lines and one breathing apparatus.

A summary of the committee's conclusions appears as an appendix to the report and would serve well as a model for leaflets to be issued by local authorities.

England and Wales

London Voluntary Hospitals

The achievement of two records is reported in the statistical review for 1933 of the work and finance of the London voluntary hospitals, which has been issued by King Edward's Hospital Fund.¹ The total maintenance receipts reached the figure of £4,000,000 for the first time; the hospitals with surpluses reached the highest number recorded, while those with deficits were the fewest on record, and the aggregate total of their deficits was the lowest. Most of this increase in total income was due to increased receipts under legacies, but ordinary income also rose by £16,000. There was a small decrease of £18,000 from subscriptions and donations, and another decrease of £24,000 in income from investments, owing to the lower rates of interest prevailing. These two decreases were more than offset by an increase of £58,000 in receipts from services, including the grants of the Hospital Saturday Fund. A factor of growing importance that has contributed to the increase under this head is the contributory scheme of the Hospital Saving Association. Expenditure has been steadily rising, but less rapidly since 1930. Although there was a slight increase in 1933 as compared with 1932 the rise in income was much larger. The number of hospitals showing surpluses in the year under review was ninety-eight, the highest yet recorded, and comparing well with eighty-five in the previous year. Those showing deficits numbered forty-seven, again the lowest figure on record in this respect, and thirteen less than in 1932. The aggregate amount of the surpluses was £303,000, against £201,000 in 1932, while the aggregate amount of the deficits fell to £61,000 from £97,000 in 1932. There was thus an increase of income over expenditure of £138,000, which raised the net aggregate surplus from £104,000 in 1932 to £242,000 in 1933, the largest net surplus for ten years. The general conclusion is drawn that, while the deficits at particular hospitals form a serious problem for those hospitals, they are not typical of the general tendency of hospital finances down to the end of 1933, but are due to more or less exceptional circumstances. The bed complement increased by 190 to 17,340 during the year, making a total increase of 970 since 1929. The total capital expenditure on buildings and equipment rose from £577,000 in 1932 to £582,000, a far lower figure, nevertheless, than those of 1929 to 1931, and indicating one of the effects of the still prevailing financial stringency. Several hospitals have been compelled to defer their appeals for building schemes. Yet it is clear that the work of the voluntary hospitals in London continues to grow both in scale and in quality, as a result of the progress made in curative medicine and surgery, and that in the aggregate the receipts from patients and the general public have kept pace with the increased maintenance expenditure. There has also been issued a summary² of the report of the committee appointed to inquire into out-patient methods at London hospitals as affecting the suitability of patients and the time of waiting. The main recommendations are: that hospitals should be encouraged to develop the consultative side of their out-patient work; that, subject to certain safeguards, non-urgent minor cases should be referred after the first attendance to suitable agencies which provide general practitioner treatment; and that various time-saving methods of procedure or improvements in accommodation should be studied by hospitals with a view to action where appropriate. It seemed to the committee that part of the waiting was unavoidable with large

populations, but that the treatment of an excessive number of minor cases was definitely handicapping the dealing with major cases. It was thought also that improvement was possible as regards the procedure concerning doctor's letters and hospital replies. The question of the fixed time for arrival was commended for more concentrated study. The committee suggested that these recommendations should be so applied as to promote the discovery and adoption of a common policy, while maintaining the individuality and freedom characteristic of the voluntary system. It was added that the King's Fund should consider to what extent it could help in getting the recommendations adopted by making available the detailed information accumulated during the inquiry.

Scotland

Dental Conference in Dundee

The fifty-fourth annual conference of the British Dental Association, held at Dundee from August 7th to 9th, was attended by some 250 delegates, who received a civic welcome from Lord Provost W. H. Buist and a welcome from the University of St. Andrews, conveyed by Professor D'Arcy Thompson. Dr. W. Graham Campbell (Dundee), who was installed as president, said that the Dundee Dental Hospital had been opened in 1914 to make dental services available to the poorer classes of the city, and a few years later a dental school was founded in association with St. Andrews University. This was the only Scottish University up to the present time to provide courses and grant a diploma in dental surgery (D.P.D.), and the speaker, as dean of the school, had received inquiries regarding it from more than eighty dental surgeons holding public appointments in Britain and overseas. It was intimated that the next annual meeting would be held in Plymouth, and Mr. Sydney D. Venning (Plymouth) was elected president for 1935, with Mr. William Guy (Edinburgh) as vice-president. Professor John Anderson of the chair of surgery in University College, Dundee, addressing the conference on the subject of dental practice, said that the dentist had a wider duty to the community than the mere repair of teeth, for he often had the opportunity of detecting at an early stage serious diseases of the mouth or throat. He instanced the case of a young professional football player who, as the result of actinomycosis, had become quite unable to open his mouth. After teeth had been extracted to enable him to be fed, and a course of radium treatment had been administered, complete recovery had taken place and he had been able to continue his professional career as a player of first-class football. The speaker had reviewed 1,250 cases of cancer of the mouth in Dundee, of which 84 per cent. were in men and 16 per cent. in women; among associated factors in causation had been tobacco, chronic infection, rough teeth, and alcoholic excess. It should be recognized by the public that cancer of the tongue was usually preceded by some simple condition, such as dental ulcer, which might be readily cured. Mr. Grantley Smith, municipal dental officer, Bermondsey, contributed a paper on municipal dentistry, in the course of which he said that to make dental benefit a statutory one would go a long way towards solving the problem of adolescent dental treatment. He pointed out that the British Medical Association recognized the necessity for an efficient dental service, but while that Association based medical services upon private practice, dental services were widely different, and the speaker believed that treatment centres would of necessity play a large part in dental services to the industrial public. On the

¹ King Edward's Hospital Fund for London, 10, Old Jewry, E.C.2. (Is., post free 1s. 3d.)

² King Edward's Hospital Fund for London. (11d. net, post free).

last day of the conference a discussion took place regarding the anaesthetic of choice for dental surgery. Dr. R. R. Macintosh said that the induction of anaesthesia by means of barbiturates had simplified this problem for dentists, but he did not consider that this should tempt the operator to give his own anaesthetic. Mr. I. S. Spain (Norwich) said that in time nitrous oxide with oxygen would probably displace all other dental anaesthetics; for this, however, a skilled anaesthetist was essential. Mr. S. F. St. J. Steadman (London) said that he had found difficulty in persuading patients to avail themselves of a skilled anaesthetist, for the patient commonly had faith in his family doctor as the anaesthetist, and the dentist could not venture to say anything against this. A presentation of his portrait, the work of Mr. Leslie Kinnier (Dundee) was made to Dr. Graham Campbell by past and present students of Dundee Dental Hospital and School, and in making the presentation Mr. William Boyd, president of Dundee Dental Hospital, said that, but for Dr. Graham Campbell and his brother, Dr. Norman Campbell, there might never have been a dental hospital in Dundee, so that it was fitting that this presentation should take place on the twenty-first anniversary of the hospital's foundation.

Ireland

Health Progress in Belfast

Taking as an illustration the almost complete eradication of enteric fever from the county borough of Belfast as the result of careful attention to the water supply, the water-carriage system, and the steady abolition of ash-pits, Dr. C. S. Thomson, medical superintendent officer of health, in his annual report for 1933, surveys the present position generally, and indicates lines on which similar advances might be made in the future in other directions also. The immunization of toddlers against scarlet fever and diphtheria could, he remarks, be organized as an effective safeguard of health if the necessary additional medical assistance could be provided. The housing question is being carefully investigated. There are about 97,600 houses in the city, and in 1933 over 19,500 house-to-house examinations were made as a routine, with 48,000 reinspections, and more than 24,000 for specific purposes. Many houses must be demolished, but this cannot be done until a sufficient number of suitable houses are provided for their inhabitants, to be let at not more than 6s. a week. But bath accommodation could not be supplied at such a figure. Many of the houses so far built are too far from the centre of the city, and their rents are too high. Dr. Thomson enumerates various faulty steps which must be avoided, and expresses the hope that within the next five years it will be possible to make a clean sweep of the various insanitary areas. There are now fourteen weekly infant welfare sessions as compared with six in 1930, and nine municipal ante-natal sessions, three more than in 1932. While continuous supervision is very desirable for women during pregnancy, this cannot be secured satisfactorily by laying stress on the possible difficulties and dangers. What is wanted is the creation of a general feeling that such supervision is a natural and sensible procedure. Such an advance in the education of the public requires the more active co-operation of health associations and societies such as women's institutes and guilds. In this educational effort the most important part should be played by the personal guidance of the medical practitioner, the midwife, and the health visitor, and Dr. Thomson suggests that special attention might well be paid to this subject in the training of the

midwife and in her post-certificate instruction. There has been a gratifying response to the clean milk campaign, and the standard of the samples examined has much improved. Dr. Thomson remarks that the safest kind of milk is not yet available to the public—namely, milk produced under licence from tuberculin-tested herds, and subsequently pasteurized. He adds that, so far as Belfast is concerned, both Grade A (T.T.) and pasteurized milk can be drunk with a fair degree of assurance. A most successful baby week was held in June last year, thirteen years having elapsed since the previous one. The attendance neared a total of 30,000. The total cost was £500, of which £300 was met out of small rent charges made for trade exhibits of a strictly health nature.

Appointment of County Medical Officers of Health

At the last meeting of the Leitrim County Council a letter was read from the Department of Local Government and Public Health with reference to previous correspondence, pointing out that, in pursuance of Section 21 of the Local Government Act, 1925, it was incumbent on the Leitrim County Council to appoint a county medical officer of health. The necessity for the employment of a whole-time sanitarian to reorganize and develop the public health services in the county had become urgent, and was emphasized by the serious outbreaks of infectious disease which had recently occurred in certain districts. Moreover, the need for the organization of a system of school medical inspection in the county was generally recognized. That service was dependent on the appointment of a county medical officer of health. Experience in counties in which that service was in operation had shown that a large proportion of school children were suffering from dental defects, enlarged tonsils or adenoids, defective vision, and certain other physical deformities, the early detection and correction of which would obviate a considerable amount of ill-health in after-life. The provision of school medical service was therefore an insurance against sickness in the later ages, and the cost of that service would be amply repaid by the increased health of the school children and of the community in general, and by a reduced expenditure from the rates on the provision of institutional and other treatment. In this connexion it was explained that the fears expressed by some local authorities that the cost of the county medical officer of health system would be excessive had proved to be unfounded. The experience gained in the eighteen counties in which this service had been operating for some years demonstrated that when the recoupment from the State grants was taken into account the cost of this service to the rates did not on an average exceed one halfpenny in the pound on the valuation of the counties concerned. Having regard to the foregoing circumstances, and in view of the fact that similar officers were now functioning in neighbouring counties, the Minister requested that the county council would forthwith take the necessary steps to appoint a county medical officer of health for the county. The requisite preliminary procedure consisted of: (a) fixing the terms of remuneration for the position, which should not be less than £800 per annum, with vouched travelling expenses; and (b) obtaining from the Board of Health a formal resolution assigning to the county medical officer of health the duties of school medical officer, and allocating a proportion of the above-mentioned total remuneration, say one-half, to the duties of school medical officer, which portion of the remuneration would be eligible for recoupment from the State grant. It was requested that the decision of the council in the matter might be conveyed to the Department by letter immediately after the meeting at which the question was discussed. After a long discussion the matter was adjourned.

Mental Hospitals in the Free State

Dr. D. L. Kelly, inspector of mental hospitals, in the course of his annual report, gives the following information. The number of insane persons under care on December 31st, 1933, in public and private establishments was 20,427. This number does not include insane persons maintained at home by relatives or other guardians, with the exception of such as are under the control of the Chief Justice, or are in unlicensed houses and have been notified to the Department, in pursuance of Section 37 of the Private Lunatic Asylums (Ireland) Act, 1842. Voluntary boarders residing in private mental hospitals are also excluded from the total number. Of the total number under care on the date mentioned 89.3 per cent. were in the district and auxiliary mental hospitals, 4.7 per cent. were in private mental hospitals or in single care, 5.4 per cent. were in Poor Law institutions, and 0.6 per cent. in the State Criminal Lunatic Asylum. The distribution of the sexes was 52.1 per cent. males and 47.9 per cent. females. The changes which took place in 1933 may be summarized as follows: The number in the district and auxiliary mental hospitals increased by 407, the number in Poor Law institutions decreased by 149, the number in private mental hospitals decreased by twelve, the number in single care in unlicensed houses decreased by six; there was no change in the number in the State Criminal Lunatic Asylum. There was an increase of eighty-seven in the number of male and of 153 in the number of female patients under care. Under the Lunacy Acts the Saorstát is divided into eighteen districts. In sixteen districts there is one district mental hospital only. The daily average number resident in 1933 in all these hospitals was 18,164 (9,667 males and 8,497 females). At the end of 1933 the numbers had increased by 1,278 compared with the figures for December 31st, 1932. The number of admissions during the year was 2,703 (125 more than the corresponding number in 1932). In 1933 there was an increase of ninety-two in the number of first admissions, and an increase of thirty-three in the number of readmissions. First admissions were equivalent to 71.9 and readmissions to 18.4 per 100,000 of the estimated population (2,992,000). The total number of patients discharged in 1933 was 1,295. Of these 972 were discharged recovered. The percentage of recoveries on the admissions was 33.2. The numbers relieved or not improved on discharge totalled 323. The total number of deaths was 1,001, which is sixty-nine fewer than that in 1932. Of the total number seventeen (1.7 per cent.) were returned as due to general paralysis of the insane, 200 (20 per cent.) to pulmonary tuberculosis, thirty-six (3.6 per cent.) to epilepsy, and thirty-two (3.2 per cent.) to malignant disease and other tumours, excepting those of the brain. The highest death rate was in Limerick Mental Hospital, where it was 8.3 per cent. of the daily average number resident. The lowest was 4.1 per cent. in Sligo. The general death rate was 5.5 per cent.

The fourth conference of the International Association of Preventive Paediatrics (Medical Section of the Save the Children International Union) will be held at Lyons on Thursday and Friday, September 27th and 28th, 1934. The subjects to be discussed are: (1) the prophylaxis of malaria in children—Professor Cacace (Naples), Professor Gillot and Dr. Sarrouy (Algiers), and Dr. Barclay Barrowman (Batu Blah, Federated Malay States); (2) the prophylaxis of rickets and convulsions—Professor Monrad (Copenhagen), and Professor Rominger (Miel). Those who desire to be present at the conference and to take part in the discussions are requested to communicate with the secretary of the I.A.P.P., 15, Rue Lévrier, Geneva.

CORRESPONDENCE

Is High Blood Pressure a Risk?

SIR,—I am a surgeon. I am tempted to say with Lord Moynihan that I am a physician doomed to the practice of surgery. Recently, being concerned with the maladies of a patient a little over 60 years of age, I thought it right before operating to take the opinion of a physician upon the question of blood pressure. The highly intelligent patient, being interested and incredulous, suggested that we should consult at least two distinguished cardiologists and compare their results. We did so. The physicians chosen for our experiment were men renowned in the profession in this country; for one we may even claim an international repute. The readings given by the two experts, using apparently identical methods and apparatus, within a period of one hour, in an unemotional patient, varied to the extent of 30 mm. in systolic and 18 mm. in diastolic pressures.

Can anyone tell me if blood pressure readings are of any real value; and, if so, of what value? Textbooks are almost silent; experts vary in opinion and advice; and most of us are ignorant, sceptical, or both. I am familiar with documents published by American insurance companies; but I am not aware of any substantial contribution to thought or to literature in this country since Sir Clifford Allbutt's and Dr. Batty Shaw's discussions before the war. Is there any English evidence available to show whether a high blood pressure involves an added risk to life or health; or are we once again the victims of tradition, hearsay, or prejudice?

Every week as I incompetently play my round of golf I watch the highly accomplished performance of two rounds by a friend whose blood pressure has not been known to fall below 285/170 in the last ten years; and one of the most eminent of my professional colleagues frequently repeats to me a statement I first heard him use during the war: "I feel a worm if my systolic pressure falls below 200." Only this week I have performed, without the slightest anxiety, two major abdominal operations upon patients whose blood pressures were over 250/160. Is it possible to provoke an Anglican authority (if there be one) into speech?—I am, etc.,

August 20th.

M.S., F.R.C.S.

Action of Ultra-short Waves on Tumours

SIR,—In a preliminary note communicated to the Zurich International Conference of Radiology Dr. Reiter claimed that

"a limited wave-length with its maximum at 3.4 m. had the effect of destroying tumour cells if applied with a certain dose, a definite number of times, and also at definite intervals. Other wave-lengths under the same conditions did not produce this effect. The destruction of a tumour under these conditions is very often attended by a certain amount of destruction of surrounding tissues."

Crabtree and Cramer (1933) found that it was possible to increase the sensitivity of cancer cells to radium by chemical or physical means. The action of a small radium dose only able to slow down the growth could be converted by the action of these means into a total destruction. Unfortunately, the substances and methods by which these effects were obtained by these authors are such as to make their use in human therapy impossible. As the effect of ultra-short waves can be applied in human therapy, Dr. Reiter has investigated the combined effect of a weak dose of ultra-short waves and a weak dose of γ -radiation on human cells.

In collaboration with Dr. W. Cramer, at the Imperial Cancer Research Fund Laboratory, a mouse tumour was first treated with a weak dose of ultra-short waves; then the animal was killed and the treated tumour removed and cut into thin slices. Half of these were treated *in vitro* with γ -radiation equivalent to 55 mg. radium element for three hours. A normal untreated tumour was also divided into two parts, one treated with the same dose of radium and the other kept as control for testing the normal growth. Small pieces of each of these four groups were then inoculated into eight mice and the growth of the tumour charted. The action of the combined treatment was then investigated independently from effects on the blood circulation. It was found that with a weak dose of ultra-short waves which did not damage other tissues and which did not by itself produce any change in tumour growth, when combined with the radium dose which by itself was ineffective, the two together prevented growth of the tumour.

In a second series of experiments carried out at the St. John Clinic and Institute of Physical Medicine the growth of Jensen rat sarcoma tumour in rats was investigated (1) when treated with a weak dose of ultra-short waves, (2) with this plus a weak dose of radium, and (3) with radium only. Here again some evidence was obtained that a preliminary treatment with ultra-short waves made the tumour susceptible to radium, either agent being ineffective in itself, and the dose of ultra-short waves being too weak to cause serious injury to normal tissues.

In regard to specific action Dr. Reiter, in the Clinic laboratory, has shown that, taking a dose (1) of 3.4 m. ultra-short waves, (2) of 4.5 m. waves, the dose being measured by thermometric means, the former prevents tumour growth while the latter does not. Given a greater dose the 4.5 m. waves may be effective. Waves shorter than 3.4 m. have not so far been tested. The 3.4 m. waves are effective when cooling is carried out so that there is no evidence of rise of temperature of the tumour as a whole to a degree which in itself would be lethal. Further investigation obviously is needed.—I am, etc.,

LEONARD HILL,

Aug. 20th.

General Supervisor of the St. John Clinic.

Thrombosis of the Penis

SIR,—Mr. Clifford Morson's distinction between true priapism and penile thrombosis is most valuable and not generally recognized. He refers, however, to penile thrombosis in leukaemia in a manner which suggests doubt as to its actuality. A good summary of the literature of this condition is given by H. Hirschfeld in Schittenhelm's handbook of diseases of the blood (Berlin, 1925, vol. i, p. 327). There are over thirty papers on the subject in relation to chronic myeloid leukaemia. In the same textbook reference is made to its rare appearance in acute lymphatic leukaemia (p. 391); but it is always open to question whether these are not in fact acute cases of myeloid leukaemia.

I have myself seen one case of penile thrombosis in chronic myeloid leukaemia: it was the first symptom of the disease, and persisted for about fourteen days, reacting eventually to α -radiation of the spleen and penis. The patient was thereafter impotent, and died two years later of leukaemia. Most pathologists who see a large number of cases of myeloid leukaemia have seen it at some time. Venous thrombosis, involving the femoral or saphenous veins, is exceedingly common in this disorder, and the splenic infarcts, which are practically invariable, are of this nature; it is not therefore strange that the corpora cavernosa should thrombose. When complicated by fre-

quency and strangury (as in the case seen by me), owing to passage of urate gravel from the increased purine metabolism, the condition is exceedingly distressing.

By a coincidence there was in the ward at the same time a case of priapism following a war-time bullet wound of the spine. The patient made an application, which was not successful, for an increased pension owing to his disability.—I am, etc.,

Westminster Hospital, S.W.1,
Aug. 16th.

R. J. V. PULVERTAFT.

SIR,—I have read with interest Dr. Parkes Weber's letter (*Journal*, August 18th, p. 329) with reference to my article on thrombosis of the penis (*Journal*, August 11th, p. 249). It is important to know what was the subsequent history of his two cases of "persistent priapism" due to myeloid leukaemia.

It is my experience that when the thrombosis is due to arterial disease impotence follows, though sexual desire is unaffected. Your correspondent sees no reason why these cases should not be classed under "persistent priapism." If he will read my article again he will, I am sure, accept my view that this is a wrong description. Priapism is a condition which simulates the organ when sexually excited. In thrombosis of the corpora cavernosa there is no enlargement of the glans penis, and therefore the condition is not one of priapism.—I am, etc.,

Kingston Gorse, Sussex, Aug. 19th.

CLIFFORD MORSON.

Haemorrhage from Peritonsillar Abscess

SIR,—Professor J. B. Dawson's letter on the above subject (*Journal*, August 11th, p. 284) recalls a similar case which occurred in my practice, and which is, I think, worth recording from the point of view of treatment.

A very large fat man (he weighed 17 st.), aged 38, a victim of nephritis and emphysema, developed a left-sided peritonsillar abscess, which was incised by one of my colleagues. Bleeding recurred at intervals in spite of every effort to control it, and had reached a highly dangerous stage by the time I saw him (October 16th, 1926). The patient was very white, weak, and apprehensive from continuing loss of blood. The pharynx was almost closed by bulging clot, some of which was protruding from the faucial incision, from which came a steady trickle of blood. As a general anaesthetic was out of the question the neck was infiltrated with novocain and the external carotid doubly ligated at the site of election. As in Professor Dawson's case, a mass of swollen lymph glands required removal before the artery could be exposed. The efficacy of this procedure was immediately demonstrated by the fact that my colleague enlarged the faucial wound and cleared out the mass of clot without any sign of recurrence of the bleeding. The patient made a rapid recovery.

As a result of this experience I am in entire agreement with Professor Dawson as to the wisdom of tying the external rather than the common carotid when confronted with dangerous bleeding from a peritonsillar abscess, whether spontaneous in origin or following incision.—I am, etc.,

Dublin, Aug. 15th.

CHARLES MACAULEY.

The Swab in Diphtheria Diagnosis

SIR,—I write lest certain letters you have recently published should be taken seriously as suggesting that swabbing of suspicious throats can be excusably omitted.

In the two districts of which I am medical officer of health we provide laboratory facilities and also pay the doctors a fee of five shillings for every swab they send for examination. We let it be known we want every

sore throat swabbed. After ten years' experience of this the following facts emerge.

1. The incidence of the disease has been halved.
2. The deaths have been halved in one district and none have occurred in the other.
3. Many swabbed throats in which no clinical resemblance to diphtheria was present are found to be diphtheritic, and others which appeared quite characteristic are found to be negative.

The cases discovered unexpectedly to be diphtheria are removed to hospital, and other persons they might have infected are saved—hence the diminished incidence referred to. The apparently certain cases which prove negative are not removed, and so far no diphtheria has followed their remaining at home.

I am quite certain that in many early cases there is no clinical sign by which anyone, however great his experience, can diagnose diphtheria. Disappointment with swabbing will be found in districts where, in the absence of any encouragement to assist the public health authority, the doctors, or some of them, only swab cases they suspect are diphtheria. It is among the cases in which no one—not even Drs. James and Sanctuary—would suspect diphtheria that the ambulatory and therefore dangerous case is found.

As it is certain that any sore throat may be diphtheritic, and therefore every case is a "doubtful case," it is obviously impracticable to have, as suggested, every case examined by an expert, and even if this were possible no expert opinion is of any value in a really early case. It is also impracticable to put every sore throat into hospital or to give every patient suffering from sore throat 20,000 units of antitoxin.

It is not, however, impracticable to swab every case, and I have proved its efficacy.—I am, etc.,

Altrincham, Aug. 20th.

ARTHUR T. BLEASE.

SIR,—In his devotion to scientific orthodoxy Dr. Alistair French (*Journal*, August 18th, p. 332) has quite missed the main point of my original letter, which is that the swab is an unreliable guide, even in cases which are, or ought to be, clinically obvious, and that many lives are lost either because of the faith placed in the swab or because of the delay involved in taking recovery. If Dr. French doubts this, let him ask the superintendent of any large fever hospital.

As to carriers, Dr. French should remember that, for every supposed carrier whom he succeeds in isolating, there are many more at large who are probably doing a useful work in helping to immunize the susceptible population. Further, a report that organisms morphologically resembling Klebs-Loeffler bacilli are present in a culture is not a sure indication that the person concerned is a carrier or disseminator of virulent organisms. In certain circumstances the swab can give invaluable information, but the present policy is often dangerous to the patient and misleading to the practitioner.—I am, etc.,

Isolation Hospital, Romford, Aug. 18th.

E. JAMES.

SIR,—I agree with Dr. French that the throat swab is sometimes the only means of knowing that the patient is a diphtheria carrier and therefore a source of danger to others. There can be few general practitioners of any experience who do not recognize a typical diphtheritic throat when they encounter it.

It is the doubtful case that requires a confirmatory swab. Generally these doubtful cases are not very ill—that is why they are doubtful. Consequently, I think one is justified in taking a swab and awaiting the result. I

recently had four measles cases (two in one house) in which there was a complaint of slight sore throat. All four swabs were positive, and yet there was nothing to be seen on the fauces in any one of them.

Another point brought up recently in another medical publication is the risk in certain cases of administering serum to cases subsequently proved to be non-diphtheritic. Although I personally have had no untoward results beyond a rash, there is no doubt the risk exists. What, then, is the position of the family doctor who, on seeing a "doubtful" case, takes a swab and gives antitoxin at the same time, if his little patient develops gangrene and sloughing at the site of injection, the swab having been returned negative? Would it be looked upon by the child's parents as a justifiable mode of procedure?

Of course, when the throat is obviously diphtheritic with the usual toxæmia (and this is an important point in differentiating the "true" from the "doubtful") the course of procedure is clear.—I am, etc.,

Pitsea, Essex, Aug. 18th.

D. MACLEOD GRAY.

SIR.—This interesting correspondence raises important issues to the general practitioner: (1) When is a "swab" necessary for diagnosis? (2) When is it necessary for other purposes? (3) Should "swabbing" be abandoned? (4) What value is to be attached to the result of a swab? (5) Are "area diphtheria specialists" required?

1. Diphtheria starts at a definite spot and spreads from that spot producing toxic symptoms—a frequent pulse out of all proportion to the temperature. It should present no difficulty in diagnosis from acute follicular tonsillitis, which shows many different spots (pus at the mouths of the follicles) with a higher temperature and a pulse proportionately rapid. Therefore, for a clear clinical case of diphtheria the swab *per se* is not necessary *purely* for diagnosis.

2. It may be necessary (a) for confirmation of the diagnosis both for the practitioner and for the patient or relatives; (b) to give assurance to parents—and in these days, when so much newspaper reference is made to "swabs," many parents will not be satisfied with anything less; (c) for the detection of a "carrier"; (d) in "contacts" to acquire early information about the spread of an infection; (e) for information in the immunization of a patient against diphtheria; (f) for the determination of Vincent's angina; (g) in the exclusion of diphtheroid bacilli in certain inflammations of the fauces; and (h) perhaps in some cases of scarlet fever, which is frequently complicated with diphtheria bacilli.

3. The above summary under (1) and (2) gives a definite negative reply to question (3).

4. A "positive" report of a swab is "positive" existence of the diphtheria bacilli, and is presumptive evidence of the existence of the disease. The "positive" evidence of the existence of the disease diphtheria is the existence of the membrane and its clinical signs and symptoms. The existence of non-virulent diphtheria does not mean the existence of the disease, though it may or may not mean a *potential* carrier. A negative report is no proof of the non-existence of the disease. I have had "negative" reports on cases sent to hospital and "positive" reports from other laboratories. Why some swabs are negative and others from the same case positive I cannot explain. The clinical picture in diphtheria is clear and is the most reliable evidence of the disease.

5. "Diphtheria specialists" are most definitely not required. It would make the situation worse by the practitioner in many cases throwing the responsibility on the specialist. It would make the practitioner, in many cases, less alert in his diagnosis and in shouldering his

responsibility. The creation of this class of inspectors would be another source of interference with general practice. It cannot be justified on the point of mortality, since whooping-cough kills more than measles, and more than scarlet fever and diphtheria combined. The appointment would be on wrong lines, for surely with such a cheap and easy method as immunization against diphtheria existing it is preferable, and advisable, that the public should be educated and induced to have their children protected against the disease, than to have to pay "inspectors" to diagnose a disease and further ridicule the general practitioner to the laity.—I am, etc.,

Ilford, Aug. 18th.

A. G. NEWELL, M.D., D.P.H.

SIR,—The discussion *re* the advisability of "taking a swab" in any suspicious case is surely unnecessary to-day. Every student in my time in the "Glasgow" school was taught the absolute necessity of "having a swab" done immediately, and whilst awaiting bacteriological confirmation to give either antitoxin or horse serum (10 c.cm.). Failure to do so was borne in on us as an heinous crime, so that I feel assured we have all made certain of carrying out this valuable aid to aborting progress of the condition if positive; if negative no harm is done. The additional expense incurred is negligible as compared to the consequences if time be lost.—I am, etc.,

Salford, Aug. 18th.

R. H. ABERCROMBIE, M.B.

SIR,—Writing as a bacteriologist whose work involves the examination of a large number of diphtheria swabs in the course of a year, I find it very depressing to realize that there are still practitioners who, when diphtheria in an acute stage is suspected, make the sometimes fatal mistake of waiting until they have received the result of a bacteriological examination before injecting antitoxin: through the agency of such the laboratory becomes a source of danger in the place of the help which it should be. At the same time I feel that the bacteriologist does not always take advantage of methods available for making an expeditious or even immediate diagnosis, and that therefore some of the delay which may have such disastrous results is often quite unnecessary.

It can be stated with confidence that in the majority of cases of acute diphtheria from which a satisfactory swabbing has been taken the disease can be diagnosed on the examination of the direct smear. But from the perusal of recent literature and from conversation with other bacteriologists I have gathered the impression that, in this country at any rate, examination of the direct smear is not considered worth doing in many laboratories. I am convinced that this position is quite wrong. In this laboratory, during the last twenty-three years, we have examined 272,000 swabs. Of these, 76,000 have been from "acute" throats. In such "acute" swabs as were "satisfactory" (that is to say, when there has been sufficient material to make an examination possible) we have been able to detect the diphtheria bacillus in about 85 per cent. of those from which this organism was subsequently grown on cultivation. These swabs have come, generally by post, from all parts of Kent; if we had been able to take the swabs ourselves and examine them without any delay I am confident that the proportion of successes would have been higher.

The method employed is the hanging-drop modification of Pugh's toluidin-blue stain (*Lancet*, July 6th, 1912). After a little practice with this extremely simple and rapid, though perhaps rather unusual, method, my experience has been that bacteriologists soon feel able to recog-

nize with confidence in the direct smear the somewhat irregular but characteristic appearance which the bacillus shows—an appearance which is often very different from that of the typical organism after growing on a culture medium—and their diagnosis is confirmed by the subsequent cultivation. The only pitfall which must be avoided results from the fact (for which I am unable to give any explanation) that in adults diphtheroid organisms are sometimes seen which closely resemble the diphtheria bacillus as seen in swabs from a child's throat. Consequently, we do not report on direct smears of swabs taken from a patient over the age of 18. For obvious reasons also we do not report on a direct smear which appears "negative."

Surely a method by which such results can be obtained is worth investigation and adoption as a laboratory routine. In many cases the regrettable "waiting for the result of cultivation" would be avoided.—I am, etc.,

CONSTANT PONDER,

Maidstone, Aug. 20th.

Bacteriologist, Kent County Council.

The G.P., the Schoolmaster, and the Specialist

SIR,—A few years ago I wrote to the *Journal* on the decay of courtesy and the increasing lack of the minor graces in the profession. I am a general practitioner and also an M.O. to a school. Among other examples which I cited, I complained that, when at the end of term I wrote to family doctors concerning patients of theirs the majority failed to acknowledge my letters, term after term. Having taken the trouble to obtain their names, and given up an appreciable amount of time to the task, I was annoyed. Surely it ought to be regarded as common courtesy to acknowledge any letter from a colleague!

Further, at the beginning of term often one or two pupils return who have been ill during the holidays and still require some attention, and it is quite common for instructions to be sent to me by a parent or guardian, with a vague history of what has been the matter, and also some unknown medicine, pills, and so on; but no word from the family doctor, from whom the instructions presumably emanated. I have even had, from a parent, instructions as to how I was to give a vaccine. These instructions apparently came originally from a well-known London consultant. That consultant must have known that the patient was returning to school, yet neither he nor the family doctor communicated with me. Needless to say I declined to have anything to do with the unknown vaccine. How pleasant is the contrary, when one receives a short note from the family doctor, enclosing the specialist's remarks for perusal.

This lack of courtesy and efficiency is not universal. There are several doctors with whom one has periodical correspondence during the school life of one or more of their patients, and with whom one's relations are cordial and interesting. Of course the school doctor ought to send any observations to the family doctor, and make it clear that those observations are subject to the opinion of the latter. As for myself, I do not write so many letters at the end of term as I used to do!—I am, etc.,

Maldon, Aug. 14th.

IVAN M. PIRRIE.

SIR,—In those schools which, like Rugby, Wellington, Marlborough, Tonbridge, Lancing, and Christ's Hospital, have an infirmary or sanatorium where all except the most trivial cases are sent the matter is simple. The school medical officer forwards reports to the parents or to the family doctor, as he thinks fit, notifying the house-master as occasion requires, who is thus saved much worrying correspondence.

In those schools where sick boys are nursed in the houses the matter is usually more complicated. The housemaster, who acts *in loco parentis*, obtains information about the patient from the school medical officer, from the house matron or special nurse as the case may be, and possibly also from his wife, who visits the boy during the day. His letter to the parents is thus likely to contain a mixture of medical and nursing information, which often ill describes the actual condition of the boy, in some cases arousing undue anxiety, in other cases failing to allay it.

When the letter has in due course been forwarded to the parents, what is the next procedure? As I know by experience, the parents go to the family doctor to get his sympathy and opinion, showing him the housemaster's letter, which very often may just lack the precise information to enable the doctor to reply satisfactorily to the parents' questions. The family doctor may then suggest that he will get into touch with the school medical officer, which he does by telephone or letter according to the urgency of the case, and with fresh or more technically explained facts at his disposal he approaches the parents once more. Is not this, which is in no sense an exaggeration, a most cumbersome procedure, and one causing needless anxiety to those involved? Furthermore, it is inefficient, since the medical officer's views on their way to the parents or family doctor are liable to get an admixture of misrepresentation.

My suggestion is as follows. All parents would be notified by the school authorities in a circular somewhat as follows:

"During term the school medical officer will report any case which he considers may become serious directly to the family doctor, and keep in touch with him as long as is necessary. The parents will thus get first-hand reliable information in regard to the progress of the illness. In addition to this the housemaster will, as usual, communicate at his discretion in general terms directly with the parents."

There is a further most important point gained by this method, which safeguards the housemaster and the school in those cases which, fortunately but rarely, end fatally or in some way disastrously for the boy. There is no loophole for mistake, as exists in the indirect method of reporting sickness. The school medical officer, supported in his direction of the case by the family doctor, is well able to answer any complaints of negligence, which from time to time are actually made by parents and which at present are borne, quite unjustly, by the housemaster or the school authorities. The school medical officer and the family doctor are, as is well known, safeguarded by their organizations, which deal efficiently with such complaints and so absolve the school from much unnecessary responsibility.—I am, etc.,
Bournemouth, Aug. 20th.

W. SAVILE HENDERSON.

Use of "Oil" Vaccine in Rheumatism

SIR,—We have read with great interest Dr. Warren Crowe's letter in your issue of August 4th (p. 233) on the use of "oil" vaccine in rheumatism. As was pointed out in our original paper (*Journal*, March 10th, 1934, p. 424), we have given very large doses of tuberculin and many other vaccines in combination with an olive oil emulsion without producing any reaction. Dr. Warren Crowe's injections were apparently made with a 3.5 per cent. emulsion, which is the percentage of the dispersed phase in the preparation we used in our original experiments with tetanus and diphtheria toxins. Since that time we have injected various vaccines with an increased percentage of olive oil (5 to 10 per cent.), our reason being that from the point of view of determining the

amount of adsorption the available* surface area of the dispersed phase is the only factor concerned. The preparations we are now using are produced by the Glaxo Laboratories on the special apparatus described by us last year in the *Journal of Physiology* (1933, lxxviii, No. 4, 467). We are given to understand that supplies of such finely dispersed emulsions are available for research workers.

At the present time we have under observation a large number of cases of surgical tuberculosis being treated with a mixed vaccine of tuberculin and oil. In the preparation of this tuberculin tubercle bacilli have been dissolved by a process which will shortly be published, and it is worth recording that *minimum* doses of 1/2 mg. are being given with extremely encouraging results and no untoward reactions. We are getting similar results with other vaccines—for instance, streptococcal, staphylococcal, *B. acnes*, etc.

We should be interested to know the size of the particles in the dispersed phase of the preparations with which Dr. Warren Crowe has been working. In our own experiments results have been unsatisfactory with particles as large as 2 to 2½ μ .—We are, etc.,

St. Mary's Hospital Medical School,
Aug. 14th.

V. G. WALSH.
A. C. FRAZER.

Proposed Medical School for Women

SIR,—A daily paper has recently announced that plans are being considered for starting a medical school for women at the West London Hospital. The time is hardly ripe for any official or detailed account of a scheme which is still in the earliest stages of embryonic life, but as the news has appeared in the lay press I feel that it would be wise to make known to the profession, through your columns, the facts of the case.

It is true that the possibilities are being explored, but at present the proposal has not received the sanction of the Board of the hospital, and no official approach to the university has been made. Developments are not to be expected until after the vacation. As soon as any definite decision is made the details will doubtless be communicated to the profession through the medium of the leading medical journals.—I am, etc.,

Aug. 18th.

MAURICE E. SHAW, M.D., F.R.C.P.,
Vice-Dean of the Post-Graduate College,
West London Hospital.

Origins of Sherlock Holmes

SIR,—In the *Journal* of August 11th (p. 278) it is stated that "when practising . . . at Southsea, Conan Doyle hit on the idea of an amateur detective who should apply the methods of Joseph Bell, etc." With all due modesty, and respect for the writer of this, I think this statement is somewhat fictitious. When a student at Liverpool in the late 'nineties I read a paper on Sherlock Holmes to the Students' Debating Society. The chairman on that occasion was George Hamilton, assistant honorary surgeon to Mitchell Banks, and he took the opportunity thus afforded to tell us of his own acquaintance with Doyle, when both were students at Edinburgh. He told us that at that time Conan Doyle, deeply interested in Poe's detective works, but recognizing that they were "caviare to the general," told Hamilton that he had the idea of writing detective fiction according to the system of Poe, but greatly simplified and brought down to the level of ordinary people. I do not think that this fact has previously been published.

After Poe, what poor stuff Doyle's is! As Blatchford expressed it long ago: "There was enough genius in Poe's little finger to make a score of Conan Doyles."—I am, etc.,

Harston, Cambridge, Aug. 13th.

W. J. YOUNG.

Occupational Therapy

SIR,—Prevention being better than cure, a further consideration here arises. If occupation has proved such excellent treatment for nervous ailments, may we not suppose that the chief cause of the widespread nervousness which afflicts our age, with its characteristic resort to the dope, increase of insanity, suicide, war-fever, etc., is simply—unemployment?

This is very largely true, but it is not the whole truth; for, broadly speaking, there are two kinds of work. One is creative, self-expressive work, and the other is machine-minding. In my opinion the general mental and moral enfeeblement of our time has been brought about, not only by the sheer idleness of many, but by the steady subordination of others to the machine. And, of course, there are vicious circles too; much "employment" means turning out machine-made goods which only the perverted taste of idlers would call for. Mental prophylaxis therefore demands that as many people as possible should at once get back to self-expressive, creative employment.

How is this to be done? Not, I think, by the Government, which has already taken on much more than it can perform. Perhaps the mental welfare councils will be thinking this problem over in the meantime. It would be interesting to know their answer.—I am, etc.,

File, Aug. 13th.

A. J. BROCK.

Breach of Professional Confidence

SIR,—I should be very grateful if you would bring to the notice of your readers the following instance of breach of confidence with regard to medical reports for compensation cases, as I feel that a very big principle is involved.

I had several times examined a man, from the surgical point of view, for an insurance company, and a colleague examined him from the medical side, both of us reporting fully and frankly to the insurance company concerned. When I was recently asked to examine the man I found, to my surprise, that he had in his pocket copies of my own and my colleague's reports, and also of the report of a surgeon who had examined the man for his own solicitor. He was thoroughly disgruntled about various remarks made by myself and my colleague, and had evidently brooded over these reports until he was obviously in a condition of neurasthenia and yet extremely resentful that it should have been suggested that there was any connexion between the payment of compensation and his disability.

Possession of the report of the surgeon who examined him for his own solicitor had had a particularly bad effect on him, and the moderate physical disability from which he suffers was enlarged to cover his whole mental horizon. I took the matter up with the insurance company for whom I was reporting on his condition, and they informed me that they had exchanged medical reports with the man's solicitor and that the solicitor had without their consent or approval handed them over to the man on his insisting on seeing them. The insurance company wrote to the solicitor protesting at this breach of confidence, and apparently he admitted his error and expressed regret.

I feel, however, that this is a glaring instance of breach of professional confidence, and that the medical profession

generally should be warned to insist that these reports are confidential, and under no circumstances, without the consent of the examining doctor or surgeon, should they be shown to the person examined.—I am, etc.,

August 16th.

CONSULTING SURGEON.

The Treatment of Lupus Vulgaris

SIR,—At the conclusion of a discussion on the treatment of lupus vulgaris at the Annual Meeting, reported in the *Journal* of August 18th (p. 322), Dr. Lomholt disposed of the question of the use of tuberculin in this disease by remarking that it "had been tried extensively at the Finsen Institute, but it had been abandoned." In the *British Journal of Dermatology and Syphilis* (May, 1934), Dr. Robert Aitken of Edinburgh, writing on the treatment of lupus vulgaris, concludes his article with the statement, "Tuberculin as a remedy has undeservedly fallen into disrepute," and in the February issue of the same journal there is a record of cases of lupus treated with tuberculin with considerable success. The worst of these cases, W. W., is still under treatment, and shows no sign of breaking down during the nine months that have elapsed since, notwithstanding the extensive area involved. Other patients have been similarly treated and are showing improvement.

It is wrong and unscientific to condemn tuberculin without an adequate trial. The endeavour should be made to learn how to use it. Knowledge of tuberculin in its widely different actions in different individuals is in its infancy. My object in writing this letter is to draw the attention, not only of dermatologists, but of all interested in the treatment of tuberculosis to the value of the clinical work now in progress in London and elsewhere in establishing the truth about the value of tuberculin.—I am, etc.,

H. S. BURNELL-JONES, D.P.H. OXON.

Hayes, Kent, Aug. 20th.

Infra-red Rays in Treatment of the Septic Hand

SIR,—Those engaged in the practice of physical medicine who read the discussion on "The Septic Hand," which took place at the Annual Meeting of the Association (*Journal*, August 4th, p. 220), must indeed be surprised that not one of the participants seemed to be aware of the benefits to be derived from the application of infra-red irradiation to any septic focus.

It has been proved by clinical observation that in the treatment of boils, carbuncles, and septic processes generally this should be the treatment of choice. If it is instituted early, and not adopted as a last resource, such conditions rapidly clear up. Local treatment should be combined with focal ultra-violet irradiation, and also general ultra-violet irradiation in order to increase the bactericidal power of the blood and the general resisting powers. If treated early enough septic processes may be aborted and saved from the surgeon's knife. If incision is deemed necessary the evacuation of pus is expedited by means of infra-red irradiation, which acts as a super-fomentation in such cases. In addition, pain is markedly relieved from the very commencement of treatment by the sedative action of the rays on nerve endings, and by the increased blood supply produced.

I have fully described the method in my book *Therapeutic Uses of Infra-red Rays* (second edition). Surely it is time that a method which has been in vogue on the Continent and in America for many years should be given an extended trial in this country.—I am, etc.,

London, W.1, Aug. 8th.

W. ANNANDALE TROUP, M.D.

Obituary

GEORGES DREYER, C.B.E., M.D., F.R.S.

Professor of Pathology, University of Oxford

Professor Georges Dreyer, whose death occurred on August 17th at the age of 61, was Danish by birth, the son of Captain G. H. N. Dreyer of the Danish Royal Navy. He was born in Shanghai and educated in Denmark, taking the degree of M.D. in the University of Copenhagen. His scientific education was unusually wide, and it was supplemented by post-graduate studies and research in Germany and France. In 1900 he married Margrete Jørgensen of Sølstedgaard, Laaland, who survives him. There are no children.

In Denmark Dreyer was greatly influenced by Salomonsen, whom he regarded as a great teacher, and was deeply interested in the work of Arrhenius and Madsen on the application of chemical and mathematical principles to

immunology. His own early researches on the biological action of light, accurate measurements of blood volume, methods of estimation and dosage of toxins, and the improvement of the Widal test by the use of standardized sterile suspensions all bear the mark of pioneer work in the introduction of accurate quantitative methods in biology, which was one of his main aims and achievements. Largely on the strength of his brilliant researches Dreyer was appointed professor of



pathology in the University of Oxford in 1907 at the unusually early age of 34, and he was forthwith elected a Fellow of Lincoln College, where the loss of a loved and highly valued colleague will be most deeply felt. His great energy and driving force soon enabled him rapidly to raise the Oxford School of Pathology to a high level of reputation both for teaching and for research.

At the outbreak of war in 1914 Dreyer was appointed a member of the Pathological Advisory Committee to the Army Medical Service, where he took the initiative in pressing for "triple" inoculation in place of inoculation against typhoid only. At the same time he saw his opportunity both of serving the country and of popularizing his improved method for the Widal reaction by arranging with the new Medical Research Council for a service laboratory at Oxford to supply sterile standardized suspensions to the Army and Navy for the diagnosis of the enteric fevers. Under his general supervision this "standards" laboratory has continually enlarged its scope, and now serves an empire-wide public of bacteriologists with high-grade standardized materials for the diagnosis of numerous infections. In 1915 Dreyer was commissioned by the R.A.M.C. and sent to Wimereux to organize the laboratory diagnosis of enteric fever and dysentery, which he carried out with outstanding ability and success. While in France he turned his attention also to the physiopathology of high flying, and invented a most ingenious self-regulating apparatus for the automatic supply of oxygen to airmen. In 1919 he was decorated for his war services with the C.B.E. In 1921 he was elected a Fellow of the Royal Society, being already a Fellow of the Royal Danish Academy of Letters and Science and an Officier de l'Instruction Publique in France.

Having always been dissatisfied with the facilities for pathological research and teaching in Oxford, Dreyer was

delighted, in 1927, to seize the opportunity offered by Sir William Dunn's trustees to build a laboratory worthy of his chosen science and of the University which he so greatly loved. Meanwhile he gave much valuable time to service on the Hebdomadal Council and the University Chest, and was also for a period a member of the Medical Research Council.

During the main part of his life of intense and varied research Dreyer's two main motives were accuracy of technique and the establishment of a series of biological constants in human and animal physiology to act as a basis for the assessment of normality and hence for the detection of pathological states. His well-known work on the relation of vital capacity to body measurements is an instance of research on these lines. "*Das technische ist alles*" was one of his favourite quotations. A great technician himself, with a passion for truth and a contempt for bad experiments, he inspired his colleagues and assistants with the same feelings. He was a very competent linguist, being almost equally at home in Danish, English, German, and French. Moreover, his knowledge of mathematics, physics, and chemistry were greatly in advance of the standard achieved by most other pathologists of his time. But an even more impressive characteristic in his earlier days was a tremendous potential, an irresistible force which overran all opposition or inertia. There were, perhaps, some who for a time felt a trifle aggrieved by what seemed too great an intolerance of conflicting motives or opinions, but with the arrival of full maturity Dreyer's natural affectionateness and generosity soon healed the slight abrasions of earlier controversies.

His contributions to physiopathology and bacteriology have been numerous and important, and have covered a singularly wide range of subjects. Medical science is greatly impoverished by his loss. At all times he was entirely lovable to his intimates, among whom his most junior colleagues and many pupils may be numbered—for Dreyer had no trace of the professional mind, and was himself perennially young at heart. His home was open to all, and his hospitality was remarkable. He was no ascetic, but loved to share with his friends his unusually good table and the excellent wines of which he was an expert judge. Scattered in all quarters of the globe, as here in Oxford and England, are men and women who have drawn their inspiration from the power of Dreyer's passion for truth, and whose hearts have been warmed by his gift of deep and comfortable friendship.

[The photograph reproduced is by Russell, London.]

DR. GEORGE A. MOORHEAD

By the death of Dr. George A. Moorhead of Tullamore, Offaly, the medical profession in Southern Ireland has lost one of its oldest, best known, and popular figures. Dr. Moorhead enjoyed a very extensive practice in the midland counties, and his services as a consultant were largely availed of. He was an old and valued member of both the British and the Irish Medical Associations, and by his standard of professional conduct set an excellent example to the junior members of the profession. Educated at Dublin, he became a member of the Royal College of Physicians in 1881, a Fellow of the Royal College of Surgeons in 1893, and took his D.P.H. in 1907. Among the public appointments he held were: medical officer of the Tullamore dispensary district, and surgeon to the district hospital. Early in the campaign against tuberculosis he contributed an important publication under the title of "*Tuberculosis, Retrospective and Anticipatory*," to the *Irish Medical Association Journal*. Although a very busy practitioner, Dr. Moorhead took a keen interest in horse breeding, and kept the best strains of the thoroughbred in his stud at Tullamore.

BERTRAM JAMES COLLINGWOOD, O.B.E., M.D.

Professor of Physiology in the University of London

Professor Bertram James Collingwood, who died on August 5th, 1934, from coronary thrombosis, after a short illness, was born in Sunderland on December 18th, 1871. He was the son of the Rev. C. G. S. Collingwood, rector of Southwark, Sunderland.

Collingwood entered Caius College, Cambridge, in 1895, and joined St. Mary's Hospital Medical School as a student in 1898, qualifying in 1901 and taking his M.D. in 1905. After qualifying he joined the R.A.M.C. as a civil surgeon and served in the Boer War. At the conclusion of the campaign he returned to England and worked with the late Professor A. D. Waller at the University of London Physiology Research Laboratory, which existed at that time at the Imperial Institute; here he was of great assistance to Professor Waller in his valuable researches on chloroform and other general anaesthetics. During this



period a number of important original papers were published by himself, and also jointly with Professor Waller and others. His work in connexion with respiration and inhalation anaesthetics (chiefly chloroform) was of outstanding importance, and served to place the action of chloroform vapour in anaesthesia on a sound scientific basis. Incidentally it added greatly to the safety in the use of chloroform as a general anaesthetic, and clearly indicated the dangers to be avoided by anaesthetists. It was the

work of Collingwood and Waller which first demonstrated that fatalities during chloroform anaesthesia were generally due to the inhalation of a too high percentage of chloroform vapour in the air inhaled. They showed that when the proportion did not exceed 2 per cent. safety was ensured. An apparatus whereby the percentage of chloroform in inhaled air could be regulated was invented by them for actual use in anaesthesia, and this was employed in the operation theatres at St. Mary's Hospital for some years. Collingwood published several papers which emphasized the toxic action of chloroform, and no doubt his work contributed to the development of the view now held in this country that chloroform is an anaesthetic not devoid of danger. He showed that it should be used sparingly when long anaesthesia was required, ether being used wholly or partly in its place when possible. In 1910 Collingwood published, conjointly with W. H. Willcox, a paper entitled "The Therapeutic Use of Alcohol Vapour mixed with Oxygen" (*British Medical Journal*, 1910, ii, 1408), and this mixture came into general use as a valuable stimulant in cases of cardiac failure in desperate illness. He also published several papers on the action of calcium in connexion with blood coagulation, and, in conjunction with Dr. M. T. MacMahon, papers relating to blood coagulation and the action of anti-coagulants, and on the influence of thrombin and anti-thrombin (*Journal of Physiology*, vols. xlv and xlvii). His researches were of great scientific value, and have played an important part in the development of modern therapeutics.

From 1904 to 1909 Collingwood held the post of demonstrator in physiology at St. Mary's Hospital Medical School. In 1909 he was appointed professor in the chair of physiology at University College, Dublin, and he quickly established a reputation as a brilliant lecturer and

teacher. In 1915, after the first gas attack in the Great War, he gave his services to the Research Department on Measures for Protection against Poisonous Gases at the R.A.M.C. laboratories, Millbank. In 1916 he was appointed chemical adviser to the Irish Command, and was given a commission in the R.A.M.C., being promoted to the rank of major in 1917. For his services in the war he was awarded the O.B.E. in 1919. In 1920 he was appointed professor of physiology at St. Mary's Hospital Medical School, University of London, and held this post until his death.

Collingwood was a most devoted alumnus of St. Mary's Hospital Medical School, and never spared himself in giving of his best to his Alma Mater. It is to be feared that this devotion often led to the overtaxing of his strength by doing more than his share of the teaching of physiology, in order that the finances of the school might be helped during difficult times. He was a brilliant lecturer and a fine teacher of the experimental side of physiology. He was most popular with his students, who always felt that in any difficulty he could be approached with the confident prospect of kindly help and encouragement. He possessed great originality of mind, and an attractive personality. He was much loved by his colleagues, students, and all with whom he came in contact in his professional life. St. Mary's Hospital Medical School and the University of London have sustained a great loss by his death.

Collingwood was a nephew of Lewis Carroll, and he devoted great energy towards the establishment at St. Mary's Hospital of a Memorial Children's Ward in memory of his uncle, undertaking a lecture tour in America in 1932 for this purpose. He was instrumental in establishing the Waller Memorial Laboratory in Physiology at St. Mary's Hospital Medical School to commemorate the work of his former teacher and colleague. In 1917 he married Grace Jane Wilkinson, daughter of the late Dr. Wilkinson and sister of Sir Russell Wilkinson. He leaves a widow and three children (a daughter and two sons) to mourn his loss.

W. H. W.

[The photograph reproduced is by Elliott and Fry, Ltd.]

FRANK NYULASY, M.D., B.S.Melb.

Late Honorary Surgeon, The Women's Hospital, Melbourne

The death of Dr. Frank Nyulasy of Melbourne last May deprived Australian medicine of a most distinguished pathological research worker, who had devoted much of his professional life to the problems relating to obstetrics and gynaecology.

Born in Ballarat sixty-eight years ago, he received his medical education in Melbourne, where he graduated M.B., B.S. He then became house-surgeon at the Melbourne Hospital, where he worked under the late Sir Thomas Fitzgerald, from whom he acquired a great ability in the field of surgical diagnosis. His bent then turned more definitely to pathology in connexion with gynaecology, and he wrote a thesis on polypoid endometritis, which was accepted for the degree of M.D., and was subsequently published in the *Journal of Obstetrics and Gynaecology of the British Empire*. A paper read by him at the Medical Congress in Adelaide, on "A Rare Form of Pelvic Tumour," led to his being invited to become a regular contributor to the official journal of the Hungarian National Medical Association. The problems of puerperal infection attracted his closest attention, and the work of Colebrook and his colleagues at Queen Charlotte's Hospital interested him deeply. Not long before his death he supplied a summary of their investigations to the *Medical Journal of Australia*. Possessed of a fine critical ability, and the power of lucid expression, he was a discriminating commentator of the value of new discoveries. In 1905

he was appointed surgeon and agent to the Royal Navy in Melbourne. He was required to attend sailors discharged from British warships, and to perform, in addition, various administrative duties. In 1922 he came to London, read a paper entitled "Puerperal Fever" before the Royal Society of Medicine, and was elected a Fellow.

Of his other activities it may be mentioned that he was keenly interested in research work, and bequeathed a legacy of £1,000 to Melbourne University in memory of his brother, the late Arthur Nyulasy, who was the first to describe correctly the cardinal ligaments of the uterus. For three years he was president of the Royal Victorian Institute for the Blind, and one of the original members of the Big Brother Movement in Australia. An outstanding hobby of his was literature, Shakespeare and Tennyson providing him frequently with topics for lectures, broadcasts, and papers.

DR. GEORGE S. STANSFIELD, O.B.E.

We regret to record the death on August 18th, at his house at Heswall, of Dr. George Sutcliffe Stansfield, who was a well-known figure in Birkenhead for over half a century. Receiving his medical education at Manchester, Dr. Stansfield took the L.R.C.P.Ed. and L.M. in 1873, and the M.R.C.S.Eng. in the same year. In 1874 he began his practice in Birkenhead, retiring in 1921. He became medical officer and medical superintendent to the old Birkenhead Board of Guardians at Tranmere about 1895, and twenty years later, in submitting his resignation, offered on patriotic grounds to continue his services. The Board availed itself of this opportunity, and he remained medical superintendent to the Tranmere Infirmary until 1921. During the war his work increased considerably, and towards its close there were no fewer than 600 beds at Tranmere at the disposal of the War Office. At his retirement the gratitude of the Board of Guardians was shown in its presentation to Dr. Stansfield of his portrait and in its laying to his credit all the improvements which had taken place in the infirmary during his tenure of office. For his work in this connexion he received the honour of O.B.E.

Among his other appointments were that of consulting surgeon to the Birkenhead Borough Hospital and medical officer to the Albert Industrial School. He was one of the oldest members of the B.M.A., having belonged to it for fifty-seven years; he held the position of chairman of the Birkenhead Division in 1924-5. Dr. Stansfield was a pioneer in gastro-intestinal surgery, and it is a moot point whether he was the first or the second to perform in this country the operation of gastro-enterostomy. An interesting personality, with many interests outside his professional work, he was widely known, greatly respected, and much loved. His death will be a considerable loss in the Birkenhead and Liverpool district.

COLONEL C. R. TYRRELL

We have to announce the death at Folkestone, on August 12th, of Colonel C. R. Tyrrell, C.B., C.B.E., A.M.S. (ret.). Born in 1859 Colonel Tyrrell completed his medical education at the Middlesex Hospital, taking the M.R.C.S.Eng., and L.S.A. in 1881. He entered the Army in 1882. Early in his career "Chas.," as he was affectionately known, displayed a character noticeable for soundness of judgement, fearlessness in decision, and a keen sense of duty. These attributes, combined with a genial manner and camaraderie, endeared him to all.

The years 1884-9 found him in India, and after a short spell at home he saw active service on the North-West Frontier with the Utman Khel column and the Buner field force; he was mentioned in dispatches,

obtaining the medal with clasp. In the interval between these expeditions he was specially selected for appointment to the staff of the R.A.M.C. depot at Aldershot. There his soldierly qualities and professional ability found full play, to the great advantage of officers and men who passed through his hands. His knowledge of the handling of men and his teaching experience caused him to be selected as one of the medical staff of the Royal Military Tournament. In 1912, at his own request, Tyrrell was placed on the Reserve of Officers, only to be recalled two years later to the War Office. It was during his service in London that the War Office found full scope for his exceptional qualifications. He joined the Ministry of National Service, worked with unflinching zeal, and carried through to a successful issue a task worthy of his ripe experience and personality.

Tyrrell loved his Corps, and was ever proud of its achievements and distinction, and the great part contributed by the whole medical profession towards the successful issue of the war. He was jealous of its dignity and honour, and its nobility as a corps—as a profession militarized for the specific purpose of relieving suffering humanity. That he and Waggett were partly responsible for the ultimate decision that the R.A.M.C. should have a fitting memorial to those who lost their lives in the war in Westminster Abbey was an abiding satisfaction to him in his declining years. For this enterprise his comrades will always be grateful.

On August 5th, in a London nursing home, the death took place of Dr. THOMAS HUNTER MASSEY, O.B.E., M.C., at the early age of 50. Dr. Massey had but recently retired from the Colonial Medical Service after twenty-four years' service, the majority of which was spent in Kenya. He was of a quiet, retiring disposition, and had a sincere, direct simplicity of character, which endeared him to all who knew him. Always sympathetic and ready to help those in misfortune or trouble, he will be a sad loss to his many friends and comrades in the Colonial Service and outside it. Dr. Massey qualified L.R.C.P.I. and L.M., L.R.C.S.I. and L.M. in 1906, and was appointed medical officer, St. Vincent, West Indies, in 1909. In January, 1913, he was transferred to Kenya Colony, where he remained until last year, retiring as a senior medical officer, to which rank he had been promoted in 1923. During the war Dr. Massey served as medical officer to the King's African Rifles and saw considerable service in the East African campaign, being awarded the Military Cross. On his retirement from the Colonial Service he was made an Officer of the British Empire. Since his retirement from Kenya Dr. Massey had been working at Netley Hospital, and, while on duty there, was taken ill with mastoid trouble. Meningitis supervened, and, despite operative measures, he succumbed.

Dr. JOHN DESMOND GIMLETTE, who died at Cheam on April 24th, was the son of the late Fleet Surgeon, Hart Gimlette, M.D., and was educated at Epsom College and St. Thomas's Hospital. After taking the M.R.C.S. and L.R.C.P. in 1890 he joined the medical service of the Federated Malay States, being residency surgeon of Pahang 1897-1900, and of Kelantan 1909-21. On the outbreak of war he volunteered for military service, and in 1915 received a commission in the R.A.M.C. With the rank of major he was officer commanding troops in H.M. hospital ship *Essequibo*, and later joined the German East African Expeditionary Force as protozoologist. On demobilization Dr. Gimlette returned to his post in Kelantan, but unfortunately, while operating on a coolie, contracted a severe septic infection, from which, after a long illness, with the loss of a leg, he eventually recovered. This ended his life-work in Malaya, where his transparently sincere and sympathetic personality had secured for him the confidence and affection of all, from the Sultan to the humblest peasant, to whom alike he was always ready to

devote his skill. In gratitude His Highness the Sultan presented him with the Kelantan State Medal as a token of his good will and affection. The confidence which he had won, combined with Gimlette's great knowledge of the language and never-failing industry, enabled him to gain a deep insight into the characteristics and customs of the country and its people. In his book *Malay Poisons and Charm Cures*, of which three editions have been issued, Gimlette described, with a fascinating wealth of detail, medicine as practised by the "medicine man" of Malay, and dealt with the various animal and vegetable poisons, some of which, hitherto unknown, have definite therapeutic properties. He was also the author of many contributions to tropical and Malayan medicine. During his last years, with a devoted wife and two young daughters, he was engaged, in collaboration with other workers, in compiling *The Malayan Medical Dictionary*. This, although unfinished at his death, is happily to be completed by one of his co-workers—Mr. H. L. Thompson. By his many friends Gimlette will ever be remembered for his steadfast loyalty and affectionate comradeship.

Universities and Colleges

UNIVERSITY OF LONDON

Professor G. Grey Turner, M.S., F.R.C.S., has been appointed to the University Chair of Surgery at the British Post-Graduate Medical School.

Dr. Amy M. Fleming has been appointed to the University Chair of Obstetrics and Gynaecology (London (Royal Free Hospital) School of Medicine for Women) as from October 1st.

The Services

Surgeon Rear-Admiral G. L. Buckeridge joined the Admiralty on August 15th as Deputy Medical Director-General, in succession to Surgeon Captain C. V. Griffiths, who goes to Haslar Hospital for a course in surgery.

DEATHS IN THE SERVICES

Colonel Theophilus Percy Jones, C.B., C.M.G., late R.A.M.C., died at Cheltenham on July 26th, aged 68. He was born at Ardrea, County Tyrone, on January 6th, 1866, the son of the late Rev. T. J. Jones of Drumard, County Leitrim, and of Tullaniskin Rectory, County Tyrone, and was educated at Dublin University, where he graduated M.B., Ch.B. in 1890. Entering the R.A.M.C. as surgeon lieutenant on July 27th, 1892, he became lieutenant-colonel in the long war promotion list of March 1st, 1915, colonel on January 26th, 1917, and retired in 1921. He served in the Tirah campaign on the North-West Frontier of India in 1897-8 (medal with two clasps), and in the South African War of 1899-1902, when he served in operations in the Transvaal, in the Orange River Colony, and in Cape Colony, including the actions of Johannesburg, Pretoria, and Diamond Hill, Wittebergen, and Ladybrand (Queen's medal with four clasps, and King's medal with two clasps). In the war of 1914-18 he served as an administrative medical officer, as A.D.M.S. in the Mediterranean Expeditionary Force and in France, and as D.D.M.S. in France, and, after the armistice, as D.D.M.S. of the Army of the Rhine; was mentioned in dispatches in the *London Gazette* of July 13th, 1916, December 24th, 1918, and December 30th, 1918, and received the C.M.G. for service in the Dardanelles, and C.B. for the campaign in the Sinai Peninsula. In 1896 he married Ella, daughter of the late Major Watts, Bengal Horse Artillery, and had two sons.

Lieut.-Colonel Duncan Edward Curme, R.A.M.C. (ret.), died at Parkstone, Dorset, on July 30th, aged 63. He was born on January 9th, 1871, and was educated at Cambridge, where he graduated B.A. in 1892, and at King's College, London, and took the M.R.C.S., L.R.C.P. Lond. in 1898. Entering the R.A.M.C. as lieutenant on January 21st, 1899, he was promoted to lieutenant-colonel in the long war promotion list of March 1st, 1915, and retired on March 1st, 1919. He served in the South African War in 1899-1902, when he took part in operations in Natal, the Transvaal, the Orange Free State, and Cape Colony, including the action of Tugela Heights and the relief of Ladysmith, and received the Queen's medal with four clasps and the King's medal with two clasps.

Medical News

St. Thomas's Hospital Old Students' Dinner will be held at the Dorchester Hotel, Park Lane, W.1, on Friday, September 28th, at 7.45 p.m., with Dr. William Longworth Wainwright in the chair.

The annual dinner of past and present students of St. Mary's Hospital Medical School will be held in the library of the new medical school on Saturday, September 29th, at 7 for 7.30 p.m. The honorary secretary is Dr. A. Hope Gosse.

A post-graduate course, open to all medical practitioners without fee, will be held at St. Mary's Hospital Medical School, on Friday, Saturday, and Sunday, September 28th, 29th, and 30th.

The next lecture-demonstration arranged by the Fellowship of Medicine (1, Wimpole Street, W.) will be given by Dr. Clark-Kennedy, at 11, Chandos Street, W., on August 28th, at 2.30 p.m.; the subject will be loss of voice. The following lecture will be on September 4th, on pleural pain. There will be an afternoon course in infants' diseases at the Infants Hospital, Vincent Square, from September 3rd to 14th, which will include demonstrations, lectures, and work in the out-patient department. There will be a course in chest diseases for M.R.C.P. candidates at the Brompton Hospital, from September 10th to October 5th, the instruction consisting of clinical and x-ray demonstrations of cases and pathological demonstrations. A "refresher" course in medicine, surgery, and the specialties will be given at the Westminster Hospital, from September 17th to 29th. Other forthcoming courses include: diseases of the chest, at the Brompton Hospital, September 24th to 29th; proctology, at the Gordon Hospital, September 24th to 29th; demonstration of urological cases, at the National Temperance Hospital, on Saturday, September 8th, at 3 p.m.

The sixth Italian Congress of Anatomy will be held in Rome next October, under the presidency of Professor R. Versari. Further information can be obtained from the secretary, Professor V. Virno, Viale Regina Margherita 289, Rome.

In response to an invitation from the Royal Society the International Union of Pure and Applied Physics will meet in London during the first week of October. The meeting will take the form of a joint conference of the International Union and of the Physical Society, held under the presidencies of Professor Millikan and Lord Rayleigh.

Inspector Gabriel Sacquépée, formerly professor of hygiene at the Val de Grâce Military Hospital and inspector of the services of military hygiene and epidemiology, has been elected a member of the Académie de Médecine in the Section of Hygiene.

Dr. Gaston Ramon, member of the Académie de Médecine and assistant director of the Institut Pasteur, has been nominated a member of the Superior Council of Public Health of France, in succession to the late Professor Calmette.

Professor Dr. B. Spiethoff of Leipzig has succeeded Obermedizinalrat Professor Dr. J. H. Rille as editor of the *Dermatologische Wochenschrift*.

A bust of Georges Clemenceau has recently been unveiled by Dr. Dartigues, president of the Latin Medical Union at Goulet, in Vendée, the last home of the former French Prime Minister.

The University of Groningen has awarded the Guyot prize for the best work in otology during the last five years to Professor F. R. Nager, director of the oto-rhino-laryngological clinic at Zurich, and Professor Max Meyer of Würzburg.

At a recent reception in Berlin Professor Rolfo, director of the Cancer Institute of Buenos Aires, was awarded the Red Cross medal of the first class, which is at present the highest German distinction.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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QUERIES AND ANSWERS

Removal of Tattoo Marks

Dr. GEORGE STEANE (Erdington) writes: Is it possible to remove or obliterate tattoo marks?

Spontaneous Rupture of Extensor Tendons

Dr. GEORGE STEANE (Erdington) writes: Are there any cases on record of spontaneous rupture of the extensor tendons of the wrist and fingers?

Removal of Urine Stains from Clothing

"M.B." (Bath) is anxious to have the name of a chemical preparation which will remove urine stains from clothing, for use in a patient who suffers from incontinence. He would be glad if any reader could assist him.

Local Anaesthetic for Nasal Work

Colonel G. F. ROWCROFT (Coonor, S. India) writes: With all the innumerable anaesthetics now being introduced, has nothing yet been discovered that will take the place of cocaine as a local anaesthetic for the mucous membrane of the nose by surface application, not injection? One occasionally comes across a patient who has a violent idiosyncrasy to cocaine, and nothing as an alternative appears to be available except a general anaesthetic, or some form of injection, often both undesirable, as, for example, such a simple procedure as passing a Eustachian catheter. One that would give analgesia sufficiently prolonged for a submucous resection would be ideal. Any enlightenment on this point will be thankfully received.

Head and Foot Presentation

Dr. ALASTAIR C. THOMSON (Kirtion-in-Lindsey, Lincs) writes: On July 27th I was called by a district nurse to a woman in labour. She was a multipara, and had been losing liquor amnii for four days. The confinement had not been expected until mid-September. On pelvic examination I found a head presenting with, to one side of it, ten "digits," the whole being tightly wedged in the cervical canal. Under deep anaesthesia I was able to push back the head, when I found the "digits" to be toes in a very oedematous state. I performed a combined internal and external version, and delivered a 5½-lb. male child (in the breech manner). Artificial respiration was required for a little time, but the child did very well later, and continues to thrive. The mother made an uninterrupted recovery. The child's legs at birth were easily put into the position of genu recurvatum—obviously due to its position *in utero*—but these now look almost normal. My textbook of obstetrics does not make any reference to this "feet and head" presentation, and I am wondering if any of your readers can tell me if this is a particularly unusual occurrence.

LETTERS, NOTES, ETC.

Holidays for Factory Girls

We have received the following letter signed on behalf of the Factory Girls' Holiday Fund by the Countess of Sandwich, Mrs. Louisa Creighton, the Very Rev. Dr. Hertz, Lady Margaret Loch, Sir Thomas Barlow, and Miss Lilian Braithwaite:

May we appeal to your kind readers for help for the Factory Girls' Country Holiday Fund, which is in urgent need of financial assistance. It may be questioned whether any of us ever outgrow a certain quickening of the pulse at the word "holiday"; it is a fact that the idea yearly increases its hold on our sense of what is due to us. Doctors recommend a holiday, kind friends urge it as a panacea for all the evil effects of overwork and fatigue; it is part of the routine of all our lives—but not, alas! of the lives that probably need it most. The girl who works all day in factory or shop, the woman who looks after her home and also cleans offices in the late evening and very early morning, have little money to pay for what to us is a necessity, but to them an unattainable luxury. When what they earn is wanted for family, rent, food, and clothing, in these days of unemployed men and boys, how can one individual, herself often the breadwinner who holds the house together, set aside even a few pence a week so as to go away and amuse herself alone? We deplore the scanty knowledge and appreciation that town and country people have of one another; what better way to cure this than the sending of town girls and women to welcoming country homes? Many of us have thankfully remembered all through our lives some kind hostess who invited us to stay, or some fairy godmother who paid for us to travel, the odious word "pauperizing" never being used in such a case. Why should not we who spend pounds on the vacations of ourselves and our families be allowed, and, indeed, urged, to spend shillings on the much-needed holidays of those who cannot pay for themselves? The summer months are hurrying by, and there is no time to lose. "Do it now!" On merely selfish grounds we would suggest that we should enjoy our own travels more this year if we preceded them by sending a donation to the wise, careful, old-established, and indefatigable Factory Girls' Country Holiday Fund. Subscriptions and donations will be thankfully received and acknowledged by the hon. treasurer, Mrs. Slater, or Miss Mary Canney, 75, Lamb's Conduit Street, London, W.C.1.

Disclaimer

Sir HAROLD GILLIES writes: In reference to an article in the *Evening Standard* of August 14th, in which my name is freely mentioned and an old photograph incorporated, I should like, through your columns, to reassure those members of the medical profession who are staunch defenders of its ethical position that not one single word on this or any other subject has been communicated to any representative of the *Evening Standard* by myself or either of my two secretaries. I wish to make it quite clear that this article and photograph were published without either my knowledge or consent.

Novocain and Cocaine

In a report of a recent inquest it was stated that novocain is a preparation of cocaine. The Saccharin Corporation, Ltd., the sole distributors of the former drug in this country, point out that it is not a preparation of cocaine, and that the latter does not enter in any form into the manufacture of novocain.

Section of Obstetrics and Gynaecology Correction

Professor F. J. BROWNE (University College Hospital) writes: Will you please allow me to correct an error in the report (*Journal*, August 11th, p. 266) of my remarks in the course of the discussion in the Section of Obstetrics and Gynaecology on "Ovarian Conditions as a Cause of Pelvic Pain." I did not say that pain was a common symptom of ovarian tumours, but only of malignant tumours. It was with this statement that Professor Dougal expressed his disagreement (p. 267).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 30, 31, 32, 33, 36, 37, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 156.

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THE TRAINING OF THE MEDICAL PRACTITIONER

BY

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Medical education, like all other education, is a co-operative business. The idea that even the infant mind is a *tabula rasa*, a clean slate on which the parent, the teacher, environment in general, may write what it will, has long since been discarded. But even the infant mind, conditioned, as to the impressions that may be made upon it, by the biologically inherited number, character, and connexions of the brain cells, is not a passive instrument, but, at least after those first few months of extrauterine life of which we really know so little, progressively takes a larger and larger part in itself determining what impressions it will receive and how it will react to them. By the time adolescence is reached nature and nurture, especially the deliberate discipline of the schools, have produced or disclosed limitations, of a greater or less degree of severity, so that, with regard to all subsequent education, whether of a general or of a technical character, the contribution of the student is of at least equal importance to the contribution of the teacher. In medical education, as in other spheres, this is sometimes forgotten, or at least not always given its full emphasis, and it is by no means uncommon, when the result is not conspicuously successful, for the teaching to be blamed when the student is at fault, and vice versa. The consideration, therefore, of what these respective contributions ought to be should be of substantial value and importance. Though their formulation and definition is not easy, and though others might prefer to set them out quite differently, the attempt may be worth making. The contribution of the medical school may be considered first, and then the contribution of the student.

Guidance by the Medical School

The first function of a medical school or faculty is that of *guidance*. Its performance is sometimes lacking. It is true that in all medical schools a proportion of the students will have fathers or near relations who are themselves members of the medical profession and from whom it may be supposed that a considerable degree of guidance will have been, and will continue to be, forthcoming: but even in these cases the responsibility of the school is not removed, and in the case of those students who in this regard are not so fortunately placed, the lack of guidance may even, in greater or less degree, spoil a whole career.

The main guidance required, either at the beginning of studentship or at a later period, is, of course, as to the qualifying examinations which should ultimately be

taken; the order and proportionate emphasis which, in the case of each student, should be given to the various parts of the course leading up thereto; and the particular branch of professional work or post-graduate study upon which it seems most appropriate or advisable for the student to enter. This is a responsible task, and naturally requires close attention to individual characteristics and abilities. It may be held to be one of the most important duties of the dean of the school or faculty.

Another direction in which guidance may reasonably be expected from every teacher is in the prescription and supervision of private reading and of library and museum study. Further, the medical course is so full and at first so bewildering that the student requires to be given a sense of perspective. In the words of the Report of the British Medical Association on Medical Education,¹ he

"should not be left in the dark as to the plan which is being followed by a teacher of a subject, as to what are the outstanding problems with which a subject deals, and as to the place which these problems occupy in the general scheme of medical learning."

The Student's Objective

Guidance in these various directions cannot have its full value unless there is agreement as to the objective. To the generality of students this objective is the early entry upon general medical practice. For others, before the course is completed, it becomes definitely a preparation for further study leading to practice in some special field. For a few from the beginning this ultimate intention is a fixed goal. The second of these classes may require guidance with regard to some prolongation or modification of their years of clinical study; the third class may be directed in such prolongation or modification at an even earlier period. It is, however, generally held in this country that even for those who propose to engage in a special branch of practice, a common course of study intended primarily as an introduction to general practice, and even a relatively short experience of such practice, is the best of preparations.

This view is not universally accepted. In America and elsewhere, where a large proportion of the students have the avowed intention of work in a limited field, the medical schools have tended to adapt their courses to such ends. To-day, however, there is pronounced reaction from such undue specialization, both in practice and in education, and the members of the American Com-

¹ *British Medical Journal Supplement*, April 21st, 1934, p. 192.

mission on Medical Education unite in deprecating the fact that "a large proportion of recent graduates limit their practices to a specialty often without a sufficiently broad previous clinical experience." The objective of the ordinary medical course may, then, be accepted as being correctly stated in the initial paragraph of the British Medical Association's report:

"The primary object of the medical curriculum should be to produce on its completion a practitioner who has acquired a right attitude towards professional duties and responsibilities, an ability to deal reasonably in the early days of practice with such patients and conditions as may confront him, and such basic knowledge and mental training as will enable him to profit continuously by daily experience. It should at the same time constitute such a co-ordinated course of study as will, by its mental discipline, make the student a really educated person and not merely a skilled technician."

Lack of Co-ordination in Teaching

No doubt the main function of the medical school or faculty would be commonly stated as that of giving instruction. The difficulties in the way of its complete and perfect performance seem to arise from two facts. One of these is that the qualities necessary in a first-rate teacher are not invariably combined with those required from an expert in one particular subject or in a first-rate laboratory worker, research worker, or clinician; and it is for the possession of these latter qualities that many members of the staff of a medical school, or the hospital connected therewith, are primarily appointed. The other fact is the immensity of the field of knowledge that has to be covered and the impossibility of dealing with more than a relatively small portion of it in the time at disposal.

It is from these two facts, neither of which is completely remediable, that most of the recently expressed complaints as to the inadequacy of medical education arise. If the efficiency of the teaching of the various subjects of the curriculum is grossly unequal; if each subject is regarded as a largely independent section of study; if, as would then be natural, each teacher aims at imparting to the student as much knowledge of his own subject as is possible in a given time; then the student may, indeed, pick up a considerable amount of useful knowledge, and this may even be such as will enable him to pass the necessary examinations. Yet it is certainly not "a co-ordinated course of study," and must leave at least an appreciable number of the students very imperfectly equipped as medical practitioners capable of profiting fully and "continuously by daily experience." This truth is recognized by the authorities of every medical school: it does not everywhere find an application in the regulation of the actual teaching.

The remedy is to concentrate upon the general course and not upon particular subjects or sections of the curriculum; to bear in mind the limited nature of the immediate objective at which the course is aimed; to select the team of teachers with great care, and not to restrict each teacher too narrowly to some special portion of the curriculum, but to make use of him in any part thereof to which he can usefully contribute.

Need for a Widened Outlook

There is a rather different aspect in which the instruction given in some medical schools is said, not without some reason, to be wanting. Even if the teaching be uniformly excellent, fully co-ordinated, and purposefully restricted it is possible that it may be presented from a point of view which takes too limited a cognizance of certain conditions with which the student will be confronted almost from the moment that he enters upon practice. He will be concerned with human personalities, not merely with the cadaver or with bodies exhibiting

some pathological process; with the prevention of disease and the promotion of health; not merely with the cure of illness; and with man as a social unit in all sorts of untoward surroundings, not merely with a patient within the narrow bounds of a hospital. The public has become greatly exercised about these things. Hence arises the insistent demand, not yet fully met in any medical school, that teaching should be throughout more largely on the living body, and have regard to the mental as well as the physical; that the preventive and constructive aspects of medicine should permeate the whole course; and that medicine should be presented as a social agency taking its proper leading place among others.

Variety in Teaching Methods

This leads up to the methods of instruction, which need some consideration. Many methods are employed in all schools—lectures, demonstrations, dissection, laboratory work, discussions, controlled reading, supervised clinical duty, what is called (particularly in America and Germany) the "seminar," and so on. There is a tendency for one of these methods, associated with those others most closely allied to it, to become predominant in different countries. Thus Mr. H. S. Souttar, in the *Educational Number of the British Medical Journal* two years ago, writing with special reference to clinical instruction, describes the German method as demonstration; the French as attendance; and the English as apprenticeship. These differences, though real, are tending to disappear; and in each of the above-named methods there may be numerous modifications. This variety, whether in different countries or in different schools within the same country, is a good thing. In medical education, as in other education, stereotyping is fatal: a strict uniformity, either in time, order, or method of instruction is strongly to be deprecated. Sir Norman Walker, in his presidential address to the General Medical Council in May last, said: "It is not possible to frame a model curriculum which will suit every country or every school in any country, and no hard-and-fast arrangement of subjects is possible, even if it were desirable"; and the British Medical Association's report states that "it is desirable to allow—even to encourage—a wide liberty of choice in the different schools, provided that certain broad general requirements are satisfied."

Lecture Theatre and Laboratory

There are, however, two of the methods of instruction ordinarily employed upon which particular comment may be made. The systematic lecture course has been paramount in most schools perhaps too long. It is a survival of the days when good textbooks did not exist or were not easily come by, and when habits of speaking and hearing varied widely from those cultivated or common to-day. In Elizabethan times, and in the seventeenth and eighteenth centuries (as particularly illustrated in the spheres of the stage and the pulpit) the English people possessed a range and dignity of speech and a power of attentive and appreciative listening which to-day they have largely lost. Even in Scotland it is not what it was. Yet the spoken word, even in a set discourse, still has its value; and, as Sir Clifford Allbutt said in his address on professional education nearly thirty years ago, "reading of textbooks at home is eating sawdust." The opinions of the modern student as to the limitations of the value of lectures are worth noting, and may perhaps be a better guide than those of the lecturers themselves. In a report recently issued by the Manchester University Medical Students' Representative Council it is held that "most necessary changes" are that "systematic lectures should be drastically reduced in number," that "attendance at all lectures should be voluntary," and that

"where lectures must be given, then the function of the lecturer should be: (a) to present a view of the subject as a whole; (b) to state principles and so give coherence to the subject; (c) to bring textbooks up to date; (d) to emphasize the salient points in the textbooks by illustrations from the lecturer's own experience; (e) to vitalize the subject."

Laboratory practice is in some danger of usurping the place of undue prominence which is being vacated by the set lecture. It has a very important place; but it is time-consuming and is quite often directed to wrong ends. It is probably unnecessary to say more than that many laboratory experiments frequently carried out are relatively unimportant and uninforming, and that, in the words of the American Commission on Medical Education, "the laboratory is used too much as a training in manipulation rather than as a means of illuminating and illustrating the subject-matter and familiarizing the student with some of the general principles and methods."

Learning by Doing

The third important function performed by the medical school is the affording of *opportunity*. It has been said that only a small portion of medicine can be taught to the student; the best that can be done is to enable him to learn; and it is a commonplace that, in some directions at any rate, the best way of learning is by doing. The way to much effective knowledge by the medical practitioner lies along this path. In the Bulletin on Medical Education of the Health Organization of the League of Nations it is said that "several countries complain that the majority of students look and listen but do not act. They remember what they have seen and heard, with their heads, but not with their fingers."

It is the possibility of the adequate performance of this function of affording opportunity that should be a determining factor with medical schools and faculties in admitting students. The number of students may, in respect of opportunity of learning, easily become excessive. With regard to lectures, demonstrations, class teaching, the numbers, within fairly wide limits, do not matter, but when they affect the easy securing of parts for dissection, the actual performance of suitable laboratory experiments, the possibility of making the required number of post-mortem examinations or of maternity attendances or of anaesthetic administrations, the gathering of a sufficiently wide experience during clerkship or dressership, or the securing of clinical assistantships or house appointments, then the actual number of students accepted, and the proportion of hospital beds and of outpatient attendances to such number, become of the utmost importance. If the numbers are properly adjusted it should be possible for every student to have practical experience in the performance of all those minor operative procedures, whether clinical or pathological, whether medical, surgical, or obstetric, which will be essential for him in the carrying on of his daily practice after qualification. Seeing these things done by others is not enough; it is essential that he should have actual experience in their practice. Having been done once or twice under supervision they no longer present the formidable aspect which has in many cases prevented some medical practitioners ever attempting them. Yet a practitioner's equipment is awkwardly and inconveniently incomplete without this skill.

Clinical Experience and Responsibility

The student needs to be afforded opportunity not only for gaining clinical experience and acquiring manual skill, but for realizing and exercising a sense of responsibility. In this respect the average student in Great Britain and Ireland is already in a relatively better position than

the ordinary student elsewhere. The requirement of the periods of clerkship and dressership gives him this advantage; but the opportunities so afforded are not always as full as they might be. The responsibility placed upon clinical clerks and surgical dressers varies very considerably.

Further, in regard to actual practice, it is perhaps a little curious that the only specific numerical requirements of the General Medical Council with regard to the personal performance of duties while a student are concerned with post-mortems, maternity cases, and the administration of anaesthetics. It is no doubt assumed that wider opportunities will be given and wider responsibilities undertaken during the holding of a clerkship or dressership. Nevertheless it remains true—and this must be to some extent inevitable—that on qualification the student has not acquired self-reliance or an adequate sense of responsibility, and is, indeed, very imperfectly instructed in the nature of the responsibilities which then fall upon him. It is for this reason that the American Commission insists so strongly upon the importance of the "internship," and that the British Medical Association's report suggests for every student a final clinical period of from six to nine months after the main part of the qualifying examination has been passed. This period, involving a maximum amount of clinical experience and responsibility under supervision, would usually be spent either in a definite appointment to a hospital department or clinic or as a pupil to an approved general practitioner or medical officer of health with a sufficiently wide range of services under his control. With this would be combined specific instruction in the legal, ethical, and social obligations of a medical practitioner. The difficulties of carrying out such a suggestion are obvious, but they are probably theoretical rather than actual, and can certainly be overcome by good will and judicious selection. Of the importance and value of such an experience on the threshold of independent practice there can be no doubt whatever, and of the real necessity of some such experience at this stage nearly all observers and critics of medical education are quite convinced.

The Imponderables

The last function of a medical school or faculty that need be mentioned here is that of *inspiration*. It must be a poor school or university which cannot supply this, either through its general atmosphere or through the personality of one or more of its teachers. It is a real thing, and a necessary thing for the medical practitioner. Without it the student's acquirements will be imperfect, and his work, both during his studentship and thereafter through his professional career, a burden, or at least a source of infinitely less satisfaction than it might otherwise have been. In the words of Littré, "La puissance de l'éducation consiste à augmenter le nombre des motifs dans l'esprit de l'individu." If the student is not put in the way of acquiring, or of developing, some width of culture, a zest for knowledge, a love for his work, a real sympathy with human suffering and trouble, a profound respect for confidence reposed in him, an appreciation of nobility of character and of the dignity and peculiar requirements of professional life, to that extent will the contribution made by the medical school to his medical education have failed of its complete purpose, and to that extent will he pass out from it a liability rather than an asset to his profession and to the community.

The Student's General Education

As was said at the very beginning of this article the contribution to medical education that must be made by the student is no less important than that made by the

medical school or faculty. The contributions to be expected from the student may, however, be considered much more briefly than those required from the school, for, except with regard to the first of those about to be mentioned, they lend themselves much less readily to analysis or to detailed criticism.

The first, and very important, contribution from the student must be an adequate *previous equipment* in knowledge and intelligence. There can be no reasonable doubt that the minimum of present requirements in this respect is definitely too low. This minimum level should be appreciably raised, and the present is a convenient time for effecting this improvement, as the rate of entry into the medical profession might be somewhat reduced without any public loss. No profession should be entitled to claim the epithet "learned" more surely than the profession of medicine. It has an enormous responsibility to the public. It possesses the confidence of the public, to an extraordinary extent from individual members of the community, and to a great extent from the community as a whole. It exercises, therefore, a very considerable degree of authority over public thought, and great influence over many persons. The medical practitioner by reason of this should, as is said in the League of Nations Bulletin on Health Education, in the best sense of the words, "belong to the élite. His professional knowledge should be enhanced by general culture." Yet this does not universally obtain. It cannot be denied that there is a small substratum within the profession of whom this is far from being true, whose general education can only be described as poor, whose interests are extremely narrow, and a few of whom seem incapable of realizing or appreciating fully the obligations of professional life. It is only three years ago since the following was written:

"Our students are the most uninteresting of men. They are ignorant of either art or literature. They only read sporting papers and cheap magazines. They do not even know their own language, nor can they spell. They are in fact semi-illiterate."

That is American, and is not true of this country, even of a small minority of students; but it illustrates very vividly the dangers of too low a standard of general education being allowed to qualify for admission to the medical course. Exactly to what degree or in what particular direction the minimum standard should be raised may be a matter of controversy, and there should certainly be a wide range of choice in the subjects that may be taken; but it is not unreasonable to suggest that at least a pass in something roughly equivalent to the intermediate arts examination of a university is not an unduly high requirement as a test for entry upon the profession of medicine.

Scientific Groundwork

There is a common agreement that the preliminary equipment of the medical student should include a training in science, and that this training should embrace not merely a suitable grounding in physics and chemistry, both inorganic and organic, but also in the principles of general biology. The biological approach to medicine is essential—should now, in fact, be regarded as axiomatic—and is becoming more and more important each year. No very profound knowledge of these sciences need be looked for at this stage—nor is it a *sine qua non* at any stage—but an understanding of their principles, methods, and main elementary facts cannot be dispensed with. Nor does it matter where, or exactly at what stage of previous education, such understanding is obtained. It may easily be acquired, along with some other studies, during the two years following the passing of the School Certificate

examination, or its equivalent, at many schools, or as part of a general course at some university or university college; but it should be required to be completed and tested prior to the commencement of the fifty-seven months of the medical course proper. In the words of the British Medical Association's report:

"The student should then at least know how to think, how to read with comprehension and reasonable fluency one language besides his own, and how to express himself, both in speech and in writing, logically and clearly in his own language. He would have been introduced to some great literature, and have some notion of historical sequence and perspective. He would understand scientific method and scientific principles of observation and deduction; and he would have acquired such a knowledge of the main facts or problems of the physical universe and of living organisms as to enable him to pass to the study of the human organism and its environment with interest, intelligence, and profit."

Without some such previous equipment the student will certainly be unable to complete his medical course within the prescribed minimum period, will be unable to profit fully by the sequence of studies undertaken in that course, and will thereafter remain lacking in some of the mental content and quality which would enable him, with increasing experience, to render the complete complement of service. For these things, if not taken in their proper place, cannot so well be supplied thereafter, and will probably not be supplied at all.

Habits of Work

A second contribution which the student may be expected to make to his medical education may be described as *assiduity*. This is defined in the *Oxford English Dictionary* as "constant or close attention to the business in hand, unremitting application, persistent endeavour, perseverance, diligence." Too much, of course, cannot be expected of the youth of 17, 18, or 19 years of age. He comes, probably, fresh from his secondary or public school, where he has been accustomed to his weekly and terminal holiday, possibly with some small task in which he can occupy some of his leisure not unpleasantly or unprofitably. In his early years of medical study it is likely that he will expect a continuance of similar conditions, and may be able to contrive them. But in his later clinical years he will become more conscious of the life in front of him, and will realize that the necessities of his work require him to put in six days work a week instead of five, and make his working year one of nearly twelve months instead of little more than nine. Assiduity, in the full meaning of the word, will, indeed, be required of him if he is to complete his course in the five years or so in which he may hope to accomplish this in the absence of illness or other misfortune. This is no bad preparation for the conditions of life in a successful general medical practice; and the exigencies of clerkships, dresserships, and other time-limited duties will make the taking of regular vacations at stated periods impossible. In fact, the normal vacation times may be found among the most profitable opportunities for a more extended clinical experience. At any rate, the average student must expect to make his contribution along these lines by an increasingly strenuous period of steady, but, it is to be hoped, not disagreeable work.

A third contribution to be made by the student is *character*. It is often circumstances rather than inclination or special aptitude that lead to the choice of a career. It is a very fortunate thing when all combine in the choice. It has to be recognized, however, that there are some persons whom no amount of educational endeavour on the part of the teaching staff of a school or university could convert into accomplished and successful medical practitioners. There is not necessarily any question here

of goodness or badness, but merely of suitability. It is not always the most learned physician who makes the best medical adviser. In general, however, it is only very rarely that anyone entirely unsuitable finds his way through the medical curriculum; and there are, of course, within limits, different kinds of suitability for different branches and crafts within the profession. It remains true that, though character may develop under the influence of educational surroundings even after adolescence, and though this influence may be beneficial, it is the student and not the teacher who must contribute those qualities of character, whether inherent or acquired, which will make or mar the success of his career, whether during his student days or thereafter; and it is a contribution which, to a large extent, he must deliberately and consciously make.

Conclusion

Thus the medical school or faculty offers guidance, but very often this cannot well be given unless it is sought,

and though the wisdom of such guidance remains with the teacher its acceptance or otherwise depends upon the student. The school offers instruction, but the student may neglect, or even avoid, it; and offers opportunity of which the student may or may not avail himself. The school offers inspiration, too; but without a basis of character to work upon it loses all its force. Medical education is a co-operative business.

It is a continuous business also. It begins, in a sense, before the student comes to the medical school. While he is there, though it has the definite and limited aim of equipping him to enter upon practice in five or six years, it should also be laying sound foundations on which later post-graduate and continuing education can be built. Afterwards, while in practice, the medical practitioner must go on learning and keep his knowledge up to date. His medical education should not cease as long as he lives, or at least until he no longer practises his profession.

THE PROFESSION OF MEDICINE

INTRODUCTORY

In accordance with long-standing custom we preface the main contents of the annual Educational Number of the *British Medical Journal* with some remarks by way of guidance to those who contemplate entering the profession of medicine. What is said here will follow the lines laid down in previous years; but readers of each subsequent section should bear in mind that not only the methods of medical education but even its purpose are under close scrutiny in various responsible quarters. The medical curriculum is a subject of discussion to-day in nearly every country of the world.

In our Educational Number last year (September 2nd, p. 409) we referred to two important reports on medical education then very recently published—the final report of the American Commission and the interim report of the British Medical Association's Committee. The final report of this committee has now been endorsed by the Council and Representative Body of the Association, and within the year there has also been issued a Bulletin on "Medical Education and the Reform of Medical Studies" under the auspices of the Health Organization of the League of Nations. These three publications—American, British, and international—are probably the most important pronouncements on the subject of medical education that have been issued for many years, and they must together have great influence in determining any changes which may be made either in Europe or in America as a result of the widespread consideration now being given to the matters with which they deal.

The point of view of each of these documents is naturally different from that of the others; but the correspondence of their conclusions and suggestions is remarkable: indeed, in the case of the reports of the British Medical Association and of the Health Organization of the League of Nations they may, with scarcely any exaggeration, be said to be identical. Broadly, the different aspects from which the three reports consider the subject may be indicated by the questions. What are the needs of the public in relation to the supply and equipment of doctors? (American.) What sort of medical practitioner is it desired to produce? (British.) What is the field of study which must be covered, and how best may this be done. (International.) It must, however, be understood that none of the reports is confined exclusively to answering only one of these questions. All alike insist on the need for a higher general culture and a wider knowledge of scientific

(especially biological) facts and principles in entrants upon medical studies; on the importance of medicine as a preventive and social agency; on the co-ordination of medical studies into a unified course instead of their treatment in separated departments; and on the absolute necessity of increasing the opportunity for practical clinical work and the cultivation of a sense of responsibility. In the American report and the League of Nations Bulletin will be found a relatively full account of the actual curriculum of studies in different countries. The impression left by a careful consideration of these is that, for the generality of students, the courses of study prescribed and followed in Great Britain, though in need of revision with a view to meeting more fully the conditions above referred to, are, in most respects, the best to be found anywhere. In his presidential address to the General Medical Council in opening its last summer session, Sir Norman Walker said:

"Medical education and its bearing on the public weal is to-day the subject of anxious consideration in every civilized country. . . . The boundaries of medicine are ever extending, and there is more and more to be learned. The Council welcomes all the inquiries which are going on as likely to contribute to the solution of a difficult problem."

The General Medical Council has already appointed a small Curriculum Committee to give preliminary consideration to such reports and observations on the subject as may be brought to its notice, and in due course, no doubt, the fruits of this consideration will appear.

FINGER-POSTS

The first object of the Educational Number, 1934, is to inform prospective students and their parents of the steps that must be taken in order to become a registered medical practitioner under the existing order of things. The second is to assist those wishing to know what a medical career has to offer, and others who, having already decided to study medicine, are uncertain about the line of work for which they are best suited. This introductory article is meant to serve as a clue to the great body of information contained elsewhere, but it also gives an opportunity of touching upon some aspects of medical study and practice, and of directing attention to a few points that might not occur to anyone without experience of the medical life.

Intending students will find in the pages that follow an account of the course of training required of them at the

present time, the places where it can be obtained, and the bodies which test the knowledge gained and confer degrees or diplomas entitling successful candidates to become legally qualified medical practitioners. Sections are included also on post-graduate study, on the higher qualifications, both general and special, and on most of the varied spheres of work open to registered medical men and women at home and abroad. The details given are founded on official information, and arranged along the customary lines.

PORTALS OF THE PROFESSION

The *Medical Register* is the official statutory list of legally qualified medical practitioners kept by the General Medical Council. There are many ways in which admission can be obtained to the *Register*. No fewer than twenty-seven bodies—eighteen universities and nine corporations—either separately or jointly, issue registrable qualifications, and the number of teaching institutions is even larger. Nevertheless, the medical courses of the various universities and schools in Great Britain and Ireland run on parallel lines, and the obligatory curriculum is much the same for all students. But the individual teaching and examining bodies have different standards and requirements and bestow different qualifications, and the choice should therefore be made early, so that a definite plan may be followed. The possession of a university degree is generally regarded as an advantage in practice, yet a considerable proportion of medical men in this country find themselves debarred from obtaining it because the Conjoint Examining Boards formed by the union of medical corporations have no power to grant degrees. The decision to study for a university degree in medicine should, if possible, be made by the time a boy or girl is 15. A matriculation examination or its equivalent should be attempted without delay, and the parent should ensure that the special requirements of the medical faculty of the selected university are fulfilled. Few head masters or housemasters seem to be adequately informed about medical requirements under the curriculum as readjusted by the General Medical Council in 1922, and it is doubtful if all secondary schools are fully competent to meet the varying requirements of different authorities. Parents should therefore make inquiries on their own account in order that valuable time may not be wasted during the last year or two at school.

The conditions with which those who wish to enter the profession must comply are regulated by the General Medical Council; which is a statutory body set up under the Medical Acts; a summary of its functions and requirements is given at page 391. Every student, after passing examinations in the subjects of general education and in the preliminary sciences of chemistry and physics, must take a course of training at a recognized medical school, covering a period of at least five years, but usually extended to six years or more.

Examination of candidates as to their fitness to practise medicine, surgery, and obstetrics is left to the licensing bodies, which are of two kinds—the universities, and certain medical corporations in England, Scotland, and Ireland. The requirements of these licensing bodies are summarized elsewhere under separate headings. One of the functions of the General Medical Council, besides that of keeping the *Medical Register* and maintaining discipline within the profession, is to make sure that the tests at each stage do not fall below a certain standard and that the students examined have undergone prescribed courses at approved institutions. Successful candidates eventually receive either degrees, in the case of a university, or diplomas or licences, in the case of a corporation; these qualifications entitle them to claim insertion of their names

on the *Medical Register*. Every student, as soon as he obtains his qualification to practise, should at once register; otherwise he cannot hold a public medical appointment, or sign any certificate required from a legally qualified practitioner (such as a death certificate), or recover professional fees in a court of law.

COST OF MEDICAL EDUCATION

For the ordinary student the outlay on his professional education resolves itself into the cost of training at medical school and hospital, and the cost of living during the five or six years of undergraduate study. Besides differences in the charges made for instruction there are differences in examination fees, as well as in the fees for certificates of qualification, and those who seek the higher degrees and diplomas must expect to pay more for the additional courses and tests and certificates. Again, not all students have the knack of imparting what they know to an examiner, and every setback due to failure in the examination room or to illness means added expenses. School and examination fees, together with the cost of board, lodging, clothes, and recreation, form the largest items, and to these must be added the money spent on books, microscope, instruments, and so forth.

Since professional education must continue for five years at least (a period exceeded by the vast majority), and since the cost of living varies much in different parts of the country, while personal expenditure varies still more, it can only be said in a general way that anyone who thinks of entering the profession should be prepared for an outlay of at least £1,500. Something between two-thirds and three-quarters of the whole amount would probably be spent on maintenance, and the rest in fees, etc., for tuition and examination. The fees charged by the different schools and licensing bodies are stated in the paragraphs relating to each on other pages of this issue. When making an estimate of the probable outlay, the many helps available nowadays for the reduction of expense should not be ignored. At nearly all the medical schools more scholarships and money prizes are offered now than in the past; at the Scottish universities bursaries are numerous; and the Carnegie Trust (whose regulations are summarized at page 404) gives pecuniary help to many Scottish students. The main thing to bear in mind when considering costs is that, as compared with other professions, the period of training in medicine is long, and for most students expensive. Further guidance on this matter will be found in a memorandum,¹ drawn up by the late Registrar of the General Medical Council. This pamphlet gives much useful information, including a comparative table of the cost of study and examination at the various institutions.

NUMBERS OF MEDICAL STUDENTS

The following brief survey should be read with the notes and tables printed at page 389 on the numbers of registered students and practitioners. More new students mean more new doctors five or six years later, though, as the chart shows, there is a fairly constant wastage.

At the close of the last century the annual entry of medical students in the United Kingdom had been on the average about 1,800, and then for the next thirteen years it stood at about 1,400. During the war period, though many students left to serve with the Forces, the entries grew steadily larger, so that in 1918 they were 2,253, and in the following year, when demobilization was in active progress, they reached 3,420. In the next five years the numbers rapidly fell, but from 1923 to 1928 they

¹ *Memorandum on the Procedure to be Adopted by those who desire to enter the Profession of Medicine, with Notes on Costs and Prospects.* General Medical Council, 44, Hallam Street, Portland Place, W.1. Price 1s. post free.

remained at a fairly steady level rather below the immediate pre-war average. In 1929 the entries rose again to 1,502, and in 1930 to 1,792. In 1931 they were 1,643, in 1932 they were 1,947, and last year they were 2,287, the highest figure since 1920.

In the past fourteen years the numbers of new practitioners registering each year have greatly exceeded the usual pre-war figure of eleven hundred or so. The large additions to the profession in recent years brought the total number of names on the *Medical Register* up to 56,741 at the end of 1933. This is 8,600 more than the figure for 1923, nearly fifteen thousand more than that for 1913, and nineteen thousand more than that for 1903. The population of the British Isles has not increased at anything like that rate during the same decennial periods, and the ratio of doctors to inhabitants is therefore much higher now than ever before. Some think that the saturation point has been reached. We should say rather that at the moment the medical profession of this country is quite large enough, but not so much overstocked as ill distributed. None the less, it is probably true of this country, as of America, that "doctors are being trained without any consideration of possible consumer requirements and beyond the limit that society can adequately support."

CHOICE OF CAREER

After registration there is usually a period of transition between pupillage and established practice. This time may be put to the greatest advantage by serving as house-physician, house-surgeon, or casualty officer in a hospital, by working as assistant or locumtenent in private practice, or by seeing something of the world as a ship surgeon. As a preliminary to practice of whatever kind, a year spent in junior appointments at a teaching hospital—"clinical experience under supervision"—is a most profitable investment.

If his mind is not made up already, the newly qualified practitioner has now to consider in which branch of the profession he can find a suitable outlet for his abilities. The choice is very wide, though the decision is often dictated rather by opportunity than by a nice balancing of tastes and talents. Among the great variety of paths open are general medical practice in town or country; Government service at home or abroad, including the medical branches of the Armed Forces; public health appointments and other administrative or official posts; institutional work, such as that of the municipal hospital, the mental hospital, the fever hospital, and the sanatorium; academic positions in schools of medicine; and special work in scientific research or in one of the many subdivisions of clinical medicine and surgery. Most of these careers are discussed in some detail in later sections, but a few words may be said here about general practice and the work of a consultant or specialist.

Further information about such matters will be found in the *Handbook for Recently Qualified Medical Practitioners*, published by the British Medical Association.¹ This comprises articles on openings for members of the profession; on practical aspects of medical work; on registration and the privileges of practitioners; on practice under the Insurance Acts; on post-graduation study and special diplomas; and on medical defence societies.

GENERAL PRACTICE

General practice is usually entered in one of three ways. The newcomer may take a house, put up a plate, and wait for work to come to him; he may buy the goodwill of a practice rendered vacant by retirement or

death; or he may become a partner in an established firm. The first is considered more risky than the second, and the second than the third. A well-managed partnership of three or more has this advantage over single-handed practice, that it allows each partner leisure for recreation and for keeping up with the progress of medicine. Success in private practice demands a great deal of knowledge beyond that gained at the medical schools, and hence a man is more likely to be accepted as a partner, or to do well on his own account, if he has already some experience as an assistant or deputy. Common-sense hints on how to embark on general practice, and on some of the pitfalls in the path of the beginner, will be found in a little book reviewed in these columns two years ago.²

The general practitioner cannot hope to be an expert in every department of medicine, but he should have a more comprehensive outlook than the man whose life is devoted to perfecting himself in the technique and minutiae of one subject. The opportunities he has of seeing his patients for minor ailments as well as for serious illnesses; his acquaintance with their family history, habits of life, social circumstances, and many other personal details learnt only after long and confidential intercourse, give the "G.P." just that knowledge which enables him to treat the patient and not merely the disease. All the more important, therefore, that the education of the general practitioner should be planned and carried out on right lines. The curriculum is already very long and it cannot be further lengthened. Courses of study and tests of competence should be rearranged so that the future practitioner's time is not spent in acquiring knowledge of small use in after life. The aim of his teacher should be to give him a solid foundation upon which he himself can build through experience and study after qualification.

Since three-quarters at least of those who pass out of the medical schools become "family doctors" sooner or later, it seems clear (though it is not everywhere admitted, even to-day) that the main purpose of the curriculum ought to be the training of the student for general practice—that is, the production of a "safe and competent general practitioner." This implies a sound knowledge of the needs of general practice—knowledge possessed only by those who have had personal experience of such practice.

"The general practitioner requires a specialized training no less than members of other branches of medicine, but while the greater part of the training for those branches is conducted by specialists in their own subjects, the formulation of our undergraduate educational policy, the training, and the examination are almost entirely in the hands of those who know little or nothing about general practice. I contend that, in order to achieve the real purpose of undergraduate training, the services of general practitioners of first-class ability, of considerable experience, and possessed of high professional and ethical standards should be enlisted in every medical school. In some places a beginning has already been made. Short courses of lectures to senior students on national health insurance practice, and here in Manchester the appointment of a well-known practitioner to the post of lecturer on medical ethics and conditions of medical practice, are welcome signs of at least a partial recognition of the claim of general practitioners to take their part in the task of undergraduate training."³

In its Proposals for a General Medical Service for the Nation⁴ the British Medical Association states as an axiom that "the medical service of the community must be based

¹ *A Guide to General Practice*. By A. H. Boothwaite. London: H. K. Lewis and Co., Ltd. 1932. (4s. 6d. net.)

² "Medical Education as a General Practitioner Sees It." Arnold Gregory. *British Medical Journal*, February 24th, 1934, p. 75.

³ The memorandum is issued as a pamphlet by the British Medical Association. (6d. post free.)

⁴ *Handbook for Recently Qualified Medical Practitioners*. British Medical Association, Tavistock Square, W.C.1. (3s. 6d. net; post free 3s. 9d.)

on the provision for every individual of a general practitioner or family doctor"; and the whole series of proposals rests on this as a fundamental principle. In regard to the prevention of disease, on which the Association lays great stress in its memorandum, the general practitioner has an increasingly important part to play. As knowledge accumulates he should come more and more to study early disorders of function and the preservation of bodily and mental health in varying circumstances. While this is all to the good, it cannot be denied that encroachments on private medical practice are perpetually being made under the auspices of the State or of the municipality or of voluntary bodies, and that official requirements and administrative checks imposed by public authorities tend to increase.

The national system of compulsory health insurance, now more than twenty-one years old, has had a profound influence on general medical practice in this country. The Insurance Acts provide domiciliary medical attendance for some seventeen million persons, and more than 18,000 members of our profession undertake the medical care of this vast section of the community. Thus the bulk of the general practitioners of the country now give, in large or small measure, attendance and treatment under a system embracing almost the whole working population. These practitioners, by placing their names on the panel (or medical list), signify their assent to the terms of service set out in the Medical Benefit Regulations and other relevant provisions. Their interests are watched over by the Insurance Acts Committee of the British Medical Association, which is the executive body of the Annual Conference of Representatives of Local Medical and Panel Committees.

CONSULTANT PRACTICE

The term "consulting practice" comprises in ordinary usage the work of the general physician, that of the general surgical consultant or operating surgeon, and that of the gynaecologist and obstetrician. These are the three large divisions of consulting practice, as distinct from general practice, which, though they imply some restriction, yet call for a wide range of activity and outlook, in contrast with the smaller ambit of a "specialty" in the narrow sense. Of these main divisions the third is obviously the most limited, but on several grounds it can claim to rank as something more comprehensive than the other specialties. No sharp line can, however, be drawn between consulting practice and specialist practice. Most general consultants, whether medical or surgical, are specialists in some branch of their practice, and most specialists are consultants in the sense that their work largely comes to them through the recommendation of general practitioners, with whom they act (or should act) in a consultative capacity.

Success as a consulting physician or surgeon or specialist is hard to achieve, except by the aid of appointments to hospitals, particularly those with medical schools. These posts are much sought after, and the time of waiting for a vacancy may be long. It follows, then, that the would-be consultant, since he can scarcely hope at first to keep himself on his professional earnings, must either have private means or be prepared, by teaching or in other ways, to make ends meet. Competition in this branch of practice is very keen. Expenses are heavy, and the young consultant or specialist may have to go through a long period of training and waiting before he makes an income; but on the other hand success, when it comes, is liberally rewarded. The advantage to a consultant of some first-hand knowledge of general practice is not widely enough recognized. "I wonder," said the great American surgeon, Dr. W. J. Mayo, the other day, "whether the present tendency to enter the specialties directly from the

medical school without intervening conversion of knowledge into wisdom is wise."

In the larger industrial towns of the North of England there are many "general practitioner specialists" who combine ordinary panel practice with much surgical or other special work in well-equipped local hospitals which admit patients in different categories according to their means. Though the fees are small compared with those earned by operating surgeons and specialists in London, the work is by no means unremunerative.

Additional degrees and diplomas are important factors in securing election to the visiting staff of a large hospital, and a few remarks about them may be made here. Beyond the qualifications which admit to the *Medical Register*, most of the licensing bodies bestow higher titles after further tests. A considerable number of those who have graduated M.B. at a university, including many general practitioners, proceed later to the M.D. When applying for the post of physician to a hospital it is always useful, and may be obligatory, to hold also the Membership of one of the three Royal Colleges of Physicians, according to the part of the British Isles in which the hospital is situated. So, too, the Fellowship of one of the three Royal Colleges of Surgeons should be obtained by those seeking surgical appointments, and the degree of Master of Surgery is an added distinction. There are also diplomas in a growing number of special branches of work—such as public health, tropical medicine, ophthalmology, laryngology, radiology, tuberculosis, psychological medicine, and midwifery—which are superfluous for most practitioners, but may be useful or even indispensable for those who intend to devote themselves to one or other of these subjects.

FINANCIAL AND SOCIAL ASPECTS

"The choice of a lifework is determined largely by the conditions, opportunities, and social recognition provided by a given vocation." In medicine the pecuniary disadvantages are the long and costly training, the time of waiting after qualification before the practitioner can count upon an adequate income, and the heavy working expenses in proportion to gross earnings. On the other hand, medical practice holds out the prospect of a fairly certain income, with unrivalled opportunities for exercise of the intellect in the service of others. But those who think of adopting it as a career ought to understand that medicine is a path to fortune only for the few. Yet if from the financial point of view it offers to most men little more than a means of livelihood always at command, in its social and cultural aspects the outlook is far brighter. A doctor's life need yield to none in the matter of sustained and varied interest. His lot is unlike that of many whose business gives little scope to the higher faculties, for he lives in, and by, the exercise of intellectual powers. The steady improvement in the education of the practitioner has added much to his influence with the public, and has been a large factor in raising his social status during the seventy-six years that have passed since the General Medical Council was constituted under the first Medical Act. Medicine gives to those who follow it an honourable position. The well-educated doctor stands high among his neighbours, and is the friend and confidant of his patients. Many go further, and take part in the public life of their district; and this is as it should be, because the doctor's training and outlook are such as fit a man for leadership.

PROFESSIONAL ORGANIZATION

Individuals and isolated groups of doctors are always at a disadvantage when they try to defend their interests against organized bodies, whether these are Government departments, local authorities, or commercial companies.

In his daily work the doctor is well able to deal with the individual patient and the patient's friends, but he cannot stand up single-handed to outside organizations. Medical men and women must therefore band themselves together, and the first step after qualification should be to become an active member of the British Medical Association. Besides having behind him the machinery and the influence of a world-wide professional body, a young practitioner will find in the meetings of his local Division or Branch, and in the Annual Meetings of the Association, many opportunities for keeping abreast of new work and for friendly intercourse with colleagues. Another thing that no new graduate should fail to do is to join one of the societies which for a small yearly sum undertake individual legal defence of their members. The need for

protection may arise out of the first case attended in hospital or in private practice.

The British Medical Association was founded in 1832 to promote the medical sciences and maintain the honour and interests of the profession; a brief note on its constitution and activities will be found at page 454. This great Association, with Branches throughout the British Empire and a membership of 35,000, is the only body that can act for the profession as a whole and speak in its name. The record of a hundred years' work shows that vocational organization, wisely directed, can combine service for its members with service for the public. Every medical man and woman should try to take a share in some of the movements, scientific or social or political, with which the B.M.A. has identified itself.

NUMBERS OF THE MEDICAL PROFESSION

A Review of Fifty Years

In order to present a general view of the numerical strength of the medical profession during the past half-century we have extracted from the records and set down below in parallel columns the total number of names in the *Medical Register* on December 31st of each year, and the numbers added annually by registration between 1884 and 1933:

Numerical State of the "Medical Register"

Year	Names added in Year	Total No. on Dec. 31	Year	Names added in Year	Total No. on Dec. 31
1884	1,388	25,321	1909	1,143	39,818
1885	1,377	25,998	1910	1,062	40,483
1886	1,431	26,452	1911	1,042	40,913
1887	1,534	27,246	1912	1,157	41,439
1888	1,184	27,939	1913	1,168	41,940
1889	1,305	28,348	1914	1,433	42,378
1890	1,286	29,163	1915	1,526	43,225
1891	1,345	29,555	1916	1,292	43,481
1892	1,513	30,590	1917	1,134	43,819
1893	1,579	31,644	1918	1,077	43,926
1894	1,426	32,637	1919	1,322	44,510
1895	1,446	33,601	1920	1,457	44,761
1896	1,385	34,478	1921	1,760	45,408
1897	1,230	34,642	1922	1,983	46,476
1898	1,210	35,057	1923	2,482	48,140
1899	1,351	35,896	1924	2,796	50,035
1900	1,345	36,355	1925	2,570	51,738
1901	1,318	36,912	1926	2,120	52,614
1902	1,275	37,232	1927	1,941	53,769
1903	1,233	37,878	1928	1,656	54,336
1904	1,168	38,492	1929	1,410	54,870
1905	1,240	39,060	1930	1,490	55,291
1906	1,197	39,529	1931	1,572	55,604
1907	1,221	39,827	1932	1,545	56,096
1908	1,137	40,257	1933	1,543	56,741

The varying proportion of registered medical practitioners to population during the period under review is shown in the following table. This sets out the total population of the British Isles at each decennial census since 1881, and the number of names on the *Register* in the same year.

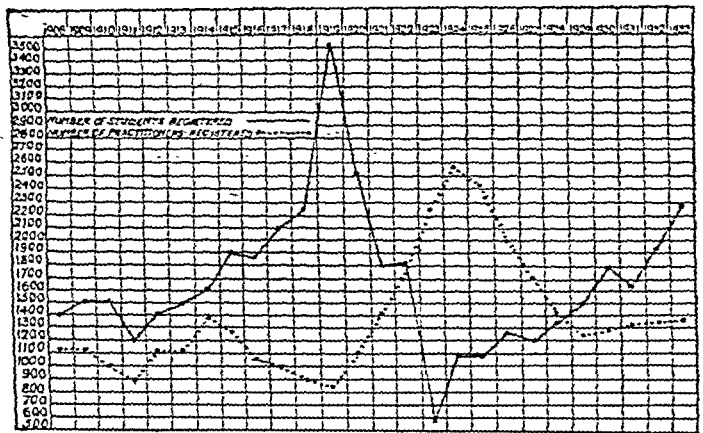
Proportion of Practitioners to Population

Year	Registered Practitioners	Population, British Isles
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,148,505
1931	55,604	49,959,455

These figures show a steady increase in the ratio of doctors to population, which was accelerated during the years immediately following the war. Making allowance for the large number of registered practitioners living abroad and for those no longer in practice, the proportion

of doctors to population is a good deal more than one to every thousand. In the United States of America it is estimated that there is one medical practitioner to every 830 people. Japan, with a population of 84,000,000, has some 50,000 doctors. According to statistics published last year by the International Labour Office the country with the most medical practitioners is England, with 1 doctor to every 822 inhabitants, then come Norway, Italy, and Switzerland, with 1 doctor to every 1,067, 1,218, and 1,231 inhabitants respectively. In Hungary, Esthonia, Germany, Denmark, France, Holland, and Luxemburg

Numbers of Medical Students and Practitioners Registering 1908 to 1933



the proportion ranges from 1 to 1,290 to 1 to 1,556, Belgium and Sweden have 1 doctor to 2,344 and 2,744 respectively, while in Bulgaria, Poland, and Yugoslavia there is 1 doctor to every 3,059, 3,332, and 3,568 inhabitants respectively.

Registration of Students and Practitioners

The relation between the numbers of new students and those of newly qualified practitioners during recent years is shown in the chart on this page, compiled from returns published by the General Medical Council.

The figures for the registration of practitioners year by year apply only to those whose names were entered on the British list, entries in the colonial and foreign lists of the *Medical Register* being excluded; hence the slight discrepancy between the totals indicated in this chart and those given in our tables printed above. Some further remarks on the numbers of medical students in recent years will be found in our introductory article on the profession of medicine.

ON CHOOSING A MEDICAL SCHOOL
A STUDENT'S VIEW OF LONDON TEACHING
HOSPITALS

A correspondent, knowing the interest now taken in all aspects of medical education, has lent us the MS. notebook in which a young friend recorded and analysed his impressions after visits of inquiry, made two or three years ago, to a number of London teaching hospitals and Continental clinics. The writer of the notes had, we learn, just finished his undergraduate career at one of the ancient English universities, and the main purpose of his tour was to help him in deciding where to enter for the clinical years of the curriculum.

After visiting nine of the twelve teaching hospitals of the metropolis he recorded his observations on an orderly plan. First, he drew up a schedule of the essential features of a teaching hospital in respect of what it should, in his opinion, offer the student who means business and aims high. He next considered each of the nine hospitals, individually and in some detail, from this point of view. He then formulated his conclusions in general terms, following this with brief notes on the special points of the hospitals under review. Lastly, he made a summary and comparison of the various institutions, awarding points to each on a uniform plan, and added up the total scores on the final sheet. Which hospital he chose, and why, we must not reveal.

The notebook as a whole brings before our eyes the picture of a young man of parts, possessing a methodical mind, acute observation, critical and analytical gifts above the ordinary, and a shrewd and unsentimental-eye for realities. His impressions and reflections were written purely for the purpose of helping him to make a personal choice, and the remarks on individual hospitals are much too frank for publication. With the author's consent, however, we reproduce below his "general conclusions" and his "essential features," in the hope that they may perhaps serve as food for thought, both to some of the younger generation whose professional training lies before them, and to those of riper years who are still pondering over the problems of the curriculum. Beyond one or two trifling corrections, we have made no change in text or schedule.

Factors Influencing a Choice

The ideally inclined, making a tour of the London teaching hospitals, is almost certain to be disappointed. Having associated hospitals with orderliness and spotless efficiency, and entering a building which is grimy, irregular, and unlovely on the outside, he wanders about in dingy corridors and peers into vast, hall-like chambers where hordes of sickly individuals are herded in archaic iron beds, and is appalled. "Is this Medicine?" he asks himself; and as he is led down miles of these dreadful passages and invited to gaze upon similar collections of recumbent beings, he becomes divided in his mind. Either these hospitals are hopelessly inefficient and patients recover by miracle, or medicine works in peculiar ways. Neither of which is correct.

That hospitals may be inefficient is certainly possible; also it is true that some features of medicine are definitely odd, but the point is that *medicine*, if one can speak of it as an entity, is mostly invisible in its process. It exists as an unseen process of repair in human bodies, as hypotheses or intentions in the brains of medical men, as a memory or instructions in the cortex of assistants, pharmacists, and nurses, and at only a few rare points when a physician does its application become visible—as when a physician is seen by a bed entrapping heart sounds in his stethoscope, a surgeon excising some offending organ, a patient about to swallow his physic. The rest is occult; enacted behind the scenes.

And if one can learn little of the way in which medicine is done by seeing over a hospital, how is one to judge of the hospital itself? Furthermore, if a place is chaotically ramshackle and desperately disorderly, one must always remember that few of the great discoveries of science have been made in light, airy, shining labs. Is a patient, also, any less likely to get better in an iron bedstead than in a chromium-plated one? Even more relevant: would one learn more from a patient who died in a hospital which looked like an industrial chemical laboratory than from one who spent his last hours in a place like a parish hall? Discrimination becomes more perplexing.

Perhaps one can gain a better perspective of the matter if one regards a hospital as an elaborate and intricate instrument for treating the sick. Regard the staff of the hospital collectively as the craftsman who manipulates the implement. If he is a conscientious craftsman he will take care to have the most effective accessories to his apparatus, and replace them when they become obsolete. Thus there is something fundamentally more progressive about a place which is kept up to date, designed to require a minimum of effort in its working, and fitted with the latest appliances, than about one in which these amenities are lacking. For a good workman does not tolerate bad tools.

If this much can be deduced from a single hospital, then how are several to be compared? Granted that one is to prefer a well-equipped building to a building worse off, one must not let the mere fact of obvious efficiency blind one to some other features of the place. The essential consideration is that one wants to learn medicine, and it may be (to revert to the simile) that while not paying as much attention to the appearance of his instrument as his colleagues, the craftsman is a better instructor of his apprentices.

Here occurs another difficulty. Unless one has actually sampled the methods of teaching at a hospital and experienced the results, one is not in a position personally to criticize; one can only judge from what is told by others (and opinions differ widely), or rely on one's own intuition (whose accuracy is equally questionable). There are certain features upon which a decision can be reached by use of mere common sense. If one is to learn, there must be material to learn from. Thus one would not be well advised in going to a hospital which had an enormous number of students in it but very few beds. And there must be teachers: it is reasonable to suppose that a man can more effectively teach a few students than a huge band of them. So that one can infer something as to the opportunities for learning at a hospital by the size of its firms.

Then it is important for many people that they should secure a house appointment upon qualification. If one selects a hospital which has relatively few such appointments but a large number of students, then manifestly is lessened one's chance of getting such a job. It may influence a man if he is scientifically inclined in choosing between a hospital with a grand tradition and one which has a reputation for achievements in research. It can readily be realized, however, that a hospital which excels in one respect is apt to fall short in another, and only by balancing the pros and cons can one arrive at a satisfactory conclusion. And it is plain to anybody who has been over and investigated the facts concerning a number of teaching hospitals that there is very little indeed to choose between them. Some of them look execrable, a few nearly superb; but none of them has been condemned by a Royal Commission; patients still patronize them and likewise swear by them; students through the same exams. The principle of medicine behind them all is identical; it is a matter of distinguishing between members of the same species.

If one had no prejudices, was insensitive to environment, and acted on "hit or miss" principles, then one might make one's selection with the aid of a pin. But if one preferred to assert one's free will, did not feel obliged to follow the herd, or was not bound by familial usage, then one would have to discriminate between subtle points and take into consideration factors which

might be deemed trivial were they not so hard of analysis. In this way features such as the site of the hospital, type of one's fellow students, become important. If one does not want to share the medical school with amateur chemists, physicists, biologists, and so on, then one will choose a hospital which covers only the clinical part of the curriculum.

Essential Features of a Teaching Hospital

- (a) Size.
 - Number of beds.
 - Number of students.
 - Dimensions of firms.
 - (Proportions of beds, honoraries, and students should be such that firms are not unwieldy or short of material.)
- (b) Modernity:
 - Buildings.
 - Apparatus.
- (c) General Outlook of Place:
 - Scientific or traditional?
- (d) Staff:
 - Number of honoraries and others.
 - Status.
- (e) House Appointments:
 - Opportunity of obtaining them.
 - Standing relative to those of other hospitals.
- (f) Research:
 - Extent to which furthered.
 - Particular line.
 - Merit.
 - Funds.
- (g) Status of Hospital as a whole.
- (h) Situation of Hospital:
 - Central or otherwise.
 - Availability of neighbouring lodgings.
 - Hostel.
- (i) Scholarships, etc.
- (j) Extent of Studies:
 - Whether entire medical syllabus covered or only the clinical portion.
- (k) Arrangement of Courses.

THE CURRICULUM TO-DAY

In 1922 the General Medical Council prescribed a readjustment of the medical curriculum, to come into force in the following year. The scheme adopted was in effect a compromise between several "schools of thought" which had been debating the matter for fifteen years or more. In this readjustment, among other things, increased emphasis was placed upon sufficient opportunity being afforded for the study, both theoretical and clinical, of subjects such as ophthalmology, venereal disease, orthopaedics, ante-natal conditions, and infant welfare, and upon the importance of preventive aspects of medicine. We summarize below the leading features of the revised scheme of professional study and examination which has applied since the beginning of 1923. The first qualifying examinations based upon this readjusted curriculum were held in 1928.

The minimum age for registration as a medical student is now 17 years. There has been no formal lengthening of the medical curriculum under the revised scheme, but in practice it has been added to by transferring to preliminary study and examination the subjects of elementary physics and chemistry in their purely scientific aspects. Thus, in addition to passing a preliminary examination in general education, an examination (written, oral, and practical) in the elements of physics and chemistry is required by the General Medical Council before the admission of a name to the *Students Register*. In the applications of these two subjects to the professional courses—as in biophysics, biochemistry, and pharmacological chemistry—appropriate instruction is supposed to

continue throughout the curriculum, and to be tested by examination. If he has had no facilities at school or otherwise for obtaining what is necessary for the preliminary or pre-registration examination in chemistry and physics, then he can come for it to the university or medical school, but study for this will not count as part of the curriculum. The examination in elementary biology is not "pre-curriculum," but the instruction may be so, and a licensing body can allow students who so desire to sit for the examination immediately after matriculation. Here again, however, it is the wish of the Council that the applications of biology to medicine, surgery, and midwifery shall continue to receive adequate attention throughout the courses.

The General Medical Council

The General Medical Council was established by the Medical Act, 1858, in order "that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." Eighteen members of the Council are appointed by the Universities in the United Kingdom having medical faculties; nine by the Medical Corporations, such as the Royal Colleges of Physicians and Surgeons; five by His Majesty in Council; and seven members are directly elected by members of the profession as a whole—a total of thirty-nine. To these are added three dentists who are members of the Dental Board, and are appointed for dental business. Although the eighteen members appointed by the Universities and the five members appointed by His Majesty in Council may all be laymen, only two laymen have so far been appointed; the first of these was appointed by the Privy Council in 1926, and, on his resignation in 1931, another was appointed in his place. Both were members of His Majesty's Privy Council.

The Council's offices are at 44, Hallam Street, Portland Place, London, W.1, and there are Branch Offices at 12, Queen Street, Edinburgh 2, and 35, Dawson Street, Dublin.

The Council exists for the protection of the public and not of the profession. Its principal functions are three. First, to keep the *Medical Register*; second, to see that the name of no person is entered thereon as qualified unless he has had an adequate professional education, and to remove therefrom the names of qualified persons who are no longer entitled to public confidence; and third, to provide for the publication of the *British Pharmacopoeia*. It is the appearance of a name upon the *Medical Register*, and not the possession of a degree or diploma, that constitutes a person a "duly qualified" or "legally qualified" practitioner of medicine.

The Council has no power to make rules in regard to the medical curriculum or examinations, but it can pass resolutions and make recommendations relating thereto, and, if any of these were ignored by the licensing bodies, it would be open to the Council to make representations to the Privy Council, which if it thought fit, might order that the qualifications obtained from such bodies should not be registrable.

The name of any medical practitioner who has been convicted of felony or misdemeanour, or who is judged, after due inquiry before the Council itself to have been guilty of "infamous conduct in any professional respect," may be erased from the *Medical Register*.

The Medical Acts prohibit attempts being made to impose restriction as to any theory of medicine or surgery, and, once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any "theory" of medicine or surgery in which he honestly believes. The Medical Acts do not prohibit the practice of medicine by unregistered persons, but if they "wilfully

and falsely "assume any title implying registration they are liable to prosecution. In this respect the Medical Acts differ from the Midwives and the Dentists Acts, which entirely preclude the practice of midwifery or dentistry by unregistered persons. Unregistered medical practitioners, however, are under certain disabilities, for they cannot recover charges for medical or surgical attendance, etc., in a court of law; they cannot hold an appointment as medical officer of health, in public (including mental) hospitals, or as a medical officer in the Military or Naval Services, or in ships; they cannot give any valid certificate which is required by any Act from a medical practitioner—for example, a certificate of death; and they cannot engage in insurance practice, obtain dangerous drugs, or attend cases of venereal disease.

An account of the recommendations which the Council has drawn up in respect of the education of medical students here follows.

Registration of Medical Students

The Council recommends that every intending student of medicine should be registered as such at one of its three offices, whose addresses are given on page 393.

Candidates must produce evidence (a) that they have attained the age of 17 years; (b) that they have passed an examination in general education which is accepted for matriculation or entrance to the Faculties of Arts or Pure Science in a university in the United Kingdom; and that in addition thereto they have passed an examination in elementary chemistry and elementary physics conducted or recognized by one of the licensing bodies.

Application for registration should be addressed to the Registrar for the Division of the United Kingdom in which the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form, which can be obtained from any of the offices of the General Medical Council itself, or from one of the various licensing bodies or medical schools.

The regulations with regard to registration apply alike to medical and to dental students, with the exception that for dental students pupillage with a registered dental practitioner may be regarded as the beginning of professional study, and that applications for registration should be addressed to the London office of the Council only.

Professional Education

The rule is that it is only from the date which appears against his name in the *Students Register* that the medical student's career officially begins; thereafter five academic years at least must pass before he can present himself for the final examination for any diploma entitling its lawful possessor to registration as a qualified medical practitioner under the Medical Acts. But to meet the circumstances brought about by the dates at which sessions of the medical schools begin and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. In any case, the period of five years must be one of bona-fide study; and in every course the following subjects should be included:

- (i) Elements of General Biology, including an introduction to *Microbiology*. This course, if the licensing bodies permit, may be taken before registration, and the examination may be deferred.
- (ii) Chemistry, Physics, and Biology in their application to Medicine.
- (iii) Human Anatomy and Physiology, including Histology, Elements of Embryology, Biochemistry, and Biophysics.
- (iv) Elementary Bacteriology, before regular clinical appointments.
- (v) Pathology, general, special, and clinical, and Morbid Anatomy.
- (vi) Pharmacology and Materia Medica, to be taken concurrently with clinical instruction.
- (vii) Forensic Medicine, Hygiene, and Public Health.

(viii) Medicine, including Applied Anatomy and Physiology, Clinical Pathology and Therapeutics, Children's Diseases, Acute Infectious Diseases, Tuberculosis, Mental Diseases, Skin Diseases, and Vaccination.

(ix) Surgery, including Applied Anatomy and Physiology and Clinical Pathology, Anaesthetics, Diseases of the Eye, Ear, Throat, and Nose, Radiology, Venereal Diseases, and Orthopaedics.

(x) Midwifery and Diseases of Women, including ante-natal conditions and infant hygiene.

The Council recommends that during the last three of the five academic years clinical subjects shall be studied.

The first two years must be passed at a university, or at a school of medicine recognized by any of the licensing bodies, and the remainder must be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by a licensing body.

Special Considerations

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in outline, but before leaving this part of the subject the steps which the aspirant should take may be rehearsed in their due order:

- (1) Pass an examination in arts;
- (2) Pass an examination conducted or recognized by a licensing body in elementary physics and elementary chemistry;
- (3) Having attained the age of 17, enter himself at a university or at a medical school recognized by one of the licensing bodies;
- (4) Obtain registration as a medical student;
- (5) Study for a minimum of five years certain prescribed subjects;
- (6) Meanwhile pass sundry intermediate examinations; and at the end of the fifth year pass a "qualifying examination" which will entitle him to receive from a licensing body a qualification enabling him to obtain registration in the *Medical Register*, whereby he receives legal authority to practise.

The Minimum Period.—It must be remembered that the period of five years is a minimum; more is often required, even by the man of good abilities and reasonable industry, and some of the universities prescribe a longer period. Besides these qualities a student, to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Thus, for instance, before presenting himself for any examination he must be "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has diligently attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place, he may miss enough of them to make it impossible for him to be signed up. Then again, should he fail to satisfy the examiners at some examination, he cannot present himself for re-examination for at least three months. This generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by the need for restudying the subjects in which he has failed, the Examining Boards usually insist upon a definite interval elapsing between one examination and the next. Further, many Boards have refused to recognize lectures and classes which have been attended before the student has passed the requisite examination in earlier subjects, and the Council now recommends that the professional examinations in anatomy and physiology be passed before the minimum period of three years' subsequent study be entered on; in other words, no clinical study should count as such until these examinations have been successfully completed. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the beginning of the student's study of certain subjects. It is thus exceedingly easy for a student

to fail to qualify in five years, and, as a fact, the majority of students take longer.

In speaking of the minimum period, it is to be remembered also that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or the diplomas of the Royal Colleges. Those who wish to take a higher qualification—for instance, the F.R.C.S. Eng.—must prolong their work for another year or more. So, too, in some cases, must those who desire to convert their Bachelorship into a Doctorate. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended when he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

Memorandum on Students' Registration

The following memorandum has been drawn up on behalf of the General Medical Council as to the procedure for those who desire to be registered as medical or dental students.

The requirements for the registration of medical and dental students are the same, and every intending student should, in his own interest, register as soon as he begins his professional curriculum.

A recognized examination in general education must first be passed. If the student intends to obtain a university degree, he should apply to the university he selects for information as to its matriculation requirements in arts or pure science, or as to any examinations which may be accepted in fulfilment thereof. If the student intends to obtain a qualification from one of the licensing corporations (these are the Conjoint Boards in England, Scotland, and Ireland, the Society of Apothecaries of London, and the Apothecaries' Hall of Dublin), any of the examinations indicated below will be accepted. The subjects required are: (1) English, (2) Mathematics (elementary), (3) a language other than English, and (4) a fourth subject as required by the regulations of the particular examination, to be chosen from the following—namely, History, Geography, Botany, Physical Science, Natural Science, Latin, Greek, Hebrew, French, German, or other language accepted by a university for matriculation. School certificates (other than "Higher") must show "Credits" in each of the prescribed subjects. When school certificates with four credits are presented, or certificates from the Educational Institute of Scotland and College of Preceptors, the passes in the four subjects must be shown to have been obtained at not more than two sittings.

The requirements of the preliminary examination in general education being satisfied, it is then necessary for the student to pass a further or pre-registration examination (theoretical and practical) in elementary chemistry and elementary physics, which is conducted by the Corporation of the licensing bodies—that is, a Corporation. These subjects must be passed included in the preliminary examination—for example, chemistry taken as one of the four required subjects in the preliminary examination cannot also count as one of the subjects of the pre-registration examination. These subjects may be studied at a university or medical school, or at a secondary school or other institution recognized by the body whose pre-registration examination it is intended to take. The student should, in every case, write beforehand to the body whose qualification he desires to obtain (a list will be found below) for information in regard to its requirements for this examination, and, although it is not necessary to pass in biology before registration as a student, application should be made at the same time to the body selected to ascertain their requirements in regard to this subject.

These two examinations (in general education and in physics and chemistry) having been passed, and the student having attained the age of 17 years, he should apply to one of the universities or one of the medical schools for admission to its course of medical study. When medical study has been begun, he should apply to the Dean of the School, or to the Registrar of one of the branches of the General Medical Council, for a form of application for registration as a student, and should have it completed and sent in to one of the Branch Councils as soon as possible. There is no fee for this registration. The medical curriculum will extend for at least

five years, and the dental curriculum for at least four years, from the date of registration as a student.

A dental student may begin his curriculum, if he so desires, as a pupil in dental mechanics of a registered dental practitioner; but study at a dental school is to be preferred. If, however, he is apprenticed to a dental practitioner, he will have to devote twice as much time to instruction in dental mechanics as he would if he had taken this subject in a school. This will have the effect of lengthening the curriculum. In any case a student can only obtain a concession of twelve months out of the four years' curriculum in respect of such apprenticeship.

The addresses of the Branch Registrars are:

General Medical Council, 44, Hallam Street, Portland Place, London, W.1.

Scottish Branch Council, 12, Queen Street, Edinburgh, 2.

Irish Branch Council, 35, Dawson Street, Dublin.

Examining Bodies in Preliminary Education

The following is a list of the officials of the examining bodies in preliminary education, with the names of the examinations in parentheses.

Secretary, Queen's University of Belfast. (Matriculation.) Assistant Secretary, Ministry of Education. (Senior Certificate.) Registrar, The University, Bristol. (Matriculation, School Certificate, or Higher School Certificate.)

Registrar, The University, Cambridge. (Previous.) Secretary, Cambridge Local Examinations, Syndicate Buildings, Cambridge. (School or Higher School Certificate.)

Medical Registrar, University of Dublin (Trinity College), Dublin. (Entrance examination to the School of Physics.)

Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne. (Matriculation, School or Higher School Certificate.)

Registrar, Irish Conjoint Board, Royal College of Surgeons, Dublin. (Preliminary Examination.)

Registrar, National University of Ireland, Dublin. (Matriculation.)

The Assistant Commissioner of the Department of Education, 1, Hume Street, Dublin. (Senior Grade Examination or Leaving Certificate.)

Assistant Secretary, Ministry of Education, Belfast. (Senior Grade or Leaving Certificate.)

Secretary of the Examinations Council, The University of London, South Kensington, London, S.W.7. (Matriculation, General, or Higher School Certificate.)

Secretary, Northern Universities Joint Matriculation Board, 315, Oxford Road, Manchester. (Matriculation, School, or Higher School Certificate.)

Registrar, University Registry, Oxford. (Responsions.)

Secretary, Oxford and Cambridge Schools Examination Board, Schools Examination Office, Balliol College, Oxford. (School or Higher School Certificate.)

Secretary, Oxford Local Examinations, University Press, Oxford. (School or Higher School Certificate.)

Secretary, College of Preceptors, Bloomsbury Square, London, W.C.1. (Senior Certificate at Credit Standard.)

Secretary, Educational Institute of Scotland, 47, Moray Place, Edinburgh. (Preliminary Medical Certificate.)

Secretary, Scottish Education Department, 14, Queen Street, Edinburgh. (Leaving Certificate.)

Secretary, Scottish Universities Entrance Board, St. North Street, St. Andrews. (Scottish Universities Preliminary Examination.)

Registrar, University of Wales, Cathays Park, Cardiff. (Matriculation.)

Clerk, Central Welsh Board, Cardiff. (School or Higher School Certificate.)

[Note.—Certificates of the College of Preceptors and School Certificates (other than "Higher") must show "Credits" in each of the prescribed subjects.]

Licensing Bodies

The following is a list of the officials of licensing bodies and their addresses:

ABERDEEN, The Secretary of the Medical Faculty, The University.

BELFAST, The Secretary, Queen's University.

BIRMINGHAM, The Registrar, The University.

BRISTOL, The Registrar, The University.

CAMBRIDGE, The Registrar, The University.

DUBLIN, The Medical Registrar, The University, Trinity College.

The Registrar, National University of Ireland.

DURHAM, The Registrar, University of Durham College of Medicine, Newcastle-upon-Tyne.

EDINBURGH, The Dean of the Faculty of Medicine, The University.

GLASGOW, The Registrar, The University, W.2.

LEEDS, The Registrar, The University.

LIVERPOOL, The Registrar, The University.

LONDON, The Academic Registrar, The University, South Kensington, S.W.7.

MANCHESTER, The Registrar, Victoria University.

OXFORD, The Dean, Department of Medicine, The University.

ST. ANDREWS, The Secretary, The University.

SHEFFIELD, The Registrar, The University.

WALES, The Registrar, The University Registry, Cathays Park, Cardiff.

Licensing Corporations

ENGLISH CONJOINT BOARD, The Secretary, 8, Queen Square, Bloomsbury, W.C.1.

SCOTTISH CONJOINT BOARD, The Secretary, 49, George Square, Edinburgh.
 IRISH CONJOINT BOARD, The Secretary, Royal College of Surgeons in Ireland, Dublin.
 APOTHECARIES' SOCIETY OF LONDON, The Secretary of the Court of Examiners, Blackfriars, London, E.C.4.
 APOTHECARIES' HALL OF IRELAND, The Registrar, 95, Merrion Square, Dublin.

The following is a list of medical schools (other than universities) and their officials.

ABERYSTWYTH, The Registrar, University College. (University of Wales. First year only.)
 BANGOR, The Registrar, University College. (University of Wales. First year only.)
 CARDIFF, The Dean of the Medical School, Welsh National School of Medicine.
 The Registrar, University College of South Wales and Monmouthshire.
 CORK, The Registrar, University College.
 DURHAM, The Registrar, College of Medicine, Newcastle-upon-Tyne.
 DUBLIN, The Medical Registrar, University of Dublin, Trinity College.
 The Registrar, University College.
 EDINBURGH, The Dean, School of Medicine, Royal College of Surgeons, Surgeons' Hall.
 GALWAY, The Registrar, University College.
 GLASGOW, The Dean, St. Mungo's College.
 The Dean, The Anderson College of Medicine.
 The Mistress, Queen Margaret College, W.2 (for women students of the University of Glasgow).
 LONDON, Charing Cross Hospital, The Dean of the Medical School, W.C.2.
 Guy's Hospital, The Dean of the Medical School, S.E.1.
 King's College, The Dean of the Medical Science Faculty, Strand, W.C.2.
 King's College Hospital, The Dean of the Medical School, S.E.5.
 London Hospital, The Dean of the Medical College, W.2.
 London (Royal Free Hospital) School of Medicine for Women, The Dean, 8, Hunter Street, W.C.1.
 Middlesex Hospital, The Dean of the Medical School, W.1.
 St. Bartholomew's Hospital, The Dean of the Medical College, E.C.1.
 St. George's Hospital, The Dean of the Medical School, S.W.1.
 St. Mary's Hospital, The Dean of the Medical School, S.E.1.
 St. Thomas's Hospital, The Dean of the Medical School, S.E.1.
 University College Hospital, The Dean of the Medical School, W.C.1.
 Westminster Hospital, The Dean of the Medical School, S.W.1.
 SWANSEA, The Registrar, University College. (University of Wales. First year only.)

This section of the Educational Number would be incomplete without brief mention of the memorandum drawn up on behalf of the General Medical Council on the procedure to be adopted by those who desire to enter the profession of medicine, to which reference is made in the introductory article at page 386. The pamphlet (price 1s. post free) sets out in plain language the information for which the Council is often asked by prospective medical students or their guardians.

Universities in England and Wales

There are eleven universities in England and Wales, and some account of each of them follows. They all have now fully developed medical faculties.

UNIVERSITY OF OXFORD

The professional degrees conferred by this university are those of Bachelor of Medicine (B.M.) and Bachelor of Surgery (B.Ch.) (taken together), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in ophthalmology. On receiving the B.M., B.Ch. the candidate is entitled to registration by the General Medical Council. In favourable circumstances these degrees may be obtained in six or seven years from matriculation. Before receiving either, the candidate must have taken a degree in arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of the professional study for that period, for the subjects chosen for those in which examinations would in any case have to be passed for the medical degree, and the courses are dovetailed together.

Women members of the university are admitted to medical degrees under the same conditions as those laid down for men in regard to examinations, courses of study, and fees, and under corresponding conditions as to residence at the university. Among the university diplomas open to women are those in anthropology and ophthalmology.

There are numerous avenues to the B.A. degree, but that which constitutes the 'normal' course for medical students, as being the most closely related to their medical studies, is the following: By passing Responsions (or one of the examinations which are accepted as equivalent), some of the preliminary examinations in the Natural Science School, in the first public examination; and one of the final honour examinations in the Final Honour School of Natural Science—physiology being that usually taken.

Responsions and the preliminary examinations in natural science may, provided the candidate's name is entered through a College, be passed before a candidate is a member of the university; a Final Honour School may be taken at the end of the third or fourth academical year—that is, within nine or twelve terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions has been passed or exemption obtained.

Professional Degrees

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the preliminary examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First B.M. and the Second B.M. These take place twice a year, in June and in December. Every candidate at the first B.M. is examined in human anatomy, in physiology, and in organic chemistry, but is excused from the Honour School of Physiology, and from organic chemistry if he has obtained a first or second class in the Honour School of Physiology. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine and hygiene, materia medica, and pharmacology (subjects of the Second Examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the eighteenth term from the day of his matriculation unless he be already a registered medical practitioner, and not until a period of at least thirty-three months has elapsed from the date of his passing the First Examination, and he must pass in all these three subjects at one and the same time.

Before admission to the Second B.M. examination the student must produce certificates of instruction from a medical school recognized by the university, of having acted as clinical clerk and dresser, each for six months, and as post-mortem clerk for three months, of having on labours, of instruction in infectious and mental diseases and ophthalmology, etc., and of proficiency in vaccination and the administration of anaesthetics, and of three academic years of hospital attendance. He must also produce certificates of attendance in laboratory courses in pathology, bacteriology, and pharmacology, either in Oxford or in a recognized medical school.

D.M. and M.Ch. Degrees

A Bachelor of Medicine who wishes to proceed to the D.M. must have entered his thirtieth term and must present, for approval by the appointed examiners, a dissertation on a subject previously approved by the Regius Professor of Medicine. If a candidate for the M.Ch. he

¹ The four subjects of the medical preliminary examinations are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions.
² Membership is constituted by Matriculation and by becoming a member of a College or a Hall or of St. Catherine's Society or of the Society of Oxford Home-Students.
³ For details of the required certificates see *Examination Statutes*, Clarendon Press, Oxford, latest edition.

must have entered his twenty-first term and must pass an examination, which is held in June.

The examination for the diploma in ophthalmology is held annually in June.

Teaching

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First B.M., and to some extent those of the Final Examination.

Scholarships

Entrance Scholarships (of the maximum value of £100 p.a.) and Exhibitions (usually of a maximum value of £50) are awarded by various Colleges after competitive examination in Natural Science subjects, and are open to intending students of Medicine equally with other Natural Science candidates. These are usually tenable for four years and restricted to candidates under 19 years of age. Particulars can be obtained on application to the College tutors. At two Colleges (University and Pembroke) there are entrance scholarships restricted to intending students of medicine. Scholarships for women are also offered by various women's colleges, from the principals of which details of the examinations may be obtained. A Radcliffe Travelling Fellowship of £300 a year, tenable for two years, is conferred annually; candidates must have taken the B.M. degree. A Schorstein Research Fellowship of £200 a year for two years is awarded biennially. The Fellow must engage in research in one of the medical departments of the university. A George Herbert Hunt Travelling Scholarship of about £100 is awarded biennially to enable a young medical graduate to spend three months abroad in medical study. A Philip Walker studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize and the Radcliffe Prize (£50), for research in natural science (including pathology), and the three Theodore Williams Scholarships in Anatomy, Physiology, and Pathology, of the value of £50 each, tenable for two years. A Radcliffe Scholarship in Pharmacology of £50 for one year, open to the university, is awarded annually by the Master and Fellows of University College.

FEES

An annual fee of £4 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degrees the fees are: the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £20; the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £200, or for women not less than £140.

For further information application may be made to Dr. K. J. Franklin, Dean of the Medical School, University of Oxford.

UNIVERSITY OF CAMBRIDGE

The professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.Chir.), each of which entitles the possessor to admission to the Register by the General Medical Council, and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants a diploma in medical radiology and electrology to medical practitioners, not necessarily graduates of the university. Information regarding this diploma will be found in a later section under the heading "Radiology." A candidate for the M.B., B.Chir. degrees need not possess a degree in arts; it is sufficient if he has passed the Previous Examination or some other examination accepted by the university as its equivalent. Most students, however, are advised to take the B.A. degree, preferably by obtaining honours in the Natural Sciences Tripos. The attainment of a sufficient standard in certain subjects in this Tripos will secure exemption from the corresponding tests in the M.B. course. Members of Girton College and Newnham College are admitted to the examinations.

Professional Examinations

An explanation of the changes in the medical curriculum at Cambridge, which come into force in October, 1934, will be found in a leading article published in the *British Medical Journal* of July 7th, 1934 (p. 26).

To obtain the M.B. degree the candidate must pass the First and the Final M.B. Examinations and keep an Act. The B.Chir. degree (which is a registrable qualification) may be obtained after passing the Final Examination without keeping an Act.

First M.B.—This comprises (1) general and inorganic chemistry, (2) physics, (3) elementary biology, (4) organic chemistry. The parts may be taken together or separately. In either case the candidate, before admission to examination, must have passed or been exempted from the previous examination. Certain exemptions from the First M.B. Examination are allowed; the regulations may be obtained from the Registry. An examination in each part is held three times in the year.

A candidate for the Final Examination must have (a) completed the First Examination; (b) dissected the whole body adequately and thoroughly; (c) attended an approved course, and passed an examination in Pharmacology; (d) attained the honours standard in some Tripos; (e) attended an approved course, and passed an examination in anatomy and (f) in physiology.

Final M.B.—This is divided into two parts, to neither of which the candidate is admitted until he has fulfilled the conditions previously mentioned. A candidate for the first part, which deals with the principles and practice of surgery (including special pathology) and midwifery and diseases peculiar to women, must have completed five years of medical study and be signed up in these subjects, and have completed two years and a half of hospital practice. Before admission to the second part the candidate must have completed five years of medical study, and be duly signed up in all subjects and have completed three years of hospital practice. The examination is in the principles and practice of physic (including diseases of children, mental diseases, and medical jurisprudence), pathology (including hygiene and preventive medicine), and pharmacology (including therapeutics and toxicology). The Final M.B. examinations are held twice a year—in June and December.

Act for the M.B.—Before receiving his M.B. degree a candidate who has passed the Final M.B. examinations has to write a thesis. This he reads in public on an assigned day, and is then questioned concerning it and other subjects of medicine by the Regius Professor of Physic. If approved at this test he is then certified as having "kept the Act," and in due course receives his degree. Medical degrees may be taken in absence by those living abroad, the candidate sending to the Registry a dissertation, which is laid before the Degree Committee.

The Higher Degrees

The M.D. degree may be taken by a graduate of the University of eight years' standing who has passed the Final M.B. Examination, after writing a thesis approved by the M.D. Degree Committee, and keeping a further Act. He may also be allowed or required to take an examination, oral or written, or both, on the field of Medicine within which the subject of his thesis falls.

A candidate for the M.Chir. degree who is an M.A. may be admitted to the examination after he has become legally qualified to practise surgery. Other candidates may be admitted when two years have elapsed after they have completed the requirements for the B.Chir. degree, and may be admitted to the M.Chir. degree after three years have elapsed since they were admitted to the B.Chir. degree. The examination comprises pathology, surgery, surgical anatomy, and surgical operations. The tests are partly in writing, partly oral, and partly practical: they include the writing of an extempore essay. The examination is held in February in each year.

In addition to college fees, tutorial fees, and the expense of living, the following examination fees are payable: First M.B., £5 5s.; tests in Pharmacology, Physiology, and Anatomy, £1 1s.; Final M.B., £12 12s. For schedules referring to the examinations, lists of schools and hospitals recognized by the university, and other information, application should be made to the University Registry, Cambridge.

FEES

UNIVERSITY OF LONDON

Under the regulations of the University of London the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Bachelor of Surgery, Master of Surgery in four branches, Doctor of Medicine in six different branches, Bachelor of Dental Surgery, and Bachelor of Pharmacy. The university has its own matriculation examination, and it is most advisable that candidates should obtain and carefully study the booklets relating to it. The matriculation examination is open to any person, of either sex, who has attained the age of 16. It is held in January, June, and September, and lasts four days; the first two take place both in London and in certain provincial centres; the September examination is held in London only.

In no circumstances is a degree granted to anyone in less than three years after the date at which he passed the matriculation examination or obtained registration in some other way. All medical students must normally spend not less than five and a half years in professional study subsequent to matriculation, of which the last three years must be spent at a school of advanced medical studies.

Professional Examinations

M.B., B.S.—There are three examinations, the last two being subdivided. They are held twice a year.

The First Examination (held in July and December) covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible oral test in each subject. The names of successful candidates are placed in alphabetical order, with a note as to any subject in which a candidate has distinguished himself or herself.

The Second Examination is held in March and July. Part I covers organic chemistry, the candidate's knowledge being tested as in the earlier examination. Candidates for Part II must have passed the First Examination at least eighteen months previously, besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmacology, the tests being written, oral, and practical. Candidates who fail in pharmacology may sit for re-examination in that subject alone if the examiners think fit, and candidates who pass in pharmacology only may similarly be credited with that subject.

No candidate, unless he is already a registered medical practitioner, is admitted to the Third M.B., B.S. Examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including mental diseases), pathology, forensic medicine and hygiene, surgery, and obstetrics and gynaecology. They may be divided into two groups, one comprising medicine, pathology, forensic medicine, and hygiene, and the other surgery and obstetrics and gynaecology. Either group may be taken first at the option of the candidate, or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but the names of successful candidates, who have passed both groups of the examination at one time, are divided into an honours list and a pass list, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination. A supplementary list is issued of candidates who have passed in one group only.

The Higher Degrees

M.D.—An examination for the M.D. is held twice yearly—in December and July. Every candidate must have passed the examination for the M.B., B.S., unless he became M.B. before May, 1904. He may present himself for examination in any one of the following branches: (1) medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) hygiene, (6) tropical medicine, and, if he wishes, may pass also in another branch at a subsequent examination.

Two years must elapse between acquiring the M.B., B.S., and sitting for the M.D. in any branch, except that in the case of Branches I-IV a candidate who has obtained honours at the M.B., B.S. Examination may enter for the M.D. Examination after one year. Candidates may also be admitted to the M.D. Examination (Branches I-VI) one year after taking the M.B., B.S. Examination on the grounds of exceptional experience in their subject. Certificates of approved appointments are required for the M.D. (Branches I-IV), except in the case of candidates who have been engaged in professional practice for five years. In each branch the scheme of examination is the same: two papers on its special subject, a paper on an allied subject—for example, an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. Both written and practical examinations must be passed, though exemption can be obtained from the former in exceptional circumstances. In any branch of the M.D. Examination a gold medal of the value of £20 may be awarded.

M.S.—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are four branches in which it may be obtained—general surgery, dental surgery, ophthalmology, and laryngology, otology, and rhinology.

FEES

For Matriculation: 2½ guineas for each entry. First Examination: 6 guineas for each entry to the whole examination. For re-examination in one subject the fee is 2 guineas. Second Examination, Part I: 3 guineas for the first and each subsequent entry. Second Examination, Part II: 9 guineas for each entry to the whole examination. For re-examination in Pharmacology the fee is 4 guineas. For re-examination in Anatomy and Physiology the fee is 6 guineas. M.B., B.S. Examination: 12 guineas for each entry to the whole examination, and 6 guineas for each entry to the whole in either group. M.D. and M.S. Examinations: 20 guineas, and 10 guineas on re-examination. Inquiries should be addressed to the Academic Registrar, the University of London, South Kensington, S.W.7.

UNIVERSITY OF BIRMINGHAM

This university confers medical and surgical degrees—namely, M.B., Ch.B., M.D., Ch.M., and M.D. (State Medicine)—and also diplomas and degrees in State medicine and dentistry. The M.B., Ch.B. candidate may also combine with the earlier part of his medical curriculum courses leading to the ordinary B.Sc. degree in anatomy and physiology. The degree of B.Sc. with honours in one of these subjects requires an extra year. The full course of study for the degrees of M.B., Ch.B. extends over six years. The Senate has power to accept courses of study and examinations passed at other recognized universities as exempting from the examinations in physics, chemistry, biology, and organic chemistry. In the case of such students at least three years must be spent in attendance upon classes at the university. A degree of Ph.D. is also conferred for research study in medicine under special regulations. Candidates must be graduates in medicine of a recognized university. Students entering the Medical Faculty for the M.B., Ch.B. degrees must have passed—

(1) Either (a) the matriculation examination of the Joint Board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham; or (b) some other examination recognized as equivalent to the matriculation. Candidates

for medical degrees are required to have passed in English literature and mathematics, and are recommended to take Latin and a science subject—chemistry or physics—at the matriculation examination. The matriculation examination of the Joint Board is held in July and September. The regulations and the list of examinations accepted in lieu thereof will be sent on application to the Secretary to the Board, Joint Matriculation Board, 315, Oxford Road, Manchester.

(2) A recognized pre-registration examination in the subjects of chemistry, physics, and biology—for example, the higher school certificate of the Joint Matriculation Board; or a candidate may attend first-year courses in the university, October to June (chemistry, physics, and biology)—that is, First M.B., Ch.B. This examination may be passed in two sections; not less than two subjects must be passed on first entry.

Professional Examinations

The candidate for the M.B., Ch.B. degrees has five examinations to pass, subsequent to passing the First M.B., Ch.B. Examination or exemption therefrom. In the Second (Part II) and Final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again.

The First M.B. deals with physics, chemistry, and biology (pre-registration). The Second M.B. (Part I) comprises the subject of organic chemistry. The Second M.B. (Part II) comprises anatomy and physiology, and the student must pass in both simultaneously. The Third M.B. comprises pathology and bacteriology taken as one complete subject. The fourth M.B. takes place at the end of the fifth year, the subjects being forensic medicine, toxicology, public health, and therapeutics (inclusive of pharmacology and materia medica).

Final M.B.—This comprises medicine, surgery, midwifery and diseases of women; ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a post-mortem clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, ophthalmology, children's diseases, venereal diseases, ear and throat and skin diseases, etc. In respect to ophthalmology he must show that he has learnt refraction work. He also has to present to the examiners at the time of his examination a short written commentary on a gynaecological subject or case investigated during the period of gynaecological clerking.

M.D.—An ordinary candidate for this degree must be an M.B., Ch.B. of not less than one year's standing. He presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch.M. are of the same general character. Subject to certain requirements as to special research or other post-graduate study, graduates of other universities may obtain the M.D. and Ch.M. in the same way as holders of the Birmingham M.B., Ch.B.

The degree of M.D. (State Medicine) is open to M.B., Ch.B. graduates of the university who possess also a diploma in public health or degree in sanitary science or public health recognized by the university. The period of post-graduate study for this degree must occupy one year in the case of Birmingham M.B., Ch.B. graduates, and two years in the case of graduates of other universities.

The degree of Ph.D. is open to qualified medical practitioners under special conditions applicable in the Faculty of Medicine. Under these regulations the necessary attendance and research during a period of two years may be carried out in the laboratories of the university or in associated hospitals.

FEES

The fee for Matriculation is £2 (payable to the Joint Matriculation Board); £2 10s. for First M.B. Examination (if taken in university); and £2 10s. for each of the first four Professional Examinations; M.B., Ch.B. degree fee, £10; M.D. and Ch.M. Examinations, £12 10s. each. For further particulars application should be made to the Registrar or the Dean of the Medical Faculty, University of Birmingham, Edmund Street.

UNIVERSITY OF BRISTOL

In the Faculty of Medicine the following degrees are conferred: Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: diploma in public health (D.P.H.), diploma in dental surgery (L.D.S.), and diploma in veterinary State medicine. All candidates for degrees in medicine, surgery, and dentistry are required to reach matriculation standard in the school certificate examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike.

Conjoined Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates must be not less than 21 years of age and have pursued the courses prescribed by university regulations during not less than five years after passing the First Examination in chemistry and physics, and entry upon professional study at a medical school, of which three shall have been spent in the university, and two of these three subsequent to passing the Second Examination. All candidates for the degrees of M.B., Ch.B. are required to satisfy the examiners in the several subjects of three examinations.

The First Examination.—The subjects of examination are: chemistry (inorganic), physics, and biology, the courses pursued being those for the time being approved for the intermediate part of the B.Sc. curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the higher school certificate approved by the Board of Education in these subjects will not be required to sit for the First Examination and will be regarded as having completed one year of study.)

The Second Examination.—The subjects of examination are: organic chemistry (Part I) and anatomy and physiology (Part II).

The Final Examination.—The subjects of examination are: materia medica and pharmacy, pharmacology and therapeutics, general pathology, morbid anatomy, and bacteriology (Part I); special pathology, forensic medicine, toxicology, and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical, and operative, including ophthalmology and oto-rhino-laryngology), medicine (systematic, clinical, and practical, including mental diseases) (Part II). The subjects included in Part II may be taken in two groups—namely, Group I: surgery and obstetrics; Group II: medicine, public health, special pathology, forensic medicine, and toxicology. Candidates may pass Parts I and II together or separately, and the two groups of Part II may likewise be taken together or separately, but no student can obtain honours who elects to take the two groups of Part II separately. Forensic medicine and toxicology may be taken either with Part I or with Group II of Part II.

Degree of Doctor of Medicine.—Candidates must be Bachelors of the university of not less than two years' standing as such, and may elect either (1) to pass an examination in general medicine; or (2) to pass an examination in State medicine, or (3) to present a dissertation. The candidate who elects to pass the examination in State medicine must hold a diploma in public health of some university or college, and the candidate who elects to present a dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—The degree may be taken in general surgery or in special subjects. Candidates shall be Bachelors of the university who have practised for two years in an approved hospital (including the holding of an approved appointment for six months), and one of the two years shall have been spent in a hospital with a medical school attached. They shall present a dissertation and pass an examination. For general surgery, the examination shall include a written examination in surgery, a written examination in surgical anatomy and surgical pathology, a clinical examination, an oral examination, and an examination in operative surgery. For special subjects—that is, ophthalmology or oto-rhino-laryngology or gynaecology—the examination shall include

UNIVERSITY OF DURHAM

THE BRITISH
MEDICAL JOURNAL

a written examination in the anatomy, physiology, and pathology of the region of the body concerned (including in the case of ophthalmology, physiological optics), and a written examination in general surgery together with a written, oral, and clinical examination in the particular branch of surgery concerned, as well as an examination in operative surgery of the region concerned.

Diploma in Public Health.—Candidates must be at least 23 years of age, be fully registered medical practitioners of not less than two years' standing as such, and have passed the examination prescribed by regulation. The examination is divided into two parts.

and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as a resident surgeon in a recognized teaching hospital, and the rest of the year in the study of surgery in a recognized medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

The Degree of Bachelor of Hygiene and the D.P.H.

A period of not less than two years must elapse between the attainment by a candidate of a registrable degree or qualification in medicine, surgery, and midwifery and his admission to the final examination as the degree of B.Hy. or for the D.P.H. of the University as the case may be. The curriculum extends over a period of not less than twelve calendar months (or an academic year of whole-time study covering a period of not less than nine calendar months) subsequent to the attainment of a registrable degree or qualification. Candidates for the B.Hy. must take out the curriculum for Part I of the examination at the University of Durham, but for the D.P.H. may do so either at the university or at any medical school or institution recognized by the university. The examination is divided into two parts. Part I is practical, written, and oral, and includes the subjects of bacteriology and parasitology (including immunology, serology, medical entomology, etc.) especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man; chemistry, physics, radiology, and electrology in relation to nutrition and hygiene; and meteorology and climatology in relation to public health. The subjects in Part II include the principles of public health and sanitation; sanitary law and administration (including public medical services); sanitary construction and planning; and public health administration. This part of the examination is written and oral, and includes practical examinations in infectious diseases; food inspection; inspection of premises, dwelling-houses, factories, workshops, schools, etc. Candidates are not admitted to examination in either part until after they have completed the prescribed courses of instruction in the required subjects.

Doctor of Hygiene

Candidates for the degree of Doctor of Hygiene must be Bachelors of Hygiene of the university of two years' standing, and are required to satisfy the examiners that they have conducted original research in the subject of public health.

Diploma in Psychiatry

Candidates must be registered medical practitioners, and, unless qualified before January 1st, 1911, must have attended, subsequent to passing their qualifying examinations, courses of instruction in: (a) anatomy; (b) physiology; (c) pathology; (d) bacteriology; (e) psychology; (f) clinical psychology; (g) clinical neurology; (h) clinical psychiatry. The examination consists of two parts, namely: (1) anatomy, physiology, pathology, and bacteriology; (2) psychology and clinical psychiatry. Candidates may present themselves for the whole examination or for either part separately.

FEES

The following fees are payable: Matriculation, £2; Examinations, Pre-registration, £3 3s.; First, Second, and Third M.B., B.S., each £5; Final M.B., B.S., £15; M.D. and M.S., each £5; B.Hy. and D.P.H., £12 12s.; D.Psy., £10 10s.; and D.Hy. and D.Ch., each £20; First, Second, and Third L.D.S., each £3 10s.; and Final L.D.S., £5; First, Second, and Third B.D.S., each £5; Final B.D.S., £8; and M.D.S., each £6 6s. plus the sum of 10s. if it is the initial degree taken in the university; M.S. and M.D.S., each £6 6s.; M.D., D.Ch., and D.Hy., each £10; D.P.H., D.Psy., and L.D.S., each £3.

Further information may be obtained from the Dean of the College, University of Durham College of Medicine, Newcastle-on-Tyne.

UNIVERSITY OF LEEDS

The degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (B.Ch.D.), Master of Dental Surgery (M.Ch.D.), and diplomas in public health, in psychological medicine, in dental surgery, and in nursing.

UNIVERSITY OF DURHAM

To its own undergraduates, who may be of either sex, this university grants the degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.), and also grants the higher degrees of Doctor of Medicine (M.D.), Master of Surgery and Doctor of Surgery (M.S.), and Bachelor of Hygiene, Doctor of Hygiene (M.S.), Surgery (B.D.S. and M.D.S.); it also grants diplomas in public health, psychiatry, and dental surgery. The university accepts the Durham University school certificate examination (if a sufficient standard is obtained in certain specified subjects) for matriculation purposes, but also accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application. In addition to satisfying the matriculation requirements of the university, every student must (1) pass a pre-registration examination in physics and inorganic chemistry conducted or recognized by the university, and (2) be registered on the books of the General Medical Council. The university requires that at least three years be spent in residence in the university; in certain cases candidates may obtain exemption from the First and Second Examinations, but the later professional examinations must be passed in the university.

Professional Examinations

There are four professional examinations for the M.B., B.S. degrees. The First Examination is held in March, June, and December; the Second and Third Examinations in March and June; and the Final Examination in June and December. The first deals with biology and chemistry in relation to medicine; the second with anatomy and physiology; the third with pathology, bacteriology, materia medica, pharmacology and pharmacy, medical jurisprudence, and public health. At the Final M.B., B.S. the candidate is examined in medicine, including therapeutics, and clinical medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical midwifery, and gynaecology; and clinically in psychological medicine, diseases of the throat, nose and ear, diseases of the skin, diseases of the eye, and diseases of children.

M.D.—This degree is only open to Bachelors of Medicine of the university. They must be of at least two years' standing, and must comply with the regulations printed in the Calendar of the College of Medicine.

M.S.—Candidates for this degree must have been engaged in practice for at least two years subsequent to qualifying surgery, systematic and clinical, surgical anatomy and pathology, and surgical operations.

D.Ch.—The university grants also the degree of Doctor of Surgery. Candidates for this degree must be registered medical practitioners, not less than 24 years of age. They must devote three years, subsequent to obtaining a registrable qualification, to the study of surgery and ancillary subjects; one at least of the three years must be spent in the university. The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of Faculty of Medicine.

One year must be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology,

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five years, two at least of such years having been passed in the university, at least one year being subsequent to the date of passing the first examination. They must also have matriculated by satisfying the examiners in:

- I. Either English Composition and English Literature, or English Composition and History.
- II. Either Mathematics or Latin.
- III. } Three other subjects not already taken under I and II
- IV. } above, chosen from the following list:
- V. }

(1) English literature; (2) History; (3) Geography; (4) Greek; (5) Latin; (6) French; (7) German; (8) Some one other language approved by the Board; (9) Mathematics; (10) Mechanics; (11) Physics; (12) Chemistry; (13) General experimental science; (14) Natural history; (15) Botany.

Provided that (a) candidates who take Mathematics under II above must include one of the subjects 4-8; (b) candidates who take Latin under II above must include one of the subjects 9-15. In all cases Mathematics is a compulsory subject for admission to the Faculty of Medicine.

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

Professional Examinations

The examinations for the M.B., Ch.B. number three.

The First Examination.—This consists of four parts (1) physics and inorganic chemistry, (2) organic and physical chemistry, (3) botany, (4) zoology, each of which may be taken separately, but candidates are not permitted to start their second year's work until Parts 1, 2, and 3 have been passed.

The Second Examination.—This consists of Part I, materia medica and practical pharmacy; Part II, anatomy and physiology. Candidates will be allowed to pass each part separately.

The Final Examination.—The Final Examination consists of: Part I, pharmacology and pathology and bacteriology; Part II, medicine, surgery, obstetrics and gynaecology; Part III, forensic medicine, public health, and therapeutics. Part I may be taken at the end of the second clinical year, and must be passed before Parts II and III are taken. Parts II and III may be taken at the end of the third clinical year but not before the completion of the fifth year of medical study. If taken separately Part III may not be passed before Part II.

M.D.—Candidates for this degree must be bachelors of medicine and bachelors of surgery of the university, and subsequently to having graduated must have completed two years of hospital practice or special study approved by the university; or four years in the practice of their profession in one or other of its various branches; six months' hospital practice or special study to count as the equivalent of one year's ordinary practice. Any subject of the medical curriculum except surgery may be chosen for the examination, but a thesis, the title of which must previously receive the approval of the Board of the Faculty of Medicine, may be submitted, and if it is adjudged to be of exceptional merit the candidate may be exempted from further examination.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. of the university not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. He must also have attended certain courses, including one on ophthalmology and one on pathology and bacteriology; he is then examined in surgery in all its branches and in ophthalmology and pathology and bacteriology.

FEES

The Matriculation fee is £2, and on readmission £2 or £2 2s. 6d.; for each of the other examinations £6 and £6 on readmission.

The fees for the M.D. and Ch.M. degrees are each £10 and the same on readmission. The fee for conferment of each of these degrees is £5.

UNIVERSITY OF LIVERPOOL

This university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B., M.Ch.Orth., and Ch.M.), awards degrees in dental surgery (B.D.S. and M.D.S.), and degrees in veterinary science (B.V.Sc., M.V.Sc., and D.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), tropical hygiene (D.T.H.), public health (D.P.H.), veterinary hygiene (D.V.H.), and medical radiology and electrology (D.M.R.E.). The degree of Doctor of Philosophy (Ph.D.) may also be taken in the Faculty of Medicine.

Matriculation

The matriculation examination is governed by the Joint Matriculation Board, 315, Oxford Road, Manchester, 13, which accepts, under certain conditions, the tests of several other bodies as its equivalent. Candidates will be required to have included mathematics among the subjects in which they have passed at such examination.

Professional Examinations

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, (2) biology (zoology and botany), (3) physics.

Second M.B.—This test covers (1) anatomy, (2) physiology, including biochemistry and histology.

Final M.B.—The subjects of the Final Examination are: Part I—(a) pathology; (b) pharmacology and general therapeutics. Part II—(a) forensic medicine and toxicology; (b) public health. Part III—(a) obstetrics and diseases of women; (b) surgery, systematic, clinical, operative and practical, including ophthalmology; (c) medicine, systematic and clinical, including therapeutics, mental diseases, and diseases of children. Candidates may take Parts I, II, and III separately, provided that candidates may not present themselves for Part III until they have completed the sixth year of medical study and have passed the examinations in Parts I and II.

M.D.—May be conferred on graduates (M.B., Ch.B. Liverpool): (a) on candidates of two years' standing who present a thesis acceptable to the Faculty, and certified to be the candidate's own work, together with, if candidate desires, copies of published original papers upon medical science—oral examination on subject of thesis; (b) on candidates of five years' standing by examination in (a) Medicine and (b) a selected branch of Medicine.

Ch.M.—May be conferred on graduates (M.B., Ch.B. Liverpool) after examination. Other information concerning the diplomas of this university and its medical school will be found on page 418.

M.Ch.Orth.—May be conferred on graduates in Medicine of Liverpool or other approved university and graduates of a Faculty other than Medicine of Liverpool or other approved university who are Fellows of the Royal College of Surgeons of England, Edinburgh, or Ireland, or of the American College of Surgeons.

Fellowships, Scholarships, and Exhibitions

The university awards Fellowships annually to students of distinguished merit, as follows:

- (1) John Rankin Fellowships in Anatomy, two, each of the value of £120, tenable for two years.
- (2) Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex.
- (3) John W. Garrett International Fellowship in Bacteriology, value £100 and tenable for one year.
- (4) Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year.
- (5) Holt Fellowships in Physiology and Pathology, two in number, value £150 each and tenable for one year.
- (6) Johnston Colonial Fellowship in Biochemistry, value £100 and tenable for one year.
- (7) Thelwall Thomas Fellowship in Surgical Pathology, value £150 and tenable for one year.
- (8) Lady Jones Fellowship in Orthopaedic Surgery, one, value £200, offered every two years.

There are, in addition, scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER

This university grants the four ordinary degrees in medicine and surgery—M.B. and Ch.B. and M.D. and Ch.M.; a degree and diploma in dental surgery; a diploma in public health; a diploma in psychological medicine; a diploma in bacteriology; and a diploma in pathology. Candidates for degrees must pass the special matriculation examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof: see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the six years' curriculum, subsequent to the passing of the First M.B. Examination. The matriculation examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history, (4) mechanics, (5) one subject at choice as approved by the Joint Board. It is held in July and September.

Professional Examinations

M.B., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The First M.B. is divided into Part I, chemistry and physics; Part II, biology—(a) botany, (b) zoology. The parts may be taken separately or together. At the Second M.B. the candidate is examined in anatomy (including histology) and physiology; at the third in pathology, bacteriology, and pharmacology (including materia medica and practical pharmacy). The Final Examination is divided into two parts, which may be taken separately. Part I consists of (a) forensic medicine and toxicology, and (b) hygiene and preventive medicine. Part II consists of (a) medicine, including dermatology, diseases of children, and mental diseases; (b) surgery, surgical pathology, and diseases of the eye and of the ear, nose, and throat; (c) obstetrics and gynaecology.

M.D.—A candidate for this degree must be a Bachelor of Medicine of the university of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as a practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject selected by himself.

Ch.M.—A candidate must have held, since becoming Ch.B., and for not less than twelve months, a post in a public institution affording opportunity for the study of the branch of surgery in which examination is desired. The examination in Branch I comprises the general field of surgery; Branch II, obstetrics and gynaecology; Branch III, ophthalmology; Branch IV, otology, laryngology, and rhinology.

B.Sc. and M.Sc.—The ordinary degree of B.Sc. in the Schools of Anatomy and Physiology may be obtained by students in medicine who in their third year of study for the degree of M.B., Ch.B. complete the additional courses in these subjects prescribed for this degree. Candidates for the Honours degree of B.Sc. in anatomy or physiology who are students in medicine are required to attend courses in advanced anatomy and physiology for four terms after passing the Second Examination for the degrees of M.B., Ch.B. Graduates in science of this university, of not less than one year's standing from the date of their graduation as Bachelors, may proceed to the degree of M.Sc. by the presentation of an approved thesis on some subject coming within the scope of the Faculty of Science.

FEES

The following examination fees are payable. Matriculation, £2; on readmission, £2. Each M.B. examination, £8 8s.; on readmission, £3 3s. M.D., including the conferring of the degree, £15 15s. Ch.M., £10 for the examination and £10 10s. for conferment of degree. Application for further information should be addressed to the Dean of the Medical School.

UNIVERSITY OF SHEFFIELD

The degrees of this university (M.B., Ch.B., M.D. and Ch.M., B.D.S., and M.D.S.), and the diploma of licentiate in dental surgery, are open to candidates of either sex. Candidates for a degree must have matriculated in the

university or have passed such other examination as may be recognized for this purpose, and have passed the preliminary examination in chemistry and physics.

Professional Examinations

A candidate for the degrees of M.B., Ch.B. must produce certificates that he will have attained the age of 22 years by the day of graduation; that he has pursued the courses of study required by the university regulations during not less than five and a half years subsequent to the date of his matriculation or exemption from matriculation, three of such years at least having been passed in the Faculty of Medicine of the university, one at least being subsequent to the passing of the Second Examination. The following examinations must be passed in due order.

First Examination.—The subjects are chemistry, physics, and biology. Candidates who have passed the Intermediate Examination of the Faculty of Pure Science in any or all of the subjects of the First M.B. Examination will, on payment of the fee for the latter examination, be deemed to have passed it when they have passed in such subjects as they did not take for the Intermediate B.Sc. Examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, in (i) chemistry, inorganic and organic; (ii) physics; (iii) biology; and of having passed or obtained exemption from the preliminary examination in chemistry and physics.

Second Examination.—The subjects are anatomy and physiology (Part I). Candidates must have passed the First Examination, and must have attended (1) courses on anatomy, including lectures and practical anatomy, during five terms; (2) courses on physiology, including lectures and practical physiology, during one year.

Third Examination.—The subjects are pathology and pharmacology, applied anatomy, and physiology (Part II). Candidates must have attended courses of instruction in pathology for five terms, in pharmacology for three terms (and one term in pharmacy), in applied anatomy for four terms, and in physiology (Part II) for six terms.

Final Examination.—The subjects are: Part I, forensic medicine and public health; candidates must have attended courses for one term in each subject. Part II, medicine (including mental diseases and diseases of children and vaccination), special pathology (including morbid anatomy and clinical pathology), and therapeutics. Part III, surgery (including the administration of anaesthetics, diseases of the ear, nose, and throat, ophthalmology, and surgical pathology), and obstetrics and gynaecology (including ante-natal and post-natal practice and infant hygiene). Candidates for Parts II and III must have completed a minimum of five and a half years of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least three years previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least three years previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than twelve months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES

The Charter and statutes of the University of Wales provide *inter alia* for a School and a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., B.Ch. is required to pursue a course of study of not less than six academic years

subsequent to matriculation in the university, and of these years at least three must have been passed in one of the constituent colleges of the university. These are the University College of Wales, Aberystwyth; University College of North Wales, Bangor; University College of South Wales and Monmouthshire, Cardiff; and University College of Swansea. He must hold an arts or science degree of the University of Wales, or of some other university approved for this purpose. Certain of the courses of study pursued for a B.Sc. or a B.A. degree may be counted as courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first includes the preliminary subjects—physics, chemistry, botany, zoology; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects and of organic chemistry must extend over at least one academic year; study of physiology and anatomy must extend over at least two academic years; the first section of the course must occupy not less than three years.

The second section includes courses in pathology, bacteriology, pharmacology, hygiene and forensic medicine, medicine, surgery, and obstetrics and gynaecology, and cannot be commenced until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in all the subjects are held in June of each year, and in pharmacology, pathology, medicine, surgery, obstetrics and gynaecology, in December also.

The university also provides courses of study in public health and in tuberculosis, and awards Diplomas in Public Health (D.P.H.) and Tuberculous Diseases (T.D.D.). Candidates for these diplomas must possess a medical qualification registrable for practice in Great Britain and Ireland, and must have completed courses of study as prescribed by the regulations.

Further particulars and prospectuses may be obtained from the Secretary, Welsh National School of Medicine, The Parade, Cardiff.

Welsh National School of Medicine

This school was reconstituted under the provisions of a Royal Charter granted to the school in February, 1931. The school maintains departments of medicine, surgery, obstetrics and gynaecology, pathology and bacteriology, materia medica and pharmacology, tuberculosis, and preventive medicine and public health.

Full particulars of the conditions of admission to the school and the courses of instruction provided may be obtained on application to the Secretary, Welsh National School of Medicine, The Parade, Cardiff.

English Medical Corporations

There are in England three medical corporations which grant licences to practise—the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the Conjoint Board in England. Details concerning this body, its component Colleges, and the third licensing body here follow.

THE CONJOINT BOARD

This body—the Examining Board in England—deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who pass the required examinations for the Licence and for the diploma of Member respectively. The successful candidate is then entitled to register as L.R.C.P.Lond., M.R.C.S.Eng. It performs the same task in connexion with diplomas in public health, tropical

medicine and hygiene, ophthalmic medicine and surgery, psychological medicine, laryngology and otology, gynaecology and obstetrics, and medical radiology, jointly issued by the two Colleges. Under the present regulations every candidate for the L.R.C.P. and M.R.C.S. must (1) complete five years of professional study after passing a recognized preliminary examination and a recognized pre-medical examination in chemistry and physics; (2) comply with the regulations, which may be had from the Secretary, Examination Hall, Queen Square, London, W.C.1; and (3) pass the two professional examinations of which particulars appear below.

Regulations for the Conjoint Diplomas

The following is an outline of the present regulations for the L.R.C.P.Lond. and M.R.C.S.Eng. The full regulations and synopses and forms of certificate may be obtained from the Secretary.

Pre-Medical Examination

Students are required to pass a pre-medical examination in chemistry, physics, and elementary biology, conducted by the Conjoint Examining Board, before commencing the five years' curriculum of professional study, or some other examination recognized by the Board—namely, the examination in chemistry, physics, and biology for the degree in Medicine of any university recognized by the Board, the higher school certificates of Oxford and Cambridge Universities and the Oxford and Cambridge Schools Examination Board, the higher certificates of London, Bristol, Durham Universities, the Joint Matriculation Board of the Northern Universities, or the Central Welsh Board higher certificate.

A candidate must enter for chemistry and physics together, and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required preliminary examination in general education.

The examination is partly written, partly oral, and partly practical. A candidate rejected in one or both subjects of the examination will not be admitted to re-examination until after the lapse of a period of not less than three months. Not more than two terms of professional study is recognized before the examination in elementary biology is passed.

Professional Examinations

There are two professional examinations, called the First and Final Examinations. The courses of study for the First Examination may be commenced before the pre-medical examination has been passed provided three terms of study of anatomy and physiology are completed after passing such examination.

First Professional Examination.—The subjects of this are: Section I, (a) Anatomy, including histology and embryology; (b) physiology, including biochemistry. Section II, Pharmacology and materia medica. A candidate must have attended at a recognized Medical School courses of instruction in anatomy, including embryology, during five terms, in the course of which he must have dissected the whole body; courses of instruction in physiology, including biochemistry and biophysics, during five terms; courses of instruction in pharmacology and materia medica. A candidate may present himself for the two sections together or separately, but he must take parts (a) and (b) of Section I together until he has passed in one or both parts, but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part. Section II of the examination may be passed at any time before the candidate enters for the Final Professional Examination, provided that the courses for admission to Section I have been completed. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I or of either part of Section I and of Section II in the examination for the degree in Medicine conducted at a university recognized by the Board will be exempted from further examination in such subject or subjects.

Final Professional Examination.—The subjects of this are: Section I, Pathology (including morbid anatomy, morbid histology, and clinical pathology) and Bacteriology. Section II, Part I, Medicine, including medical anatomy, forensic medicine, and public health; Part II, Surgery, including surgical anatomy and the use of surgical appliances; Part III, Midwifery and gynaecology. The examination is partly written, partly practical, partly clinical, and partly oral. A candidate may take Sections I and II and the three parts of Section II

of the Final Examination separately, or may take the whole examination together. He will be required to produce the certificates prescribed by the regulations before being admitted to the respective parts of the examination. No exemption is granted from any subject in the Final Examination.

FEEs

The fee for the *Pre-Medical Examination* is four guineas, for re-examination in Chemistry two guineas, for re-examination in Physics one guinea, and for Biology one guinea. The fee for the *First Professional Examination* is ten guineas, for re-examination after rejection in Section I six guineas, for re-examination after rejection in either part of Section I three guineas, for re-examination after rejection in Section II three guineas. The fee for admission to Section I of the *Final Professional Examination* is four guineas; for admission to Section II, Part I, ten guineas; Part II, ten guineas; Part III, six guineas; and the re-examination fees are respectively three guineas, six guineas, six guineas, and five guineas.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

This College has three grades—its Licentiate, its Members, and its Fellows. The Licence is now only issued through the Conjoint Board. The Membership (examinations for which are held in January, April, July, and October) is only granted to those who have obtained the Licence or to those who are graduates of a recognized university; in any case they must be persons over 23 years of age. Candidates are examined in pathology and the practice of physic, partly in writing and partly *viva voce*; they are also examined in Latin, Greek, French, and German. The languages are not compulsory, but credit is given to those who show a knowledge of them. The fee for the Membership is £42, or in the case of a Licentiate £21. There is a fee of £10 10s., payable before entrance to the examination, which in the case of successful candidates is reckoned as part of the Membership fee. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

This College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations for the Fellowship—the first in anatomy and physiology, held in the months of June and December, which may be passed after the third winter session; the second held in the months of May and November, chiefly directed to surgery, which may be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose. All candidates are required to have held for six months a responsible post in charge of general surgical patients in the wards of a general hospital recognized by the Council.

Fees.—At First Examination, £8 8s.; for re-examination, £5 5s. At Second Examination, £12 12s. Admission fee £10 10s. for members, £31 10s. for non-members.

THE SOCIETY OF APOTHECARIES OF LONDON

This Society confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A. (Licentiate in Medicine and Surgery of the Society of Apothecaries), on those successful at the following examinations:

Pre-medical Examination.—Chemistry and physics, and elementary biology.

Primary Examination.—This includes anatomy, physiology and histology, written, oral, and practical, and

materia medica and pharmacy, written and oral. Candidates referred will be required to produce evidence of further study before being admitted to re-examination. Candidates will be excused any or all the subjects of the Pre-medical and Primary Examination on producing evidence that they have passed the equivalent examinations before an examining body recognized by the Society.

Final Examination.—This is divided into four sections: A, Principles and practice of surgery, including surgical pathology, surgical anatomy, operative manipulation, instruments and appliances; B, Principles and practice of medicine (including therapeutic prescriptions), general and medical history, and morbid histology; C, diseases of newborn children, obstetric instruments and appliances; D, Forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. A, B, and C are written, oral, and clinical. D is written and oral. A, B, C, and D may be taken at separate examinations, but there is no exemption from any subject of the Final Examination. Candidates referred in A, B, or C will be required to produce evidence of further study before re-examination.

All candidates making their first entry for the Final Examination after January 1st, 1935, will be required to pass the present Section D (forensic medicine, hygiene, and mental diseases) with Section B (medicine, general pathology, and bacteriology). The sections which may be taken separately will therefore be: A (surgery), B and D (medicine, etc.) C (midwifery). The form and scope of the examination will otherwise be unchanged.

The fee for the Pre-medical Examination is £5 5s.; for the Primary and Final, £21. The regulations and synopses relating to the several examinations, and other information, may be obtained from the Registrar, the Society of Apothecaries, Water Lane, Queen Victoria Street, E.C.4.

Mastery of Midwifery

The Society has recently instituted a Mastery of Midwifery, and issues a diploma under this title denoting the possession of specialized knowledge of ante-natal care, midwifery, and child welfare. The examinations take place in May and November, and candidates are required to submit certificates, etc., twenty-one days before date of examination. A severe test has been imposed so as to ensure a high standard of professional knowledge, but the diploma is not registrable under the Medical Acts. Admission is open to all who have been for not less than three years in possession of a registrable medical qualification, and who have had certain prescribed experience at recognized institutions concerned with obstetrics, ante-natal work, and child welfare work. Medical officers employed by a public health authority, and having special duties connected with maternity and child welfare, are admitted to the examination on production of evidence to that effect. The entrance fee for the examination is £10 10s., and a further fee of £10 10s. is payable by successful candidates before admission to the Mastery. Copies of the regulations may be obtained from the Registrar at the address given in the preceding paragraph.

British College of Obstetricians and Gynaecologists

The British College of Obstetricians and Gynaecologists was founded and incorporated in September, 1929. The objects of the College are set forth in the Memorandum of Association. The first and most important object is "to encourage the study and practice of obstetrics and gynaecology, subjects which should be inseparably interwoven." The College consists of Fellows and Members. It also has power to grant diplomas and certificates in obstetrics and gynaecology, either alone or in co-operation with teaching and/or examining bodies authorized to grant such diplomas. Candidates for the Membership of the College have to show evidence of having held resident appointments in general medicine or surgery, as well as in obstetrics and gynaecology, before

entering for the examination. The Fellowship of the College is granted to those Members who are judged by the College to have advanced the science and art of obstetrics and gynaecology. The Fellowship and Membership of the College include practically every teacher of obstetrics and gynaecology in Great Britain, and many distinguished exponents in the British Dominions. The Fellowship or Membership of the College is now a necessary qualification for election to the staff of several obstetric and gynaecological hospitals, and it is hoped that in time it will be regarded as essential for election to the staff of such hospitals. Consequently, all intending to specialize in these subjects should endeavour to obtain as soon as possible the Membership, the conditions and regulations of which may be obtained from the honorary secretary. The president is Dr. J. S. Fairbairn, the treasurer Mr. Eardley L. Holland, and the honorary secretary Professor W. Fletcher Shaw.

After long consideration, and as the result of over three years' experience gained by its Examination Committee, the College, recognizing that the present training of students in obstetrics is insufficient to fit them for responsible work in maternity services, has decided to award a diploma (D.C.O.G.) to registered medical practitioners who have had special post-graduate training and experience in the subject and satisfy the examiners appointed by the College. The membership of the College, being intended for those aspiring to special practice in obstetrics and gynaecology, demands a larger and wider experience than is possible for those entering family practice. Many candidates for the membership have had to be rejected because they had insufficient training and experience, and for most of these candidates it is impossible, at the stage of their career which they have reached, to undergo further training and to hold further resident posts. Many of them will be suitable candidates for the diploma. A special regulation has been made for candidates whose names have been on the *Medical Register*, and who have been engaged in practice for at least ten years. Copies of the prospectus and regulations for the membership and diploma may be obtained from the secretary of the College, 58, Queen Anne Street, W.1.

Scotland

THE UNIVERSITIES

There are in Scotland four universities, each possessing a Faculty of Medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are much alike, so that a general account can be given of all of them together.

The universities are those of St. Andrews, Glasgow, Aberdeen, and Edinburgh. The provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed a high repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also diplomas in psychiatry and radiology. As for public health, registrable degrees and diplomas in this subject are granted by the University of Glasgow, while diplomas in public health may be obtained from the Universities of Edinburgh, St. Andrews, and Aberdeen.

The conditions for admission of graduating students of medicine are the same as those in the Faculties of Arts

or Science. Prospective medical students are also required to pass a pre-registration examination in chemistry and physics. This is not enforced at Aberdeen or St. Andrews.

Professional Education

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and, in addition, necessitate definite study for stated periods of diseases of children, of the larynx, ear, and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended regularly, but has duly performed the work of the class. Out of the necessary five years of medical study not less than three (or in certain circumstances two) must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the middle of April to the beginning of July.

Professional Examinations

The distinctive feature of the Scottish curriculum is that though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may pass in zoology* and chemistry.† At the end of the first summer session he can finish with botany* and physics,‡ and with anatomy and physiology at the end of the second. Pathology and materia medica he may pass at the end of the third year, and so on, until the final examination in midwifery, surgery, and medicine, and the corresponding clinical subjects, at the end of the fifth year of study. At each examination the candidate may pass "with much distinction" or "with distinction," and a record is kept of the merit displayed, so that when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry; the second with anatomy and physiology; the third with materia medica and pathology; the fourth with medicine and surgery (clinical and systematic), midwifery, clinical midwifery and clinical gynaecology, and forensic medicine and public health. At Edinburgh the first two examinations are held three times a year; the third and final twice a year. At St. Andrews all four examinations are held twice a year, and at Glasgow the first two are held twice a year and the third three times. At Aberdeen, degree examinations in all subjects are held twice a year.

Exemption from the first professional examination may be obtained by candidates who have passed an arts, science, or medical degree examination in its subjects at any recognized university.‡

The Higher Degrees

It is open to those who are already M.B., Ch.B. to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year in work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Service, or have been at least

* At St. Andrews University botany and zoology may be taken at the end of the first winter term, physics and chemistry at the end of the first year.

† In the case of Glasgow these subjects—chemistry and physics—are transposed.

‡ This does not apply to the University of Aberdeen, where the course in physics includes special instruction on the medical aspects of the subject. Accordingly every student, irrespective of whether he holds an arts or science pass in physics, must take medical physics.

two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and (or, in the case of Glasgow, St. Andrews, and Aberdeen) in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and the thesis being on a surgical rather than a medical subject. He is examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

FEES

It is estimated that the class, examination, and other fees for the M.B., Ch.B. come altogether to about £265, the separate examination fees included in this calculation being as follows:

	£	s.	d.
First Professional	9	9	0
Second Professional	7	7	0
Third Professional	6	6	0
Final	11	11	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 1s. Candidates for the M.D. and Ch.M. pay £21, and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 6d., which is published by Mr. Thin, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application should be made to the Secretary of the University of Aberdeen. In respect of St. Andrews, information can be obtained either from the Secretary of the University, or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally, it should be mentioned that in connexion with all the Scottish universities there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

The Carnegie Trust

The following is a summary of the regulations made by the Carnegie Trust for the Universities of Scotland for assistance in the payment of class fees in the universities and extra-mural colleges of Scotland.

Applicants must be over 16 years of age; they must be of Scottish birth or extraction, or have attended for two years, after the age of 14, at a school or institution under inspection of the Scottish Education Department. Applicants so qualified who have been pupils of schools under the Scottish Education Department will be eligible for assistance in the payment of class fees if they have obtained the leaving certificate of the Department with a minimum of three higher grade passes, provided that it bears evidence of such preliminary education as is required by the universities for their graduating curricula, or that it has been supplemented by such passes either in the Scottish Universities Preliminary or other examination as will satisfy the above requirement of the universities. Where applicants have not been pupils of schools under the Scottish Education Department, or where other good ground for not having obtained the leaving certificate can be shown, the Executive Committee has power to accept instead what it deems equivalent evidence of attainments provided that applicants will not be considered eligible who have not obtained three higher grade passes or who require to pass any further preliminary examination before they can complete their graduating curricula. No applicant in medicine is eligible for assistance until pre-registration subjects have been passed at any centre where pre-registration examinations are required.

Applicants in the Faculties of Arts and Science must have had their course of study for each academic year approved by the University Adviser of Studies, and all applicants must have passed the graduation examinations belonging to the previous stage of their curriculum before becoming eligible for assistance in the payment of fees of classes belonging to a further stage. Beneficiaries must submit to the Executive Committee at the end of each session particulars as to their

attendance and work, any distinctions gained, and any graduation examinations passed.

The annual allowance towards payment of class fees offered to beneficiaries by the Trust in the Faculty of Medicine is £20 for four years, in all £80. Any unexpended part of a grant will be carried forward to the succeeding year. In combinations of Faculties the allowances available for beneficiaries are: Arts and Medicine—two Arts grants of £9 and four Medicine grants of £20, in all £98; Science and Medicine—two Science grants of £18 and four Medicine grants of £20, in all £116.

Applicants, in writing for application forms (Carnegie Trust, Merchants' Hall, 22, Hanover Street, Edinburgh) must name the university and faculty in which they intend to study, and state whether they have previously obtained the benefits of the Trust. Applications must be lodged not later than October 25th for the winter session, or May 10th for the summer session. Payments are made by means of fee coupons, and fees already paid are not refunded.

THE SCOTTISH CORPORATIONS

There are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be separately obtained only by persons who are already in possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board, which the three corporations have combined to form. Details concerning this Board and its component Colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND

This body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P.Ed., L.R.C.S.Ed., and L.R.F.P.S.Glas. The Board requires all candidates to comply with the regulations of the General Medical Council. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council. All candidates must obtain registration with the General Medical Council.

Professional Curriculum for Candidates registered as Medical Students after October 1st, 1930

Subsequent to registration as a medical student the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not insist that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held four times every year, and these will fall to be held three times in Edinburgh and once in Glasgow during the next period; it is open to candidates to present themselves for examination at either place. The first examination deals with general biology (systematic and practical), and physics and chemistry (systematic and practical); the second with anatomy, embryology, physiology, biochemistry and biophysics; the third with pathology (including bacteriology and morbid anatomy) and pharmacology (theoretical and practical); and the final with (1) medicine, including therapeutics, applied anatomy and physiology, and clinical pathology, with practical medicine; (2) surgery, including applied anatomy and physiology, clinical

pathology, and practical surgery; (3) midwifery and diseases of women, clinical obstetrics and gynaecology, with practical midwifery; and (4) medical jurisprudence and public health. All candidates for the Final Examination must complete portions (1) (2) and (3), which must be taken together, within a period of nineteen months.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the Final Examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects; but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

Part or entire exemption from the first three examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own, but all candidates for the Conjoint Licence must sit for the Final Examination, and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

FEES

It is estimated that the total cost of lectures and fees for the Conjoint Licence is about £170. The separate examination fees are as follows: First, Second, and Third Professional, £5 each; Final £15. On re-entry for any of the first three examinations £3, and on re-entry for the Final, £5. If the re-entry is only in one or two subjects of the First, Second, or Third Examination the fees are smaller.

Information concerning this Board should be sought either from Mr. David Thomson, Solicitor, 18, Nicolson Street, Edinburgh, or from Mr. David Willcox, Faculty Hall, 242, St. Vincent Street, Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

This College has three grades—Licentiate, Membership, and Fellowship—all of which are open to men and women. The regulations applying to candidates for the Licentiate have already been generally indicated. If desirous of receiving it apart from those of the other two corporations, they must be duly registered medical practitioners. Candidates will be required to pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in materia medica. The fee for examination is 15 guineas, a special examination being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take place monthly on the first Wednesday and Thursday, except in September and October.

Candidates for the Membership must be either Licentiates of a British or Irish College of Physicians, or alternatively graduates of medicine of a university approved by the Council, and in either case not less than 24 years of age. Candidates are examined in medicine and therapeutics, also on one or more departments of medicine specially professed, and approved by the Council, in which a high standard of proficiency will be expected. The fee to be paid by a candidate for the Membership is £36 15s. The examination is held quarterly, on the second Tuesday and following days of the months of January, April, July, and October, and application for admission to it must be made a month previous to the date at which it is proposed to appear.

For the Fellowship the candidate must have been a Member of the College for at least three years, and, if accepted, pay fees, including £25 stamp duty, amounting altogether to £64 18s. Further details can be obtained on application to the Secretary of the College.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

This College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, and for the Fellowship women are eligible also.

Licence

As an original qualification the Licence is only granted after fulfilment of the regulations of the Scottish Conjoint Board, but as an additional qualification it can be obtained by those already possessed of a registrable or equivalent qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body.

The fee is £15 15s., of which £10 10s. is returned to unsuccessful candidates. On due cause being shown, a special examination may be granted, the fee being £20, of which £10 is returned to a candidate if he is not approved.

Fellowship

Candidates for the Fellowship must be not less than 25 years of age, and have been in the practice or study of their profession subsequent to qualification for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or a registrable diploma obtained as the result of an examination which includes surgery as well as medicine and midwifery. Candidates are examined in (a) the principles and practice of surgery, including surgical anatomy, (b) clinical surgery, and (c) one optional subject, which they may choose from among the following: surgical pathology and operative surgery, ophthalmology, laryngology, otology and rhinology, surgery, anatomy, and dental.

The examination is written, oral. A candidate who desires to be examined must give one month's notice. After having passed the examination he must lodge with the Clerk to the College a petition asking that his name be placed before the College for election as a Fellow. This petition must be signed by two Fellows, as proposer and seconder, who should be sufficiently acquainted with the candidate to vouch that he is in every way a suitable candidate for the Fellowship. Examinations are held four times a year—January, March, July, and September. It is desirable that either the proposer or the seconder should be resident in Edinburgh. Candidates are not allowed to appear more than three times at the examinations unless by express permission of the President's Council.

The admission fee is £20, and after passing the examination the candidate shall pay the sum of £30 to the College funds. In the case of Licentiates of the College £10 thereof shall be remitted in consideration of the fees they have already paid. For further information application should be made to the Clerk of the College, Mr. David Thomson, Solicitor, Surgeons' Hall, 18, Nicolson Street, Edinburgh, from whom a copy of the *Laws Relating to the Fellowship by Examination* may be obtained.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

This body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s., and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. The Faculty can also elect three Fellows annually without previously submitting them to examination, provided they "have highly distinguished themselves in medical science or practice." They must be of not less than twenty years' standing and 45 years of age.

The fee for the Fellowship is £50. Further information can be obtained from Mr. David Willcox, Faculty Hall, 242, St. Vincent Street, Glasgow.

Ireland

MEDICAL REGISTRATION IN THE IRISH FREE STATE

The Medical Practitioners Act, 1927 (Irish Free State), provides for the establishment of a Medical Registration Council for the Irish Free State. The main functions of the Council are (1) to keep a register of medical practitioners who may desire to practise permanently or temporarily in the Irish Free State, and (2) to exercise disciplinary power with regard to all medical practitioners who are on the register and engaged in practice in the Irish Free State. The first schedule of the Act contains the agreement between Great Britain, the Irish Free State, and Northern Ireland. This agreement provides for the nomination of a member of the General Medical Council, formerly made for Ireland by His Majesty on the advice of the Privy Council, to be made henceforth by His Majesty in Council on the recommendation of the Governor of Northern Ireland. The nominations of members of the General Medical Council by universities and medical corporations in Ireland and the election of a member of the General Medical Council by registered medical practitioners in Ireland will be in all respects the same as heretofore. The constitution of the General Medical Council and of the several Branch Councils as formerly existing under the Medical Acts, and the powers of holding qualifying examinations and granting diplomas for the purpose of registration in the general *Register* formerly vested in certain universities and medical corporations in Ireland, are not affected by the establishment of the Irish Free State or of Northern Ireland, and for the purpose of the preparation and keeping of the general *Register* the General Medical Council and the Branch Council for Ireland have the same powers and jurisdictions under the Medical Acts as they exercised formerly. The agreement provides also that any person who is or shall be registered in the general *Register* shall be entitled on the payment of a prescribed fee to be registered in the *Irish Free State Register*, but this fee is not payable by any person who, on the date of the establishment of the *Irish Free State Medical Register*, is registered on the general *Register*. Then follow provisions with regard to the erasure from the *Register* of the name of a person on account of misconduct.

The *Irish Free State Medical Register* was established on May 26th, 1928, this being the date appointed by the Medical Registration Council. The *Register* on establishment contained the names of every medical practitioner who was registered in the general *Medical Register* immediately before May 26th, 1928, and who either was then resident in the Free State, according to his address as stated in the general *Register*, or was living outside the Free State and applied to the Council within one month before May 26th, 1928, to be registered. No fee for registration was charged in such cases.

For registration in the *Irish Free State Medical Register* subsequent to its establishment a fee is required, together with a prescribed form of application. A person is eligible for registration if he is at the time of application registered in the general *Medical Register*, or if he possesses the requisite qualifying diploma granted by colleges or bodies in the Free State as set out in the Act. Candidates for medical appointments made under the Appointments Commission must be registered in the *Irish Free State Medical Register*. Application for further information may be made to the Registrar, Medical Registration Council, Room 35, Upper Fitzwilliam Street, Dublin.

THE IRISH UNIVERSITIES

There are three universities in Ireland, each with a medical faculty. These are, in the Irish Free State, the University of Dublin (usually known as Trinity College, Dublin), and the National University of Ireland; and, in Northern Ireland, the Queen's University of Belfast.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE

This university grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), two in midwifery (B.A.O. and M.A.O.), and two in public health. It also grants degrees in gynaecology and obstetrics, for which nine months' study is required, and in psychological medicine, for which twelve months' study is required. The degrees are granted to those who, having passed the professional examination, have also graduated in arts.

Professional Examinations

A candidate for the Final Examination for the M.B., B.Ch., and B.A.O. degrees must be a matriculated student of at least five years' standing. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final. Before admission to any of these examinations students must have completed the courses of study in the subjects involved.

Preliminary Scientific. This covers (a) chemistry, (b) physics, (c) botany and zoology. The three divisions may be taken together or at different times.

Intermediate Medical.—This is divided into two parts: (a) anatomy, physiology, and histology; (b) applied anatomy and applied (clinical) physiology. The two parts may be taken separately or together.

Final Examination.—Part I: Pathology and bacteriology, materia medica and therapeutics. Part II: (a) Midwifery and gynaecology; (b) medicine, mental diseases, medical jurisprudence and hygiene; (c) surgery in all branches, including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the Final Examination cannot be completed before the end of the fifth year.

M.D.—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must send in a thesis for approval. Subsequently the Regius Professor of Physic and an assessor will discuss with him questions connected with the thesis, and also examine him viva voce on other medical subjects of a more general nature.

M.Ch.—The candidate must be a B.Ch. of not less than three years' standing and must produce satisfactory evidence of having been engaged in practice for two years.

M.A.O.—The candidate must be a B.A.O. of not less than two years' standing and must produce satisfactory evidence of having been engaged for two years in the study of obstetric science. The examination is specially directed to obstetrics and practical gynaecology.

Further information regarding courses of instruction, etc., may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

QUEEN'S UNIVERSITY, BELFAST

The degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), Master of Obstetrics (M.A.O.). The university also confers a diploma in public health and a diploma in psychological medicine. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his

professional examinations, a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine. Degrees in dental surgery (B.D.S. and M.D.S.) are conferred by the university, and also a diploma in dental surgery (L.D.S.).

Professional Examinations

The examinations for the M.B., B.Ch., B.A.O. are four in number. The first deals with: (1) inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which botany and zoology form one. The Second Examination covers anatomy and physiology (both theoretical and practical), and may be taken at the end of the second year of the student's career. The Third Examination includes: (1) pathology and practical pathology, (2) materia medica, pharmacology, and therapeutics, (3) medical jurisprudence, and (4) hygiene. Candidates who have passed the Second Examination may present themselves for Part I of the Third (Nos. 1 and 2) at the close of the third year, and for Part II (Nos. 3 and 4) at the end of the winter session of the fourth year.

The Final Examination includes: (1) medicine, (2) surgery, (3) midwifery, (4) ophthalmology and otology. The student must pass in all subjects at once at the end of his fifth year. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done subsequent to passing in all the subjects of the Second Examination.

The Higher Degrees

Candidates for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science, in which case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (a) after a formal examination, or (b) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (a) human anatomy, including embryology; (b) physiology, (c) pathology, (d) pharmacology and therapeutics, (e) sanitary science and public health, (f) forensic medicine and toxicology, (g) mental diseases, (h) infant hygiene and diseases of children, (i) midwifery and infant hygiene. The regulations for the degrees of M.Ch. and M.A.O. are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND

The National University of Ireland carries on most of its medical educational work through three constituent colleges—University College, Dublin; University College, Cork; and University College, Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation in the Medical Faculty. The candidates at each constituent college are examined by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the General Board of Studies of the university. In addition to the ordinary degrees in Medicine and Surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public

Health, and Bachelor and Master in Dental Surgery, as well as Diplomas in Public Health and in Psychological Medicine.

Application for other information may be made to the Registrar, National University of Ireland, 49, Merrion Square, Dublin, C.17.

THE IRISH CORPORATIONS

There are, in the Irish Free State, three licensing bodies other than the Medical Faculties of the universities; and in Dublin, just as in London, there is a Royal College of Physicians of Ireland, a Royal College of Surgeons in Ireland, and an Apothecaries' Hall. In Dublin, as in London and in Edinburgh, the two Colleges have formed an examining Conjoint Board, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall of Ireland, like the Apothecaries' Society of London, gives its licence separately.

THE CONJOINT BOARD IN IRELAND

This body requires of candidates either the passage of its own preliminary examination in the subject of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council as well as passing in the pre-registration examinations in chemistry and physics and biology.

Professional Examinations

There are three professional examinations, the first of which cannot be passed earlier than the end of the second winter session, nor the final before the conclusion of full five years of medical study. Before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The First Examination deals with Part I—(a) biology, (b) applied chemistry and physics. Part II—anatomy, including embryology; physiology, including physiological chemistry and histology. The Second Examination deals with (a) pathology, including morbid anatomy, clinical pathology, and bacteriology; (b) materia medica, pharmacy, and therapeutics; (c) forensic medicine, hygiene, and public health; (d) ophthalmology and aural surgery; and may be taken separately.

Final Examination.—This is divided into three divisions, which cannot be completed until at least five years have passed in medical studies other than those for the pre-registration examinations, and five years at least since the beginning of the curriculum. The divisions are: (a) medicine, including fevers, mental diseases, and diseases of children; (b) surgery, including operative surgery; (c) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination.

Fees.—Preliminary Examination—2s. Re-examination, £2 2s. P. £3 3s. Re-examination in C. £1 1s. First Professional Examination—Part I, £17 17s.; Part II, £10 10s.; Second, £9 9s.; Final, £6 6s. Re-examination fee is £2 2s. for each division.

Diploma in Psychological Medicine

There are two examinations in connexion with this diploma: Part I consists of (a) anatomy and physiology of the nervous system, (b) psychology. Part II—(a) neurology, including clinical and pathological neurology; (b) psychiatry, or psychological medicine, including its legal relationships. Fees, £6 6s. for each part.

Further information can be obtained from Mr. Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, St. Stephen's Green, Dublin.

Royal College of Physicians of Ireland and Royal College of Surgeons in Ireland

The Diploma in Public Health

Every candidate for the Diploma in Public Health must observe the following rules:

1. Not less than two years shall elapse between the attainment by a candidate of a registrable qualification in medicine, surgery, and midwifery and his admission to the final examination for a diploma or degree in sanitary science, public health, or State medicine. (The purpose of Rule 1 is to provide opportunity for candidates while passing from the state of pupilage to that of responsible practice, to give mature consideration to the obligations and duties involved in the work of the Public Health Service, and to acquire direct experience of medical work in a responsible capacity, in general medical practice, in hospital or laboratory appointments, or in any special branch of clinical work or study related to State medicine.)

2. The curriculum for a diploma or degree in sanitary science, public health, or State medicine shall extend over a period of not less than twelve calendar months (or an academic year of whole time study covering a period of not less than nine calendar months) subsequent to the attainment of a registrable qualification.

3. Every candidate shall produce evidence of having attended, during not less than 280 hours, at an institution approved by the licensing body granting the diploma or degree practical instruction in: (a) bacteriology and parasitology (including immunology, serology, medical entomology, etc.), especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man; (b) chemistry, physics, radiology, and electrolgy in relation to public health; (c) physiology and biochemistry in their application to nutrition and hygiene; (d) meteorology and climatology in relation to public health.

4. Every candidate shall produce evidence of having received, during not less than 120 hours, at an institution approved by the licensing body granting the diploma or degree, instruction in: (a) the principles of public health and sanitation; (b) epidemiology and vital statistics; (c) sanitary law and administration (including public medical services); (d) sanitary construction (including licensing body granting the diploma or degree practical instruction for three months on the clinical practice of a recognized hospital for infectious diseases, and has received therein instruction in the methods of administration. At least twenty-four daily attendances of not less than two hours each shall be required.

5. Every candidate shall produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of a medical officer of health, who shall certify that the candidate has received, from this officer or other competent medical officer during not less than three hours on each of sixty working days practical instruction in these duties, and also those relating to: (a) maternity and child welfare service; (b) health service for children of school age; (c) venereal diseases service; (d) tuberculosis service; (e) industrial hygiene; (f) inspection and control of food, including meat and milk. (Instruction in (a) to (f) should include attendance at the centres, clinics, institutions, and premises concerned.) Certificates of having received the prescribed instruction in public health administration must be given by a medical officer of health who devotes his whole time to public health work; or by the M.O.H. of a sanitary area having a population of not less than 50,000; or in Ireland the medical superintendent officer of health of a county or county borough having a population of not less than 50,000.

6. The examination for the diploma or degree shall be divided into two parts, Part I and Part II, each of which shall extend over not less than two days, and shall be conducted by examiners specially qualified. A candidate must pass in all the subjects of Part I before being admitted to examination for Part II. In Part I, and also in Part II, a candidate must pass in all the specified subjects at one time.

7. The examination for Part I shall be practical, written, and oral, and shall include the subjects referred to in Rule 3. Candidates may not be admitted to examination for Part I until after they have completed the prescribed courses of instruction in the subjects thereof.

8. The examination for Part II shall include the subjects referred to in Rules 4, 5, and 6. The examination shall be written and oral, and shall include practical examinations in infectious diseases; food inspection; inspection of premises—dwellings, factories, workshops, schools, etc. Candidates may not be admitted to examination for Part II until after they have completed the prescribed courses of instruction in the subjects thereof. No candidate shall be admitted to Part II of the examination for a registrable diploma or degree in public health until after the lapse of not less than two years from the date of his obtaining a registrable qualification in medicine, surgery, and midwifery, which qualification must be registered in the *Medical Register* before admission to Part II.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

Those whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included

in the examination for the Licence in Medicine. For the Licence in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to graduates in medicine of recognized universities whose names are on the *Medical Register* of the United Kingdom or the Irish Free State, and Licentiate in medicine of the Royal Colleges of Physicians. The examination deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members of the College.

Fees.—For the Licence in Medicine, 15 guineas; Special Examination, £21. For the Licence in Midwifery, 8 guineas; Special Examination, 16 guineas. For the Membership, 20 guineas to a Licentiate of the College, 35 guineas to others; £35, in addition to stamp duty, £25.

Information as to special examinations and other matters can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND

This body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the Royal College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf, by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship.—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology; and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly viva voce; while the Final Examination includes the performance of operations. All subjects of either examination must be passed at one time, and in neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle the holder to admission to the *Medical Register*; if, however, the candidate's name is on the Colonial or Foreign List in the *Medical Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees.—Candidates for the Fellowship pay 5 guineas for each examination, the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND

A diploma is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Women candidates are eligible.

Fees.—First and Second Professional Examinations, £21; Final Examination, £21. Subjects of examination: First Professional, Anatomy and Physiology. Second Professional, Materia Medica and Pharmacy; Medical Jurisprudence and Hygiene; Pathology. Final Examination: Medicine, Surgery, and Midwifery. Candidates must enter for and pass at the one time in Anatomy and Physiology. They are at liberty to enter for the subjects of the Final Examination at separate

times, but the Final Examination cannot be completed until a period of three years has elapsed from the date of passing First Professional Examination.

Application for other information should be made to the Registrar, 95, Merrion Square, Dublin.

Medical Schools and Colleges

LONDON

Information as to the fees at each of the various metropolitan medical schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages. The courses they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the English Conjoint Board or the Apothecaries' Society, not less than of those who have London or other university degrees in view. At all, too, special facilities are offered to students who have commenced their professional education at Oxford or Cambridge, and are seeking the medical degrees of those universities.

Charing Cross Hospital

Centenary Year

The School, which was formally opened in October, 1834, is this year celebrating its centenary by the issue of a public appeal for funds. One of the principal objects of the appeal is for the provision of a students' hostel. The inaugural ceremony will be held in the autumn, and details will be furnished to applicants.

Situated in the centre of London, Charing Cross Hospital Medical School is the most easily accessible of all the London schools. Instruction is given in all the subjects for the final examinations of the universities of London, Oxford, and Cambridge, the Conjoint Board, and other licensing bodies. In addition to the clinical appointments held by every student, courses of systematic lectures, demonstrations, and tutorial classes are held in all subjects of the curriculum. In the School there are departments devoted to bacteriology, clinical pathology, biochemistry, materia medica, public health, operative surgery, as well as laboratories for research. By reason of the abundance and variety of the material available for investigation, the Institute of Pathology, with its whole-time staff of scientific workers and its completely equipped laboratories, offers peculiar advantages to students in this branch of medicine. The Library has ample accommodation, and contains nearly 4,000 volumes, including modern textbooks and contemporary reviews. The Pathological Museum is organized in two sections: one devoted to specimens illustrating general pathological conditions; the other consisting of the Lockyer Collection, the finest collection of gynaecological and obstetrical specimens in the country.

The hospital contains 300 beds. The opening of the new Nurses' Home at Hampstead has released in the hospital considerable accommodation which is shortly to be converted into wards for paying patients, thereby increasing the number of beds to about 360. There are special departments for diseases of ear, nose and throat, the eye, the skin, for children, for mental disorders, for orthopaedic surgery and massage, for x-ray, electrical and light treatment, for dental surgery, and for tuberculous and diabetic cases. A number of beds are set apart for diseases peculiar to women and for midwifery cases, and the hospital serves an extensive and thickly populated district in gynaecological and obstetric work. The out-patient department dealt with 30,196 new cases last year, with 135,703 attendances. In-patients numbered 5,244.

The Students' Club provides for the athletic, recreational, and social life of the students by means of an 8-acre sports ground, with facilities for football, cricket, hockey, and tennis, by common rooms, restaurant, etc.,

and by sections of the club designed for a particular purpose, such as the debating society and the dramatic society.

Appointments.—The number of resident appointments as compared with the number of students in the School is exceptionally large, and students of reasonable ability and industry can usually be certain of obtaining one or more. The resident appointments to which election is made every six months number 14 (28 every year). During the time an appointment is held the officer receives a salary, varying with the post from £50 to £200 p.a., and is provided with free board and accommodation in the Residency of the hospital. In addition to the foregoing, two non-resident officers and a number of clinical assistants are appointed annually. **Higher Appointments.**—Annual election is made to the posts of resident medical officer (£400), resident casualty officer (£200), medical registrar (£150), surgical registrars (two, £150 each), obstetric registrar (£100), and registrar to the ear, nose, and throat departments (£100). The holders of these posts are eligible for election for a second year. Every student during the course of his clinical studies serves the offices of medical clerk, surgical dresser, and clerk and dresser to all the special departments.

Scholarships.—The following are offered annually: (a) For students commencing medical studies, two scholarships, each of the value of £50. (b) For students commencing clinical studies, two University Scholarships, each of the value of £120, in pathology; one University Scholarship, value £120; and one Open Scholarship, value £75, in anatomy and physiology. An "Epsom College" Scholarship (£100) is awarded periodically on the nomination of the Head Master, and a "Cranleigh" Scholarship on similar conditions. In addition there are a number of exhibitions.

Prizes.—(1) The Llewellyn Prize, £25, for highest distinction throughout final course of studies. (2) Williams Travers Prize, £15, midwifery and gynaecology. (3) Pereira Prize, £4 4s., clinical commentary. (4) T. H. Green Prize, £5 5s., clinical commentary. (5) Clinical Surgery Prize, £3 3s. (6) Clinical Medicine Prize, £3 3s. (7) John H. Morgan Prize, £10. (8) Steadman Prize in Pathology. (9) The Governors Clinical Gold Medal. (10) Class Prizes of £2 2s. each in Pathology and Bacteriology; Hygiene and Public Health; Ophthalmology, Oto-laryngology; Psychological Medicine; Midwifery; Practical Midwifery; Gynaecology, and Pharmacology and Therapeutics.

Fees.—The fees are as follows: Entrance for the whole course including Primary and Intermediate £16 16s.; for Final studies only £10 10s.; Annual, 38 guineas.

Further information may be obtained on application to Eric A. Crook, M.Ch., F.R.C.S., Dean of the Medical School, Charing Cross Hospital, London, W.C.2.

Guy's Hospital

The hospital contains 649 beds in constant occupation. Twenty-five beds are set apart for diseases of the eye, and 42 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There are special wards for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, the departments of orthopaedics, neurology, and dermatology, the department for the treatment of diseases of the genito-urinary system, and the children's department; there are also some special beds for the treatment of syphilis.

The residential college fronts the east gate of the hospital, providing accommodation for resident students. This contains a dining hall, reading rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs Union. The athletic ground at Honor Oak Park is reached from the hospital in fifteen minutes. The Gordon Museum of Pathology, the Wills Library, the departments of chemistry, physics, pathology, and pharmacology, and the school buildings in general, afford opportunities for a liberal education and for research, and provide the full curriculum for all medical degrees and diplomas. The departments of anatomy, physics, and biology have been reconstructed and equipped on the most modern lines, and provide ample accommodation for teaching and research. Special classes are held for the First and Second Examinations for medical degrees of the University of London, for the pre-medical examination, and for the First and Final F.R.C.S. Eng. Examinations. Special teaching is provided to meet the requirements of the Universities

of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are made according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty assistant house-surgeons, eight house-surgeons, two ophthalmic house-surgeons, two genito-urinary house-surgeons, two house-physicians (children's department), two house-physicians (dermatological and neurological), and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, ophthalmic house-surgeons, and genito-urinary house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as senior dresser. In addition to the clerkships and dresser-ships in the medical and surgical wards, students are appointed to the posts of clinical assistant dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, actinotherapeutics, anaesthetics, dentistry, orthopaedics, vaccine, tuberculosis, fractures, and genito-urinary and venereal disease; clinical assistantships in the various special departments are open to post-graduates.

Scholarships, Prizes, etc.—The following scholarships in Arts and Science are awarded. A. Open Junior Scholarships: (1) An Arts Scholarship of the value of £100; (2) a Science Scholarship of the value of £100; these are awarded annually in April. (3) A War Memorial Scholarship of the value of £200, awarded alternately in Arts and Science. This scholarship is open every other year; the next award will be made in April, 1936 (in Arts). B. Confined Scholarship in Science. A junior Science Scholarship of the value of £100 is offered for competition annually in April to candidates who have attended the preliminary science classes at this school. Candidates for these scholarships (male students only) must be under 20 years of age on August 1st of the year of the competition. C. University Entrance Scholarships: (1) A War Memorial Scholarship, entitling the holder to free medical education for three years; (2) an exhibition of the value of £60; both of these are awarded annually in June or July. Candidates will be examined in two of the following subjects at their option: (1) anatomy and embryology; (2) physiology; (3) pathology, including bacteriology; (4) biochemistry. The examination is held in common with the Medical School of St. Thomas's Hospital and the Medical College of St. Bartholomew's Hospital. Full particulars as to the scholarships may be obtained from the Dean of the Medical School. Junior prizes for general proficiency, £20, £15, £10; Hilton Prize for dissection, £5; Michael Harris Prize for anatomy, £10; Sands-Cox Scholarship for physiology, £15 for three years; Wooldridge Memorial Prize for physiology, £10; Beane Prize for pathology, £34; Treasurer's Medal and Prize in medicine, Treasurer's Medal and Prize in surgery, and the Golding-Bird Gold Medal and Scholarship for bacteriology (£20) are awarded annually after competitive examination. The Gull Studentship in pathology, of the value of £250 per annum, the Beane Scholarship in materia medica, of the value of about £70, and the Anderson Demonstratorship in clinical chemistry, value £175 per annum, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Griffiths Demonstratorship in Pathology, of the value of £320 per annum, and the Hilda and Ronald Poulton Fellowship, value £150 per annum, are awarded without examination.

An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School, Guy's Hospital, London Bridge, S.E.1.

King's College Hospital

The New Medical School at Denmark Hill, opened in July, 1933, contains the museum, research laboratory, research rooms, common rooms, lecture rooms, refectory, and two squash rackets courts. Provision is made for all the subjects of the medical curriculum. The hospital was opened in 1913, and is one of the most modern and best equipped in England. In the education at the hospital a special feature has always been the individual attention given to each student. The studies are co-ordinated under the direction of senior members of the honorary staff, assisted by medical, surgical, obstetric, and pathological tutors.

The Hall of Residence for members of the medical school is situated on Champion Hill. Both the Hall and the athletic ground are within ten minutes' walk of the school.

The Clubs and Societies Union combines athletics, music, and other societies connected with the school, and provides also a common room.

Appointments.—Thirty-one resident medical and surgical appointments are made during each year, as well as dressers and clerks in the wards, out-patient departments, post-mortem rooms, and special departments. Each of the special departments has clinical assistants. There are eight registrars and four tutors, all of whom receive salaries.

Scholarships, etc.—At entrance: Science Scholarship, £75. At commencement of Final Studies: Anatomy and Physiology Scholarship, £75; Pathology Scholarship, £75; two Raymond Gooch Scholarships, each £105; two Burney Yeo Scholarships, each £105 (for Oxford and Cambridge students); Seaman Scholarships, £50 a year up to five years; Epsom College Scholarship, £100; Senior Scholarship, £40; Todd Prize, Tanner Prize, Cheyne Prize, Legg Prize, Ware Prize, Fernier Prize in Neurology, Class Prizes and Medals.

Fees.—The composition fee is 93 guineas if paid in one sum. Entrance fee of 10 guineas.

Dental School.—This school was opened in October, 1923, and, in conjunction with King's College, provides complete courses for dental degrees and diplomas.

The calendar of the school can be obtained on application to the Dean, John A. Drake, M.D., F.R.C.P., D.P.H., or to the Secretary of the Medical School, S. C. Ranner, M.A., King's College Hospital, Denmark Hill, S.E.5.

The London Hospital

This hospital, with its medical college and dental school, is situated in the Mile End Road, E.1. The hospital contains 847 beds, which are in constant use. During 1933 14,515 patients passed through the wards and 106,099 out-patients received treatment. There are special departments for the treatment of diseases of the ear, nose, throat, eye, skin, and teeth, and in addition there are departments devoted to gynaecology and obstetrics, paediatrics, orthopaedics, brain surgery, venereal diseases, radiology, electro- and physico-therapeutics, radium, and vaccine therapy. The number of major operations which were performed amounted to 7,691.

The hospital presents, therefore, a large field for clinical instruction, and in its wards and out-patient and special departments exceptional opportunities are afforded for acquiring an extensive and practical experience of all phases of disease.

A clinical unit in medicine, under the charge of a whole-time director, assisted by an assistant director, two assistants, and two house-physicians, provides for the more elaborate methods of diagnosis and treatment, and takes a leading part in the initiation and co-ordination of medical research. To each medical and surgical firm throughout the hospital there is attached a first assistant, who is responsible for instructing the clerks or dressers of the firm in elementary medicine and surgery, and who assists the honorary members of the firm in the preparation of their demonstrations. In the department of cardiology there is a research scholar and a house-physician. In the department of obstetrics and gynaecology there is a first assistant and two resident accoucheurs. In the department for children's diseases there is a first assistant, one house-physician, and two clinical assistants; and in the department of neuro-surgery there is a house-surgeon. Special courses of lectures and demonstrations are arranged in medicine and surgery and in their ancillary subjects. Opportunities for research are provided under the supervision of the staff.

All the departments are modern and adapted for the teaching of all subjects in the various curricula. Special courses of instruction are held in preparation for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for the Membership of the Royal College of Physicians. Special entries can be made for the medical and surgical practice of the hospital. A resident hostel is provided for the holders of house appointments. A new students' hostel has been opened, and provides accommodation for upwards of fifty students. In the hostel there is a library, writing, common, and dining rooms, and two standard squash rackets courts. The athletic ground, of over thirteen

acres, is at Higham's Park, and is open to all members of the Club's Union.

Appointments.—The salaried appointments, open to past students of the hospital, are those of assistants to the medical unit; first assistants to the medical and surgical firms and to the department of obstetrics and gynaecology; medical, surgical, and obstetric tutors; clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments, and in the Institute of Pathology. There are appointed annually 4 resident accoucheurs, 16 resident house-physicians and 19 resident house-surgeons, 14 resident receiving-room officers, 8 resident emergency officers, 8 clinical assistants to the medical out-patient department, and 16 clinical assistants to the surgical out-patient department, also paid and unpaid clinical assistants in the various special departments. In addition, there are numerous assistantships, clerkships, and dresserships in the departments of medicine, surgery, gynaecology, and obstetrics.

Scholarships and Prizes.—The following is a list of scholarships and prizes:—At entrance: Price Scholarship in science, £100. Two open scholarships, each of the value of £100. A Scholarship open to students of Oxford and Cambridge Universities: £100, anatomy and physiology; Entrance Scholarship in science, £50; Epsom Scholarship, "free medical education." After entrance: Buxton Prize in anatomy and physiology, £40; Lethby Prizes in organic chemistry and chemical pathology, £25; Prize in clinical obstetrics and gynaecology, £20; Duckworth Nelson Prize in practical medicine and surgery, £10; Hutchinson Prize in clinical surgery, £60; Treves Prize in clinical surgery, £20; Sutton Prize in pathology, £20; Sir Andrew Clark Prize in clinical medicine and pathology, £14; T. A. M. Ross (prox. acc.) Prize in clinical medicine and pathology, £10 10s.; Anderson Prizes in elementary clinical medicine, £20; Dressers' Prizes, £20; Practical Anatomy Prizes, £10; Arnold-Thompson Prize in medical and surgical diseases of children, £15; Liddle Prize, £120; Francis Farmer Entrance Scholarship in biology, chemistry and physics, £25; Harold Fink Prize in dental surgery, £8 8s. The "London" Prize in dental prosthesis, £6 6s. Six class examination prizes of the value of £3 3s. to £5 5s. are offered for competition at the end of the courses of lectures in the dental curricula. Funds to the value of over £113,000 permit of financial assistance being given to students and graduates engaged in medical research.

Fees.—Entrance fee, 20 or 15 guineas, according to examinations passed; annual fee, 40 guineas.

Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.1.

The Middlesex Hospital

The school and hospital are in Mortimer Street, W.1, close to Oxford Circus, Goodge Street, and Great Portland Street stations. There are a gymnasium, squash rackets court, common rooms, and restaurant within the hospital precincts, and an athletic ground within easy reach. The hospital contains 534 beds, including a wing containing 90 beds for patients suffering from cancer. There are special wards for maternity and gynaecological cases, for neurological cases, for cases of venereal disease, and for diseases of children and of the skin and eye, and a newly built west wing and residents' house.

The medical school, which includes the Bland-Sutton Institute of Pathology, the S. A. Courtlaud Institute of Biochemistry, the Barnato-Joel Laboratories, and the Ferens Institute of Otology, is completely equipped for teaching the entire medical curriculum, including the pre-medical subjects, chemistry, physics, and biology. The Bland-Sutton Institute, under the direction of the Professor of Pathology, contains large pathological and public health laboratories, and smaller rooms for original investigation, as well as a pathological and anatomical museum. Bacteriological and microscopical examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories, and senior students are eligible for clerkships in connexion with this work. Junior assistants in the pathological and bacteriological laboratories are elected annually from recently qualified students. Every facility is given for original research. The Biochemical Institute is under the charge of the Professor of Biochemistry, and contains teaching and research laboratories in addition to those devoted to the routine chemical pathological work of the hospital. The Barnato-Joel Laboratories offer unrivalled

opportunities for the study of cancer in both its clinical and its pathological aspects.

Appointments.—Thirty-three resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residential college free of expense. Two casualty medical and two casualty surgical officers, and four resident officers to the special departments, are appointed annually. Eight house-surgeons are appointed every year at intervals, after examination; eight house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house-surgeon is appointed every six months. One senior and two junior resident assistant anaesthetists are appointed annually. A dental house-surgeon is appointed every eight months. Nine registrars, each at a salary of £300 per annum, are appointed annually. In the out-patient departments and wards the appointments are: clerk and dresser to the physicians and surgeons to out-patients; clerk in the departments for diseases of the skin and nervous diseases; dressers to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, to the orthopaedic department, and to the dental surgeon. Extern midwifery clerks and post-mortem clerks are also appointed; every student secures six months' experience in midwifery and gynaecology without leaving London. The appointments are so arranged that every student may, during his course, hold all the out-patient and in-patient clerkships and dresserships. Non-resident qualified clinical assistants are appointed in the medical, surgical, skin, neurological, ophthalmic, throat and ear, odontological, children's, and electro-therapeutic out-patient departments.

Scholarships.—There are two Entrance Scholarships, value £100 each. Two annual Entrance Scholarships, of the value of £90 and £60 respectively, are open to students of the Universities of Oxford and Cambridge who have completed the curriculum for, or passed the examinations in, anatomy and physiology. Students joining the school in the previous April are eligible. The Freer Lucas Scholarship is annually awarded on the nomination of the Head Master to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, awarded annually to students from New Zealand, which affords the holder the clinical advantages of the hospital for one year. In addition to the Entrance Scholarships, there are numerous other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Broderip Scholarships, value £60 and £40; Lyell Gold Medal and Scholarship, value £55 5s.; Freeman Scholarship, value £30; John Murray Gold Medal and Scholarship, value £25; Hetley Clinical Prize, value £25; Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas.

The rebuilding of the hospital is being completed without the loss of a single bed, or any disorganization of its clinics.

Fees.—(a) Entrance fee, 25 guineas, payable on joining the medical school; Pre-medical students: For one year or less, £21. (b) Students who have completed the Preliminary Science course: Five annual fees of £45. The annual fee for further attendance at the medical school, if a registrable qualification has not been obtained, is £23. (c) Oxford and Cambridge and other students who have completed the Intermediate course: entrance fee, 15 guineas; three annual fees of £45; further annual fees as above. These fees are inclusive and cover the cost of instruction in vaccination, fevers, etc., and also the subscription to the amalgamated clubs and hospital journal.

Further information may be obtained from the Dean or the School Secretary.

St. Bartholomew's Hospital

This institution fills one side of Smithfield and Giltspur Street, covering the greater part of a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 762 beds. Extensive buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library, the museum, and the chemical, biological, and anatomical departments, have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any

hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to an extensive post-mortem room, large and well-equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. A further large block in Giltspur Street was acquired in 1923, and has been equipped by the construction of new lecture theatres and extensive laboratories for physics, chemical physiology, experimental physiology, histology, and pharmacology. The new block of surgical wards and five operation theatres (one attached to each surgical unit), with accommodation for 250 patients, was opened in June, 1930. One of the old blocks previously used for surgical cases has been reconverted for the housing of an enlarged gynaecological and obstetrical unit, with separate operation theatres attached. The Students' Union owns grounds of some ten acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

The Medical College has recently purchased the site and buildings in Charterhouse Square (five minutes' walk from the hospital), formerly occupied by the Merchant Taylors' School, and the whole of the pre-clinical departments will shortly be established there. Various athletic amenities are also available on this new site.

Special classes are held for students preparing for the Preliminary Scientific and other examinations, for the M.B., M.D. of the Universities of Oxford, Cambridge, and London, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.Chir.Cantab., M.S.Lond., and F.R.C.S.Eng.

Clinical Units.—Special clinical units have been established in medicine and surgery, each under the charge of a professor and director, who devotes the whole of his time to the purpose of hospital practice, teaching, and research. In each unit there are an assistant director and four assistants, for whom special laboratory accommodation has been provided by a gift from the Sir William Dunn Trustees. The appointments of clerks and dressers in these departments are open to all students, and arrangements are made for all students to study in these units during a part of their clinical course.

Appointments.—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (ophthalmic, orthopaedic, gynaecological, children's, laryngological, aural, dermatological, venereal, electrical, and dental), and in the post-mortem room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "junior" house-physicians and house-surgeons, and receive a salary of £80 a year. During their second six months they become "senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, a house-surgeon to the skin and venereal department, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Three resident administrators of anaesthetics are appointed—the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £80 per annum—and all are provided with board and rooms. An extra midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships.—Five Entrance Scholarships and Exhibitions are annually awarded after examinations held in July, and one (the Shuter Scholarship) after examinations held in June. The subjects of examination and conditions of eligibility for these scholarships are: (1) and (2) one scholarship, entitling the holder to free undergraduate medical education for a period of three years, and one exhibition, value £60, in any two of the following subjects: human anatomy and embryology, physiology, pathology (including bacteriology), biochemistry. Candidates must have completed their examinations in anatomy and physiology in a British school or university outside the London Metropolitan area. (3) One scholarship, value £100, in the three following subjects: chemistry, physics, biology; limited to students under 21 years of age who have

not entered on the medical or surgical practice of any London medical school. (4) An entrance scholarship in arts, of the value of £100, in mathematics; Latin or Greek or French or German; a second language or chemistry or physics. (5) The Jeaffreson Exhibition in the same subjects as No. 4, of the value of £50. Candidates for Nos. 4 and 5 must be under 19 years of age. (6) Helen Cave Memorial Scholarship, awarded after open competition to sons of registered medical practitioners, value about £200, conditions obtainable from the Dean. (7) The Shuter Scholarship value £50, in anatomy and physiology, is confined to Cambridge graduates. The total value of the scholarships and prizes is over £1,700 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical College, St. Bartholomew's Hospital, E.C.1.

St. George's Hospital

This school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centres of London University established at King's College and University College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well-filled library of medical and scientific books. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean.

Appointments.—Two house-physicians, two house-surgeons, and two casualty officers are appointed every three months. The house officers reside and board in the hospital free of expense. The casualty officers are non-resident, and receive salaries at the rate of £60 per annum. After the student has held a house appointment the following are, among others, open to him: assistant resident physician at £250 per annum; surgical chief assistant at £225 per annum; medical officer to the Atkinson Morley Convalescent Hospital at £300 per annum; medical registrarship at £200 per annum; medical officer to the biochemical department at £100 per annum; assistant curatorship of the museum, £100 per annum; obstetric assistantship, resident, at £100 per annum; the post of resident anaesthetist at £100 per annum.

Scholarships.—The following Entrance Scholarships and Exhibitions in anatomy and physiology and in general pathology are awarded in July to candidates who have passed the second M.B.London or corresponding examination; Senior William Brown Exhibition of the value of £120; Junior William Brown Exhibition of the value of £80; Anne Selina Fernee Scholarships (two) of the value of £80 each; Anne Selina Fernee Exhibitions (two) of the value of £60; Devitt-Pendlebury Scholarship of the value of £40; and Exhibitions, each of the value of £40 and up to four in number. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year (First M.B. or pre-medical course), £36 15s.; second and third years, £42 each. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £42. No entrance fee is payable by St. George's students who have studied at King's College or University College.

Further information may be obtained from the Dean of the Medical School.

St. Mary's Hospital

St. Mary's is exceptional in its situation, for while it is adjacent to a large poor district in which it serves some 500,000 persons, one-tenth of whom (on an average) pass through the hospital annually for treatment of one kind or another, it is, nevertheless, so near to Kensington Gardens and one of the best residential districts of London

that it offers to the medical student the unusual possibility of living in close touch with his work, without a wearisome journey in an overcrowded train or tube. As a direct outcome of this, social life among students is closer than is possible where the members of a school live scattered in many parts of London and its suburbs.

The rebuilding of the Medical School and Institute of Pathology has just been finished. The new school occupies a site adjacent to the hospital, and provides departments for teaching the entire curriculum. There are also a students' club and restaurant, a large library, a gymnasium, a swimming bath, a squash rackets court, and an underground garage for fifty cars.

The principle underlying the clinical teaching is to encourage the student, under supervision, to carry out for himself the various methods of clinical investigation and treatment. This is secured by the provision of a very large number of appointments, and by developing the system of clinical clerkships and assistants. Large classes are avoided whenever possible, and the intimate association between staff and student has been reinforced by the institution of Clinical Units. St. Mary's is one of the three medical schools in London to enjoy the great advantages in teaching and research which these units confer. The clinical material is exceptional. A new block has recently been added containing two operating theatres and 60 beds. Owing to affiliation with adjacent hospitals, more than 1,000 beds are now available for teaching. There are lying-in beds at St. Mary's, with 450 confinements yearly, and in addition to the instruction thus obtained each student is sent (without further fee) to Queen Charlotte's Hospital for a fortnight as part of his training in midwifery.

Students especially interested in pathology and bacteriology have singular advantages at St. Mary's. The institute comprises seven special departments, the whole being under the personal direction of Sir Almroth Wright. Two Research Studentships of £200 each are awarded annually.

From three to five Entrance Scholarships, each representing free tuition, are awarded annually by nomination on the lines of the Rhodes Scholarships. Full particulars may be obtained from the School Secretary, St. Mary's Hospital, Paddington, W.2. Numerous appointments are open to newly qualified members of the medical school, including seventeen salaried posts with salaries varying up to £750 per annum.

A special post-graduate course is held at the beginning of October and is open to all general practitioners and other qualified men without fee.

The athletic ground (10 acres) at Wembley is within easy reach of the Medical School.

St. Thomas's Hospital

The Hospital and Medical School are situated along the Albert Embankment between Westminster and Lambeth Bridges. The buildings form one of the most striking architectural features of London, opposite the Houses of Parliament, with Lambeth Palace and the beautiful grounds adjoining immediately to the East.

The hospital consists of eight linked-up pavilions, the Medical School buildings being separated from the hospital by a quadrangle; they comprise a magnificent Department of Anatomy with its own lecture theatre, museums, and research laboratory, the School of Physiology, named after Sir Charles Sherrington, O.M., completely equipped for teaching and research, a newly rebuilt Department of Chemistry with special facilities for research; Physics and Biology Laboratories. The school buildings contain also the library and reading room, which overlook the river and contain approximately 8,000 volumes, also an excellent supply of periodical literature adapted to the needs of medical students and research workers. The Museum, named after Professor S. G. Shattock, is also situated in the School; it contains nearly 5,000 preparations, which illustrate all the morbid lesions of importance met with in the various organs of the body, many specimens of historical interest, and a type series to illustrate medical,

surgical, and gynaecological pathology. In the west wing of the School are the Pathological Institute and the Photographic Department. The post-mortem room was entirely rebuilt in 1932; it is a model of its kind, with a large demonstration amphitheatre, which is perfectly adapted for teaching purposes and for the intimate study of morbid pathology.

The complete curriculum is provided for; students can join the Medical School directly after passing the requisite examination in general education, and proceed at once to the study of the first M.B. pre-medical subjects, which are taught by experienced professors and lecturers with the assistance of full-time demonstrators. Private coaching facilities are available for those students who wish to supplement the routine classes which cover the entire syllabus laid down by the various examining boards. Most students, particularly those entering for the first M.B. pre-medical examination, enter in October, but the clinical studies are arranged in three-monthly periods, and students can join at any time of the year for the Intermediate and Clinical studies. Classes for the Primary F.R.C.S. are held before each examination; these classes are limited to students who have joined for the full curriculum, and are therefore small, permitting of intimate personal teaching. Revision classes in anatomy and physiology are arranged for students from Oxford and Cambridge. Classes in pharmacology and materia medica and pharmacy cover the requirements of all the examining bodies.

Clinical Studies.—The hospital contains 644 beds; in addition it has 30 beds (with teaching facilities over a further 150) at the Pyrford Orthopaedic Hospital, and 22 beds at the St. Thomas's Babies' Hostel in Lambeth. During 1933 the number of patients admitted into the hospital was 11,528; during the same period 98,780 out-patients were treated. In the Maternity Department 2,630 women attended; 420 were admitted into the special maternity ward and 660 were delivered in the district. Casualties to the number of 166,281 attendances were dealt with during the same period. In addition to the 696 beds actually controlled by the hospital, students have the advantage of a close liaison with Lambeth Hospital, where demonstrations of rare and advanced cases, such as are seldom seen in the wards of a general hospital, are arranged at regular and frequent intervals by the superintendent. The obstetric training of students has, during 1934, been supplemented by an arrangement with St. James's Hospital, Balham, whereby throughout the year two students at a time spend a fortnight in residence at St. James's Hospital, where they follow, and take part in, the maternity work of the hospital. Clinical teaching of medicine and surgery is carried out daily throughout the year in the wards and out-patient departments. From the day that a student enters on his clinical studies he comes into direct responsible contact with patients. Every student acts as clerk in the post-mortem room and in the pathological laboratories. The Medical Unit, through which every student passes for a period of three months, provides a very thorough grounding in clinical medicine and clinical biochemistry, the in-patient clerkship being afterwards completed under the aegis of a different medical firm. In addition to three months' dressing in the casualty department at the outset of his clinical studies, every student becomes, for six months, a dresser to one of the surgeons of the hospital; during this period he receives instruction in anaesthetics. Great stress is laid on the teaching of pathology, which proceeds *pari passu* with the clinical appointments held by the student throughout the curriculum. The special maternity ward in the hospital gives the student scope for elementary obstetric training before he takes his turn of duty on the district, where again he works under close supervision. All the special departments are available for the teaching of students; special attention is given to ante-natal instruction and the teaching of the diseases of children, a department through which every student passes. The laboratories and reading room in the units building are open day and night for those who wish to avail themselves of these facilities. A special Tuberculosis Department in the hospital forms a part of

the Lambeth scheme for the treatment of patients. The Venereal Disease Department is part of the L.C.C. scheme. The clinical material in the hospital is placed wholly at the disposal of undergraduate students; with the exception of a small class held twice yearly for the Final F.R.C.S. Examination, post-graduate clinical students are not accepted. Special tutorial classes in all subjects are held before all the final examinations of the universities and Conjoint Board.

St. Thomas's House—the Amalgamated Students Clubs' premises immediately opposite the hospital—was opened in 1927; it has all club amenities, with two squash rackets courts, a miniature rifle range, and ample garage accommodation. The hostel in the same building has accommodation, with all modern comforts, for 50 resident students. There is a hard tennis court in the Medical School quadrangle, and the beautiful sports ground at Chiswick provides for all field games.

Appointments.—Following qualification the following appointments are open to students: twenty-five clinical assistantships to the various special departments are appointed every three months. Eight resident casualty officers and anaesthetists, seven house-physicians, and nine house-surgeons are appointed every six months. Nine chief assistants (unpaid) to the special departments and nine non-resident registrars (medical, surgical, obstetric, and ophthalmic) at a salary of £250 to £300 a year hold appointments renewable yearly. A resident anaesthetist (salary £200), a resident assistant physician, and a resident assistant surgeon (salary £225 per annum) are appointed annually. Assistants in the medical and surgical units (salary £450 to £600) hold appointments with a maximum tenure of four years. Three assistants in the Department of Pathology hold appointments at a salary of £450 to £600 a year.

Scholarships and Prizes.—At this School there are the following Entrance Scholarships: Three in Natural Science, of the value of £150, £100, and £60 respectively; the University Scholarship of £100 in any two of the following: anatomy, physiology, pathology, chemistry, also the "Hector Mackenzie" University Exhibition of the value of £60. The value of all Entrance Scholarships is taken out in Tuition Fees. The money value and subjects of examination of the remainder are as follows: (a) William Tite Scholarship for second-year students £25; (b) and (c) Musgrove Scholarship or (alternatively) Peacock Scholarship each for third-year students and tenable for two years £35 each; (d) Mead Medal, medicine, pathology, and hygiene; (e) Wainwright Prize, medicine; (f) Toller Prize, medicine; (g) Cheselden Medal, surgery and anatomy; (h) Clutton Memorial Medal in Clinical Surgery, biennial; (i) Beaney Scholarship £50, biennially, surgery and surgical pathology; (j) Solly Medal and Prize, biennial reports of cases; (k) Sutton Sams Prize, biennial reports of cases; (l) Bristowe Medal, pathology and morbid anatomy; (m) Hadden Prize, pathology and morbid anatomy; (n) Grainger Testimonial Prize £31 10s., anatomy and physiology; (o) Louis Jenner Research Scholarship tenable for two years, £60 annually, pathology; Perkins Fellowship £40-£100, research; Myers Prize in Psychological Medicine 10 guineas.

University College Hospital

The school, which forms part of the corporation of University College Hospital, is in immediate proximity to the hospital in University Street, and opposite University College. It comprises departments of medicine, surgery, midwifery and gynaecology, pathology including morbid anatomy, chemical pathology, biochemistry and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear and throat, venereal diseases, and for instruction in anaesthetics, electro-therapeutics, and skiagraphy. The hospital and school have acquired the National Dental Hospital and College as their dental departments, thus providing every facility for the study of dental subjects. The Royal Ear Hospital has also been amalgamated as the Ear, Nose, and Throat Department, and a new hospital for in- and out-patients, close to University College Hospital. It contains 41 beds, including eight private wards for patients of limited means.

The school thus provides the final course of study for the degrees of the Universities of Oxford, Cambridge, London, Durham, and other British universities, and for the diplomas of the Royal Colleges of Physicians and Surgeons

in medicine and in dental surgery. Each department is also equipped for more advanced work, and provides facilities for research.

Clinical units in medicine, surgery, and obstetric medicine are now in operation. The whole-time directors of the units are concerned with the organization of the teaching generally, but the honorary staff is responsible for the largest share of the teaching in the wards and out-patient department of the hospital. The main hospital contains 414 beds.

The new buildings of the obstetric hospital of 85 beds (rendered possible by the Rockefeller benefaction), the new Residents' House (with accommodation for 33 residents and students), the extension of the Nurses' Home, and the new research laboratories for the Medical School, are now finished and in full occupation.

A Students' Hostel adjoins the Medical School. Large, airy, and handsomely furnished bed-sitting rooms, each fitted with hot and cold running water, are available.

Appointments.—The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, medical registrars, surgical registrars, obstetric registrar, Harker Smith radium registrar, ophthalmic registrar, casualty medical officers, casualty surgical officers, assistants in ear, nose and throat, skin and venereal diseases departments, and house anaesthetists.

Scholarships.—The following scholarships and prizes are open to competition: Two Goldsmid Entrance Scholarships entitling the holder to the final course of medical study; one Goldsmid Entrance Exhibition entitling the holder to a reduction by £80 of the fees due for the full course of final medical study, open to candidates who are graduates in arts or science of a university of the British Empire; and a Filliter Entrance Scholarship in pathology, entitling the holder to a reduction by £52 10s. of the fees due for the full course of final medical study. The examination for these scholarships is in any two of the following subjects: anatomy, physiology, general pathology and biochemistry. The examination for 1935 will be held as follows: Monday, July 15th, 10 a.m. to 1 p.m., anatomy; 2 p.m. to 5 p.m., physiology. Tuesday, July 16th, 10 a.m. to 1 p.m., biochemistry; 2 p.m. to 5 p.m., general pathology. Candidates for the Filliter Exhibition need take pathology alone. Radcliffe Crocker Travelling Scholarship in dermatology for one year, value about £280; the Graham Scholarship in pathology of a sum not exceeding £400 per annum; Leslie Pearce Gould Research Scholarship in surgery for one year, value about £260; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies; the Magrath Clinical Scholarship, value about £160; Ferriere Scholarship, value £25; the Filliter Exhibition in pathology of £30; the Percival Alleryn Prize for the advancement of surgery by research, value about £110; the Graham Gold Medal for research work; four Fellows' Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology; the Erichsen Prize for practical surgery; and the Roberts Prize in obstetrics and gynaecology.

Fees.—Inclusive fee to cover complete course for three years. Oxford: £40 per annum for three years. There are no extras, as these fees include courses of instruction in pharmacy, vaccination, and fevers, and life subscription to the Medical Society of Women's Medical Club.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School, University College Hospital, University Street, W.C.1.

Westminster Hospital

The school, with its hospital situate in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College, Strand, and University College. The rest of the work is done in the school buildings near the hospital. The number of in-patients averages 4,800 and out-patients upwards of 27,000 annually, and the hospital and school afford ample facilities for instruction in all branches of medicine and surgery. Every student must perform the duties of out-patient dresser for three months, and afterwards hold the office of in-patient dresser for three months. He is

also required to serve two terms of three months each as medical clinical clerk to the in-patient physician, and one term as gynaecological clinical clerk. Two pathological clerks are appointed every three months to assist in the post-mortem room. No student is eligible as an in-patient dresser or clinical clerk until he has completed his examination in anatomy and physiology. Clerks and dressers in the special departments of hospital practice are periodically appointed.

An annexe devoted to radium therapy and research, containing twenty-two beds, has recently been opened.

The athletic ground is situated at Tooting, and can be reached in twenty minutes from the hospital.

Appointments.—A medical and surgical registrar are appointed annually, each with a salary of £150, and an obstetric registrar with a salary of £50 plus £50 for tutorial fees. An assistant medical registrar and an assistant surgical registrar, salary £100 per annum each, are appointed for six months. A senior resident and casualty officer, salary £104 per annum and board, appointed for six months, may be extended for a further period of six months. A medical registrar to the children (Wander scholar), salary £250, is appointed for one year. Three house-physicians, three house-surgeons, three assistant house-physicians, three assistant house-surgeons, and a resident obstetric assistant are appointed after examination; and are provided with rooms, commons, and salary of £52 per annum, except the assistant house-physicians and the assistant house-surgeons, who are provided with commons only. The assistant house-physicians, after three months' service, become house-physicians for a further period of six months, and the assistant house-surgeons, after three months' service, become house-surgeons for a further period of six months. One house-anaesthetist is appointed for six months, non-resident, salary £100 per annum. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among the qualified students.

Scholarships.—The following open scholarships are offered for competition during the year 1934-5. In the winter session two scholarships in anatomy and physiology, £75 each. In the spring two scholarships in anatomy and physiology, £75 each. A certain number of scholarships are allotted to universities of England, Wales, and the Colonies, and to public schools. These scholarships are awarded entirely on the nomination of the Principal of the university or school.

During the period of study the following prizes may be competed for: Sturges Prize in Clinical Medicine (Reports on Cases); Chadwick Clinical Surgery Prize (Reports on Cases); Chadwick Prize (Medicine and Surgery); Frederic Bird Medal and Prize; Abraham's Prize (Clinical Pathology); Hanbury Prize in Diseases of Children; Class Prize in Midwifery, Diseases of Women, Medicine, Pathology, Forensic Medicine, Bacteriology, Public Health, and Surgery.

Fees.—The annual composition fee is 40 guineas. An entrance fee is payable by all students—namely, primary and intermediate students, £10 10s.; students entering for the final subjects, £8 8s. These fees, which include subscriptions for membership of the Clubs Union, are subject to alteration from time to time as the School of Medicine may direct.

Further information and a prospectus can be obtained on application to the Dean at the Westminster Hospital Medical School, Caxton Street, Westminster, S.W.1.

London (Royal Free Hospital) School of Medicine for Women

The school is situated at 8, Hunter Street, Brunswick Square, W.C.1, close to the Royal Free Hospital. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of the University of London. The laboratories are extensive and well lighted, and are fully equipped for the examination courses of the University of London and the Royal Colleges of Physicians and Surgeons. Research laboratories are attached to all departments. A large, well-equipped library, common room, Union Room, and refectory are provided for the use of students. Resident accommodation for 80 students is provided in students' chambers attached to the school.

The Royal Free Hospital, Gray's Inn Road, W.C.1, has 301 beds, all of which are available for clinical instruction. The obstetrical and gynaecological unit controls 68 beds. A large maternity district is served from the unit with a separate maternity hostel in the Essex Road, Islington. There are separate departments for diseases of the eye, ear

and skin, children and infant welfare, venereal diseases, orthopaedic surgery, massage, light, electrical and x-ray work, dentistry, and casualty. Students attend the practice of one of the fever hospitals of the London County Council and receive special instruction in lunacy at Horton Mental Hospital, Epsom; they are also admitted to the practice of a number of special hospitals, and hold clerkships and dresserships at the Elizabeth Garrett Anderson Hospital, the Cancer Hospital, Hospital for Sick Children, Great Ormond Street, the National Hospital for Nervous Diseases, the South London Hospital, the Central London Ophthalmic Hospital, and the Royal Ophthalmic Hospital. The work of the school includes preparation for the Primary Fellowship examination.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical, gynaecological, and medical registrars, assistant pathologists, assistant anaesthetists, medical electrician, skiagrapher, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne and A. M. Bird Entrance Scholarships, value £30 a year for six years, the St. Dunstan's Medical Exhibition, value £60 a year for three years, which may be extended to five years, the Alfred Langton Scholarship of £50 a year for two years, the Flora Murray Bursary of £50, and the Mabel Sharman-Crawford Scholarship, value £20 a year for four years, are offered for competition in each year. The Sir Owen Roberts Memorial Scholarship of the value of £75 a year for four years; the Mrs. George M. Smith Scholarship of the value of £50 a year for three years, which may be extended to five years; the Dr. Margaret Todd Scholarship of the value of £37 10s. a year for four years; and the Sarah Holborn Scholarship of the value of £20 a year for three years, which may be extended to five years, are awarded in alternate years. The School Jubilee Bursary of £50 a year for three years is offered every third year. The Bostock Scholarship, value £90 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London every fourth year. The holder of the scholarship must enter the London School of Medicine for Women. The Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship, of the value of £25 a year for four years, is awarded every fourth year. The A. M. Bird Clinical Scholarship of £30 a year for three years. The John Byron Bursary of £20 a year for two years, the Julia Ann Hornblower Cock Prize of £60, the Helen Prideaux Prize of £60, the Mabel Webb and A. M. Bird Research Scholarship of £200 for one year, the Fanny Butler Scholarship of £16 a year for four years, the A. M. Bird Post-graduate Scholarship of £200 for one year, together with many other scholarships and prizes, are offered on sundry conditions. The Dr. Edith Pechey-Phipson Post-Graduate Scholarship of £100 is awarded annually. Altogether the school offers annually £1,950 in scholarships. Various missionary societies also offer scholarships on certain conditions, and assist women who wish to go to India and other countries as medical missionaries.

Fees.—Courses for the University of London degrees and the diplomas of the Conjoint Board in England, and other qualifications: £50 per annum throughout the course.

The Students' Union exists to promote corporate action of the students on matters of common interest, to promote and maintain athletic and other clubs, and to issue a school magazine. All students are required to become members of the Union.

Further information can be obtained from the Warden and Secretary.

King's College

The Medical Faculty at this College of the University of London gives instruction in the subjects of medical science for all the usual preliminary and intermediate examinations in medicine, surgery, and dentistry. Through the four associated hospitals students of the college have clinical facilities of over 1,000 beds, but they may also proceed to any other teaching hospital in London for final studies for the degrees of the University of London.

The Medical Faculty of the College provides a general university education in touch with other faculties, classes of which medical students are permitted to attend. There are many college societies, clubs, and functions in which students of all faculties have opportunity of meeting each other. The college has a large athletic ground at Mitcham, upon which there has recently been erected a new pavilion.

The first-year subjects are taught in the large departments of the Faculty of Science. Within the last few years there has been complete-remodelling of the second and third year medical departments at a cost of £70,000. This has comprised a new Department of Anatomy and reorganization, with considerable extension, of the Department of Physiology.

Scholarships.—The entrance scholarships are: (1) Two Warneford Scholarships, each £30 for four years; subjects—selected from mathematics, classics, divinity, and science. (2) One Sambrook Scholarship of £30 for three years; subjects of examination selected from mathematics, classics, and science. The holders of the preceding awards must proceed to King's College Hospital. (3) Worsley, £100, paid in five annual instalments. (4) Rabbeth Scholarships, value £30 and £15, in July, for the best student of the first-year. (5) Daniell Scholarship, £40, awarded on the results of the University Honours Examination. (6) The Layton and Berridge Studentships, each £150 and £100 per annum respectively, and (7) numerous prizes.

Full information as to admission, fees, and scholarships can be obtained from the Dean of the Faculty of Medical Science, King's College, Strand, W.C.2.

University College

This institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy (including embryology and histology), physiology, biochemistry, and pharmacology. The anatomy building, provided by the munificent gift of the Rockefeller Foundation of New York, was opened on May 31st, 1923, by His Majesty the King. This building forms part of the block which includes physiology and pharmacology. A new building has recently been added for the department of zoology, for the endowment and equipment of which the Rockefeller Foundation has made another generous benefaction. Research work is undertaken in all the above-named departments. The College undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, according to whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. Women students are admitted to all courses on the same terms as men. The general arrangements for the benefit of students include membership of the Union Society or the Women's Union Society, with use of the College gymnasium and the athletic grounds. There is also a collegiate residence for about sixty-seven men students at Ealing and for one hundred and seventy-two women students in Malet Street.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 160 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School)—the examination includes an English essay; two Entrance Exhibitions in the same subjects, each of the value of 55 guineas; a Faculty of Medical Sciences Entrance Scholarship, value £30 a year, for three years; the Bayliss-Starling Memorial Scholarship (physiology and/or biochemistry), £120; and the Ferriere Scholarship, £25, tenable for three years at University College Hospital Medical School.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 115 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England also amount to 115 guineas. These fees do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Secretary of University College, London, Gower Street, W.C.1.

THE PROVINCES

There are in England and Wales, not counting London, ten medical schools, each supplying instruction in the full medical curriculum. Accounts of them here follow. In several cases information is appended about hospitals other than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

Oxford and Cambridge

At both Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently furnished, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them; but this is not commonly done, and is never, in the ordinary way, advised by the university medical authorities. The local hospitals—the Radcliffe Infirmary at Oxford and Addenbrooke's Hospital at Cambridge—though well equipped, are comparatively small. Students are therefore encouraged, as soon as they have completed the earlier examinations and taken a degree in arts, to join one of the London medical schools, and thus spend the time of their preparation for the final examinations in a city where the opportunities for gaining clinical knowledge are greater and more varied. A considerable proportion of Oxford and Cambridge medical students take the London Conjoint diplomas before graduating in medicine and surgery at their own university. The experience gained by holding resident hospital appointments is naturally of much advantage when sitting for the Final M.B. examination and when engaged in composing a thesis.

Birmingham

The school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessities devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for the purpose. Together they have upwards of 800 beds for medical, surgical, and special cases, with an array of special departments of all kinds, including one for lying-in women (about 13,000 in-patients and 90,000 out-patients). Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures are delivered weekly throughout the session. Special tutorial classes are also held alike for the degrees of Birmingham and other universities, and for the diplomas of corporations.

Appointments.—The large number of appointments open to past or other students includes the following:—At the General Hospital: two surgical registrars, £100 (commencing) a year; one resident medical officer, salary £155 a year; one resident surgical officer, salary £180 a year; one assistant resident surgical officer, salary £100 a year; one resident pathologist, salary £70 a year; two visiting anaesthetists, salary £50 a year; two resident anaesthetists, salary £120 a year; four house-surgeons, office tenable for nine months, £70 a year; one house-surgeon to the gynaecological and one to the special departments, each tenable for six months, £70 a year; four house-physicians, post tenable for six months, £70 a year. At the Queen's Hospital: one resident medical registrar, salary £200 a year; two resident surgical officers, £100 a year, tenable for three years; three house-physicians, three house-surgeons, one obstetric and one ophthalmic house-surgeon, one ear, nose, and throat house-surgeon, and one house-physician for duty at the Nerve Hospital (associated with Queen's Hospital), tenable for six months, salary £70 a year, with board, lodging, and washing; one casualty house-surgeon,

tenable for three months, salary £70 a year, with board, lodging, and washing. At the City Public Assistance Institutions: five resident medical officers. At the Birmingham General and Branch Dispensaries: twelve resident surgeons. At the Birmingham Mental Hospitals: five assistant medical officers. At the City Fever Hospitals: three assistant medical officers. At the Children's Hospital: one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital: four resident surgeons. At the Orthopaedic and Spinal Hospital: two clinical assistants (non-resident). At the Ear and Throat Hospital: one house-surgeon, £70 a year; four clinical assistants (non-residents). Four non-resident appointments are in the gift of the Public Assistance Committee.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: Frank Fletcher and Catherine Fletcher Scholarships (not less than two per annum), tenable for five years, each of the annual value of £100, awarded on higher school certificate examination of the Joint Matriculation Board; the Walter Myers Travelling Studentship of £300, offered each alternate year for research work and tenable abroad; the Sands-Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on higher school certificate examination of the Joint Matriculation Board (July)); four Queen's Scholarships of £10 10s. each, awarded annually at the second (Part II), third, fourth, and final university examinations respectively; one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men; the Logleby Scholarships (two) of £10 for proficiency in midwifery and diseases of women; the Arthur Foxwell Memorial Gold Medal (clinical medicine); the Sampson Gamgee Memorial Medal for surgery (Final M.B.); the Russell Memorial Prize (for examination in nervous diseases, final year); the Priestley Smith Prize in ophthalmology, value about £6 (awarded in the final examination); and the Peter Thompson Prize in anatomy (value about £6) for students in their third university year; and the John Barritt Melson Memorial Gold Medal in Physiology for students in their third university year. There is also a scholarship of £46 17s. 6d. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical Prize, gold medal; Senior Surgical Prize, gold medal; Midwifery Prize, gold medal; Junior Medical Prize, silver medal; Junior Surgical Prize, silver medal.

Fees.—The composition fee for university classes is £106 5s. This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State medicine, and some other special work. The total cost for the six years' curriculum, including hospital and examination fees, is £246 0s. 6d. (If first-year science subjects are excluded, £208 15s. 6d.)

Other information should be sought from the Registrar, or the Dean of the Faculty of Medicine, University, Edmund Street, Birmingham.

Bristol

The school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and for the diploma in dental surgery.

Clinical Instruction.—The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them more than 700 beds and extensive out-patient departments, special clinics for diseases of women and children, including ante-natal and post-natal work, also for eye, ear, nose and throat, and skin diseases, in addition to large and well-equipped departments for dental work and large outdoor maternity departments. The Bristol Royal Infirmary has now been selected by the National Radium Commission as a Radium Centre. At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and biochemistry, in which special instruction is given in these subjects. Departments are provided and well equipped for radiology, radiotherapy, actinotherapy, electrotherapy, and massage, with all forms of physiotherapy. The students of the school also attend the City and County Mental Hospital, the Ham Green Hospital for instruction in fevers and tuberculosis, the practice of the Royal Hospital for Sick Children and Women, containing 120 beds, and that of the Bristol Eye Hospital, with 40 beds. In addition, by the kind permission of the Health Committee of the

Bristol City Council, students may attend the clinical practice at Southmead Hospital, and may complete under certain conditions their practical work in obstetrics at that institution, which has 672 beds. The Orthopaedic Hospital at Winford and Stoke Park Colony for Mental Defectives are also available.

Appointments.—(1) Undergraduate: Medical clerkships, surgical dresserships, also ophthalmic, obstetric, pathological, dermatological, ear, nose, and throat clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate: At the Bristol Royal Infirmary: four house-surgeons, one casualty house-surgeon, three house-physicians, one resident obstetric officer, one gynaecological and dermatological house-surgeon, one ear, nose, and throat house-surgeon, one assistant house-surgeon (who also acts in the ophthalmic department), one dental house-surgeon, and one unpaid assistant (usually a resident student) to the senior resident medical officer. All these appointments are for six months. Salary in each case at the rate of £60 per annum, with board, apartments, and laundry, except the casualty house-surgeon and the dental house-surgeon, who receive £80 per annum. In each case the salary is increased by £10 per annum if the officer is re-elected for another six months. From the resident medical officers a senior resident medical officer is appointed at a salary of £200 per annum. Clinical assistantships in all departments are open to senior qualified practitioners. At the Bristol General Hospital: senior resident medical officer, £200 per annum; casualty house-surgeon, £100 per annum; two house-physicians, £80 per annum; two house-surgeons, £80 per annum; resident obstetric officer, £80 per annum; house-surgeon to special departments, £80 per annum. All the £80 appointments carry a salary of £100 for residents who have previously held another of them; the dental house-surgeon (non-resident), £300 per annum. All these appointments are for six months, except that of senior resident medical officer, which is for two years. Clinical assistantships in the out-patient departments are also available.

Scholarships.—The following are among the scholarships and other awards open to students of the school: The Miriam Badock of the value of £120, and the H. H. Wills Science Scholarships, open to boys proceeding from Clifton College; the Harold Greenwood Memorial Scholarship of the value of £20, open to boys who have received instruction at State-provided schools in Clevedon (or elsewhere in Somerset) and subsequently at secondary schools in Somerset or Bristol; the Ashworth Hallett Scholarship, value £40, open to women only; two Martyn Memorial Pathological Scholarships of £10 each; the Tibbits Memorial Prize, value 7 guineas, for proficiency in practical surgery; the Committees' Gold and Silver Medals for fifth or sixth-year students, for general proficiency; the Augustin Prichard Prize, value about 6 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for proficiency in gynaecology; the Crosby Leonard Prize, value 6 guineas, for proficiency in surgery; the Supple Surgical Prize, a gold medal and 7 guineas; the Supple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £12, for dressers; the H. M. Clarke Scholarship, value £15, for proficiency in surgery; the Sanders Scholarship, value £22 10s., for general proficiency; the Barrett-Roué Scholarship for proficiency in diseases of the nose, throat, and ear, or skin or eye, value £17, open to men only; Lady Habersfield Scholarship, value about 25 guineas; Bristol and Bath City Scholarships and the Scholarships offered by the counties of Gloucestershire, Somerset, Wilts, Dorset, etc., are tenable in the university.

One or more Fellowships of not less than £100 per annum are allocated by the Colston Research Society for medical research.

A Beaverbrook Fellowship, tenable for three years, is open to all members of the university holding a medical qualification.

University graduate scholarships are open to graduates of not more than one year's standing.

The Michael Hiatt Baker Scholarship of the value of £200 per annum, open to a graduate from New Zealand may be held in the medical faculty.

The Markham Skerritt Memorial Prize is awarded every three years to that member of the university, not a member of the medical board, who, in the opinion of that board has published the best original work during the three years.

The Paul Bush Gold Medal is awarded in alternate years to the best resident medical officer at the Bristol Royal Infirmary.

Fees.—The fee for all the courses required for the medical curriculum including hospital practice, is 205 guineas, paid by annual instalments.

Further information as to scholarships, curricula, and fees can be obtained from the Dean of the Faculty of Medicine, or the Registrar of the University, Bristol.

University of Durham College of Medicine

This constitutes the Medical School of the Faculty of Medicine of the University of Durham, and is in the neighbouring city, Newcastle-upon-Tyne. Its classes and lectures are arranged to meet the requirements of the university in all the degrees which the latter grants in the Faculty of Medicine, and also those of the other-examining bodies. Hospital practice is carried out at the Royal Victoria Infirmary, a general hospital containing more than 700 beds, where there are facilities for the study of the various special subjects. Students do their practical midwifery at the Princess Mary Maternity Hospital, which contains 90 beds, and has an annual indoor and outdoor attendance on 3,000 cases. In the Heath wing of the school itself there is a gymnasium and a set of rooms for the separate use of the students. The bacteriological department is adjacent to Armstrong College.

The Newcastle-upon-Tyne Dental Hospital and Sutherland Dental School is a component part of, and constitutes the dental department in, the College. The dental hospital, erected within the grounds of the Royal Victoria Infirmary and equipped on the best modern lines, was opened in 1931, and it is possible to undertake the whole of the dental curriculum (that is, systemic lectures, dental and general hospital practice, together with mechanical pupillage) at the College. The Dental Board of the United Kingdom recognizes the school for the purpose of granting its bursaries to students who are able to comply with the conditions laid down by the Board.

Post-Graduate Instruction.—A comprehensive series of post-graduate courses are arranged to enable practitioners to take advantage of the facilities for laboratory work and clinical study afforded by the College, the Royal Victoria Infirmary, and other associated hospitals; and in order to meet the varied requirements of practitioners there are general and special courses in the winter and summer sessions, as well as an intensive course in the summer vacation. Courses of instruction are given for the B.Hy. and D.P.H.

Students' Union.—A Students' Union has been erected and furnished at a cost of over £54,000, and is in daily use. Separate accommodation (non-residential) is provided for men and women students.

Appointments.—Assistants in the pathological department, eye department, throat and ear department, and department for skin diseases, are elected periodically. Clinical clerks and dressers are appointed every three months. Resident appointments at the Infirmary are made every six months, and each year medical and surgical registrars (who also act as tutors) are appointed from candidates who have previously held resident appointments at any recognized hospital. These latter posts afford an excellent opportunity for post-graduate study, not only at the Infirmary, but also in the departments of anatomy, physiology, pathology, and bacteriology of the College.

Scholarships.—University of Durham Entrance Scholarship, £25 a year for four years; Pears Entrance Scholarship, £40 a year for three years (awarded every third year); Heath Entrance Scholarship (from Kieper Grammar School), £60 (renewable); Province of Durham Masonic (Entrance) Scholarship, £60 (renewable); Heath Scholarship for surgery, £200, available every second year; Rutherford Morison Surgical Scholarship, £180, available every third year.

The following scholarships are tenable for one year—namely: Tulloch Scholarship for elementary biology and organic chemistry, £20; Dickinson Scholarship for medicine, surgery, midwifery, and pathology, £20; Charlton Scholarship for medicine, £25; Gibb Scholarship for pathology, £28; Luke Armstrong Scholarship for comparative pathology, £25; Stephen Scott Scholarships for anatomy and physiology, two of £50 each; Philipson Scholarships for highest marks in Final M.B., B.S. Examination, two of £45 each; Goyder Memorial Scholarship for clinical medicine and clinical surgery, interest on £325; Hamilton Drummond Memorial Scholarship, in aid of research in clinical surgery, about £50; Gibson Prize for midwifery and diseases of women and children, £10; Turnbull Prize and Silver Medal for surface anatomy; Outterson Wood Prize for psychological medicine, £10; and Sewell Memorial Prize and Silver Medal for clinical pathology. Approved applicants may obtain special grants for surgical research from the Stephen Scott Research Fund.

Fees.—The composition fee for lectures for medical students at the college is £132. Composition fee for hospital practice,

£46, plus £2 2s. yearly for three years, payable to the Committee of the Royal Victoria Infirmary. For dental students the composition fees amount to £236 for the B.D.S. and to £221 for the L.D.S., covering all systematic lectures and laboratory work at the College, general and dental hospital practice, and mechanical pupillage. Other information should be sought from the Dean of the College, University of Durham College of Medicine, Newcastle-upon-Tyne.

Leeds

The School of Medicine—which is open to both male and female students—in this city forms the teaching centre of the Medical Faculty of the University of Leeds, and is situated in immediate proximity to the General Infirmary, where students sufficiently advanced receive their clinical instruction. The main buildings, opened in 1894, contain excellent dissecting rooms, well-arranged laboratories for physiology, lecture theatres, and classrooms. In addition, there is a well-equipped library and reading room and a museum of anatomy. The comfort of the students is secured by means of common rooms and a refectory. Extensions of the medical school buildings were opened in October, 1930, and the Algernon Firth Institute of Pathology in April, 1933. This last houses the Departments of Pathology and Bacteriology, and Experimental Pathology and Cancer Research, including the Charles Brotherton Pathological Museum. The General Infirmary has 628 beds, and includes ophthalmic and children's wards, a large out-patient department, and the Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge. The West Riding Mental Hospital at Wakefield is available for the study of mental diseases. Students also attend the practice of the Hospital for Women and the Leeds Maternity Hospital, and may attend also at the Leeds Public Dispensary.

Appointments.—Physicians' clerks and surgical dressers are appointed every six months; clerks in the children's department, orthopaedic dressers, ophthalmic and aural dressers, gynaecological ward clerks, maternity clerks, assistant physicians' clerk, dermatological clerks, assistant surgeons' dressers, dressers in the casualty rooms, junior and senior post-mortem clerks, laboratory assistants and dressers in the venereal clinic every three months. After graduation a considerable number of resident and other appointments become available in the Leeds General Infirmary, Leeds Public Dispensary, Hospital for Women and Children, West Riding Mental Hospital, etc., occupying periods of from six to twelve months at rates varying from £20 to £150 per annum.

Scholarships.—The university awards annually on the results of the first examination a scholarship in the form of free admission to the lectures and classes given in the School of Medicine. The university also awards a scholarship on the results of the second examination, of the value of £68, in the form of free admission to the clinical teaching of the Infirmary.

Fees.—It is estimated by the authorities that the approximate cost of medical education to a student in this university is £370, plus, of course, the expenses of living during the five and a half years covered by the curriculum. The composition fee for the course for the first, second, and third examinations, and for the clinical work at the Infirmary, is £242. The composition and clinical fee for those who have passed the second examination is £153.

Further information can be obtained from the Academic Subdean or Clinical Subdean, School of Medicine, Leeds.

Liverpool

The Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well-equipped classrooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratory and other rooms are situated close to one another and inter-communicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which a list is given below, have amalgamated to form the clinical school of the university.

The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,500. They include the following: two Holt Fellowships, one in pathology, the other in physiology; a Robert Gee Fellowship in anatomy; two John Rankin Fellowships in anatomy; a John W. Garrett International Fellowship in bacteriology; a Johnston Colonial Fellowship in biochemistry; an Ethel Boyce Fellowship in gynaecology; and a Thelwall Thomas Fellowship in surgical pathology; one Lady Jones Fellowship in orthopaedic surgery (value of Fellowships: one at £200, three at £150, two at £120, four at £100); a University Scholarship of £50, awarded on the results of Part I of the Final M.B. Examinations; a Ridgway Research Scholarship (£94); a T. J. Hughes Research Scholarship (£72); a Scholarship in mechanical dentistry of £20; two Lyon Jones Scholarships, of the annual value of £19 each for two years, awarded one on the results of the First M.B. Examination, the other on the Second M.B.; the Derby Exhibition of £15; the Clinical School Exhibition of £15; the Owen T. Williams Prize; the Torr Gold Medal in anatomy; John Rankin Exhibition in practical anatomy, £23; the George Holt Medal in physiology; the Kanthack Medal in pathology; Mitchell Banks Medal in anatomy; the Robert Gee Prize of £5 5s. in children's diseases; Mary Birrell Davies Memorial Scholarship (women), £60 per annum for four years; Robert Gee Entrance Scholarship (men), value of £42 10s. per annum for four years; Dental Operating Prizes (four); Orthodontia Prizes (two); Samuels Memorial Scholarships, three at £27 each; one Thomas H. Bickerton Prize in anatomy; Dr. N. E. Roberts Prize in zymotic diseases; Adam Prize in Pathology; Rich Prize; Ash's Prize in dental surgery, value £2 2s.; Gilmour Medal; and other entrance scholarships. In addition, a number of gold and silver medals have recently been instituted in the following subjects: pharmacology, surgery, forensic medicine and toxicology, public health, medicine, orthopaedic surgery, obstetrics and gynaecology, and laryngology and otology.

Fees.—Information as to the fees for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School

As many as nine hospitals have combined to form the clinical school of the university, these being: the Liverpool Royal Infirmary, the David Lewis Northern Hospital, the Liverpool Royal Southern Hospital, the Liverpool Stanley Hospital, the Royal Liverpool Children's Hospital, the Women's Hospital, Liverpool, the Liverpool Maternity Hospital, the Eye and Ear Infirmary, and St. Paul's Eye Hospital. Between them they provide over 1,500 beds.

Manchester

The staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature. The clinical work of the undergraduates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains 590 beds, and has associated with it a large convalescent home (132 beds) and a Central Branch Hospital (54 beds). The courses in mental diseases are partly taken in the County Mental Hospitals at Prestwich and Macclesfield. Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Clinical Work.—The Royal Eye Hospital, the Hospital for Diseases of the Skin, the Manchester Northern Hospital for Women and Children, the well-known Hospitals for Children at Pendlebury, and St. Mary's Hospitals for Women and Children, the Manchester Hospital for Diseases of the Ear, Monsall Fever Hospital, the Christie Cancer Hospital and Holt Radium Institute, the Hospital for Consumption and Diseases of the Throat and Chest, the Ancoats Hospital, and the Salford Royal Hospital, all make arrangements for the instruction of students.

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition: two pathological registrars, at £100 and £50 per annum; two medical registrars at £75 per annum; a cardiographic registrar, at £150

per annum; a medical tutor, at £30 per annum; a director of the clinical laboratory, at £400 per annum, and two assistants, at £350 and £300; three assistant medical officers, each at £35 per annum; four chief assistants to surgical units, £250 per annum; chief assistant to neuro-surgical service, £350 per annum; chief assistant to orthopaedic department, £250 per annum; medical registrar to out-patient department, £150 per annum; assistant surgical officers, aural department at £35 per annum; seven anaesthetists from £75 to £125 per annum each; three anaesthetists at central branch, £25 to £100 per annum; one resident medical officer, one year, £200 per annum; one resident surgical officer, one year, £200 per annum; three resident medical officers for Central Branch, one at £200 and two at £100 per annum; one assistant resident surgical officer, £150 per annum; one resident medical officer at the Convalescent Hospital at Cheadle, £250 per annum; two assistant medical officers to radiological department, £150 and £105 per annum; medical officer, physio-therapeutic department, £150 per annum; assistant surgical officer, gynaecological department, £35 per annum; assistant to the dermatologist, £20 per annum; and three assistant surgical officers for Central Branch, £75 per annum; ten house-surgeons and eight house-physicians, appointed during the year for periods of six months, at a salary of £50 per annum. Resident officers are appointed to the gynaecological, the eye, and the ear and throat departments every three months. Clinical clerks and surgical dressers are appointed to the various departments of the hospital every three months. Non-resident clinical assistantships for qualified medical men and women, tenable for six months, at an honorarium of £35.

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school: Rogers and Seaton Scholarships in Arts (in alternate years), £40 per annum, tenable for two years. Three Hulme Scholarships, tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35, tenable for two years, one being awarded annually for proficiency in the branches of mechanics and chemistry. A Dora Muir Scholarship, £30 per annum, tenable for three years, and open to the competition of women students only. This is awarded triennially. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, awarded triennially, open to the competition of scholars from Sedburgh School, Giggleswick School, and Burnley Grammar School; subjects—mathematics, chemistry, and mechanics. Dreschfeld Memorial Scholarship, value £20, tenable for two years and awarded triennially on the result of the Entrance Examination. John Russell Medical Entrance Scholarship, awarded annually, value £45. Two Dauntsey Junior Medical Scholarships, value £50 each, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification; subjects—chemistry, physics, botany, and zoology. One Dauntsey Senior Medical Scholarship, £50 for one year, awarded on results of Second M.B. Examination. Two Entrance Scholarships in medicine, value 160 guineas, awarded annually for proficiency in arts or science respectively. Tom Jones Exhibition in anatomy, £25, offered annually. A Robert Platt Physiological Scholarship of £90, tenable for one year. A Leech Fellowship of £100 for original research after graduation. A Graduate Research Scholarship in medicine, value £70, tenable for one year, awarded annually for proficiency shown at Final M.B. Examination. Two Dunville Surgical Prizes, each value £15, awarded annually at graduation. The Tom Jones Memorial Surgical Fellowship, value £105, tenable for one year, usually awarded annually. The Turner Medical Prizes, value 10 guineas each, awarded annually for proficiency in certain subjects of the Final M.B., Ch.B. Examination. The John Henry Agnew Prize of £30, awarded annually for proficiency in the diseases of children. The Ashby Memorial Scholarship, tenable for one year (£100), for research in the diseases of children; offered triennially. Sidney Renshaw Prizes in physiology; offered annually (£10 and £20). Wild prize in pharmacology (£10). The John Henry Agnew Fellowship in diseases of children, £120, offered triennially. Eliza Marple Holt Post-Graduate Medical Scholarship for Women, £60 for one year, offered biennially. The details and regulations of the Dickinson Scholarships—(1) for anatomy, (2) for pathology, (3) Research Scholarship in surgery, and (4) Travelling Scholarship in medicine—may be obtained from the Secretary to the Trustees. The Morrison Watson Fellowship for research in anatomy is offered annually, value £150; also the Sheridan Delepine Fellowship in preventive medicine, value £300, is offered biennially. The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £40 per annum, tenable for not more than four years, to women students who have passed the First M.B. Examination; the conditions can be obtained from the Registrar. The Knight Prize of £50 for original research in the psychological factors in the causation of mental disorder

—open to holders of the Diploma in Psychological Medicine or medical practitioners who have been registered in the university as candidates for that diploma. Pilkington Fellowship in Cancer research £300 for one year.

Fees.—The composition fee for the university course in medicine is 114 guineas for men, 112 guineas for women, payable in four instalments of 28½ and 28 guineas respectively, but this sum does not include the fee to cover the work required for the First M.B. Examination. This is £42, payable in one sum. Hospital fees are additional, and usually amount to about 90 guineas.

A prospectus and further information about the school and scholarships may be obtained from the Registrar.

Sheffield

In this city the Medical School is one of the departments of the university, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangement and scientific equipment, on the most modern and complete lines.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum, which is open daily. In addition, there is a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms for both men and women students. There are also two student unions—one for men and one for women students. Thanks to the generosity of Alderman J. G. Graves, a well-equipped union building is in course of erection, and when complete will add very materially to the amenities of the students' social life.

There is ample hostel accommodation for women students, and in the near future similar accommodation will be available for men. In the university buildings there is a refectory open to all students of the school, and a university journal is published each term; the Medical School also publishes a journal. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 800 beds for medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopaedics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anaesthetics is given at either institution by the anaesthetists, and the post-mortem examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students are able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fevers are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Mental Hospital.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. These appointments are made for three months, commencing on the first day of October, January, April, and July.

Scholarships.—Entrance Medical Scholarship, covering cost of tuition fees for a degree course in the Faculty of Medicine, open to both sexes. Six Edgar Allen Scholarships of £100 a year for three years may be held by students taking the degree course in medicine. Two Town Trustees' Scholarships, each of the value of £50 a year, tenable for three years, for boys or girls who have been educated in a Sheffield secondary school for a period not less than two years

immediately preceding the examination. Four Town Trustees' Scholarships, value £50 a year, for boys or girls under 19 years of age educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Scholarship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, value £60, for proficiency in anatomy and physiology. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—Students in the Faculty taking their complete medical course in the university pay an inclusive composition fee of £42 for each of the first five years and £28 for the sixth year. The composition fees for the dental courses are as follows: for B.D.S., first and third years, £80; second, fourth, and fifth years, £30; for L.D.S., first and second years, £80; third and fourth years, £30. The fees for special courses taken separately can be ascertained by inquiry of the Dean.

Note.—To non-British subjects—that is, students from outside the British Empire—an additional 20 per cent. will be charged on all fees.

Welsh National School of Medicine

The next session opens on October 2nd. All classes are open to both men and women students. Particulars relating to the admission of students can be obtained on application to the Provost, or to the Secretary, Welsh National School of Medicine, The Parade, Cardiff.

The following is a list of heads of departments: materia medica and pharmacology, Dr. Reginald St. A. Heathcote; pathology and bacteriology, Professor J. B. Duguid; medicine, Professor A. M. Kennedy; surgery, Professor A. W. Sheen; obstetrics and gynaecology, Professor G. I. Strachan; preventive medicine, Professor R. M. F. Picken; tuberculosis, Professor S. Lyle Cummins.

During the first three years students complete the first part of their scheme of study for the degrees of M.B., B.Ch. by taking the following courses, which also qualify for the B.Sc. degree:

(a) In the first year the preliminary subjects of physics, chemistry, botany, and zoology are taken. (Courses in these subjects can be taken in any of the four constituent colleges of the University of Wales.)

(b) In the second year the subsidiary subject of organic chemistry is taken.

(c) In the second and third years the ancillary subjects of human anatomy and physiology are taken. (Courses under (b) and (c) are taken at the University College of South Wales and Monmouthshire.)

SCOTLAND

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of the different Scottish medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified, or offer valuable opportunities for post-graduation work.

Aberdeen

The school is conducted by the Faculty of Medicine. This comprises twelve chairs, from which instruction is given in all the main branches of medical science—namely, biology, physics, chemistry, anatomy, physiology, materia medica, pathology, bacteriology, surgery, medicine, and midwifery. Courses of instruction in forensic medicine, public health and infectious diseases, tropical medicine, medical ethics, tuberculosis, and clinical methods are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary, the Royal Mental Hospital, the Sick Children's Hospital, the City Fever Hospital, the General Dispensary,

Maternity, and Vaccine Institution, and the Ophthalmic Institution. Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fever Hospital; in mental diseases at the Royal Mental Hospital; in diseases of the ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in venereal diseases and diseases of the skin at the Royal Infirmary.

The degrees granted in medicine are: Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.). A diploma in public health is conferred after examination on graduates in medicine of any university of the United Kingdom.

The degree of Ph.D. is also granted in this faculty.

Bursaries, scholarships, and fellowships, to the number of fifty, and of the annual value of £1,200, may be held by students of medicine in this university. The bursaries range in value from £10 to £50 per annum, and are tenable for periods from one to five years.

Fees.—An inclusive fee of 126 guineas is payable for instruction within the university, and the fee for the degrees of M.B., Ch.B. is 33 guineas. The total cost, including hospital fees, class and matriculation fees, and degree fees, is about £240.

Edinburgh

There are two Schools of Medicine: the School of the University, and the School of Medicine of the Royal Colleges of Physicians and Surgeons of Edinburgh.

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; zoological laboratory and museum of science and art; physical laboratory; chemical laboratories; dissecting room, bone room, and anatomical museum; physiological laboratory; medical jurisprudence laboratories; John Usher Institute of Public Health; materia medica museum and laboratory; post-mortem department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; tutorial classes of practice of physic, of clinical medicine, and clinical surgery, surgery and midwifery; and the practice of certain other hospitals.

Fees.—The sessional fee for chemistry, anatomy lectures, physiology, pathology, materia medica, surgery, medicine, and midwifery is £6 6s. each. Physics, botany, zoology, forensic medicine, and public health, £5 5s. Practical zoology, practical anatomy (summer), morbid anatomy, practical materia medica, mental diseases, practical pathology, clinical midwifery, and medical entomology and parasitology, £4 4s. Experimental physiology, diseases of tropical climates, practical botany, histology, child life and health, operative surgery, clinical surgery (per term), and clinical medicine (per term), £3 3s. Practical anatomy (winter), £6 18s. 6d. Practical chemistry, £4 14s. 6d., chemical physiology, surgical pathology, and infectious diseases, £1 11s. 6d. Tuberculosis, diseases of the eye, diseases of the larynx, ear, and nose, diseases of the skin, and venereal diseases, £2 12s. 6d. Advanced bacteriology, £7 17s. 6d. Clinical gynaecology, regional anatomy, and applied anatomy, £2 2s.

Scholarships.—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition, there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of Lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons and in most cases also recognized by the University of Edinburgh through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a Board elected by the Royal Colleges of Physicians and Surgeons and by the Lecturers. This Board, with the assistance of the standing committees of the school, supervises the whole management and

especially the maintenance of the efficiency and discipline of the school. The buildings at present utilized for the purposes of lecturing are the following: (1) Surgeon's Hall, Nicolson Street; (2) New School, Bristo Street. Clinical classes are held in the Royal Infirmary, Royal Maternity Hospital, and other institutions. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects are also conducted by teachers specially qualified in each branch. The fees payable for class and other instruction, and including the sums payable before admission to the examination of the Conjoint Board for the triple qualification, amount to about £180. The Calendar, giving full information regarding classes and fees, can be obtained (price 9d., post free) on application to the Dean of the School, Surgeon's Hall, Edinburgh.

WOMEN STUDENTS IN EDINBURGH.—Until the close of the summer session of 1916 women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. Now women students study under the same conditions as men, and may obtain either the university degree or the diploma of the Royal Colleges. In the university systematic lectures are given to them by the professors in the ordinary classes, which are therefore mixed. In clinical surgery, however, the women students are restricted to the wards of one charge. The particular wards are changed periodically, each of the surgeons to the Infirmary taking the women students in rotation. With few exceptions, prizes, scholarships, bursaries, and similar distinctions are open to women under the same conditions as for men. The women students also have the same privileges as in the past have been given to the men of attending classes taught by the recognized lecturers of the School of Medicine of the Royal Colleges. Most of the students' societies are open to women, with the exception of the University Union and the Royal Medical Society. Their place is taken by the Women Students' Union and the Women's Medical Society. There is also a Women's Athletic Club, with playing fields gifted to it by the university. The membership of the Royal College of Physicians and Fellowships of the two Royal Colleges are also open to women. Information on matters connected with women's studies may be obtained from the Adviser of Women Students, The University, Edinburgh.

Glasgow

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: pathology, public health, pharmacology, physiology, surgery, anatomy, chemistry, zoology, physics, and botany; the Botanic Garden and the Hunterian Museum are also open to students. Well-equipped new buildings have been provided for zoology, practical anatomy, and operative surgery, as well as for pathology. The classrooms and laboratories for the departments of botany, physics, physiology, pharmacology, materia medica, medical jurisprudence, and public health are also of recent erection, and are elaborately equipped. In addition to the regius chairs and the chair of pathology at the university, there are chairs of medicine, surgery, obstetrics, and pathology at the Royal Infirmary; and a number of university lectureships in clinical medicine, clinical surgery, venereal diseases, laryngology, dermatology, otology, psychological medicine, tuberculosis, pathological biochemistry, and electrical diagnosis and treatment have been founded there. Other chairs have been founded at the university in bacteriology, organic chemistry, physiological chemistry, applied physics, public health, and paediatrics. There are also lectureships on the surgical

and medical diseases of children and on electrical diagnosis and therapeutics. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduation and research work. A diploma in public health is now also granted. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached; the Royal Infirmary (824 beds); and the Victoria Infirmary (380 beds); while the Royal Mental Hospital Gartnavel (500 beds), the Royal Hospital for Sick Children (350 cots), the Royal Maternity and Women's Hospital (114 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35 beds), the fever hospitals at Belvidere (680 beds), Ruchill (540 beds), and Mearnskirck, and other institutions afford facilities for the practical study of special branches. The large general hospitals of the parish council are now also available for clinical instruction in medicine and surgery. Information regarding post-graduate study will be found at page 431.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in arts.

The following bursaries are open for competition to students entering on their first session of attendance in the Faculty of Medicine: Davidson Bursary, annual value £40, tenable for four years, for students who propose before entering the Faculty of Medicine to take the degree of B.Sc. in pure science, including in their curricula anatomy and physiology. Highland Society (Glasgow) Bursaries, annual value £25 each, tenable for five years, for students of Highland descent, open to women; two bursaries vacant each year. Logan Bursary, annual value £25, tenable for four years, open to women. Robina Eckford MacBrayne Scholarship, annual value £50, tenable for three years. Marshall Bursary, annual value £24, tenable for four years. Merchants' House Bursary, annual value £35, tenable for four years, open to women. John Oliphant Bursary, annual value £35, tenable for six years. James A. Paterson Bursaries, three each year of the annual value of £35, £25, and £15 respectively, each tenable for four years; students entering their second session are also eligible; open to women; examination in mathematics and natural philosophy.

Candidates for the aforementioned bursaries must take the university general Bursary competition, which is held each year in the month of June.

In addition, the following bursaries, scholarships, and prizes are open to students prosecuting their studies in the Faculty of Medicine: Arbroath Bursary, annual value £40, tenable for three years, is awarded by the Senate, on the recommendation of the Faculty of Medicine, to the student who is of the highest merit among the candidates as shown by their class records and their performances in the First and Second Professional Examinations. Arthur Bursary, annual value £20, tenable for three years, awarded to the woman student who takes the highest place among the Queen Margaret College candidates at the First Professional Examination. Mary Allan Bell Bursaries (five), annual value £50 each, tenable for three or four years, for students who have gone through the curriculum in arts; special examination, tenable also in theology or law. Brisbane Bursary, annual value £50, tenable for four years; candidates must be under 22 years of age, and must have taken the degree of M.A. William Gardiner Bursary, annual value £18, tenable for two years, awarded on results of the First and Second Professional Examinations in the subjects of physiology, chemistry, and physics. Dr. Thomas Gibson Bursary, annual value £50, tenable for four years; open to medical students entering on their second winter who are preparing for service as medical missionaries. Johnston Bursaries (two), annual value £25 each, tenable for three years, for eminence in the work and examinations of the first and second years of the curriculum. Lorimer Bursaries (six), value £20 each, tenable for one year, are awarded to the best students in each of the following classes: botany, zoology, physics, chemistry, anatomy, physiology. Macfarlane Bursary, annual value £40, tenable for three years, for students who have attended the first session of their professional study in the university; examination in elementary anatomy, elementary chemistry, and botany. Mackintosh Bursary, value £31, tenable for one year, open to medical students of either sex who have attended one of the courses of lectures on insanity; examination in that subject. John Monteith Bursary, annual value £21, tenable for two years,

is awarded annually to the student who gains the highest number of marks in the subjects of anatomy and physiology at the professional examinations held during the previous year. Rainy Bursary, annual value £50, tenable for two years, for students entering on their third session of medical study; awarded to the candidate whose aggregate of marks in the subjects of anatomy and physiology of the Second Professional Examination, and in chemistry, botany, and zoology of the First Professional Examination, is the highest. A. and B. Stewart Bursaries, annual value £50 each, tenable for three years, for students who have gone through the arts curriculum; there is a special examination. Walton Bursary, annual value £40, tenable for four years; the Earl of Sandwich has the right of appointing to the bursary one of two students nominated by the Senate. Weir Bursary, value £25, tenable for one year, awarded on the results of the Second and Third Professional Examinations. Barbour Scholarship in anatomy or physiology, annual value £250, tenable for two years. Joseph Coats Memorial Scholarship, value £85, tenable for one year, for research in pathology, may be held concurrently with the Perman Memorial Scholarship (q.v.). Faulds Fellowship, annual value £250, tenable for three years, for medical research. Foulis Memorial Scholarship in pathology, value £50. Four McCunn Medical Research Scholarships, value £200 each, tenable for one year. Perman Memorial Scholarship, value £50, tenable for one year, for research in pathology, may be held concurrently with the Joseph Coats Memorial Scholarship (q.v.). The Junior Arnot Prize of about £15; the Senior Arnot Prize of £25. Three Bellahouston Gold Medals. The Brunton Memorial Prize of about £20. The Maceven Medal in surgery. The Captain H. S. Ranken V.C. Memorial Prize of £5. The Straits Settlements Gold Medal. The West of Scotland R.A.M.C. Memorial Prize of about £15.

The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction, under conditions given in the University Calendar, and summarized at page 404 of this issue. Scholarships and Fellowships are offered by the Carnegie Trust in science and medicine for post-graduation study.

Fees.—The matriculation fee for each year is £2 12s. 6d. In most cases the fee for each university class is £6 6s., but in some cases it is £4 4s. For hospital attendance at the Western Infirmary students pay £12 12s. for a perpetual ticket, or £1 11s. 6d. for a single term ticket, with an additional fee of £5 5s. for each winter and £2 12s. 6d. per term for each clinical course. The fees are the same at the Royal Infirmary. The university fees for the four professional examinations total £34 13s. For the whole curriculum the fees for matriculation, class attendance, hospital attendance, and professional examinations amount to about £250.

For further information apply to the Registrar, Glasgow University.

QUEEN MARGARET COLLEGE.—Includes the Women's Medical School of the University of Glasgow. The courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have at Queen Margaret College reading rooms, library, and the offices of administration. They are taught in classes together with men students, and have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, the Western Infirmary, and the Victoria Infirmary; also *inter alia* in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal Asylum, Gartnavel, Hawkhead Asylum, the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidere and Ruchill, and the Glasgow Royal Maternity and Women's Hospital.

Scholarships.—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October, 1934. This scholarship is restricted to women medical students.

Full information can be obtained from the Dean of the Faculty of Medicine, University of Glasgow, or the Secretary to the Mistress of Queen Margaret College, University of Glasgow.

Board for Students.—University Halls of residence for women students, Queen Margaret Hall and Robertson Hall, are situated near the college and the other university buildings. The cost of board and residence is from 35s. to 42s. a week, according to accommodation. Applications to be made to the Wardens. Another residence near the college is South Park House, Ann Street, belonging to the Student Christian Movement, and open to women students in Glasgow. Cost of board is from 32s. to 35s. weekly. Applications to be made to the Warden.

ST. MUNGO'S COLLEGE.—This is the Medical School of the Royal Infirmary, which is the largest general hospital in Glasgow. The Infirmary is situated in Cathedral Square, Castle Street, and has car communication with every part of the city. St. Mungo's College is in the Infirmary grounds, and affords full courses in all the subjects of the medical curriculum, and in all the medical subjects of the dental curriculum.

The Infirmary has (including the ophthalmic department) 782 beds—542 for surgical and 240 for medical cases. There are special beds and wards for diseases of women, of the throat, nose, and ear, burns, and septic cases. In the out-patient department in 1932 over 111,000 patients were treated. In addition to the large medical and surgical departments, there are departments for special diseases—namely, diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. There is also a fully equipped electrical pavilion, with the latest and most improved apparatus for diagnosis and treatment.

Appointments.—Five house-physicians and eleven house-surgeons, who must be fully qualified, are appointed every six months, and board in the hospital free of charge. Clerks and dressers are appointed by the physicians and surgeons. As many cases of acute diseases and accidents of a varied character are received, these appointments are very valuable.

Fees.—The average class fee is £3 3s. for summer classes and £4 4s. for winter classes. The fees for all the lectures, practical classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £120. The classes are open to male and female students.

A syllabus of classes can be obtained on application to the Secretary to the Medical Faculty, St. Mungo's College, 86, Castle Street.

THE ANDERSON COLLEGE OF MEDICINE.—This school provides education in the subjects of the curriculum for both medical and dental students. The school buildings are situated in Dumbarton Road, immediately to the west of the University and Western Infirmary. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary; pathology in the Western or Royal Infirmary; vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions stated in the School Calendar).

Fees.—The fees for the lectures and practical work required by ordinary students range between 2 and 6 guineas a class. The Carnegie Trust pays the fees of students at Anderson College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a postcard by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow, W.1, who will forward any further information which may be desired.

The Royal Samaritan Hospital for Women, Glasgow, with 160 beds, offers facilities for clinical instruction in the diseases peculiar to women. A university lectureship, the Royal Samaritan Lectureship in gynaecology, is associated with the hospital. The lecturer is Dr. Donald McIntyre. Particulars may be obtained from Mr. T. Mason Macquaker, M.A., B.L., Secretary, 191, West George Street, Glasgow.

St. Andrews and Dundee

The medical departments in these two teaching centres cater specially for students proceeding to the degrees of the University of St. Andrews, but admit other students as well. In the former city the United College provides education in all subjects for the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain fully equipped laboratories. The clinical work of the school is facilitated by various institutions. The class fees are from £6 6s. to £5 12s. 6d. for systematic classes, and from £4 14s. 6d. to £4 4s. for practical classes. The hospital ticket is £1 8s. for three months, £4 4s. a year, or

perpetual, £13 6s. 8d. in one sum. The inclusive or composition fee for the curriculum is £182. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St. Andrews. Information regarding the clinical facilities may be obtained from the Dean of the Medical Faculty, Medical School, Dundee.

Clinical Work

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given thereat being recognized for purposes of graduation by all the Scottish universities, the University of Cambridge, the University of London, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND

There is a choice of six schools for those pursuing their medical studies in Ireland. For clinical instruction the choice is equally wide and varied, though the hospitals themselves are comparatively small. Some account of the schools follows.

Dublin

School of Physic

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians of Ireland, the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board of Trinity College. The courses of instruction are open to all medical students, whether they belong to the university or not.

The Schools of Surgery

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the college's own school, combined with two famous old medical schools—Carmichael and Ledwich; they are attached to the college by charter. The buildings contain spacious dissecting rooms, special pathological, bacteriological, and chemical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the college.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£26 5s.); the Carmichael Scholarship (£15); the Mayne Scholarship (£8); the Gold Medal in surgery; the Stoney Memorial Gold Medal in anatomy; the H. Macnaughton Jones Gold Medal for midwifery and gynaecology; the Captain Massey Miles Memorial Prize; class prizes, accompanied by silver medals, will also be given in each subject.

A prospectus can be obtained post free on application to the Registrar, Royal College of Surgeons, Dublin.

University College, Dublin

This is one of the constituent colleges of the National University of Ireland. The arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. Applications for information may be addressed to the Secretary and Bursar, University College, Dublin.

Clinical Teaching in Dublin

Two other important obstetric and gynaecological hospitals in Dublin are the Coombe Lying-in Hospital and the National Maternity Hospital. During the year ending December 31st, 1933, the number of cases dealt with in the Coombe Lying-in Hospital were as follows: intern maternity department, total admissions 1,430; intern maternity department, total deliveries 1,279; extern maternity department, total deliveries 1,517; gynaecological department, number of operations 478. Attend-

ance at pre-natal clinic, baby and general dispensaries, 12,000 cases yearly. The practice of these hospitals is attended by large numbers of students, post-graduates, and nurses.

There are numerous well-arranged hospitals in and around the city, and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the British Isles. Among them are the Mater Misericordiae Hospital, with 345 beds; Dr. Steevens's Hospital at Kingsbridge, with 150; Meath Hospital and County Dublin Infirmary, with 160; Mercer's Hospital, with 120; the Royal City of Dublin Hospital, with 124; the Adelaide Hospital, with 160; the Royal Victoria Eye and Ear Hospital, with 100 beds; Sir Patrick Dun's Hospital, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Hospital, with an aggregate of 330 beds.

As for the famous Dublin medical institution known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the British Isles. There are pre-natal and paediatric departments as well as a thoroughly equipped pathological laboratory, biochemical laboratory, and x-ray apparatus. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to medical graduates of any nationality. During the year ending October 31st, 1933, there were 2,650 maternity admissions. Including patients treated in their homes, the Rotunda dealt with 4,782 maternity cases during the year, of which 4,178 were delivered.

The National Maternity Hospital is being entirely rebuilt, and the first section, containing some seventy beds, operating theatres, administration departments, and nurses' home, is now nearing completion, and will be ready for the admission of patients before the end of this year. The fittings and equipment are of the most up-to-date type, and the outstanding feature is an "all-electric" heating, sterilizing, and hot-water system. The second section, to be started early in 1935, will contain a further seventy beds, out-patient, x-ray, and pathological departments, laundry, lecture theatre, etc. There is accommodation for about thirty students and post-graduates, and for a nursing staff of eighty. There are gynaecological, pre-natal, and paediatric departments, both internal and external. During the year 1933 the hospital dealt with 2,185 maternity cases, of which 1,855 were delivered. In the gynaecological department 345 patients were operated on. The attendances at the out-patient department were 7,487. Clinical lectures are given daily.

Belfast

The Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in the departments of bacteriology, biochemistry, biology, chemistry, physiology, pathology, public health, anatomy, physics, and materia medica are all excellent, and there is a students' union which gives students the advantages of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are: the Royal Maternity Hospital; the Ulster Hospital for Women and Children; the Hospital for Sick Children; the Ophthalmic Hospital; the Benn Ulster Eye, Ear and Throat Hospital; the Union Infirmary and Fever Hospital; the Fever Hospital, Purdyburn; the District Lunatic Asylum; the Samaritan Hospital; the Forster Green Hospital for Diseases of the Chest; and the Belfast Hospital for Skin Diseases.

Scholarships.—(1) Eight, of the value of £40 each, are assigned as Entrance Scholarships in the Faculties of Arts, Science, and Medicine, tenable for one year; (2) fourteen Professional Scholarships, value from £15 to £40 each; (3) one Hutchinson Stewart Scholarship, £12, in mental diseases; (4) one Mackay Wilson Travelling Scholarship, £100, awarded triennially (next award, 1936); (5) Isabella Tod Memorial Scholarship, tenable for three years, awarded triennially to a woman student; (6) Magrath Clinical Scholarship, awarded annually, value about £112; (7) two Musgrave Studentships of £200 in physiology and pathology. There is also a post-graduate research fund, open to all graduates of not more than

three years' standing. Gold medals are awarded at the M.D. examination.

Fees.—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately, £230. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital, and fees for the special hospitals. The course for the Conjoint Board costs about the same amount.

The Regulations of the Medical Faculty, containing full information, can be obtained on application to the Bursar, Queen's University, Belfast, price 4d.

University College, Cork

This institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the National University. It holds examinations for all the faculties of that university. In addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees of the National University, but students proceeding for the examinations of the Conjoint Board of England, Scotland, or Ireland, the Society of Apothecaries of London or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South Infirmarys (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (130 beds), the County and City of Cork Lying-in Hospital, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglinton Lunatic Asylum. The session extends from October to June.

There is a Dental School in which the degree of Bachelor of Dental Surgery of the National University of Ireland can be obtained. There is a large well-equipped dental hospital in connexion with the school.

Scholarships.—About £2,500 is available annually for scholarships in the college. Particulars as to each of them can be obtained on application to the Registrar.

Fees.—The fees for the lectures and hospital attendances required by the National University of Ireland course, including examination fees, come to about £175.

Further information can be found in the Calendar, or obtained on application to the Registrar.

University College, Galway

This institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Art, Science, Law, Celtic, Engineering, Commerce, and Medicine. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library, a college union, and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of the London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Galway Central Hospital and the Galway Tuberculosis Hospital. The Galway Central Hospital is a general hospital, and at the two hospitals students have ample opportunities of studying zymotic and chronic diseases. The Central Hospital has a special ward for diseases of children. Each year the governing body offers about £2,500, and the County Councils of Connaught offer about £3,500, in scholarships. These scholarships are tenable in any faculty. Additional information regarding these scholarships can be obtained on application to the Registrar, and to the Secretaries of the Connaught County Councils.

CLINICAL HOSPITALS IN ENGLAND

Many hospitals in Great Britain and Ireland, though not connected with any medical school, open their doors either to those who have yet to be qualified, to those who are doing post-graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Their honorary staffs commonly make a point of giving such instruction as opportunity offers, and at those situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments for resident medical officers, house-physicians, and house-surgeons. These are usually paid offices, which may be held for periods varying from six months to a year, or even longer. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in these localities; but it should be added that there are many other provincial hospitals where admirable work is done, and at which much valuable experience can be gained by both senior and junior students, and by those already qualified. Cases in point are the Royal Infirmary, Bradford; the Royal Sussex County Hospital, Brighton; the Royal United Hospital, Bath; the Worcester General Infirmary; the Kent and Canterbury Hospital; the Derbyshire Royal Infirmary; South Devon and East Cornwall Hospital, Plymouth; the Royal Albert Hospital and Eye Hospital, Devonport; the Royal Devon and Exeter Hospital; the West of England Eye Infirmary, Exeter; the Gloucestershire Royal Infirmary and Eye Institution; the Royal Infirmary, Leicester; the County Hospital, Lincoln; the General Hospital, Northampton; the Norfolk and Norwich Hospital; the General Hospital, Nottingham; the Royal Portsmouth Hospital; the Royal Berks Hospital, Reading; the Royal South Hants and Southampton Hospital; the Staffordshire General Infirmary, Stafford; the North Staffordshire Infirmary at Hartshill; the Royal Hants County Hospital, Winchester; the Wolverhampton and Staffordshire General Hospital; the County Hospital, York; and the Coventry and Warwickshire Hospital.

London Clinical Hospitals

As for the hospitals in the metropolis, so many of these take a share in the giving of clinical instruction that it is worth while to classify them.

Children's Hospitals.—There are at least seven of these, the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 268 beds. There are also the East London Hospital for Children, Shadwell, with 136; the Queen's Hospital for Children, Bethnal Green, with 134; the Victoria Hospital for Children, Chelsea, with 130; the Belgrave Hospital for Children, which has a considerable out-patient department, and in-patient accommodation for 74 children; the Paddington Green Children's Hospital; and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds. The largest and the oldest of the hospitals for both women and children is the Royal Waterloo Hospital for Children and Women, Waterloo Road, S.E.1.

Hospitals for Women.—Queen Charlotte's Maternity Hospital, Marylebone Road, with 100 beds and a residential college for medical students and practitioners, specializes in the teaching of midwifery. The first section of the new Queen Charlotte's Hospital in Goldhawk Road, Hammersmith, an isolation block of 30 beds for cases of puerperal fever and puerperal pyrexia, was opened in July, 1930. The Bernhard Baron Research Laboratories, immediately adjoining the isolation block, were opened towards the end of 1930, and are fully equipped and staffed. The City of London Maternity Hospital, City Road, with 71 beds, also admits medical students and graduates to its practice. Monthly or

fortnightly residential courses are provided for two medical students at a time, and facilities are offered to post-graduates to see the work of the ante-natal clinics on three mornings weekly. Fees £16 16s. for four weeks, £8 8s. for two weeks (inclusive of board and residence). The Samaritan Hospital for Women, Marylebone Road, admits qualified practitioners as clinical assistants to both the in-patient and out-patient departments; demonstrations are given daily in both departments, the fees—payable in advance—being £3 3s. for three months; full particulars may be obtained from the secretary. In addition may be mentioned the Hospital for Women, Soho Square, whose teaching is confined to post-graduates in limited numbers; the Chelsea Hospital for Women, Arthur Street, Chelsea; and the Elizabeth Garrett Anderson Hospital for Women in Euston Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Royal London Ophthalmic Hospital (Moorfields), City Road, E.C.1, 152 beds; 3,133 in-patients, 50,074 out-patients in 1931. At this hospital two complete courses of instruction are given during the year—October to February, and March to July—comprising the following subjects: (1) anatomy (including histology and embryology), (2) physiology, (3) optics (including physiological optics), (4) refraction classes, (5) methods of examination and use of the ophthalmoscope, (6) pathology and bacteriology, (7) ophthalmic medicine and surgery, (8) ophthalmoscopic conditions, (9) operative surgery, (10) practical pathology, (11) practical bacteriology, (12) radiology, (13) physiotherapy (including ultra-violet light, diathermy, and ionization), (14) slit-lamp microscopy. A fee of 35 guineas will admit the holder once to all the lectures and classes, except those on physiotherapy and slit-lamp microscopy. The fee of a perpetual ticket to attend the practice of the hospital is £5 5s.; for three or six months, £3 3s.; for two months, £2 2s.; for one month, £1 1s. Registered medical practitioners and medical students are eligible, under certain conditions, for the posts of chief clinical assistant, clinical assistant, and junior assistant. There are also a number of salaried posts, an annual Clinical Research Scholarship of £50, and a biennial Gifford Edmonds Prize of £100. Clinical work begins each morning at 9 and operations at 10 o'clock. The course of instruction is specially adapted to meet the requirements of those reading for the D.O.M.S. and similar diplomas and degrees in ophthalmology. Further particulars may be obtained from the Dean of the Medical School. Other eye hospitals are the Royal Westminster Ophthalmic Hospital, now rebuilt on a new site in Broad Street, High Holborn, and containing 84 beds; the Royal Eye Hospital, Southwark, and the Central London Ophthalmic Hospital, Judd Street, W.C.1, each with about 40 beds; and the Western Ophthalmic Hospital with 18 beds.

Fever Hospitals.—The London County Council has under its control a number of institutions in and around London for the treatment of the more serious zymotic disorders; it makes special arrangements for the instruction of students in this subject, and grants certificates at the end of the courses. The fees for medical undergraduate and post-graduate instruction at the L.C.C. hospitals for infectious diseases and small-pox are as follows: Course in diagnosis and treatment of fevers, three guineas for two months' course. Course in clinical practice and hospital administration (for candidates for the D.P.H.), three and a half guineas for 24 demonstrations and four guineas for thirty demonstrations. Course in diagnosis and treatment of small-pox (in cases in which a fee is payable), one guinea for three demonstrations. Detailed information should be sought from the Medical Officer of Health, Special Hospitals Division, London County Council, County Hall, S.E.1.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 333 beds and a large sanatorium at Frimley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 185 beds, and the Royal Hospital for Diseases of the Chest, City Road, with 85 beds, now amalgamated with the Royal Northern Hospital, Holloway Road.

Nose, Throat, and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose, and ear all make special arrangements for the benefit of senior and post-graduate students. They are the Metropolitan Ear, Nose, and Throat Hospital, Fitzroy Square; the Royal Ear Hospital, Huntley Street, W.C.1 (now the Ear, Nose and Throat Department of University College Hospital); the Central London Throat Nose and Ear Hospital, Gray's Inn Road; and the Golden Square Throat, Nose and Ear Hospital, near Piccadilly Circus, W.1—the last, which possesses 101 beds, being the largest of the four institutions.

Miscellaneous Special Hospitals.—Among these are the Bethlem Royal Hospital, recently transferred from Kennington to Monks Orchard, Eden Park, Beckenham, Kent, which (like the Maudsley Hospital) confines its work to the treatment of mental diseases, and includes a department for nervous and early mental disorders; the Royal National Orthopaedic Hospital, Great Portland Street; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street, Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; St. Paul's Hospital, Endell Street, Holborn, W.C.2, where continuous post-graduate work in genito-urinary disease is carried on, and two regular post-graduate courses held each year; the National Hospital for Diseases of the Heart in Westmoreland Street, W.1; St. John's Hospital for Diseases of the Skin in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; the National Hospital, Queen Square, W.C.1, an institution possessing 200 beds for neurological cases and a world-wide reputation; and the West End Hospital for Nervous Diseases, 73, Welbeck Street, W.1.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

Women in Medicine

The regulations of the General Medical Council and of the various universities and colleges set out in previous sections apply to women as to men.

Examinations

Women are admitted to all the medical examinations of the following qualifying bodies: all the universities of Great Britain and Ireland; the Royal College of Physicians of London; the Royal College of Surgeons of England; the Society of Apothecaries of London; and the Conjoint Boards of the Colleges in Scotland and in Ireland. In addition, women are eligible for election as Fellows of the Royal College of Physicians of London, the Royal College of Physicians of Edinburgh, and the British College of Obstetricians and Gynaecologists.

Medical Education

In this country at the present time co-education is the general rule. The schools of the London hospitals have, however, so far shown themselves more conservative in this respect than the rest of the country.

In England the colleges connected with the universities of Birmingham, Bristol, Cardiff, Durham, Leeds, Liverpool, Manchester, Newcastle, and Sheffield admit women students as well as men, whilst in Scotland the universities of Aberdeen, St. Andrews, Edinburgh, and Glasgow also admit women. In Ireland all universities and colleges are open to them.

In London the only schools open to medical women students are the London School of Medicine for Women and, to a modified extent, University College Hospital and King's College Hospital, which last-named has again recently opened its doors to women students. It is felt that such a state of affairs can only be temporary, and hopes are entertained that in the near future the principle of co-education will prevail in the capital.

At the present time it will be seen that the only co-education hospitals in London are University College and King's College. The number of women entrants is restricted, but they are given excellent opportunities whilst students, and also, in fair proportion, are given opportunities of post-graduate experience as residents, house-surgeons, house-physicians, and obstetrical assistants.

Number of Women Students

Returns made to the University Grants Committee show that the total number of full-time women medical and dental students attending university institutions in England, Scotland, and Wales during recent years were:

	1925-26	1927-28	1929-30	1931-32
England	1,059	862	842	910
Wales	30	30	19	40
Scotland	313	254	275	322
Total	1,402	1,146	1,136	1,272

The corresponding total number of full-time male students of medicine, including dentistry, was 9,107 in 1931-2.

The London (Royal Free Hospital) School of Medicine for Women

The London (Royal Free Hospital) School was started for the training of women in medicine in the days before there were any co-education facilities for them, and it still remains by far the largest school for women. In addition to the clinical work at the Royal Free Hospital, which at present has 321 beds, arrangements are made for students of the school to obtain clinical instruction at the National Hospital for Nervous Diseases, Queen Square; the Royal London Ophthalmic Hospital, Moorfields; the Great Ormond Street Hospital for Children; the Elizabeth Garrett Anderson Hospital; the South London Hospital for Women; the Cancer Hospital; and the Central London Ophthalmic Hospital. Its importance for women in medicine can hardly be overestimated, not merely because it was the pioneer which made the way possible, but also because it is still the only general hospital in Britain which offers all its post-graduate appointments, higher and lower, to open competition by women as well as men, thus giving unique opportunity of gaining experience. Not only are all the resident appointments at the Royal Free Hospital, of which there are twenty-seven yearly, eligible for women, but, in addition, higher posts may be obtained in all the various branches of a general hospital, from those of registrar and anaesthetist to those of visiting physician or surgeon and those in charge of special departments. There is a special unit in gynaecology under a woman professor, and entirely staffed by medical women. This policy has so far not been fully adopted in its entirety by any other hospital, and it may be of interest to note in this connexion that the Royal Free Hospital has many women on its general committee and weekly board of management.

Openings for Medical Women

There are at the present time the names of over five thousand medical women on the *Medical Register*. There is an increasing demand by the public for the services of women doctors in all branches of medicine, and statistics show that the proportion of those who make good is as high as, if not somewhat higher than, that of their men colleagues.

Openings at Home

Since the number of men and women qualifying has reached normal standards, medical women find no difficulty in obtaining house appointments in the recognized teaching hospitals and in non-teaching hospitals, hospitals for women and children, sanatoriums, etc. The reorganization of hospitals under local authorities, as an outcome of the new Local Government Act, has resulted in the creation of a number of new resident appointments, senior and junior, intended to be held by medical women. In fact, the supply at the present time does not meet the demand.

General Practice.—There are good openings as assistants or, better still, as assistants with a view to admission as partners in general practice. Medical women also do very well when starting in new districts; and there is considerable scope for them in midwifery work.

Specialist and Consulting Practice.—The number of women doing specialist and consultative practice grows rapidly. There is no branch of medicine in which it is not possible for a patient to consult a medical woman. Women so specializing equip themselves by obtaining the highest essential qualifications, and it is hoped that the time is not far distant when many more women will hold positions on the honorary staffs of all hospitals. Already medical women are on the honorary staff of the Royal Free Hospital, London, and of general hospitals in a number of provincial cities. In London, Edinburgh, Glasgow, Manchester, Bristol, and Brighton there are hospitals staffed entirely by medical women, doing very fine work and meeting a real need, the latest to be opened being the Marie Curie Hospital in London for the treatment of cancer by radium. Research work also provides interesting openings, as, for example, in dealing with the special problems concerning cancer, nutrition, puerperal morbidity and mortality, statistical work, etc., and for some of these research scholarships and grants are available.

Teaching Posts.—Women hold professorships and lectureships at various universities.

Industrial Medicine.—In this branch there is much interesting work available, and it is undergoing considerable development at the present time. Several women already hold such posts.

Administrative Work.—A certain number of these important posts are admirably filled by medical women. At the Ministry of Health the department for maternity and child welfare is staffed by medical women. Medical women also hold high administrative posts under the Home Office, the Board of Education, the Board of Control, etc.

The Public Health Service.—This service provides numerous openings for medical women. It has many departments, and its rapid growth in recent years has provided much interesting work in preventive medicine. Senior departmental posts are frequently held by medical women, and several occupy posts as medical officers of health. For maternity and child welfare work women have been found to be peculiarly suited; but, by a curious economic limitation, married women, who would appear to be the most suitable of all, are, by many public authorities, excluded from service. This exclusion not only prevents married women from taking part in this work, but also prevents many of the best women from specializing in this branch of medicine, as it is obviously uneconomic to specialize in a branch of public service from which one may be excluded in a few years.

Medical Inspection, etc.—Under the Board of Education there are women serving as medical advisers and school medical inspectors. The London County Council and other important councils in the country have medical women on their permanent medical staffs, in both the senior and junior grades. The London County Council has two of its senior medical women appointed to serve as district medical inspectors. In addition, they have a large number of women medical inspectors of school children, and also women are serving as experts in the departments dealing with mental deficiency, tuberculosis, and venereal disease. Some medical women also serve as examiners of the candidates entering the public services, as, for example, the civil service. The services of medical women are extensively enlisted by public authorities in dealing with employees of their own sex. In several instances women serve as assistant medical officers to prisons. The services of medical women are also enlisted as lecturers and examiners on first aid, home nursing, health, and infant care.

Pay and Status

It is interesting to note that medical women, backed by the powerful assistance of the British Medical Association,

have been on the whole successful in resisting the attempt to accept a lower salary for the same work as their men colleagues, thereby not only greatly benefiting themselves, but also maintaining the standard for the whole profession. They realize that ever since the admission of women to the medical profession exactly the same sacrifices for principle have been made by their predecessors as are now demanded from them. With the inauguration of the School Medical Service in 1908, and later when maternity and child welfare posts were created, persistent efforts were made by local authorities to pay their assistant medical officers below the minimum arranged by the representatives of the public authorities and the British Medical Association, and to secure women at a lower rate than men. With rare exceptions these efforts were a failure. Women realize as clearly as men that lowered pay invariably implies a lowered status and prestige, and that the woman who stamps herself as belonging to an inferior grade of doctor cannot complain if she is taken at her own valuation, and that a minimum always tends to become a maximum. Attempts to evade the scale and split the ranks of the profession by offering a post to a man at the agreed rate and a similar post to a woman slightly below that rate are particularly to be deprecated. Where the rule of equal pay for equal work is violated there is no limit to the extent to which women may be exploited.

Openings Abroad

Colonial Office.—To those to whom oversea service appeals it offers the possibility of useful, interesting, and adequately paid work. At present there are posts for women in Malaya, and East and West Africa. The work is almost entirely hospital and maternity and child welfare work; there have been one or two specialist appointments, such as bacteriologists, and more may follow. Women have, so far, only been appointed to the lower-grade posts, but their pay is the same as that of the men in similar grades. When placed on the permanent staff they are eligible for pension.

Egypt.—Appointments in the Kitchener Memorial Hospital, Cairo, which forms part of the Clinical Faculty of the University of Cairo, are held by women. Appointments in certain dispensaries are open to medical women. There are also posts held under the education authority, chiefly school medical inspection.

India.—See note on the Women's Medical Service for India on page 428.

Mission Field.—Missionary societies offer employment to medical women, chiefly in India, China, and the Near East.

Public Activities

Medical women are frequently appointed to serve on Royal Commissions and Government Committees dealing with medical subjects, and are also requested by them to give evidence of an expert medical nature.

Medical women have always shown considerable interest in medico-political affairs, and take an active part in the work of the British Medical Association, and with the various other societies dealing with medicine as it affects the community in general. With this end in view they also have a Medical Women's Federation, which enables them to voice a collective expression of opinion. This might otherwise be difficult to ascertain, as women are so widely scattered, both as regards their geographical distribution and their varied activities. This collective opinion of medical women has been found of great assistance by the British Medical Association and other allied societies with which it works in cordial co-operation and by whom it is frequently approached, both for information and also as a convenient means of approaching medical women as a whole.

It may be added, with regard to contributions to medical literature, that this is a branch of work in which women are more and more taking their share, and scientific and other works are frequently published by them.

WOMEN'S MEDICAL SERVICE FOR INDIA

Among careers open to medical women abroad the Women's Medical Service for India deserves honourable mention. This Service is open to fully qualified medical women of British or Indian nationality, and with the present amount of Government subsidy the number of medical officers is limited to 44.

Medical women proceeding to India to join the Women's Medical Service receive a sufficient sum for a first-class passage to India. On landing they are posted to one of the larger women's hospitals to gain Indian experience and to learn the language. For a further period they are appointed to act temporarily for medical women on furlough. They are then definitely appointed to the charge of hospitals. Private practice is allowed, provided it does not interfere with official duties. The only exception is in administrative or educational posts, when an allowance in lieu of practice is given. The amount obtained from practice varies according to the station, but in most cases it forms a fair addition to the salary, varying from £150 to £1,000 a year.

Excellent opportunities for surgery—especially gynaecological—are found in the Women's Medical Service. To those who are not keen surgeons opportunities are likely to open in the future in connexion with maternity and child welfare. Rates of pay are as follows:

Years of Service	Oversea Allowance per Mensem	Salary per Mensem	English Equivalent* per Annum
1 to 3	Rs. 100	Rs. 450	£440
4 to 6	Rs. 100	Rs. 500	£480
7 to 9	Rs. 100	Rs. 550	£520
10 to 12	Rs. 100	Rs. 600	£550
13 to 15	Rs. 150	Rs. 650	£600
16 to 18	Rs. 150	Rs. 700	£640
19 to 21	Rs. 150	Rs. 750	£680
22 to 24	Rs. 150	Rs. 800	£720
Over 24	Rs. 150	Rs. 850	£760

* At rupee value 1s. 4d.

Furnished quarters are provided, representing an additional Rs. 150 per mensem.

The cost of living in India is much higher than formerly, but it should be possible for a medical woman (with house provided) to meet actual household expenses for about Rs. 300 per mensem, leaving the remainder of her salary for dress and personal expenses. To this must be added the necessary saving to meet additional expenses for furlough and leave spent in the hills.

Leave on average pay is earned at the rate of two-elevenths of the period spent on duty.

Study leave is granted to the extent of twelve months in the total service, and will not be granted more than twice in the course of an officer's service. During study leave an officer draws half average pay, with a study allowance at the rate of 12s. a day during the course of study. Officers of European domicile are entitled to four free return first-class passages from a port in India to a port outside India in their whole service. The first passage is not granted until after the expiry of four years' approved service, and thereafter passages may be granted at intervals of not less than four years. There is a Provident Fund to which members of the Service contribute 10 per cent. of their pay. The Service contributes another 10 per cent., which accumulates at interest and is repaid on retirement.

Admission to the Service is made by selection in India and England, preference being given to those with Indian experience. Vacancies are few. Candidates in the United Kingdom should apply to the honorary secretary, United Kingdom Branch of the Countess of Dufferin's Fund, c.o. Major-General Sir John Megaw, India Office, Whitehall, London. Candidates in India should apply to the Chief Medical Officer, Women's Medical Service, Countess of Dufferin's Fund, Simla and Delhi.

Post-Graduate Study

Post-graduate students may be divided into general practitioners desirous of refresher courses, usually covering a wide field within a relatively short period of time, to bring their knowledge up to date; those who wish for instruction in special subjects with a view to obtaining one of the special diplomas or of preparing for some higher examination, perhaps with a view to promotion in one or other of the medical services, or, if already general practitioners, of adding some form of specialism to their work; and visitors, whether from the overseas Empire or from foreign countries, who wish to pursue intensive studies in special subjects or to familiarize themselves with the methods of practice in Great Britain. Further mention may be made of medical members of the Defence Services who, for reasons similar to these, constitute an important section of post-graduate students.

It is clear that London, with the large and varied amount of material available, and with its wealth of professional skill and teaching power, offers ample opportunity for the supply of all these needs if suitable concentration and organization of effort can be brought about and established. So far, however, no definite post-graduate school of the general character and scope required has yet begun to function; though, as described below, steps have now been taken which should render this statement inaccurate by the time our next Educational Number is published. Such teaching centres as at present exist are widely scattered, and their efforts are limited and largely unsystematized. Two hospitals—the West London Hospital at Hammersmith, and the Prince of Wales's General Hospital at Tottenham—have for many years had post-graduate colleges attached to them. Their efforts are valuable and praiseworthy, but they can cater only for a limited number of general practitioners, and these largely drawn from those whose practices are within a relatively short distance of the schools. The general practitioner may also perhaps find a refresher course at the hospital at which he was trained held during a vacation, and similar short courses are organized from time to time at one or other of the London hospitals. The Fellowship of Medicine, too, arranges definite courses of study at individual hospitals; and at its office—generously placed at its disposal by the Royal Society of Medicine at 1, Wimpole Street, W.1—a list of hospitals, special and general, to which medical graduates may resort, with or without fee, is kept, and the names of the teachers at each hospital are available. Occasional courses of a more special character may thus be discovered.

There has recently been a steady increase in the demand for post-graduate instruction in the psychological aspects of medicine, and this will probably continue owing to the passage of the Mental Treatment Act and other causes. Systematic attempts to provide this are being made by at least three bodies. There are courses for the diploma in psychological medicine held at the Maudsley Hospital. Courses in mental deficiency are held once or twice yearly, organized by the Central Association for Mental Welfare in conjunction with the University of London. The Institute of Medical Psychology (formerly the Tavistock Clinic), in addition to an introductory course of about a month's duration in October, and a three months' course in the summer term, has two main courses in psychotherapeutic theory and method covering one year's work: these are open to a limited number of practitioners only—one is arranged for those who can give only three hours twice a week for this purpose; the other is for those who wish to specialize and are prepared to give a minimum of twelve hours (on three days) in the week. The Institute now has admir-

able premises at Malet Place, W.C., and such systematic teaching as that indicated has been more fully and effectively developed there.

Over and above such specialized or occasional teaching, it is possible to obtain under one roof instruction in all branches of preventive and of tropical medicine at the London School of Hygiene and Tropical Medicine, at the corner of Keppel Street and Gower Street. This institution was opened in July, 1929, and has established itself as a most valuable school of the University of London in the faculties of medicine and science. Here are university chairs in public health, bacteriology, biochemistry, epidemiology, helminthology, medical protozoology, medical entomology, and medical industrial psychology.

The principal courses of study are for the university diplomas in public health, in bacteriology, in industrial psychology, and for the diploma in tropical medicine and hygiene (Eng.) of the Conjoint Board of the Royal Colleges. Special courses of instruction are also arranged in other subjects. The course of study for the diploma in public health includes not only lectures and demonstrations on the theory and practice of public health administration and the principles of sanitary law, but also a large number of visits to places of public health interest, including centres of industrial welfare. The course of study includes also sanitary engineering, practical work under a medical officer of health, instruction in infectious disease and hospital management, and two important studies which have recently been established—namely, physiology as applied to hygiene and industry, and medical industrial psychology. The course of study for the diploma in tropical medicine and hygiene can be taken in two parts, Section A being a three months' course of laboratory and clinical instruction and Section B a two months' course in tropical hygiene, and there are special arrangements for short periods of instruction for students unable to attend the whole course. Facilities for clinical work are afforded at the Hospital for Tropical Diseases, close by. At the Seamen's Hospital, too, in co-operation with the London School of Hygiene and Tropical Medicine, post-graduate courses for ship surgeons are now held systematically. With the incorporation in this school of the Ross Institute the studies in tropical hygiene have now received a new impetus and direction.

The shortcomings of London as a post-graduate medical centre have been recognized for a long time, and it is gratifying to know that practical steps have now been taken to remedy the several disabilities that have been mentioned, and to establish under the auspices of the University of London and the London County Council, with governmental financial aid, a real post-graduate hospital and medical college which will be worthy of the metropolis of the Empire. As long ago as 1921 a committee on post-graduate medical education was set up under the chairmanship of the Earl of Athlone. The establishment of "a school attached to a hospital centrally situated in London devoted solely to post-graduate medical education as a school of the University" was the chief recommendation that resulted. In 1925 a second committee was appointed "to draw up a practical scheme of post-graduate medical education centred in London." The scheme finally suggested was to use one of the Poor Law hospitals transferred to the London County Council under the Local Government Act, 1929, as a British Post-Graduate Hospital, and to establish a fully equipped medical school in connexion therewith. The hospital chosen for the purpose is the Hammernsmith Hospital at Shepherd's Bush, which is a modern institution with, at present, 400 beds, on a site of sufficient acreage to allow of extension and of the creation of the necessary college buildings. On this site the British Post-Graduate Medical

School is now in course of erection. A third committee, known as the Provisional Organization Committee, with Lord Chelmsford as chairman, reported in 1931 upon "(1) the action requisite to lead up to the planning and construction of the medical school, and (2) the form of government appropriate to the hospital and medical school with special reference to the position of the London County Council as the local authority responsible for the hospital, and to the position of the University of London in relation to the medical school." This has resulted in the approval by the King in Council of a Royal Charter constituting the Governing Body of the school and defining the functions of the governors. The Governing Body consists of representatives of various Government Departments, of the London County Council, of the University of London, and of the Royal Colleges of Physicians and Surgeons, the Society of Apothecaries, the Royal Society of Medicine, and the British Medical Association. The late Lord Chelmsford was its first chairman, and he has been succeeded by Sir Austen Chamberlain, K.G. Although the economic situation delayed developments, both the Government and the London County Council are now providing sufficient, though reduced, financial assistance. The foundation stone of the Medical School buildings was laid in July, 1933, by Mr. Neville Chamberlain, the Chancellor of the Exchequer. These buildings, with their main equipment, will, it is expected, be completed by the end of the present year. It is possible that the school may begin its actual teaching work by March 1st next. Dr. M. H. MacKeith, Dean of the Medical School of the University of Oxford, has been appointed its dean, and appointments to the professorships of medicine, of surgery, of obstetrics and gynaecology, and of pathology have also been made. Other appointments to the staff may be expected quite shortly. It is even hoped that before long the enlargement of the hospital to one of 600 beds, as contemplated by the Chelmsford Committee, may be undertaken by the London County Council. Arrangements will probably be made, also in accordance with the suggestions of that Committee, to associate the work of the Post-Graduate School and Hospital with that of some other hospitals of a special character—for example, in the spheres of psychological medicine, of neurology, and of diseases in children. No syllabus or prospectus has yet been issued, but it is understood that all classes of post-graduate students mentioned in the first paragraph of this article will be catered for. There may well be fortnightly "refresher" courses for general practitioners continuing during eight or nine months of the year, and longer courses of three months' duration for other students. Care is to be taken that no class is too large for its individual members to take full advantage of the clinical instruction provided, and it may be found possible to afford opportunity for the holding of house appointments or of clinical assistantships by a certain number of practitioners who, on the completion of their course, wish in this way to prolong their experience and association with the work of the hospital. London will thus, before long, become, as it should be, a world centre of post-graduate medical training.

In the provinces the Universities of Oxford, Cambridge, Birmingham, Bristol, Liverpool, Manchester, and Sheffield have organized courses of post-graduate work and instruction. Liverpool University has established a regular course for ship surgeons on similar lines to that already mentioned in London. Edinburgh receives graduates from many schools in the Dominions as well as in this country. In Glasgow and in Aberdeen courses are available, and, in relation with the University of St. Andrews, courses are given by the James Mackenzie Institute for Clinical Research. At many of these centres the teaching is pro-

vided by whole-time intensive courses, by part-time courses, and by means of clinical assistantships. The Joint Tuberculosis Council has provided nomadic courses in its own special subject, and a considerable number of the Divisions of the British Medical Association are now organizing post-graduate courses in their own locality.

Short particulars about the facilities for post-graduation study at present obtainable in Great Britain and Ireland are given in Section VII of the *Handbook for Recently Qualified Practitioners*, published by the British Medical Association (price 3s. 6d.).

Fellowship of Medicine and Post-Graduate Medical Association

The Fellowship of Medicine arranges regular courses in general medicine and surgery, including special departments, each lasting from one to four weeks. Courses in diseases of the chest, children, ante-natal, heart, nervous system; dermatology; gynaecology and obstetrics; proctology; orthopaedics; fractures; psychological medicine; physical therapy; rheumatism; urology; practical anaesthetic tuition; and in venereal diseases are given from time to time at the special hospitals in association with the Fellowship of Medicine. Evening clinical and pathological courses for the M.R.C.P. (three times a year) and F.R.C.S. (Final) (twice a year) are arranged also. Week-end and evening courses are arranged in many subjects. A panel of teachers is always available for clinical teaching, by arrangement with the Fellowship. Lectures and demonstrations are arranged periodically. The office of the Fellowship is, by kind permission of the Royal Society of Medicine, at No. 1, Wimpole Street, W.1 (telephone, Langham 4266). The secretary is in attendance daily from 10 a.m. to 6 p.m. (Saturday 10 a.m. to 1 p.m.). The annual subscription for membership of the Fellowship of Medicine and Post-Graduate Medical Association is £1 1s., which includes the *Post-Graduate Medical Journal*, published monthly. Courses, lectures, and demonstrations are open only to members.

Post-Graduate School of Radiotherapy

The working scheme announced in our issue of June 28th, 1930 (p. 1185), between the London Radium Institute in Riding House Street and the Mount Vernon Hospital at Northwood, for the establishment under joint control of a Post-Graduate School of Radiotherapy, continues in operation. The Dean (Sir Cuthbert Wallace) will be pleased to see prospective students by appointment. Applications for information may be addressed to the Secretary (Mr. T. A. Garner) at the School, Riding House Street, London, W.1.

West London Post-Graduate College

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895; it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. The work of the college is eminently suitable for men in general practice and officers in the Services who wish to revive their general clinical knowledge.

As for ward work, the students accompany the senior staff on their visits to the wards. The out-patient department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments. Post-graduates are appointed to act as clinical assistants for three or six months, no charge being made. A special clinic for the treatment of venereal diseases (male and female) is held all day. Graduates are admitted to the work of the clinic free, and certificates of satisfactory attendance and work are given.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the gradu-

ates, and in any case making arrangements so that they can readily see what is going on. The pathological laboratory is in charge of a pathologist, who attends every day. Demonstrations are given in the morning by the assistant physicians and surgeons, and by the medical and surgical registrars.

The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, the University of London (for higher degrees), and the Conjoint Board. The general course is recognized as being suitable for practitioners taking a course of study under the Ministry of Health "grant-aided scheme for post-graduate study by insurance practitioners in rural areas." A prospectus can be obtained on application to the Dean.

Fees.—Hospital practice, including all ordinary demonstrations and lectures, £2 2s. for one week, £6 6s. for one month, £9 9s. for two months, £12 12s. for three months. Instruction in the administration of anaesthetics is given at the rate of £3 3s. a month.

North-East London Post-Graduate College

The headquarters of this post-graduate school are situated at the Prince of Wales's General Hospital, Tottenham; N.15, in the midst of this densely populated North London district. It contains 238 beds, and is within a few minutes' walk of South Tottenham Station on the London Midland and Scottish Railway, and Seven Sisters and Tottenham Hale Stations on the London and North-Eastern Railway. It is readily accessible by electric tram from Manor House and Hackney, and from Dalston, Edmonton, and other parts of North London. The North Middlesex Hospital, Edmonton, N.18; with upwards of 1,000 beds, has, under a recent arrangement, taken part in the clinical teaching.

The college is in association with the Fellowship of Medicine and Post-Graduate Medical Association, and is recognized by the Admiralty and India Office for the purpose of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its Diploma in Public Health, and there are ample arrangements for the convenience of men who are thus working, or who, being in active practice, are desirous of getting themselves into touch with modern methods. The hospital as a whole affords excellent facilities for qualified medical practitioners who wish to take part for a time in active general hospital work, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, radiography, the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions, into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff. Operations are performed every afternoon of the week except Saturday. Special vacation or intensive courses are held at intervals throughout the year, each lasting two weeks, clinical instruction being arranged for each hour of each day. The winter session will be opened about the middle of September as regards clinical teaching.

Fees.—For the hospital practice in general medicine or surgery the fee is 5 guineas for three months or 2 guineas for one month. Provided there is accommodation in the special departments, the fees are: eye department 3 guineas; gynaecological department 5 guineas; ear, nose, and throat department 5 guineas for three months. All departments—the fee is 3 guineas for one month, 6 guineas for three months, 10 guineas for a year, and 15 guineas for a perpetual ticket.

Additional information can be obtained from the Dean of the Post-Graduate College, at the Prince of Wales's Hospital.

West End Hospital for Nervous Diseases

The post-graduate facilities of this hospital include: (1) courses of one month's duration—one hour or so daily—in common diseases of the nervous system, a number of short concentrated courses on particular subjects, and special concentrated courses for general practitioners lasting one week: the next course will be given from October

29th to November 3rd as advertised by the Fellowship of Medicine; (2) courses of instruction in psychological medicine as applied to children, in connexion with the Hospital's Child Guidance Unit; (3) a comprehensive course of instruction in speech therapy (which is acceptable to the Board of Education).

The clinical and teaching facilities of the hospital fulfil the requirements of the Examining Bodies for the Diploma in Psychological Medicine, and for the London University M.D. degree, Part III. Appointments as honorary clinical assistants (six months) and honorary clinical psychologists (twelve months) are made as required, and are open to candidates desiring facilities for the study of neurological and psychological conditions. The annual out-patient attendance is between 38,000 to 40,000 at the out-patient department, Welbeck Street, W.1. The in-patient department, Outer Circle, Gloucester Gate, Regent's Park, provides seventy-six beds, including twenty-five cots for children, and is fully equipped with a pathological laboratory and other special departments.

Manchester Post-Graduate Facilities

Courses in preparation for the diplomas in psychological medicine, in public health, bacteriology, pathology, and veterinary State medicine are arranged. There are facilities also for obtaining a certificate in venereal diseases. A limited number of clinical assistantships at the discretion of the hospitals are offered in the medical, surgical, and special departments of the Manchester Royal Infirmary, the Ancoats Hospital, and certain special hospitals for one, two, or three months, or longer. A clinical assistantship at the Radium Institute for three months is offered. Clinical teaching for post-graduates is given each Thursday during university terms by the honorary staff at Ancoats Hospital; no fee charged.

Post-Graduate Courses at Bristol

The University of Bristol provides courses of post-graduate study for practitioners. Details of set courses at the Royal Infirmary and General Hospital are announced locally. In addition, practitioners may become clinical assistants in medicine, surgery, or special subjects for periods of a month or more.

Daily Post-Graduate Study.—For those who are able to devote several hours each day to hospital practice the university offers special facilities for post-graduate work. Qualified medical practitioners may be appointed as clinical assistants for a period of one or more months. They may act as assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and post-mortem examinations.

All inquiries and applications for admission should be addressed to the Director of Post-Graduate Studies (Clinical Section), Department of Medicine, University of Bristol.

Post-Graduate Courses at Newcastle

For the year 1934-5 the following post-graduate courses have been arranged by the College of Medicine, Newcastle-on-Tyne (University of Durham):

1 General courses in clinical medicine, surgery, and pathology at the Royal Victoria Infirmary, meeting once weekly for ten weeks. One course will be held from October to December, and one from April to June.

2 Special courses of clinical instruction meeting once weekly for ten weeks in the following subjects: gynaecology, diseases of the eye, diseases of the throat, nose, and ear, diseases of the skin, venereal diseases, neurology. Special courses in midwifery will be held at the Princess Mary Maternity Hospital.

3. An intensive course of fourteen days' duration in the summer vacation, 1935.

4. In addition to the regular post-graduate courses, practitioners may attend the ordinary medical and surgical practice of the Royal Victoria Infirmary, and also at the Princess Mary Maternity Hospital, for specified periods.

5. Classes are held at the Newcastle General Hospital for clinical instruction in medicine and surgery, or lecture-demonstrations, every Sunday morning during term. There is no fee, and all medical practitioners are invited to attend.

6. General and special courses in dental surgery are also provided in the Dental Department.

Edinburgh Post-Graduate Courses

In connexion with the University and Royal Colleges post-graduate courses are arranged every year, from about the middle of July to about the middle of September, comprising: (a) a course in obstetrics and gynaecology, held from July 16th to August 4th; (b) a course in child life and health extending from August 6th to 11th; (c) a general practitioner course; (d) a general surgical course. Courses (c) and (d) extend for four weeks from August 13th to September 8th. Similar courses are held each year.

The course in obstetrics and gynaecology includes instruction in clinical midwifery and clinical gynaecology, obstetrics and gynaecological pathology, ante-natal and post-natal clinics, etc.

The general practitioners' course includes lecture-demonstrations, and, where possible, practical instruction on medical anatomy, medical sideroom work, examination of the blood, x-ray and electrical therapy, morbid anatomy, and post-mortem examination; clinical instruction in medicine, surgery, gynaecology, child life and health, diseases of the skin, and infectious diseases; and special instruction in the diseases and methods of examination of the nervous, circulatory, respiratory, alimentary, and renal systems, and in diseases of the ductless glands. The general surgical course includes lecture-demonstrations on surgical anatomy, surgical pathology, and surgical x-ray diagnosis; clinical instruction in surgery at the Royal Infirmary and Royal Hospital for Sick Children; clinical instruction in venereal diseases; surgical out-patients, surgical and gynaecological operations, and special instruction in abdominal and genito-urinary and other branches of surgery.

A series of clinical discussions, open to all graduates, is arranged on subjects of general interest. Among the special courses also arranged at various times of the year are: examination of the blood, diseases of the ear, nose, and throat, ophthalmoscopy, venereal diseases, x-ray physics and electrotechnics, tuberculosis, ultra-violet radiations and their uses, the interpretation and significance of modern diagnostic methods, surgical pathology, clinical surgery, clinical medicine, urological surgery and treatment of fractures, neurological surgery, disorders of speech and voice, orthopaedic surgery, child life and health, endocrinology, diseases of the nervous system, urology.

Particulars regarding the courses, dates of commencing, fees, etc., may be had on application to the Honorary Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

Post-Graduate Medical Teaching in Glasgow

Organized post-graduate medical teaching is available in Glasgow under the auspices of the Post-Graduate Medical Association. This association represents practically all the teaching institutions in Glasgow and the various teachers giving post-graduate instruction, and its business is managed by a board elected periodically by them. The chairman of the board is Professor Sir Robert Muir. During the winter months special courses in various subjects are conducted and a number of post-graduate lectures given. From November till May there is a series of weekly demonstrations specially designed for local practitioners. Clinical courses are carried out during the summer months, and arrangements have also been made whereby a limited number of graduates may become attached to wards or out-patient departments nominally as clinical assistants for definite periods throughout the year. As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed.

A general medical and surgical course is held each year during the last two weeks of August and the first two weeks of September, which is arranged to include most

of the subjects of interest to the general practitioner. This year the course is being conducted from August 20th to September 14th. The forenoons are occupied with general medicine and surgical diagnosis and minor surgery, in the Royal Infirmary and in the Victoria Infirmary. In the afternoons special subjects are dealt with in the special hospitals and in the special departments of the general hospitals, two subjects being considered most afternoons.

Further information may be had on application to Dr. James Carslaw, Secretary, Post-Graduate Medical Association, 9, Woodside Terrace, Glasgow, C.3.

Tropical Medicine

There are large and important Schools of Tropical Medicine in London and Liverpool, and the Colonial Office expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees is given in the paragraphs printed below. The University of London alone gives a degree (M.D.) in Tropical Medicine, and this, being an "internal degree," can only be taken by students who are medical graduates of that university. Diplomas in Tropical Medicine or Hygiene are granted by the universities of Edinburgh and Liverpool, and by the Conjoint Board of the Royal College of Physicians of London and the Royal College of Surgeons of England.

Diplomas and Degrees

LONDON UNIVERSITY.—Tropical medicine is one of the six branches in which the M.D. degree may be obtained. Candidates must normally have taken the M.B., B.S. degree not less than two years previously and must subsequently have attended a course of one academic year in tropical medicine at an approved school, or must have practised for two years in a region where tropical diseases prevail. In exceptional circumstances candidates may enter for the M.D. examination one year after taking the M.B., B.S. degree.

THE CONJOINT BOARD IN ENGLAND.—This body grants a diploma in tropical medicine and hygiene to candidates after an examination held in the months of January, April, and July. New regulations are in force, and twenty-one days' notice in writing instead of fourteen days is now required of candidates for all examinations. Section A comprises clinical tropical medicine and surgery; applied pathology, zoology, and elementary bacteriology. Section B, tropical hygiene, including epidemiology, medical zoology, and bacteriology in relation to hygiene. Candidates may enter for either or both sections provided that A is taken before B. The examination fee is nine guineas. Candidates must possess a qualification in medicine, surgery, and midwifery recognized by the Board, and produce evidence of attendance, subsequent to qualification, at courses of instruction as laid down in the regulations. The hospitals and laboratories recognized for this diploma are the London School of Hygiene and Tropical Medicine, the Royal Army Medical College, the Liverpool School of Tropical Medicine, and the School of Tropical Medicine, Calcutta. Particulars and conditions of admission to these examinations, fees, etc., may be obtained from the Secretary, Examination Hall, Queen Square, London, W.C.1.

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to candidates possessing a recognized medical qualification who have attended the courses provided by the Liverpool School of Tropical Medicine and who have passed the examination held twice yearly by the university examiners. The subjects

of examination are: (a) parasitology; (b) entomology; (c) tropical medicine, including aetiology, symptoms, pathology, diagnosis, and treatment of tropical diseases. Fee for the course, £21. A diploma in tropical hygiene (D.T.H.), open to the holders of the D.T.M., has also been established. The subjects of examination are tropical hygiene (including sanitary engineering, vital statistics and epidemiology, and applied parasitology and entomology); practical sanitation, bacteriology, chemistry (including meteorology and climatology). Fee for the course, £12 16s. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF EDINBURGH.—Candidates for the diploma in tropical medicine and hygiene granted by the University of Edinburgh must be graduates in medicine and surgery of that university, or hold corresponding degrees or qualifications registrable with the General Medical Council of Great Britain, or of such other universities or medical schools as may be recognized for the purpose by the University Court. The course of instruction, which commences in October, extends over two terms. The examinations (Part I and Part II) are written, oral, and practical, and are held at the end of the courses. Candidates, on the first occasion of presenting themselves for examination in either part, are required to appear for all the subjects of that part. Those who fail to pass the entire examination in either part within a period of twelve months after first appearance are required to reappear for all the subjects. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

SCHOOLS

London School of Hygiene and Tropical Medicine (University of London)

(Incorporating the Ross Institute)

The courses of study in all branches of the work of the School will recommence in the autumn in the premises in Keppel Street (Gower Street), the gift of the Rockefeller Foundation, which has excellent laboratories and research rooms, a fine lecture theatre and class rooms, library, and museum.

The course of instruction for the diploma of the Conjoint Board in tropical medicine and hygiene is divided into two parts: Section A, a three-months' course of clinical and laboratory instruction, and Section B, a two-months' course in tropical hygiene. Each section has been so designed that it can be taken independently of the other, and the examinations by the Conjoint Board will follow closely upon the end of the corresponding course of study. This revised course is recognized by the University of London as a course for associate students.

The dates of the courses for the session 1934-5 are as follows:

Section A (Clinical and Laboratory Instruction).—A three-months' course, October 1st to December 21st, 1934; January 7th to March 30th, 1935; April 8th to June 28th, 1935.

Section B (Tropical Hygiene).—A two-months' course, January 21st to March 22nd, 1935; April 23rd to June 21st, 1935.

The course of instruction under Section A includes clinical tropical medicine, applied pathology, medical zoology, and elementary bacteriology. Section B comprises instruction in tropical hygiene, including, in relation to hygiene, bacteriology, medical zoology, anthropology, and vital and medical statistics.

There are special arrangements for short periods of instruction and also for students who are unable to attend at the beginning of a course.

The instruction in the division of clinical tropical medicine is given by the medical staff of the Hospital for

Tropical Diseases and by visiting lecturers. In this way the resources of the hospitals of the Seamen's Hospital Society at Endsleigh Gardens, at the Albert Docks, and elsewhere, become available for the clinical instruction of the students at the school.

The course of study for the diploma in public health will commence on October 1st, and will extend over a period of nine months' whole-time study. It is arranged in compliance with the requirements of the General Medical Council, and students taking the course will be able, should they so desire, to proceed to the academic diploma in public health of London University. The curriculum has been planned on very practical lines, and includes, in addition to work with medical officers of health in two selected areas, a large number of visits to places of public health interest. A series of special lectures is given by eminent authorities, and are open to members of the medical profession as well as to students of the school. The London County Council, the City of London, and various other bodies have placed their resources at the disposal of the School for teaching purposes.

The course of study for the University of London diploma in bacteriology covers a period of one academic year beginning in October, and special three-monthly courses will be given in epidemiology and vital statistics.

Special courses of study are arranged for the academic diploma in psychology (industrial) of the University of London.

Inquiries with regard to all the above-mentioned courses should be addressed to the Secretary, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1.

University of Edinburgh

A course of instruction for the diploma comprising a primary and a secondary course is given during the autumn and spring terms (October to March), and includes tropical hygiene, bacteriology, entomology, and parasitology, diseases of tropical climates (systematic and clinical), tuberculosis, and venereal diseases. The university is included in the list of institutions whose courses of instruction in tropical medicine may be taken by officers on appointment to the Colonial Medical Services or during study leave. Full particulars can be obtained from the Dean of the Faculty of Medicine.

Liverpool School of Tropical Medicine

This school is affiliated with the University of Liverpool. The university grants diplomas in tropical medicine (D.T.M.) and in tropical hygiene (D.T.H.).

Two full courses of instruction, each lasting about eleven weeks, are given every year for the D.T.M., commencing respectively October 1st, 1934, and January 3rd, 1935, and two courses for the D.T.H., beginning on January 10th and April 25th, 1935. The D.T.H. can only be taken by those who have obtained the D.T.M. Students who do not desire to take the diploma examinations held by the university at the end of each term are given a certificate if attendance has been satisfactory.

Fees.—(1) For the D.T.M. course, 20 guineas; for the D.T.H. course, 10 guineas. (2) For the diploma examinations, 5 guineas. An extra charge of one guinea is made for the use of a microscope if required.

The laboratories of the school adjoin the university and the tropical ward of the Royal Infirmary. The dimensions of the building are 162 feet in maximum length by 84 feet in width. In addition to the basement, in which are accommodated the photographic department and large storage rooms, there are four floors. The ground floor has: (1) lecture theatre, with accommodation for about seventy students; (2) library; (3) a spacious museum with preparation room adjoining. The first floor has twelve rooms, in which are housed the departments of tropical medicine and entomology. The second floor has the main class laboratory, 69 feet by 58 feet, excellently lighted; and three other rooms, devoted to the department of parasitology. The third floor has a large research laboratory and two research rooms. On the roof is an insectarium, a mosquito-proof house, and other accommodation.

Since its foundation the school has dispatched to the Tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by the staff has been published in twenty-four special memoirs; in the *Annals of Tropical Medicine and Parasitology*, issued by the school; and in numerous articles in the scientific press.

The school also has a laboratory in the Tropics; the Sir Alfred Lewis Jones Tropical Laboratory in Sierra Leone, which was opened on January 10th, 1922, and is staffed by the school. Further information may be obtained from the Laboratory Secretary, School of Tropical Medicine, Pembroke Place, Liverpool, 3.

Psychological Medicine

A knowledge of psychological medicine is an essential part of a doctor's equipment; and in recent years its importance has become increasingly recognized. Its main concern may be said to be with the psychoses—that is, those mental affections which correspond more or less to what is termed insanity—but it embraces also the study of functional nervous disorders in all their varied manifestations, and it includes, in addition, the subject of mental deficiency, which, it must not be forgotten, may form the basis of either a psychosis or a psychoneurosis.

The study of mental illness cannot safely be forgone. All too often a patient meets with some calamity, with all its attendant distasteful publicity, which a knowledge of the practical aspects of mental disease might well have obviated. The treatment of psychotics is the province of the psychiatrist, but their early recognition is of supreme importance; and a working knowledge of such states will afford the practitioner with the means of their detection at a stage when curative measures are most likely to meet with success. Sufferers from one or other of the functional nervous disorders are innumerable, and too many of them pass from doctor to doctor unassuaged. The intervention of the specialist may be necessary in the treatment of the severer forms of hysteria and neurosis; but many practitioners have now acquired a sufficient knowledge of such states to be able to carry out a thorough and effective system of treatment themselves.

Mental deficiency cannot escape detection in its extremer forms, but numerous higher-grade defectives, many of whom are a menace to the community by reason of their criminal propensities, escape recognition; and especially must the student who proposes to take up a career in the school medical service or in the prison service make sure that he is thoroughly grounded in this subject.

It is generally assumed that the mental expert is equally well acquainted with each of these departments of psychological medicine—the psychoses, the psychoneuroses, and mental deficiency. This, however, is seldom the case. In the past there has been too rigid a specialization, largely the outcome of administrative requirements. Recently, owing to the establishment of mental out-patient clinics, and the coming into being of the Mental Treatment Act, which gave sanction to the admission of voluntary patients into public mental hospitals, the psychiatrist's experience has been considerably enlarged; and his province has been still further widened where the authorities have elected to place the selfsame physician in charge of both the psychiatric and the mental deficiency units. It is to be hoped that this process of co-ordination will continue, and that it will eventually embrace the systematic psychological examination of prisoners or, better still, of accused persons awaiting trial.

However that may be, the medical student intending to devote himself to psychiatry will be well advised to neglect no opportunity of furthering his acquaintance with every branch of psychological medicine.

Mental Hospital Appointments

Those who take up psychiatry as a career work as medical officers of public or private mental hospitals or similar institutions. Except in the larger institutions, such as those under the control of the London County Council, where a number of the medical officers are allowed to live out if married, the medical staff are resident officers, having board, lodging, etc., either in the hospital itself or a residence in the grounds. Junior assistant medical officers receive about £350 to £450 per annum, and senior assistant medical officers about £500 to £700, in both cases with board, lodging, laundry, etc., in addition; if married, the board, etc., is commuted for cash. As the mental hospitals are under local control the salaries vary much in different mental hospitals. Medical superintendents, whose pay commonly ranges between £800 and £1,500 per annum, are provided with a house in the grounds of the hospital, and draw various allowances.

Since the passing of the Asylums Officers Superannuation Act of 1909, doctors on the established staff of a public (county or borough) mental hospital, by paying as contributions 3 per cent. of the value of their appointments, may retire at the age of 55 (provided that they have completed twenty years' service), on a pension computed at the rate of one-fiftieth of their salary and emoluments for each completed year of service; but inasmuch as the benefits of this Act are restricted to the public mental hospitals and are forgone on transfer to private or chartered mental hospitals, and the provision for widows is inadequate and uncertain, less inducement is offered than might be to joining the service.

Appointments to the public mental hospitals are made by the visiting committees. Promotion tends to be slow, and uncertain. The higher positions are not always advertised: but in recent years there has been a general improvement in the conditions of service.

Mental hospitals are fast developing an atmosphere approximating more closely to that of the general hospitals. Whilst routine, administrative and clerical, necessarily bulks largely in mental hospital duties, there is ample material, time, and scope for purely medical work and research, and there is no branch of medicine in which research is more needed.

Instruction in Mental Disorder

Though at the present time the instruction given to the student is scarcely adequate to supply the knowledge of mental disorder requisite for the needs of the general practitioner, the facilities for the study of psychological medicine in the general hospitals are now much greater than in former years. Thus many of the teaching hospitals have out-patient departments for the treatment of mental cases, and in some of these hospitals special lectures are given in psychopathology. These facilities need not be utilized by the student, however, and the compulsory part of the curriculum is generally confined to formal lectures and a few attendances at some mental hospital. Here the student is apt to see mainly the advanced states of mental disease, and is likely to gain the impression that mental disorder is necessarily related to segregation and custody. We would therefore impress upon him the importance of attending the out-patient department for mental disorders, where he will be able to observe the mild and early cases such as he will hereafter meet with in general practice.

At the Middlesex Hospital a small number of mental cases are treated in the hospital as in-patients. This is an important move from the teaching point of view, because the student will gain true insight into the relation between mental disorder and medicine as a whole, and he will realize that it is a form of illness to be studied with other diseases and to be treated along similar lines.

In London, post-graduate courses of instruction of a comprehensive kind are given at the Maudsley Hospital and at Bethlem Hospital; and at the National Hospital, Queen Square, courses are arranged to meet the requirements for the diploma in psychological medicine in regard to nervous diseases. Besides its ordinary post-graduate teaching in neurology the West End Hospital for Diseases of the Nervous System holds courses on common disturbances of the nervous system, and provides instruction in neurology for the D.P.M. Courses in mental deficiency are arranged by the University of London. There are also post-graduate courses at the various universities which grant diplomas of psychological medicine or of psychiatry.

There are various facilities for instruction in psychotherapy and for the study of the psychoneuroses. The Institute of Medical Psychology in London has systematic courses of instruction dealing especially with the minor forms of mental disorder which are not usually met with in the mental hospitals. At the London Child Guidance Clinic fellowships are open to medical graduates who hold a diploma in psychological medicine.

Diplomas

Those who are taking up psychiatry as a career will find it essential to obtain a diploma in psychological medicine. Such a diploma is not at present compulsory for a permanent position on the staff of all mental hospitals, but it will probably become so in course of time, just as it is now essential to obtain the D.P.H. if a career in public health is contemplated. Psychiatry is one of the branches of medicine which candidates for the M.D. degree of the Universities of London and Edinburgh can take up, and, in addition, diplomas in psychological medicine (D.P.M.); to which reference has been made, can be obtained from the Universities of London, Edinburgh, Durham, Leeds, Manchester, Dublin, and the National University of Ireland, and from the Conjoint Board in England. The requirements for a diploma differ to some extent in the various universities and colleges.

University of London. (D.P.M.)

The diploma awarded by the University of London certifies that the candidate has passed the examination in psychological medicine with special knowledge of one or other of the two branches, either psychiatry or mental deficiency, special provision being made for this in Part B of the examination. The examination is held twice in each year: Part A in March and October, and Part B in April and November. Part A consists of anatomy, histology, and physiology of the nervous system (one paper and a practical examination), and psychology (one paper and an oral examination). Part B consists of neurology (one paper, and a clinical and an oral examination), and psychological medicine (two papers and a clinical and an oral examination). Paper I tests the candidate's general knowledge of both mental diseases (psychiatry) and mental deficiency, and Paper II is a special one consisting of two separate alternative sections, the first section relating to mental diseases (psychiatry), and the second section to mental deficiency. New Regulations regarding the practice required as a condition for admission to Part B of the Examination will come into force in 1935. A copy of the Regulations and of the Syllabus of Study will be sent on application to John Lea, M.A., University Extension Registrar, University of London, South Kensington, S.W.17.

Conjoint Board in England (D.P.M., R.C.P. and S.Eng.)

Both parts of the examination are held in June and December. The examination comprises the following subjects, with special regard to their relation to psychological and general medicine.—Part I: (a) anatomy (macroscopic and microscopic) and physiology of the nervous system; (b) psychology. Part II: (a) clinical neurology and neuropathology; (b) psychological medicine, including psychoneuroses and mental deficiency, and their legal relationships. The examination will be written and oral in Part I, and written, oral, and clinical in

Part II. No special certificates of study are required for Part I, but before entering for Part II candidates must produce certificates of: (a) having attended clinical instruction for at least two months at a recognized hospital for nervous diseases, or in the department for nervous diseases of a recognized general hospital; (b) having held a resident or whole-time appointment at an institution for mental diseases where clinical instruction is given, recognized for the purpose, for a period of six months, or having attended clinical instruction in psychological medicine at a recognized institution during twelve months. Further particulars may be obtained from the Secretary, Examination Hall, 8-11, Queen Square, London, W.C.1.

University of Edinburgh (Dipl. Psych.)

Candidates for the diploma must have held subsequent to graduation: (a) a resident appointment for one year in a hospital for mental disorders approved by the Faculty; or (b) a six months' appointment as above, and six months' practical study of nervous diseases in a special or general hospital approved by the Faculty. The examination comprises:—Part I: (1) anatomy of the nervous system; (2) physiology of the nervous system; (3) psychology and experimental psychology. Part II: (1) neuropathology; (2) psychiatry and clinical psychiatry; (3) clinical neurology; (4) an additional subject selected by the candidate from a prescribed list. Further particulars may be obtained from the Dean of the Faculty of Medicine, the University of Edinburgh.

University of Leeds (D.P.M.)

The examination is in three parts, and is written, oral, and practical. Subjects of examination:—Part I: (1) the development, anatomy, and histology (human and comparative) of the nervous system; (2) the physiology of the nervous system, and of the organs of special sense; (3) general psychology. Part II: (4) the pathology of the nervous system. Part III: (5) clinical psychiatry; (6) experimental and morbid psychology; (7) (a) clinical neurology; (b) mental hospital administration, (c) medico-legal aspects of insanity. Candidates, in order to pass, must satisfy the examiners in the practical and clinical parts of the examination in Parts II and III respectively. They may present themselves for the three parts of the examination separately, or at the same time, provided that no candidate shall be allowed to pass in Part II unless he has already passed in Part I, or in Part III unless he has already passed in Parts I and II. Evidence must be produced by candidates as to attendance of approved courses of instruction before they submit themselves to Part I of the examination. Particulars may be obtained from the Academic Sub-Dean, School of Medicine, Leeds.

University of Manchester (D.P.M.)

The examination is in two parts. Before presenting themselves for either part of the examination candidates must produce evidence of having attended, subsequent to qualification, certain approved courses of instruction, particulars of which may be found in the prospectus of post-graduate courses. The course of study extends over a period of three university terms, two of which must be taken in the university; the remaining term may be taken at the university, or at some approved institution. The subjects of examination are:—Part I: (1) a written and practical examination on the development, anatomy (human and comparative), and physiology of the nervous system; (2) a written and practical examination in psychology (theoretical and experimental). Part II: (1) a written and practical examination in pathology in relation to the nervous system; (2) a written, clinical, and oral examination in psychological medicine; (3) a clinical and oral examination in clinical neurology. For further information application should be made to the Dean of the Medical School, the University, Manchester.

University of Durham (D.Psy.)

The examination for the Diploma in Psychiatry consists of two parts. Part I: anatomy, physiology, pathology, and bacteriology; Part II: psychology and experimental psychology, neurology and psychiatry (systematic and clinical); and candidates may present themselves for the whole examination or for either part separately. Particulars of the courses of instruction may be had on application to the Dean, College of Medicine, University of Durham, Newcastle-on-Tyne.

University of Dublin Diploma

A post-graduate diploma in psychological medicine is conferred upon registered medical practitioners who have held a resident medical appointment at a recognized institution for the treatment of mental diseases for twelve months, or who have held such an appointment for six months and have attended clinical instruction at an approved institution for six months. Particulars of special courses of instruction may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

National University of Ireland

The National University of Ireland grants a diploma in psychological medicine. Application should be made to the Registrars of the Constituent Colleges, University College, Dublin; University College Cork; and University College, Galway, for all information as to courses, etc.

Courses of Instruction

Maudsley Hospital, London

A course of instruction for the Diploma in Psychological Medicine is given annually at the Maudsley Hospital, Denmark Hill, from January to May inclusive, the details of the last course being as follows. The course consisted of two parts. In the first part lectures on the anatomy of the nervous system were given by Professor Le Gros Clark, with practical instruction by Mr. C. Geary. A course of lectures on the physiology of the nervous system, with demonstrations in physiological psychology, was given by Dr. F. Golla; a series of lectures on biochemistry in relation to the nervous system by Dr. S. A. Mann; on theoretical and practical psychology by Dr. Henry Devine; on mental mechanisms by Dr. E. Mapother; on contemporary schools of psychology by Professor F. A. P. Aveling; and on the practical application of intelligence tests by Dr. F. C. Shrubbsall. For the second part of the course lectures on the general principles of psychiatry with a series of clinical demonstrations on the same subject were given by Dr. Mapother; on psychopathology and the principles of psychotherapy by Dr. Bernard Hart; on general treatment by Dr. T. Tennent; on laboratory methods by Dr. Mann; and demonstrations on the pathology of the central nervous system by Mr. Geary. Dr. Shrubbsall lectured on mental deficiency, Dr. M. Creak on mental abnormalities of children, and Dr. East on criminal insanity. Dr. Golla and Dr. James Collier gave instruction on clinical neurology, and Mr. Foster Moore on eye changes as applied to psychiatry. Dr. A. J. Lewis gave a series of demonstrations on the psychoneuroses and affective disorders. During the course a series of clinical demonstrations were arranged at the various London county mental hospitals and institutions for mental defectives. The fee for the whole course (Part I and Part II) was 15 guineas, or for either part separately 10 guineas; for one single series of lectures in Part I the fee was 4 guineas, and in Part II 2 guineas. Inquiries as to lectures, etc., should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5, and as to clinical facilities to the Medical Superintendent of the Hospital.

Bethlem Royal Hospital

The Bethlem Hospital is situated at Monks Orchard, Eden Park, Beckenham, Kent, where every facility is available for the clinical study of nervous and mental disorder. The classification of patients is a prominent feature in the administration of the hospital, and treatment in all its modern and specialized aspects can be carried out at the Lord Wakefield of Hythe Treatment and Research Laboratories. When possible two courses of lectures and practical instruction for the Diploma in Psychological Medicine are given each year, in spring and autumn. These are of an intensive character, one commencing in September and completed in early December, and the other commencing in the middle of January and completed in the middle of April. Each course consists of two parts: Part A includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system, with lectures on psychology and demonstrations in experimental psychology. Part B comprises lectures and clinical demonstrations in psychology, including lectures and demonstrations in the

morbid anatomy of the nervous system; a series of lectures, with clinical demonstrations, on different branches of psychological medicine; and lectures, with clinical demonstrations, on mental deficiency. Entrants for the course who pay a composition fee of 15 guineas may, if due notice is given, attend either Part A or Part B of one course and postpone the other part until the next session. An entrant who wishes to attend one part only pays a fee of 10 guineas. An entrant who takes the complete course can attend the general clinical practice of the hospital on payment of 5 guineas for six months, or 10 guineas for one year, but an entrant who does not take either part of the course and desires to attend the clinical practice of the hospital must pay a fee of 5 guineas for each three months of attendance. To enable post-graduates to obtain special experience in this branch of medicine clinical assistants are appointed from time to time. Further particulars may be obtained from the Physician-Superintendent, Monks Orchard, Eden Park, Beckenham, Kent.

National Hospital, Queen Square

Special courses for the Diploma in Psychological Medicine are not held at the National Hospital, Queen Square, London, W.C.1, but lectures are given which cover all the work necessary for the more organic side of the examination—namely, anatomy, physiology, and pathology of the nervous system and clinical neurology.

The Institute of Medical Psychology

The course of training arranged by the Institute of Medical Psychology, Malet Place, London, W.C.1 (formerly the Tavistock Square Clinic for Functional Nervous Disorders) is not intended to cover the whole field of study for the Diploma in Psychological Medicine. There are post-graduate courses in psychotherapeutic theory and method. The main course, covering one year's work, is arranged for two groups: (a) those who can only manage to devote three hours twice a week; (b) those who, with a view to specialization, are prepared to give as a minimum twelve hours a week (attending on three days). Each group is restricted to a membership of six practitioners. In addition, there is a five weeks' introductory course of lectures. This course forms part of a one-year course in psychotherapeutic theory and method, but may be attended by qualified medical practitioners who wish to take it as an isolated course of lectures. Further particulars may be obtained from the Hon. Lecture Secretary, at the Institute.

The Public Health Medical Services

The Ministry of Health is the central authority to secure the adoption and effective administration of measures conducive to the health of the people, and to promote research work and the proper training of persons for health services.

For the purpose of local public health administration the whole of England and Wales is divided into counties, county boroughs, boroughs, and urban and rural sanitary districts. The administrative County of London, exclusive of the City of London, is divided into twenty-eight metropolitan boroughs.

The public health medical services for Great Britain embrace between three and four thousand medical men and women who give whole-time services, and, in addition, a large number who give part-time services. But little more than one-third of the medical officers of health of England and Wales are whole-time officials; but it is certain that this proportion will be considerably increased in the future, for the Ministry of Health is favourable to whole-time services, and certain provisions of the Local Government Act of 1929 will assist in this connexion. Medical officers for these services are appointed by the Ministry of Health for England; by the corresponding Boards of Health for Scotland and Wales; and by the many local public health authorities.

The Medical Services of the Central Authority

For England, the medical work of the Ministry of Health has been organized under the control of a Chief Medical Officer. It is subdivided into seven sections, with a senior medical officer at the head of each. About a hundred and twenty medical officers are employed, of whom rather more than one-half are regional, and deputy regional medical officers employed for certain duties under the Health Insurance Acts. Briefly, the sections deal with environmental hygiene, epidemiology, and international health; maternity and child welfare; tuberculosis and venereal diseases; the supervision of the food supplies; sanitary administration in relation to infectious diseases; national health insurance; and the school medical service. Vacancies in the staff are advertised from time to time in the medical journals, and appointments are made by the Minister on the recommendations of a Selection Committee. These are Civil Service appointments, subject to the usual conditions as to pension, holidays, etc. Medical officers are also employed for similar services by the Welsh Board of Health (Cardiff) and the Department of Health for Scotland (Edinburgh).

The Medical Services of the Local Authorities

These appointments include: medical officers of health, tuberculosis medical officers, maternity and child welfare medical officers, venereal diseases medical officers, and school medical officers—who work in the health interests of the school child. By the larger local public health authorities assistant medical officers of health are also appointed, and these posts often serve as stepping-stones to the higher offices as vacancies, which are required to be advertised, occur.

Medical Officers of Health

The duties of the medical officer of health are: to inform himself upon all influences affecting, or threatening to affect, injuriously the public health within his district; to advise his sanitary authority upon all matters relating to health; and to perform all the duties imposed upon him by statutes, by-laws, and regulations. He must prepare and submit to his local authority special and annual reports; give immediate information to the Ministry of Health of any serious outbreak of disease; and, subject to the instruction of his sanitary authority, direct or superintend the work of sanitary inspection.

By the Sanitary Officers Order, 1926, no person is qualified to be hereafter appointed or reappointed as a medical officer of health of any district or combination of districts unless, in addition to the qualifications prescribed by any statute, he is also either registered in the *Medical Register* as the holder of a Diploma in Public Health, Sanitary Science, or State Medicine, or has had not less than three years' previous experience of the duties of a medical officer of health.

The Public Health (Officers) Act, 1921, which was promoted by the British Medical Association, provides that a whole-time medical officer of health of a county borough or urban and rural district in England and Wales, a part of whose salary is contributed by the Exchequer, shall not be appointed for a limited period, and shall not be removed from his office except by or with the consent of the Minister of Health. This security of tenure now applies to the large majority of medical officers of health.

Under the Sanitary Officers Order, 1926, a medical officer of health who does not devote his whole time to the duties of his office, but a portion of whose salary is obtained from Exchequer grant, may be appointed without any limit of time; in which case he cannot be removed from office without the consent of the Minister. If he is appointed for a specified term, say one year, he continues to hold office from year to year unless the Minister consents to his removal. Where the electing body pays the whole of the salary of such a medical officer of health he may be dismissed from office without reference to the Minister of Health.

A considerable number of authorities have now adopted the Local Government and Other Officers Superannuation

Act, 1922. Under this Act, if an officer is incapacitated by ill-health after ten years of service, or if he has reached 65 years of age, he is entitled to superannuation. Such superannuation is to be on the following scale: after ten years' service, 10/60 of the average salary which he received during the last five years of employment; after eleven years, 11/60; and so on up to a maximum of 40/60 after forty years or more of service. This Act, however, remains permissive, and it fails to make due allowance, in computing service for purposes of superannuation, for the more advanced age, as compared with other officials, at which the medical officer of health can enter the public service. In these two respects the position reached falls short of that for which the British Medical Association has been working for some years.

In Scotland the position is different in some respects. Under the Public Health (Scotland) Act, 1897, no one can be appointed as medical officer of health for any area unless he possesses the Diploma in Public Health. No medical officer can be removed from office except with the sanction of the Board of Health. A "proper" salary must be paid, and the local authority may not bring about the resignation of the officer by indirect means, such as reducing the salary or attaching new conditions to the appointment. The Act says nothing about superannuation or the age of retirement.

School Medical Officers

School medical officers are appointed by local education authorities. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard education, and to inform the parents of its existence. Most approved schemes of medical inspection include arrangements which facilitate the task of parents in obtaining for their children the necessary treatment, check the results of this treatment, and keep each defective child under skilled observation both at home and at school until it has passed altogether out of the education authorities' hands. Indeed, it is now the practice for the education authorities themselves to provide for certain ameliorative work, notably the prescription of glasses where necessary, dental treatment, the removal of adenoids and tonsils, and treatment in connexion with certain diseases of the skin and some physical and mental defects. The general effect of all schemes alike is to make the inspection imposed by law of benefit, not merely to the individual child, but to the community at large, by preventing the development of conditions which lead to the existence of inefficient citizens among the adult population. The work is so related to that of medical officers of health that, generally, the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. A diploma in public health is almost always required of those entering the school medical service.

In Scotland, while the statutory authority for the work of the school medical service is different, the scheme of work is broadly the same.

Tuberculosis Medical Officers

A tuberculosis medical officer is an officer with special training and experience in tuberculosis work, and of a suitable age and attainments to command general confidence. In England such officers are appointed by county councils and county borough councils, and their duties are to carry out the work of diagnosis of tuberculosis, to advise as to treatment, and to take charge of the work of tuberculosis dispensaries and sanatoriums where these are in operation. The work under tuberculosis schemes is co-ordinated with the general public health work of local authorities, and so the medical officer of health is often appointed as the chief tuberculosis officer when a special tuberculosis officer is on the staff of the local authority. The arrangements in Scotland are very similar. In Wales tuberculosis work is carried out under the aegis of the Welsh National Memorial Association, upon which the constituent local authorities are represented, and the powers of appointment of tuberculosis officers are vested in the Association.

Maternity and Child Welfare Medical Officers

Any local public health authority, however small, may make arrangements for maternity and child welfare work within its area, although very generally the smaller local authorities are provided for in county council schemes; but the Minister of Health may transfer the administration of the maternity and child welfare work of an area to the local education authority where this would conduce to more efficiency. For the schemes of the smaller local authorities the services of a part-time medical officer are obtained when the medical officer of health does not himself undertake the duties; but for the larger schemes special whole-time appointments are made. The maternity and child welfare medical officer is responsible for the work at the centres provided and for directing the home visitations; and these activities are closely co-ordinated with the other branches of public health work directed by the medical officer of health.

Much of this work was commenced in different parts of the country by voluntary organizations; some of it still remains in their hands, but is now fairly closely linked up with the public health local authority; and the tendency is for the whole of it to be undertaken by the local authorities. A large number of women medical officers have been appointed to these posts.

Veneral Diseases Officers

Schemes for the diagnosis and treatment of venereal diseases are provided and administered by county councils and county borough councils. In some cases the officer is on the whole-time public health staff, and in others he is a part-time official. Special knowledge and practical experience in the treatment of venereal diseases are essential. The officer appointed for either whole-time or part-time service works at one or more clinics, and also gives instruction and assistance in the treatment of venereal diseases to general practitioners, who, if they desire to obtain experience, are allowed to attend the clinics.

Remuneration in the Public Health Service

In order to ensure that public health authorities may obtain skilled and highly trained medical officers it is essential that such officers should receive salaries commensurate with their attainments, bearing a reasonable relationship to the time and money expended in fitting them for their important and responsible duties, and comparing well with the income which might be secured in other lines of medical work. With this end in view the British Medical Association and the Society of Medical Officers of Health prepared a scale of minimum commencing salaries for whole-time public health medical officers.

The scale, which was put into operation in 1925, was attended with a large measure of success. There were, however, certain aspects of it which were not entirely satisfactory. For instance, it was not retrospective, and did not, therefore, apply to medical officers who had been appointed prior to the date on which it came into force, and it contained no provision for specified increments in salary.

As the result of a series of conferences between representatives of the various Associations of Local Authorities and the British Medical Association and Society of Medical Officers of Health, under the chairmanship of Lord Asquith, a "Memorandum of Recommendations" in regard to salaries of public health medical officers was drawn up and came into force in June, 1930. This Memorandum was published in the *Supplement to the British Medical Journal* of July 27th, 1929 (p. 71). Copies of the Memorandum may be obtained from the Medical Secretary of the Association. It has been adopted by the Representative Body, and has been accepted by the representatives of the following bodies representing local authorities:

- The Association of Municipal Corporations.
- The Urban District Councils Association.
- The Rural District Councils Association.
- The London County Council.
- The Association of Education Committees.
- The Mental Hospitals Association.
- The Metropolitan Boroughs Standing Joint Committee.

It has not been accepted by the county councils as a whole, but a majority of these authorities have adopted, and are applying, the Memorandum. The advertisements of local authorities which are not prepared to put into effect the whole of the Recommendations, will not be published by the *British Medical Journal*, which in this matter has the co-operation of the *Lancet* and the *Medical Officer*.

The great advantage of the Memorandum is that it embodies a general agreement as to salaries and conditions of service, and is not merely a scale of salaries. It is retrospective, and will therefore benefit officers appointed before it came into force. It provides stated increments for practically all medical officials except whole-time chief, deputy, and chief assistant medical officers of health, who, as chief medical officials, may, it is presumed, depend that the commencing salaries mentioned in the agreement will be increased for meritorious work and years of service, and it contains a very valuable provision by which questions of difficulty can be referred to an advisory committee.

The British Medical Association represents the profession on the advisory committee, putting the point of view of the public health officers in the discussion of the cases of those who are receiving remuneration less than that laid down in the scale.

For the right class of practitioner with leanings in the direction of public health work the service offers an attractive career, but it must always be remembered that there are comparatively few posts which carry high salaries.

The Curriculum for the Diploma in Public Health

New Regulations and Rules of the General Medical Council for Diplomas or Degrees in Public Health came into force on October 1st, 1931.

The curriculum must extend over a period of not less than twelve calendar months (or an academic year of whole-time study covering a period of not less than nine calendar months) subsequent to the attainment of a registrable qualification.

Every candidate for Part I of the examination for the D.P.H. must produce evidence of having attended, during not less than 280 hours, at an institution approved by the licensing body granting the diploma, practical instruction in:

(a) Bacteriology and parasitology (including immunology, serology, medical entomology, etc.), especially in their relation to diseases of man, and to those diseases of the lower animals which are transmissible to man;

(b) Chemistry, physics, radiology, and electrology in relation to public health;

(c) Physiology and biochemistry in their application to nutrition and hygiene;

(d) Meteorology and climatology in relation to public health.

Every candidate for Part II must produce evidence of having received, during not less than 120 hours, at an approved institution, instruction in the following subjects:

(a) The principles of public health and sanitation;

(b) Epidemiology and vital statistics;

(c) Sanitary law and administration (including public medical services);

(d) Sanitary construction and planning.

Every such candidate must also have attended for three months on the clinical practice of a recognized hospital for infectious diseases, and have received therein instruction in the methods of administration. At least twenty-four daily attendances of not less than two hours each are required.

Every candidate for Part II must also produce evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties of public health administration under the supervision of a medical officer of health, who must certify that the candidate has received, during not less than three hours on each of sixty working days, practical instruction in these duties, and also those relating to:

(a) Maternity and child welfare service;

(b) Health service for children of school age;

(c) Venereal diseases service;

(d) Tuberculosis service;

(e) Industrial hygiene;

(f) Inspection and control of food, including meat and milk.

(Instruction in (a) to (f) must include attendance at the centres, clinics, institutions, and premises concerned.)

Certificates of having received this prescribed instruction in public health administration must be given by a medical officer of health who devotes his whole time to public health work; or by the medical officer of health of a sanitary area having a population of not less than 50,000; or in Ireland by the medical superintendent officer of health of a county or county borough having a population of not less than 50,000.

'Regulations for the Diploma in Public Health

The Examination

The examination for the D.P.H. is divided into two parts, and no candidate is allowed to sit for the final part until after an interval of two years from the date of his obtaining a registrable medical qualification, which must be registered in the *Medical Register* before admission to Part II of the examination. The object of this two years' interval is "to provide opportunity for candidates, while passing from the state of pupilage to that of responsible practice, to give mature consideration to the obligations and duties involved in the work of the Public Health Service, and to acquire direct experience of medical work in a responsible capacity, in general medical practice, in hospital or laboratory appointments, or in any special branch of clinical work or study related to State Medicine."

The examination for Part I embraces practical, written, and oral tests in the subjects set out in the Regulations of the curriculum relating to that part; and the same is true of the examination for Part II.

A candidate must pass in all the subjects of Part I before being admitted to the examination for Part II.

Any candidate who possesses a qualification entitling him to registration on the British, Dominion, or Foreign List of the *Medical Register* can be admitted to examination, provided he has complied with the regulations of a licensing body in the United Kingdom based on the rules of the General Medical Council, and that before being admitted to Part II of the examination his qualification has been registered in the United Kingdom. Only diplomas in public health granted by approved bodies in the United Kingdom are registrable in the *Medical Register*.

Training and Examining Centres for Public Health Qualifications

Degrees in Sanitary Science are conferred, in England, by the Universities of London, Durham, Liverpool, and Birmingham; in Scotland, by the Universities of Glasgow and Edinburgh; and in the Irish Free State, by the National University of Ireland. In most cases these degrees are conferred only upon medical graduates of the universities granting them.

Whereas the requirements of the General Medical Council for the Diploma of Public Health are strictly conformed to, these requirements are extended, as a rule, as to both the period and the scope of special studies demanded, before Degrees in Sanitary Science are granted.

Most universities in Great Britain and Ireland grant a D.P.H. and provide for the necessary training.

The English and Scottish Conjoint Boards and the Irish Colleges also grant these diplomas. The School of Physics of Trinity College, Dublin, was the first body in the British Isles to arrange for courses of instruction and for a Diploma in Public Health.

At Cambridge the teaching and training courses for the D.P.H. were terminated at the end of 1931.

The post-graduate teaching and training in public health, in London, is provided mainly at one centre—the London School of Hygiene and Tropical Medicine.

(University of London); the only other training centre which offers such facilities is the Royal Institute of Public Health, Queen Square, Bloomsbury, W.C.1.

The course of study for the D.P.H., as provided by the London School of Hygiene and Tropical Medicine (Keppel Street, Gower Street, London, W.C.1), which is a School of the University of London, covers a period of nine calendar months in the case of whole-time students, and is so designed that students wishing to do so can proceed to the academic diploma instituted by the University of London. The School undertakes research work in preventive medicine, and members of the public health services have a common room placed at their disposal, and are privileged to attend staff and special lectures.

The University of Manchester has a well-equipped department of bacteriology and preventive medicine, where candidates preparing for the examinations of the various university and examining boards for the Diploma in Public Health can obtain instruction. It also prepares candidates for the Diploma in Bacteriology and in Veterinary State Medicine, granted by the university. Full particulars can be obtained from the Dean of the Medical School, the University, Manchester.

The University of Edinburgh grants a Diploma in Public Health. The course, which extends over an academical year of nine months' full-time study, can be commenced in October only, and provision is made by the university for instruction in all the subjects. Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or must hold corresponding degrees or registrable medical qualifications, which must be registered before a candidate is admitted to examination. The course for the diploma is divided into two parts, for each of which examinations are held twice annually. In each part the candidate must pass in all the specified subjects at one examination. Admission to the examinations is contingent upon the candidate having complied with the following conditions:

PART I.—(a) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part I.

PART II.—(b) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part II. (c) A lapse of two years after obtaining a registrable medical qualification. (d) Previous passage of examination in all subjects of Part I.

Further particulars can be obtained from the Dean of the Faculty of Medicine, Edinburgh.

The University of Glasgow confers the B.Sc.(P.H.) and the D.P.H., and conducts complete qualifying courses for both at its Institute of Hygiene and, for administrative work, in the Public Health Department of the city. The course for the diploma is divided into two parts, and admission to the examination is contingent upon the candidate having complied with the following conditions:

PART I.—(a) Completion, subsequent to obtaining a registrable medical qualification, of the course of instruction prescribed for Part I.

PART II.—(b) Completion, subsequent to obtaining a registrable qualification, of the course of instruction prescribed for Part II; (c) a lapse of two years after obtaining a registrable qualification; (d) previous passing of examination in all subjects of Part I.

The Royal Naval Medical College and the Royal Army Medical College provide courses of training to the medical officers of these two services.

Degrees and Diplomas in Public Health are registrable qualifications, but not so those in Tropical Medicine and Hygiene.

Qualifications in Tropical Medicine and Hygiene

The University of London grants a degree (M.D. in Tropical Medicine) to its medical graduates. A course of training is normally required, extending over at least one academic year.

Diplomas in Tropical Medicine and Hygiene are granted, in England, by the University of Liverpool and by the English Conjoint Board; and, in Scotland, by the Uni-

versity of Edinburgh. Among the institutions which provide qualifying courses are the London School of Hygiene and Tropical Medicine, the Liverpool School of Tropical Medicine, and the Royal Army Medical College. In the last-mentioned institution the training provided is restricted to Army medical officers. The training period for these diplomas is about six months. Graduates of medicine and surgery of recognized universities whose degrees are not registrable in this country may enter for the examination of the English Conjoint Board, and the conditions of study may be modified on the grounds of previous work in the Tropics or of original investigations undertaken.

The Colonial Office has decreed recently that the holder of a D.F.M. and H., or of a D.T.H., is eligible for appointment as a medical officer of health in places and districts other than those with large populations. In the latter cases a D.P.H. is required.

Those wishing for the details of syllabus of study, fees, date of commencement of the training courses, and the dates of examinations, etc., should apply to any of the training schools mentioned.

The Services

ROYAL NAVAL MEDICAL SERVICE

The revised regulations and conditions of service arising out of the Warren Fisher Committee Report have recently been published by the Admiralty, and it is considered that the Naval Medical Service now offers to well-qualified medical men a satisfactory career, with good opportunities for the practice of their profession and for specialization in many subjects, good pay, and the prospect of promotion to the higher ranks with an adequate pension on retirement.

Summary of New Conditions

The following information embodies the principal changes in conditions.

Entries will be on a short-service basis, and will be for an initial period of three years, to be extended to five years at the discretion of the Admiralty.

Officers leaving the Service at the end of three years will be eligible for a gratuity of £400, whilst those who leave at the end of five years will receive £1,000.

Officers may be transferred to the Permanent List at the discretion of the Admiralty on completion of five years' short service. A gratuity of £1,000 will be paid, but the officer will be required to render a minimum of twenty-five years' service in order to qualify for full pension, including seniority granted, if any, in respect of civil hospital time. With regard to the latter, ante-date of seniority of not more than one year may be allowed in respect of resident appointments in civil hospitals held prior to entry to the Royal Naval Medical Service. The ante-date will count for seniority and eligibility for increase of pay, and if the officer is transferred to the Permanent List it will count also as service for the purposes of promotion and retired pay, or gratuity on retirement.

Opportunities will be afforded for officers to specialize during the course of their career, and the number of specialist posts carrying additional emoluments has been increased from sixty to eighty-three.

The age of retirement has been increased in the case of surgeon commanders from 50 to 55, and in the case of surgeon captains from 55 to 57, thus affording officers the prospect of a longer career on full pay.

Candidates should preferably be between the ages of 24 and 28.

Medals and Prizes

Gilbert Blane Medal.—This medal is awarded annually to the surgeon lieutenant commander who obtains the highest aggregate marks at the examination for promotion to the rank of surgeon commander. The award is subject to the approval of the Presidents of the Royal Colleges of Physicians and Surgeons respectively and the Medical Director-General of the Navy.

Other awards and prizes open to naval medical officers are the Chadwick Naval Prize, the North Persian Forces Memorial Medal, and the Parkes Memorial Prize.

MEDICAL BRANCH OF THE ROYAL AIR FORCE

SEPT. 1, 1934]

Retired pay consists of two parts: (a) a service element based on the officer's total service; (b) a rank element for the substantive rank from which the officer retires. An officer with less than twenty complete years' service will not be eligible for retired pay on voluntary retirement. The following are the maximum current rates of retired pay:

Rank	Yearly Rate of Retired Pay	Compulsory Retiring Age
Major	£ 435	55
Lieutenant-Colonel	540	55
Colonel	720	57
Major-General	900	60
Lieutenant-General	1,030	60 (or on completion of tenure)

Gratuities

A short-service officer not appointed to a permanent commission may retire with a gratuity of £1,000 after five years' service as a medical officer. Such an officer is liable, during the twelve years following retirement, to be recalled to service at a time of national emergency.

Officers, holding permanent commissions, with less than twenty years' service as medical officers may be permitted to retire with gratuities in accordance with the following scale:

With less than 10 years' service as a medical officer	£1,000
After 10 years' service as a medical officer	£1,500
After 15 years' service as a medical officer	£2,500
After 18 years' service as a medical officer	£3,500

Further Information

Entry takes place twice yearly, at the beginning of May and November. The regulations for admission, giving full details, can be obtained from the Under Secretary of State (A.M.D.1), War Office, Whitehall, London, S.W.1, and should be carefully studied. A personal interview with a representative of the Director-General, Army Medical Services, is readily obtainable.

The Army Dental Corps

The corps is administered by the Director-General, Army Medical Services. The regulations for admission to the Army Dental Corps should be obtained from the Under Secretary of State, War Office, and carefully studied.

MEDICAL BRANCH OF THE ROYAL AIR FORCE

The establishment of the Royal Air Force Medical Branch consists partly of permanent and partly of short-service officers, and candidates are appointed after interview by the Selection Board, without competitive examination. Candidates must be under 28 years of age, be British subjects, the sons of British subjects, and of pure European descent. Before acceptance they will be required to pass a medical examination.

An officer will on first entry be granted a short-service commission for a period of three years on the active list (which may be extended to five years), followed by four years' service in the reserve, and those under 28 years of age at the time of entry will be eligible for subsequent selection for permanent commissions should they be desirous of remaining in the Service. The prospect of obtaining a permanent commission is approximately an even one so far as can reasonably be estimated at present. Hospital appointments held since qualifying will, under certain conditions, qualify candidates for appointment to a permanent commission being, if necessary, extended by a period equal to the "antedate."

Pay and Allowances

The following table shows the current rates of pay per annum for the various ranks. In addition to pay, officers receive quarters (with fuel and light), rations and attendance, or, if these are not available in kind, they are given cash allowances in lieu as shown in the table. The rates and general scheme of allowances are subject to review as circumstances may require. Married officers who have attained the age of 30 years receive either married quarters or allowances at the married rates.

Rank	Pay (per annum)	Allowances (per annum) (Present Home Rates)	
		Married	Single
Flying Officer	£ 395	£ —	£ 113
Flight Lieutenant	428	228	119
Ditto, after 2 years as such	459	228	119
Ditto, after 4 years as such	493	228	119
Squadron Leader	642	231	157
Ditto, after 2 years as such	705	231	157
Ditto, after 4 years as such	739	231	157
Ditto, after 6 years as such	806	234	166
Wing Commander	905	234	166
Ditto, after 2 years as such	977	234	166
Ditto, after 4 years as such	1,034	266	216
Group Captain	1,150	362	307
Air Commodore	1,314	423	358
Air Vice-Marshal	1,642		

Special allowances are applicable at stations abroad. The rates of pay of the Royal Air Force Medical Branch are fixed on an inclusive basis, and the fact that specialist pay and charge pay are not payable as separate emoluments was taken into account when the rates were fixed.

At about five years' service all permanent officers who are judged suitable will be given the opportunity to take a course of specialist study. The period allowed will vary with the subject of study, but normally about nine months will be available to each officer, during which full pay and allowances will be issued. Their subsequent career will normally be as follows. Approximately three-quarters of the employment of squadron leaders and senior flight lieutenants is in specialized posts, though these are not generally of a full-time specialist character. On reaching the rank of wing commander the policy is to allow a proportion of officers to become permanent specialists and to be employed continuously throughout their service in the ranks of wing commander and group captain. In addition, there are a number of hygiene posts in the former rank open to specialists in that subject, bringing the proportion of specialist posts in the rank of group captain to a half of the total posts. In the rank of flight lieutenant a half of the posts already mentioned are available for the permanent specialist. This statement indicates the position between posts in charge of a large hospital and headquarters administrative posts. As regards specialist employment as at present foreseen. No guarantee can be given, of course, that the career of an individual will necessarily conform to the forecast. New entrants into the Medical Branch of the R.A.F. will be commissioned as flying officers (Medical), and will be selected for permanent commissions after ten years' total service to the rank of squadron leader after ten years' total service. Accelerated promotion may be granted to officers qualified to hold specialist appointments after the completion of eight years' service. Promotion within establishment to the ranks of wing commander and above will be by selection. The number of permanent commissions granted yearly is regulated with a view to all suitable permanent officers being promoted to wing commander and of a substantial majority of wing commanders being promoted to group captain. While the aim is to give entrants a career as above, no guarantee of promotion can be given to the individual officer of course, since the number of vacancies for promotion must depend on the requirements of the Service from time to time.

Outfit Allowance

An officer who has not previously held a commission in H.M. Forces will receive an outfit allowance of £50 on joining. Short-service officers who complete their full period of service on the active list will normally be granted gratuity as follows on transfer to the reserve:

After 3 completed years	£100
After 5 completed years	£120

Further particulars may be obtained from the Under Secretary of State for India, Military Department, India Office, London, S.W.1.

SEPT. 1, 1934]

LOCAL GOVERNMENT HOSPITAL SERVICES

LOCAL GOVERNMENT HOSPITAL SERVICES

As a result of the Local Government Act, 1929, many of the former Poor Law hospitals, which were available only for the destitute poor, have become municipal hospitals, available for the benefit of the public generally. The number of hospitals provided by Sir George Newman to be 858, with 143,494 beds. Of this number 326, with 57,129 beds, are administered under the aegis of public health, and 532, with 86,365 beds, under that of public assistance. The total compares with 988 voluntary hospitals, having 71,956 beds.

The Growth of the Municipal Hospital

The appropriation to general and special hospital use of so much institutional provision, inherited from the now defunct boards of guardians, means not only the separation from the Poor Law of the services performed in such institutions, but the better co-ordination of the public health services of the local authorities in general. It is not too much to say that the Local Government Act of five years ago has created the beginnings of a national hospital system with which it is important that the voluntary hospital system, without losing its character and tradition, should be integrated. With these large municipal developments there has come about a vast expansion of opportunities for medical service under the local authorities. The institutions which, so long as they remained Poor Law infirmaries, were disliked it not dreaded by the poor, and largely disregarded by the medical profession, have now, as municipal hospitals, come to fill a very large and important place in the hospital picture.

The London County Council Services

The London County Council is the largest of the local authorities in respect of the hospital accommodation it controls and the medical staff which it employs. It has set an example by the advantage which it has taken of the Local Government Act. Under that Act it took over a total of seventy-six hospitals and institutions. These included twenty-eight general hospitals, the largest of which is Lambeth, with accommodation for 1,480 patients; a total of seventy-six general hospitals, the largest of which is Lambeth, with accommodation for 1,480 patients; seven of the others have accommodation for over 700. The total cost of maintenance of the various hospital services is some four and a half millions a year, of which nearly three millions is spent on the general hospitals. The total bed accommodation in the hospitals and allocated institutions on transfer was 41,164, but this included nearly ten thousand beds in institutions and allocated which could not be regarded as suitable for the proper treatment of sick persons. A great deal of structural work and readaptation was put in hand, with the result that a net increase of more than 1,400 beds has been provided.

There are admitted to these hospitals a large number of acute cases, both medical and surgical, but there is, of course, this difference between them and the voluntary hospitals, that the latter can select their patients and reject whom they please, whereas the rate-supported institutions must be prepared to admit any sick person who applies, provided that, in the opinion of the medical superintendent, such a patient is suitable for admission. Some 25,000 operations were performed in these hospitals during the last year for which full records were available, and the number of out-patient attendances was a quarter of a million. The chronic sick poor are gradually being concentrated in twelve other institutions which, unlike the rest, are for the present, for administrative reasons, not under the Public Health Act. So far as maternity and child welfare services are concerned, the City Corporation and the Metropolitan Borough Councils are the responsible authorities, but the London County Council has maternity beds in its general hospitals, and in several hospitals, a fully equipped maternity and gynaecological block. To the maternity wards of the Council's hospitals last year over 10,000 cases were

admitted. The accessory medical services under the Council are also important; these include pathological laboratories, x-ray units, and a large ambulance organization. In addition to smaller units, the Council has five pathological laboratories, each of which serves a group of institutions attached to the municipal service. These five are at Lambeth, Highgate, Lewisham, Mile End, and Kensington. Recently arrangements have been made whereby post-graduate students of the London School of Hygiene and Tropical Medicine may obtain experience of the technical and administrative methods adopted in these laboratories—experience of a kind very difficult to obtain in the ordinary way.

English and Scottish Cities

The same general provisions hold good, in smaller degree, of other progressive cities. *The Hospitals Year Book, 1934*, gives particulars of twenty-two large general hospitals in provincial cities, administered by local authorities under the Public Health Acts or the Local Government Acts. The average bed accommodation in these twenty-two hospitals is close upon 500, and the whole-time medical staff numbers 100, and the part-time staff 129. Two hospitals in Birmingham—Dudley Road, and Selly Oak—have between them bed accommodation for 1,446, and a staff, whole- and part-time, of thirty-seven. Newcastle-upon-Tyne, in its municipal hospital with 680 beds, has a staff of eighteen. Southampton, with 450 beds, and of eleven. Particulars are also given of twenty-four provincial hospitals which remain under the Poor Law. The whole-time staff attached to these hospitals numbers 105, and the part-time staff 127. In Scotland figures are given for three hospitals in Edinburgh, administered under the Public Health Acts, having accommodation for 940 patients, a whole-time medical staff of eight, and a part-time staff of twenty-three; and in Glasgow of five Poor Law hospitals, accommodating 3,300 (with over 3,000 of the beds, on the average, occupied daily), and with a staff of four medical superintendents, thirty-three whole-time assistant medical officers, two part-time specialists, officers, and twenty-two part-time specialists. In addition to the large general hospitals maternity and children's hospitals are provided by the larger authorities. In Birmingham, for instance, there are twenty-eight maternity and child welfare centres under the control of the Public Health Committee, as well as four sanatoria, two infectious diseases hospitals, two maternity homes, two infants' hospitals, and four convalescent homes.

Facilities for Instruction

A great amount and variety of clinical material is contained in these hospitals, and many of them are used for undergraduate and post-graduate teaching. In London some useful discussion has taken place between the voluntary County Council and the representatives of the hospitals under the County Council and the general hospitals under the old board of guardians arrangements for instruction since the hospitals came under Council control. Facilities for clinical demonstrations are now available at a number of the Council's hospitals, and for this purpose each teaching hospital in London is associated with one or more municipal institutions. Teaching in obstetrics is afforded in two at least of the Council's pathological laboratories to post-graduate students in order that they may obtain experience in technical and administrative methods. As an example of the amount of material which may be afforded by a Council hospital, St. James's, Wandsworth, may be cited, where there is a clinic of fifty beds always occupied, and where there is a clinic of fifty beds always occupied, and where there is a clinic of fifty beds always occupied, and where there is a clinic of fifty beds always occupied. The post-graduate school at Hammer-smith Hospital, the result of a partnership between the Government, the University of London, and the London County Council, will be opened during this autumn. So much has been written about this development that it is hardly necessary to recapitulate here all that it intends. The

new institution has been "recognized" as a school of London University. There will be four professorships, three in the main clinical subjects—medicine, surgery, and midwifery and gynaecology—and the fourth in pathology. The school buildings will consist mainly of laboratories, lecture theatres, and other accommodation (non-residential), while the associated developments and adaptations of the Hammersmith Hospital adjoining will include two new blocks of buildings for the casualty, receiving, and out-patient departments, a new ward, a massage and light treatment section, and other facilities. One recent decision of the County Council is to provide at Hammersmith a radiological department which shall be a consultative centre for the whole of the hospital service, where cases can be sent from other hospitals for expert opinion on diagnosis and treatment.

It may be added that the clinical material in municipal hospitals is not only vast in amount, but includes a great deal with which it is very important that the young practitioner should be familiar, and which is not much represented in the teaching hospitals. In a recent report to the L.C.C. it is mentioned that the type of case treated in the general hospitals is altering, and there is a continually increasing amount of acute and operative work to be carried out.

Medical Staffing

The policy pursued by the London County Council and other authorities is to provide a whole-time medical service and to have a permanent staff at each general hospital. The grades of officers are: medical superintendents, deputy medical superintendents, senior assistant medical officers, assistant medical officers, and house-physicians and surgeons (resident), and part-time clinical assistants (non-resident). The medical superintendent is required to be a man of high qualifications in at least one branch of medicine, as well as a good administrator and first-class technician. In addition to the medical superintendent, one or more whole-time medical officers, with special qualifications in medicine, surgery, or obstetrics, are appointed. Preference is given to officers holding the higher medical qualifications, M.R.C.P. or M.D. in the case of physicians, F.R.C.S. or M.S. in the case of surgeons. These are graded as senior assistants, and at the larger hospitals one of them ranks as deputy medical superintendent. Deputy medical superintendents are employed as a rule only at hospitals with over 600 beds, of which there are sixteen among the London County Council general hospitals. These officers at institutions with over 750 beds are described as of Grade I, while those at hospitals of from 600 to 750 beds are of Grade II. Senior assistant medical officers are also graded according to the size of the hospital they serve. The appointment to these posts is made to qualified medical practitioners of at least one year's standing in their profession who have held a residential post for at least six months in a general hospital. Those who seek assistant medical officerships at the special hospitals will find general hospital experience desirable, although the lack of it does not debar otherwise suitable candidates. The engagements of assistant medical officers of Grade I are limited to four years, terminable at any time by a month's notice on either side, and the first year of service is on probation. Should the officer's name be on the promotion list at the end of his four years' term, he may remain beyond the period of the original engagement, and at an increased salary. Assistant medical officers of Grade II are on a yearly engagement, but this has been found unsatisfactory to the Council, because of the need for frequent appointments, and because officers leave at a time when, having learnt the ways of the hospitals, they are most useful. It is proposed to renew such appointments for a second year. The junior appointments are those of resident house-physicians and surgeons and part-time clinical assistants. These officers consist of recently qualified men and women who are appointed for limited periods, generally six months, and need not have had previous hospital experience. The six months' period may be extended for further similar periods up to a maximum of two years, provided that not more than twelve months is spent in one hospital.

Scale of Salaries

Medical superintendents in London receive as a maximum between £900 and £1,650 per annum, including an unfurnished house or quarters, valued at £100 a year for superannuation purposes, and the rates on which are paid by the Council. The salary scales are:

General Hospitals	£900 to £1,550
Convalescent Hospitals	£900 to £1,100
Fever Hospitals	£900 to £1,450
Tuberculosis Institutions	£900 to £1,200
Children's Hospitals	£950 to £1,650

Of the general hospitals only two of the smallest in the London County Council area have a commencing salary of £900; at the other end of the scale two have commencing salaries of £1,300. One condition made is that the appointment is to the Council's hospital service, not to an individual hospital, and appointment to the service includes liability, if called upon, to take part in consultations or perform operations at another hospital, although if this happens frequently, on account of the special skill or experience of the officer concerned, a claim for extra remuneration may be considered. Further, in addition to their ordinary remuneration as medical superintendents, the chief medical officers of the infectious hospitals service and of the children's institutions and surgical tuberculosis service receive an allowance at the rate of £200 a year, and the chief medical officer of the medical tuberculosis service, who is also a medical superintendent at a hospital, an additional allowance at the rate of £125.

The scale of salaries for other officers, subject to certain modifications in the different hospitals, is as follows:

Medical Appointments	Remuneration*		
	Minimum	Increase	Maximum
Deputy medical superintendent (Grade I) ...	£ 650	£ 50	£ 800
" " " (Grade II) ...	600	30	750
Senior assistant medical officers (Grade I) ...	550	25	650
" " " (Grade II) ...	500	25	600
Assistant medical officers ...	350	25	425
" " " (yearly engagement)	250	—	—
House-physicians and house-surgeons ...	£120 (resident)		
Clinical assistants (non-resident) ...	£150 (non-resident) and no emoluments, but meals when on duty		

* Exclusive of the emoluments of board, lodging, and washing, valued at £150 per annum in each case.

In the country generally medical superintendents of Poor Law infirmaries are paid from £600 a year upwards to £1,600, with emoluments; deputy medical superintendents, from £450 to £750, with similar emoluments, and resident assistant medical officers, from £200 to £450, with full board.

Residence, Leave, and Pensions

Generally speaking, all assistant medical officers in London are required to be resident. If in any case the question of an assistant medical officer being non-resident should arise, the primary consideration is the interests of the service. The emoluments of board, lodging, and washing are valued at £150 a year. Non-resident medical officers who are receiving the allowances in lieu of residential emoluments pay for any meals taken at the hospital. Permission to live out is granted only if the accommodation is required or can be utilized for some other purpose.

Liberal annual leave, with pay, and sick leave, with pay, for a reasonable period are allowed by the L.C.C. Leave is also granted for study purposes, not only to officers who are following a university course, but to those who are undertaking other courses of study or research work. The house-physicians and surgeons are not regarded as employed in a whole-time capacity, and reasonable off-duty periods for study are allowed. Clinical assistants attend six sessions of four hours' duration each week. Assistant medical officers also are allowed to improve their qualifications, and leave of absence not exceeding six weeks in any one year may be granted, with rates of pay varying in accordance with the service of the officer. Occasional daily leave for attending a course of instruction for a medical degree or diploma is granted with full pay. These concessions, however, are subject to the condition that

SEPT. 1, 1934]

PRISON MEDICAL SERVICE

the officer shall continue for a certain period in the service of the Council.

Whole-time permanent appointments are pensionable under the Council's superannuation and lump sum payment after the necessary qualifying period of service. Pensions are also payable to officers on the fund who break down in health after not less than ten years' service. Officers resigning have their contributions returned to them, and death benefit is also paid in respect of officers of five years' service or more. A point to bear in mind is that under the London County Council regulations—and the same very widely applies to other authorities—the marriage of a woman officer puts an end to her contract of service with the Council. With certain exceptions, married women are ineligible for employment or re-employment.

Consultant and Specialist Services

Under the new scheme, which came into operation in 1933, the general hospitals have been divided into seven groups on a geographical basis, and the special hospitals and public assistance institutions in the area linked up with them, so that consultants and specialists, who were previously engaged chiefly for individual hospitals, are now appointed to the service and utilized as required for the groups of hospitals. The salaries for the part-time consultants and specialists are generally £125 a year for one session a week, £200 for two sessions, £275 for three sessions, £350 for four sessions, £425 for five sessions, and £500 for six sessions. Full-time consulting physicians and surgeons receive £1,250 a year, rising by increments of £50 to £1,500 a year, with no emoluments. The full-time radiologists receive £900 a year, rising by increments of £50 to £1,100. The appointment of part-time consultants and specialists is subject to annual review.

Method of Entrance to the Service

Many provincial areas have now highly developed schemes providing for the employment of many medical men and women of high qualifications at salaries of from £450 to £800 per annum, and, in addition, large numbers of junior officers at salaries of from £200 upwards are employed. These posts offer to all grades remarkable facilities, which should appeal to those who desire to gain experience and at the same time wish to adopt for a period the institutional life. It is a service in which the original appointment and any subsequent promotion depend upon merit, and in which vacancies in the higher grades are filled as far as possible from the existing staff, with no barrier preventing transference from one grade to a higher. Vacancies are usually advertised in the medical journals.

The opportunities of the local government hospital service to those whose career will be spent in general or consultant practice, as well as to those who expect to spend their lives in the public health service, scarcely need to be stressed. One point which the final-year student or the newly qualified practitioner will do well to bear in mind is that some authorities in offering appointments insist upon candidates possessing previous resident hospital experience. Such a requirement may not arise for some years, but the medical man or assistant who has gone direct to serve as locum tenens or assistant may find himself or herself cut off from certain avenues of work through having neglected to take resident experience immediately after qualification. We are informed that it almost the rule for the young medical man to take a residential post, but the certainly deplorable often forgoes this experience. It is certainly ignorance on that a competent man should, through ignorance of qualification, deprive himself of the opportunity following his bent in later years.

It has to be borne in mind, however, that the attractiveness and opportunity of a post under the new public assistance authorities, notwithstanding the effect of the Act of 1929, in assimilating the Poor Law to other public health services, are affected not a little by the policy adopted by the local authority concerned. In the more progressive areas there is a high degree of differentiation

in treatment between the sick and mentally afflicted on the one hand, and the purely pauper class on the other—that is to say, between the hospital and the public assistance institution, formerly called the workhouse. The tendency in such areas has been to develop the hospital services on lines approximating to those obtaining in the voluntary hospitals.

In addition to the hospital appointments of the character mentioned, the Local Government Service offers numerous other (part-time) posts, such as those of public assistance medical officer and public vaccinator, which are commonly held by private practitioners. Domiciliary work in the public assistance medical service has been found, as the result of a recent inquiry, to be in many areas very inadequately recompensed, and in localities where unemployment is rife and increasing numbers of people are resorting to public assistance, the work is becoming more onerous. An assurance has been given by the Ministry of Health that where such increase of work is definitely proven, the local authority will be encouraged by the Ministry to listen to the plea for an increase of remuneration.

Enough has been said to show what variety of service, whole-time and part-time, institutional, and domiciliary, the Local Government Service offers, on the one hand, to the ambitious, who desire experience, and, on the other hand, to those who seek a secure position, with superannuation at the end.

PRISON MEDICAL SERVICE

Candidates for the prison medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.1.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to devote their whole time to the service. In the case of those required to give their whole time to the post of medical officer Class I are instance is to the post of medical officer Class I are the seniors of this rank the medical officers Class I are selected as vacancies occur.

Largely as a result of action taken by the British Medical Association some years ago, the salaries of Civil Service bonus, now are: medical officer Class II, £505 7s., rising by annual increments to £725, medical officer Class I, £783 15s., rising by annual increments to £939 14s. Unfurnished quarters are provided, or an allowance in lieu is made.

There are 17 medical officers Class II, 12 medical officers Class I, and 26 part-time medical officers. The service is a small one, and therefore vacancies are comparatively rare and promotion is very slow. The work of a prison medical officer offers exceptional opportunities for research in criminal psychology, forensic psychiatry, and mental deficiency.

MEDICAL PRACTICE IN BRITISH DOMINIONS AND FOREIGN COUNTRIES

Medical Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are generally admissible merely on payment of a registration fee, providing they produce evidence that they are of good repute and are either registered or eligible for registration in the United Kingdom, as the local requirement may be. The only exception to this statement that need be made relates to the Dominion of Canada. Each of its provinces has medical matters as an independent State. The result has been that reciprocity of practice has in the past been established between this country and each of the provinces

of Canada except British Columbia, where certain obstacles were never overcome. It has, however, to be recorded that reciprocity no longer exists with Saskatchewan, New Brunswick, Ontario, and Quebec. - We would advise any medical man proposing to practise in Canada first to communicate with the Provincial Registrar, stating what degrees or diplomas he holds, and asking for information as to the precise steps he must take in order to obtain admission to the Provincial Register. The Licence of the Dominion Council, which can only be obtained after examination, entitles its holder to registration in any of the provinces of Canada, though in regard to Quebec there is a proviso that "he must have been registered in the province five years prior to the application for the recognition of the Dominion Licence." In order to sit for the examination for the Dominion Licence, it is necessary to obtain either a licence from one of the provinces (this can be obtained from one of those with whom reciprocity has been established), or a certificate from a Provincial Council that the requirements of that Council in regard to preliminary education, matriculation, medical curriculum, and graduation have been complied with.

Italy and Japan are the only two foreign States with which complete medical reciprocity has been established, though there are other countries which grant a limited recognition to British qualifications. Generally speaking, in Continental countries (with the exception of the kingdom of Italy) a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. In France naturalization is now required also. The same observation applies to all foreign States in the South American continent. Each of the United States of North America has its own laws and regulations governing medical practice; and all of them require the holder of a British qualification to submit to an examination. A number of the States, including New York, Illinois, Michigan, and Indiana, require naturalization.

A pamphlet showing the conditions under which medical and dental practitioners legally qualified in their own country may practise abroad can be obtained from the offices of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, price 2s. 6d., or 2s. 9d. post free in the United Kingdom. Practitioners who think of going abroad to practise will find therein much useful information, including the name of the official in each country to whom requests for further particulars should be addressed. A new edition was published in 1933.

THE COLONIAL MEDICAL SERVICE

The Colonial Medical Service consists of the Medical Services in Bahamas, Barbados, Bermuda, British Guiana, British Honduras, Ceylon, Cyprus, Falkland Islands, Fiji, Gambia, Gibraltar, Gold Coast, Hong-Kong, Jamaica, Kenya, Leeward Islands, Malaya, Mauritius, Nigeria, Northern Rhodesia, Nyasaland, Palestine, St. Helena, Seychelles, Sierra Leone, Somaliland, Tanganyika, Trinidad, Uganda, Western Pacific (Gilbert and Ellice Islands, and British Solomon Islands), Windward Islands, and Zanzibar.

New entrants to the Service will be liable to transfer to any scheduled post therein whether or not such transfer represents promotion, provided that:

(a) No officer whose first appointment is to an office in a Dependency in which he was ordinarily resident at the time of appointment shall be liable to be transferred to an office outside that Dependency unless and until he shall have accepted an office in another Dependency.

(b) No officer shall be transferred without his own consent to an office which in the opinion of the Secretary of State is of less value (due regard being had to climate and other circumstances) than that which he already holds.

Officers who do not hold scheduled posts are eligible to apply for transfer to such posts. Appointment, confirmation, promotion, retirement, and transfer of M.O.'s

will be governed by the directions of the Secretary of State.

No officer of the Service is entitled, as of right, to private practice, the Service being envisaged as essentially a Service of whole-time officials whose primary duty is to the State.

The possession of a qualification registrable by the General Medical Council is a condition of eligibility for admission to the Colonial Medical Service.

Medical appointments in the self-governing Dominions and the territories under their control, and in Southern Rhodesia and Malta, are made by the Governments concerned, and are not in general open to candidates in the United Kingdom. In the Bahamas, Barbados, Bermuda, Ceylon, Jamaica, and Mauritius vacancies are practically always filled by the appointment of qualified local candidates or, in the case of some of the higher posts, by transfer from other colonies. Appointments to the medical services of the remaining colonies and other territories under the administrative direction of the Colonial Office are made by the Secretary of State for the Colonies in this country.

Conditions of service and superannuation are in the main determined by the economic resources and general public health policy of the individual colony and its local government, and vary almost as widely as do conditions of climate. Moreover, the extent of the control exercised by the Colonial Office varies according to the constitutional status of the particular colony, and the detailed information available centrally is not always complete. The intending candidate, therefore, should make comprehensive inquiries as to local conditions, and particularly as to facilities for private practice where this is precluded by the terms of appointment. He will also do well to supplement official information by reference to the Medical Secretary at the Central Office of the British Medical Association (Tavistock Square, London, W.C.1), where reports obtained from time to time from the local Branches are available.

To those physically and mentally suited to the climatic and social conditions peculiar to the various colonies the Colonial Medical Service should, and in most cases does, offer a field of professional activity rich in interest and in opportunity for pioneer work, with increasing facilities for specialization and research.

In view of the financial stringency from which Colonial Administrations are suffering, in common with Government and other authorities, it has been necessary, in some instances, to modify the terms and conditions of service, and whilst the unreduced emoluments, allowances, etc., are stated in this article, the fact that temporary reductions are in operation in many branches of the Service must be borne in mind, and intending applicants should satisfy themselves on this point before signing any agreement of service. In most colonies establishments have been reduced, and this entails a considerable reduction in the number of possible vacancies and affects materially the prospect of promotion.

Apart from immediate economic stringency, the outlook for the Colonial Medical Service is in the main a hopeful one, and especially so in the larger and better organized branches. The necessity, however, remains for making careful and sufficient inquiry as to the position in any branch of the Service before accepting appointment.

The medical services recruited in this country by the Secretary of State for the Colonies include those of West Africa, East Africa, Malaya, Hong-Kong, the West Indies, Fiji and the Western Pacific territories, and Palestine, besides a number of smaller services offering individually one or two appointments.

In Fiji, although the basic salary of district medical officers (£500, by £25 to £725) is below the £600 minimum recommended as adequate by the British Medical Association, this fact is offset by the concession of allowances of from £175 to £275 in some of the districts, the value of private practice in the other districts being estimated at from £100 to £600 a year. (Temporary reductions are in operation.)

The services in the West Indies and some of the smaller colonies have not yet conceded the £600 minimum commencing salary, and whilst facilities for remunerative private practice, general conditions of service, and a relatively low cost of living must in some instances be taken into consideration, these compensations are by no means universal. The service in the Leeward Islands is in a condition which requires special notice by way of warning. The position in Grenada has been improved, though such improvements have not extended to St. Lucia and St. Vincent. (Temporary reductions are in operation.)

In general, candidates for the Colonial Medical Service must be between the ages of 23 and 35. Appointments are, subject to a varying period of probation, for the most part classed as permanent and pensionable, but there are some appointments by agreement for a specified limited term of service. There is no entrance examination, but practitioners selected for appointment must obtain a certificate of physical fitness from one of the consulting physicians to the Colonial Office. Post-graduate experience in hospital appointments is desirable, and in a few cases special allowances are conceded to the holders of a D.P.H. Successful candidates are normally required to undergo an approved course of instruction in tropical medicine, the fees for their tuition being defrayed by the Government and an allowance being paid during their instruction.

Some thirty medical women are employed in child welfare, maternity, and laboratory work, mainly in the larger services—for example, those in East and West Africa and Malaya. Salaries are the same as for men.

The bulk of the appointments made by the Secretary of State in this country are to East and West Africa and Malaya.

West Africa

This is one of the best organized and best paid branches of the Service, and includes Nigeria, the Gold Coast, Sierra Leone, and the Gambia. Climatic conditions vary considerably over this area, but they are in general admittedly trying. This fact is at present recognized by the provision of more frequent leave periods than are usual elsewhere.

The service includes medical, public health, and laboratory divisions, and specialist posts are almost invariably filled by promotion from the staff. The rate of pay for a medical officer is £660 on appointment, rising by annual increments to £960, together with a seniority allowance of £72 a year after reaching £720, but temporary reductions are in operation. There are a considerable number of specialist and administrative posts carrying relatively high salaries, varying from £1,300, with duty allowance of £260, to £1,800, with duty allowance of £360. All appointments in the staff are pensionable. Officers may retire voluntarily on reaching 50 years of age, and may be called upon to retire at 55. Pensions of existing officers are calculated at the rate of 1/480th of the officer's pensionable emoluments (salary and house allowance) in respect of each complete month of service, but for new entrants the basis of calculation is 1/600th. The pension may be converted into a reduced pension of three-quarters of the full pension, with a gratuity of ten times the amount of the reduction. Gratuities of £1,000 or £1,250 may be drawn on retirement after nine or twelve years' service. Members of the Service in West Africa are not usually permitted to take their wives or young children with them until they have acquired experience of the conditions of life and have obtained the sanction of the Governor. In the case of young children this is only exceptionally given.

African Medical Officers

A number of Government appointments for African medical officers exist in the West African Colonies. These appointments carry salary on the scale £500-£225-£600, and there are higher scales of £600-£30-£720, and £740-£820.

East Africa

This branch of the Service includes Kenya, Uganda, Tanganyika Territory, Nyasaland, Zanzibar, and British Somaliland. In East Africa there is a very wide scope for clinical work, both medical and surgical, as well as for research and for preventive medicine and sanitation. In most stations conditions allow a medical officer's wife to accompany him, but this is not generally desirable on first appointment. In some Dependencies the consent of the Governor must be obtained. The service includes a medical and a sanitary division. The former is open to those holding ordinary medical and surgical qualifications, post-graduate experience in a hospital appointment being an advantage; posts in the sanitary division will as far as possible be filled by those holding a Diploma in Public Health or a Diploma in Tropical Medicine and Hygiene. Climatic conditions vary considerably. In a considerable part of Kenya they approximate more to the temperate than to the tropical zone; but there are some areas in the East African Dependencies where conditions more closely resemble those in West Africa. The rate of pay for a medical officer is from £600 on appointment, rising by annual increments of £30 to £840, and thereafter, subject to an efficiency bar at this point, by £40 to £920. Holders of the D.P.H. receive a special concession of two increments on appointment, or from the date of obtaining the diploma. (Temporary reductions are in operation, and in Kenya and Tanganyika the payment of fees to medical officers for conducting post-mortem examinations has been suspended.)

The gratuities available on retirement after nine or twelve years' service are similar to those in West Africa. Officers may elect or may be required to retire on pension on reaching the age of 50 years. Pensions of existing officers are calculated at the rate of 1/480th of emoluments (including value of free quarters) for each completed month of service, but for new entrants the basis of calculation is 1/600th. The officer of twenty-five years' service who has reached the maximum of the long scale receives a pension of approximately £650 per annum. Pensions are convertible, under certain conditions, into a reduced pension and a gratuity.

Malaya

This branch of the Service covers the Straits Settlements, the Federated Malay States, the Unfederated Malay States, and the State of Brunei in Borneo. The salary of \$500 a month, with an annual increment of \$25, rising to \$800 at the top of the time-scale (\$1 is fixed at 2s. 4d.), is generally considered adequate in view of the present cost of living, which is somewhat higher than that in England. The officer of twenty-five years' service, even if he has not held a senior appointment carrying a salary above the maximum of the time-scale, receives a pension of approximately £560 per annum. Pensions are convertible under certain conditions into a reduced pension and gratuity.

The climate of Malaya is, for the Tropics, a healthy one. It varies little throughout the year. The average rainfall is about 100 inches a year, and vegetation is always green. People who lead regular active lives have no difficulty in keeping in good health. European children do well in Malaya up to the age of about 6.

The professional duties of a medical officer may include medical, surgical, medico-legal, and public health work. His administrative work comprises hospital administration, diets, returns, and financial work, and includes the inspection of smaller hospitals and dispensaries. Districts vary in size, and a certain amount of travelling is necessary. The white population in each district varies. The district hospitals hold from 50 to 300 beds. There is a staff of locally recruited men, mostly trained at the Singapore College of Medicine. Asiatic dressers and trained hospital assistants are employed in hospitals and dispensaries. In addition to European sisters, there is a local nursing staff. All hospital equipment is supplied by Government, includ-

ing instruments. At both the Institute for Medical Research in Kuala Lumpur, Federated Malay States, and the King Edward VII College of Medicine, Singapore, there are opportunities for research as well as for routine investigations. In addition to the full-time professional posts at the College of Medicine several of the medical staff in Singapore hold part-time lectureships.

Sudan Medical Service

This Service is a department of the Sudan Government, and includes a number of Syrian and Sudanese medical officers and Sudanese assistant medical officers. The British medical inspectors are from the outset senior to all medical officers. The Service offers ample opportunities for specialization and for research, as well as for general, medical, and surgical work.

The climate varies, but is not in general unfavourable, though hot. In the northern desert the nights are cool, even in summer, and the winter is pleasant and often cold. In the central zone there is a rainy season of about four months, during which large areas become malarious. The south is more tropical in character, and mosquito-protected houses, nets, and protective quinine are essential during the greater part of the year, though even here the winter months are cool and pleasant. It is not considered desirable for medical inspectors to be accompanied by their wives until they have gained some knowledge of the language and the general conditions of life.

The commencing pay of a medical inspector is £E.720. On confirmation of appointment and success in the requisite examinations in Arabic the salary is increased by periodic increments to £E.1,200. Four senior administrative posts carry higher salaries. There is a compulsory contribution of 5 per cent. of pay towards pension, which, for a medical inspector, amounts, after twenty years' service, to £E.500 a year. All salaries are subject to an abatement of $7\frac{1}{2}$ per cent. owing to world depression. An officer who is compulsorily retired before completing fifteen years' service is not entitled to pension, but receives a gratuity.

Official Sources of Information

All inquiries in connexion with medical appointments in the self-governing Dominions and their Dependencies should be addressed to the High Commissioners or Agents-General for the Dominions. Intending applicants are also recommended to consult the Dominions Office and Colonial Office List, which may be seen at the Colonial Office Library or at the Library of the British Medical Association if not otherwise available, and the Professional Handbook, Part III (price 4d.), issued by the Oversea Settlement Department, Dominions Office, Caxton House, Tothill Street, London, S.W.1.

The position in Egypt is uncertain; questions as to the possibility of any medical appointments becoming available under the Egyptian Government should be addressed to the Director-General, Public Health Department, Cairo.

Inquiries as to vacancies and conditions in the Sudan Medical Service should be addressed in the first instance to Dr. Hodson, 24, Welbeck Street, London, W.1.

All inquiries in connexion with Colonial medical appointments made by the Secretary of State for the Colonies, or such vacancies as may occur in Palestine, should be addressed to the Director of Recruitment (Colonial Service), Colonial Office, 2, Richmond Terrace, Whitehall, London, S.W.1.

There remain a number of medical appointments made by mining companies and other commercial undertakings in various parts of the Tropics. Much caution should be exercised in accepting such posts, and the form of contract should be subjected to very careful scrutiny. Advice in this connexion should always be sought from the Medical Secretary of the British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1.

SPECIAL DIPLOMAS

Information about the regulations for the various Diplomas in Tropical Medicine, in Psychological Medicine, and in Public Health is given in the appropriate sections of this Educational Number at pages 432-6 and 438. Further details in regard to the D.P.H. and the D.T.M. will be found in the late Sir Andrew Balfour's *Guide to the Regulations, Courses, and Examinations for Qualifications in Public Health and Tropical Medicine*, published by the British Medical Association, Tavistock Square, W.C.1, at the price of 3s.

It should perhaps be noted here that of the various diplomas in special subjects granted by licensing bodies only those in Public Health and Sanitary Science and State Medicine are at present admissible for entry in the official *Medical Register*, though other special diplomas may, of course, be included among the particulars of qualifications set out in the *Medical Directory*.

As stated at page 401 a Diploma in Tuberculous Diseases is granted by the University of Wales to qualified medical practitioners; new regulations for this diploma are now in force.

Diplomas in Medical Radiology

Diplomas in Medical Radiology are granted by the Universities of Cambridge, Edinburgh, Liverpool, and London.

The Cambridge Diploma.—A Diploma in Medical Radiology and Electrolgy is granted by the University of Cambridge. The primary object is to provide adequate training in a branch of medical work which is becoming increasingly important and difficult, and which is outside the ordinary medical curriculum. Before admission to any course for the diploma a candidate shall produce evidence that he holds a medical qualification approved by the committee and also satisfy the committee that he has had sufficient post-graduate clinical experience. The next course, which begins on October 3rd, 1934, occupies nine months. The first four months, which can be spent either in Cambridge or in London, are occupied with (a) lectures and practical work in physics, in preparation for the examination for Part I in February, (b) an introductory course of clinical instruction in radiology and electrolgy, (c) a course of instruction in pathology in relation to radiology and electrolgy. The next three months must be spent in London, and are occupied with (a) lectures and demonstrations in radiology and electrolgy (including radium therapy) organized by the British Institute of Radiology, (b) clinical instruction in the radiological department of a hospital approved by the committee. During the final two months of the course a candidate must hold a clinical clerkship or similar appointment in the radiological department of a hospital approved by the committee. This part of the course may be done in London or elsewhere. The examination for Part II will be held in July.

Further particulars as to courses and examinations may be obtained from G. Stead, M.A., Secretary for the Diploma, Cavendish Laboratory, Cambridge, or the General Secretary, British Institute of Radiology, 32, Welbeck Street, W.1. Completed application forms must be sent to the Secretary for the Diploma at Cambridge.

The Edinburgh Diploma.—Candidates for the diploma must be graduates in medicine and surgery of the University of Edinburgh, or hold corresponding degrees or qualifications registrable with the General Medical Council of Great Britain, or of such other Universities or Medical Schools as may be recognized for the purpose by the University Court. Candidates are not admitted to the examination for the diploma until after the lapse of not less than one year from obtaining a registrable qualification. The course of study begins in October and extends over a period of not less than three terms. The examination, which is written, oral, and practical, is in two parts: (a) physics, and (b) radiology. The examination is

held twice yearly. Full particulars may be obtained from the Dean of the Faculty of Medicine. In this connexion it may be noted that radiology can now be taken as the special subject in the examination for Membership of the Royal College of Physicians of Edinburgh. Several candidates have already taken radiology as their special subject; it means that an honours standard has to be attained.

The Liverpool Diploma.—The University of Liverpool grants a Diploma in Medical Radiology and Electrology. Candidates before admission to the examination for the diploma must possess a registrable qualification approved by the university in medicine and surgery, and must have attended courses of instruction in (a) physics (two terms); (b) (i) radiology and (ii) electrology, during the nine months in the x-ray and electrotherapeutic departments of a hospital or hospitals. An examination is held in March and June in physics, in June radiology and electrology. Examination in either part may be taken separately. Fees: tuition, £31 10s.; examination and diploma, £6 5s. A registration deposit fee of £5 5s. is charged on application and credited to the fees, but is not returnable in the event of the candidate failing to register. These courses commence during the first week in October. Application should be made to the Dean, Faculty of Medicine, the University of Liverpool.

Conjoint Diploma in Medical Radiology.—Regulations have now been issued for the Diploma in Medical Radiology (D.M.R. R.C.P. and S.Eng.) which has recently been instituted by the Royal College of Physicians of London and the Royal College of Surgeons of England. The examination is divided into two parts, the first comprising physics as applied to radiology, the second medical radiology, with special reference to its clinical application, including radio-diagnosis, x-ray therapy, and radium therapy. Both parts will be held in January and July of each year. Candidates may enter for them either together or separately, subject to the production of the required certificates. The course for the diploma extends over one academic year (nine months) of full-time study subsequent to the attainment of a recognized medical qualification. At the discretion of the committee of management the conditions of admission may be modified in special cases, but exemption will not be granted from any part of the examination. A syllabus has been drawn up for Part I of the examination, but not for Part II. The fee for admission or readmission to each part is six guineas. Copies of the regulations may be obtained from the secretary, at the Examination Hall, S-11, Queen Square, W.C.1.

The London Diploma.—The University grants an Academic Diploma in Medical Radiology. The course is open to registered medical practitioners and graduates in medicine of this or another approved university. Students are required to attend a course of study approved by the University, and extending over not less than one academic year, at one or more of the Colleges or Schools of the University. The subjects of the course are as follows: Part I: physics and electro-technology. Part II: (a) radiography and radio-diagnosis; (b) radiotherapy. The examination for the Academic Diploma in Medical Radiology consists of two parts. Candidates may enter for Part I and Part II at the same examination, or may enter for Part I only. The examination will consist of a paper, a practical examination, and an oral examination in each of the subjects under Part I and Part II. Full particulars may be obtained from the Academic Registrar, University of London, South Kensington, S.W.7.

Diploma in Laryngology and Otology

The Conjoint Examining Board in England (Examination Hall, Queen Square, London, W.C.1) grants a Diploma in Laryngology and Otology (D.L.O.) after an examination held in June and December. The examination comprises two parts: Part I. on the anatomy, embryology, and physiology of the ear, nose, pharynx, larynx, trachea and bronchi, and oesophagus; Part II, on the recognition and use of special instruments and

appliances, and the medicine, surgery, and pathology of these regions. Candidates may enter for Part I at any time after a recognized qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of diseases of the ear, nose, pharynx, and larynx, after a recognized qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or readmission to each part is six guineas.

Diplomas in Ophthalmic Medicine

A special Diploma in Ophthalmic Medicine and Surgery is granted by the University of Oxford and by the Conjoint Examining Board in England.

University of Oxford.—For the Diploma in Ophthalmology (D.O.) attendance on a twelve months' course of clinical ophthalmology in hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine, and on a course of instruction in Oxford lasting two months, is obligatory. Candidates must have their names on the *Medical Register* of the United Kingdom, unless, being Bachelors or Doctors of Medicine of universities outside the United Kingdom, they have obtained special permission from the Board of the Faculty of Medicine.

The Conjoint Board.—The Diploma in Ophthalmic Medicine and Surgery of the Conjoint Examining Board of the Royal College of Physicians of London and Royal College of Surgeons of England is issued after completion of an examination held in two parts—in January and July. The examination in each case is partly written, partly oral, partly clinical or practical. Part I comprises anatomy and embryology of the visual apparatus, physiology of vision, elementary optics; Part II comprises optical defects of the eye, ophthalmic medicine and surgery, pathology with special reference to medical and surgical ophthalmology. Candidates may enter for Part I at any time after a recognized qualification in medicine, surgery, and midwifery has been obtained. Candidates may enter for Part II on completion of one year of special study of ophthalmology after a recognized qualification has been obtained, provided that Part I has been previously passed, and on production of certain certificates. The conditions of study may be modified at the discretion of the Committee of Management in special cases. The fee for admission or readmission to each part is six guineas.

Diplomas in Obstetrics

The Society of Apothecaries of London, as stated on page 402, confers a Mastery of Midwifery, and issues a diploma under this title denoting the possession of specialized knowledge of ante-natal care, midwifery, and child welfare. This is a post-graduate diploma, and is not registrable under the Medical Acts. The same applies also to the new diploma D.C.O.G., which the British College of Obstetricians and Gynaecologists now issues to registered medical practitioners who have had special post-graduate training and experience in the subject and have satisfied the examiners. (See p. 403.)

The Conjoint Examining Board in England, according to the new regulations for its Diploma in Gynaecology and Obstetrics (D.G.O. R.C.P. and S.Eng.), will hold examinations in April and October. Those eligible for admission to examination must have held a degree in medicine and surgery recognized by the Board, or a qualification registrable in this country, for not less than three years. The subjects of the examination are gynaecology and obstetrics (including pathology, histology, and bacteriology in relation to these subjects), and ante-natal, post-natal, and infant welfare work. The examination is written, oral, and clinical, but only those candidates are admitted to the clinical who satisfy the examiners in the written and oral. A form is issued on which particulars

have to be given and certified as to resident appointments in the gynaecological and obstetrical department of a recognized general hospital, in a gynaecological hospital, or a maternity hospital, or as to registrarship or clinical assistantship held in such institutions, together with particulars as to regular attendance, with responsible care of patients, at recognized ante-natal, post-natal, and infant welfare clinics during twelve months. It is added that these conditions of study may be modified in the case of a candidate who has carried out original investigations or written a thesis on some subject in gynaecology or obstetrics, or whose studies have extended over a prolonged time without fulfilling the exact conditions set out; but exemption will not be granted from any part of the examination. The fee for admission to examination or re-examination is ten guineas. Copies of the regulations for this diploma may be obtained from the Secretary, Examination Hall, Queen Square, W.C.1.

University of Lausanne

M.D. Examination for Medical Practitioners

It has been possible for a long time to obtain the M.D. degree (not registrable in this country) from one of the State Universities in Switzerland—namely, Berne, Geneva, and Lausanne. The regulations of the Faculty of Medicine of the University of Lausanne have recently been drastically revised by the authorities, and in October, 1930, new regulations came into force, the main effect of which is to provide a special M.D. examination for medical practitioners from other countries. Particulars may be obtained from Dr. C. A. H. Franklyn, honorary secretary, Lausanne Medical Graduates, The Corner House, 34, Queensway, Wragby Road, Lincoln (booklet and copy of regulations, post free, 2s. 1½d.).

MEDICAL MISSIONARIES

Missionary societies are in constant need of qualified men and women to fill vacancies as they occur in their hospitals, and also to enable them to take advantage of fresh openings. To those suitably endowed the mission field offers unique opportunities for interesting work, and the development of native medical schools, as training institutions in connexion with some of the larger mission hospitals, affords excellent scope for valuable work to medical men and women who are qualified to teach. It is not usually expected that medical missionaries should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that they should be prepared to exert their influence in any hospital to which they may be sent, so that a Christian atmosphere may be maintained and the work of evangelization be carried on through the ministry of healing.

As for scientific and other qualifications for the work, medical missionaries, in addition to being physically capable of sustaining a life which makes a great demand upon their strength, should be thoroughly well-trained physicians and surgeons. It is very desirable that they should have held a resident appointment at a general hospital, and have a good knowledge of practical surgery, gynaecology, tropical medicine, and the treatment of eye diseases. Useful information can be obtained from the secretaries of the various Missionary Societies, or from Thomas B. Adam, Honorary Secretary, Medical Advisory Board on Medical Missions to the Conference of Missionary Societies in Great Britain and Ireland, The Crossways, 45, Kenton Road, Harrow, Middlesex, or 19, Farnival Street, E.C.4.

Dental Surgery

Until the passing of the Dentists Act, 1921, the profession of dentistry in this country was regulated by enactments corresponding very closely with those relating to the practice of medicine—that is to say, there was no direct prohibition of the act of practice; and the Dentists Act of 1878 gave the same degree of protection to legally qualified and registered dentists as was accorded to registered medical practitioners—namely, the reservation of the use

of certain titles. This Act provided also (1) that no person should take or use the name or title of "dentist" (either alone or in combination with any other word or words) or of "dental practitioner," or any other name, title, or description expressed in words or by letters implying that he was specially qualified to practise dentistry, unless he was registered, under a penalty of £20; and (2) that an unregistered person could not recover any fee or charge in respect of any dental operation, attendance, or advice. But, in the case of the practice of medicine by unqualified and unregistered persons, certain deterrent factors came into play—such as the inability to give a death certificate—which did not operate to the same extent in the case of dentistry; hence, unqualified practice was far more prevalent in dentistry than in medicine, and increased after a decision of the House of Lords placing a narrow interpretation upon the words "specially qualified to practise dentistry," by defining the word "qualified" as not referring to competence but to the possession of a recognized diploma.

Dentists Act, 1921

This unsatisfactory position was remedied by the passing into law of the Dentists Act, 1921; its provisions are based largely on the recommendations of a departmental committee appointed in 1917 by the Privy Council "to investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act." Since November 30th, 1922, no person has been permitted by law to practise or hold himself out, whether directly or by implication, as practising or as being prepared to practise dentistry unless he is on the *Dentists Register* kept under the Dentists Act, 1878. The practice of dentistry is defined as including "the performance of any such operation and the giving of any such treatment, advice, or attendance, as is usually performed or given by dentists," and the performing of any operation or the giving of any "treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with the fitting, insertion, or fixing of artificial teeth." The maximum penalty incurred by an unregistered practitioner is £100 for each offence. There are, however, certain important exceptions to the requirement of registration. A registered medical practitioner may practise dentistry without being on the *Dentists Register*, though he may not give dental treatment to insured persons under the National Health Insurance Acts unless he be so registered. A registered pharmaceutical chemist or chemist and druggist may extract a tooth where the case is urgent and where no doctor or dentist is available, but the operation must be performed without any kind of anaesthetic; and minor dental work may be performed in a public dental service under the personal supervision of a registered dentist provided it is in accordance with conditions approved by the Minister of Health after consultation with the Dental Board.

Dentistry may be carried on by a corporate body provided that the majority of the directors and all the operating staff are registered dentists, and that no business other than dentistry or only some business ancillary to dentistry is carried on by the company. Companies carrying on the business of dentistry at the present time are permitted to continue to do so with certain restrictions, provided that the name of the company as well as the names of the directors have been entered in a list kept under the Act for that purpose. Every director or manager of a company convicted of an offence under the Act will be held to be guilty of the offence unless he proves that the offence was committed without his knowledge, and the court may, in addition to a fine, order that the name of any director convicted shall be removed from the list of directors aforesaid.

The Dental Board

On the establishment of the Dental Board in 1921, certain powers and duties of the General Medical Council were transferred to it, including the duty of erasing from the *Dentists Register* any entry which has been incorrectly or fraudulently made. An inquiry into the case of a person alleged to be liable to have his name erased from the *Register* is made by the Board, which reports its findings

to the General Medical Council, the order directing the erasure being made by the Council. A name erased from the Register can only be restored by the Council upon a report made by the Board. An appeal to the High Court may be made by any person aggrieved either by refusal of the Board to register his name or by the removal of his name from the Register. The administrative expenses of the Board are defrayed from the registration fees and annual retention fees, but any surplus may be allocated to purposes connected with dental education and research or to any public purposes connected with the profession of dentistry. The offices of the Dental Board are at 44, Hallam Street, London, W.1.

Dental Education and Examination

The preliminary examination in arts is the same for medical and dental students, and the early stages of their education embrace much the same subjects¹; and, as the dental student is required to obtain a knowledge of the broad principles of medicine and surgery, it is necessary for him to pursue some portion of his studies at a medical school as well as at a special dental school, the latter not undertaking the teaching of these subjects. Registration as a dental student is not in all cases compulsory, though it is to be advised as convenient as affording proof of the date at which professional education began, and is required by most of the licensing bodies, all of whom insist upon a curriculum covering four academic years.

Degrees and diplomas in dentistry are granted by the Universities of Belfast, Birmingham, Bristol, Dublin, Durham, Leeds, Liverpool, London, Manchester, St. Andrews, Sheffield, and the National University of Ireland, as will be found stated in the articles on these universities. Licences in dentistry entitling the holder to be registered on the *Dentists Register* are granted by the Royal Colleges of Surgeons of England, of Edinburgh, and in Ireland, and by the Royal Faculty of Physicians and Surgeons of Glasgow. Recognized dental schools are numerous. In London there are those connected with the Royal Dental Hospital, Leicester Square; the National Dental Hospital, Leicester College Hospital (Dental School), Great Portland Street; Guv's Hospital; King's College Hospital; and the London Hospital. In the provinces there are the Birmingham Dental Hospital; the Royal Infirmary and the General Dispensary, Bristol; the Dental Hospital and the Public Dispensary, Leeds; the Dental Hospital, Liverpool; the Dental Hospital, Manchester; the Sutherland School, Newcastle-on-Tyne; the Royal Dental Hospital, Sheffield. In Scotland there are the Dental Hospital, Dundee; the Incorporated Dental Hospital and School, Edinburgh; and the Incorporated Dental Hospital, Glasgow; and in Ireland, the Belfast Dental School, the Incorporated Dental Hospital of Ireland, Dublin, and the Royal College of Surgeons in Ireland, Dublin.

All who think of becoming dentists may be advised to study a memorandum, drawn up for their guidance on behalf of the Board, setting out in convenient form and in untechnical language information for which the Board is often asked.² It will be seen from this pamphlet that in order to assist suitable students the Board has instituted a system of bursaries to pay the fees of those who have not the financial means to qualify, and in exceptional cases maintenance may also be given as well.

General Medical Council's Recommendations

The Dentists Act still leaves to the General Medical Council the duty of controlling the course of study and examinations required for dental qualifications. Recommendations as to the course of study and examinations to be required of candidates for degrees or licences in dentistry or dental surgery were adopted by the Council this year, and come into force on October 2nd, 1933. We print them below in a somewhat abridged form.

¹ See the Memorandum on Students' Registration printed in the article in the General Medical Council at page 393.
² Memorandum on the Procedure to be Adopted by Those who Desire to Enter the Profession of Dentistry, with Notes on Costs and Prospects 1933. Dental Board of the United Kingdom, 44, Hallam Street, W.1. Price 1s post free.

Preliminary Examination and Registration

Every dental student should, at the beginning of his studentship, be registered in the manner and under the conditions prescribed for medical students. Before registration in the *Dental Students' Register* every applicant should be required to have passed, in addition to the examination in general education, which shall be the same as that required for medical students, an examination in elementary physics and chemistry, conducted or recognized by one of the licensing bodies, which shall also be the same as that required for medical students. Before registration as a dental student every applicant should produce evidence that he has attained the age of 17 years.

Professional Study

Every candidate for a degree or licence in dentistry or dental surgery should be required before admission to the final or qualifying examination to produce certificates showing:

- (i) That he is at least 21 years of age.
- (ii) That he has been registered as a dental student.
- (iii) That he has, subsequently to registration as a dental student, been engaged in professional study for at least four years, of which three years at least shall have been spent at a school or schools recognized for professional study by one of the licensing bodies.
- (iv) That, subsequently to registration as a dental student, he has attended at a recognized medical or dental school, courses of instruction which should be the same as those for medical students, in (a) chemistry, and (b) physics, in their application to medicine and dentistry. (c) Elementary biology. (A student who has diligently attended an approved course of elementary biology in a teaching institution recognized by a licensing body may be admitted to a professional examination in elementary biology immediately after his registration as a dental student.) That he has attended at a recognized medical school courses of instruction, specially adapted for students in dentistry, in the following subjects:
 - (d) human anatomy, including dissections for three academic terms of nine months. This should include not less than 40 lectures and/or demonstrations. The course of dissections shall include dissections of the head and neck, a practical course in chemical and/or demonstrations; also practical course of not less than 30 hours. (g) General pathology for two academic terms (not less than 40 lectures and/or demonstrations). (h) Bacteriology for one term (not less than 10 lectures and 24 hours' practical work). (i) Medicine for two academic terms or six months (not less than 30 meetings of the class). (j) Surgery for two academic terms or six months (not less than 40 meetings). (k) Clinical instruction in a recognized general hospital on selected cases with any bearing on dentistry. Each of these courses should consist of not less than 50 meetings. It is desirable that the systematic courses in medicine and surgery and the clinical course of instruction in medicine, surgery, and pathology should normally be taken after the student has passed the examinations in human anatomy and physiology.
 - (v) That he has attended at a recognized dental school comparative. The course should comprise a minimum of 20 meetings of the class. (b) Practical normal and morbid histology (16 meetings). (c) Dental surgery (20 meetings). (d) Materia medica and therapeutics (10 meetings). (e) Metalurgy with practical work and demonstrations (16 meetings). (f) Dental mechanics and prosthetics (20 meetings). (g) Instruction in the use of anaesthetics employed in the practice of dentistry. (h) Instruction in radiology and its application to dentistry. (i) The principles of orthodontics (10 meetings).
 - (vi) That he has for at least two calendar years attended the practice of a recognized dental hospital or of the dental department of a general hospital recognized by a licensing body as forming part of a dental school.
 - (vii) That he has received for not less than 24 calendar months, or for 2,000 hours, practical instruction in dental mechanics. No portion of such practical instruction in dental taken before registration shall be reckoned as a portion of the four years of professional study required, but in the event of hardship arising in a particular case, an application for exceptional treatment may be submitted to the Education Committee of the General Medical Council. It is recommended that practical instruction in dental mechanics shall be taken

POST-GRADUATE COURSES AND LECTURES

THE BRITISH
MEDICAL JOURNAL

at a recognized dental hospital and school. If any part of such instruction be taken by the candidate as a pupil with a registered dentist, the time devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school.

Professional Examinations

The examinations for a degree or licence in dentistry should be partly written, partly oral, and partly practical, and should include the following subjects: (a) Chemistry, Physics, and Biology in their bearing on medicine and dentistry. (b) Human anatomy, the oral examination in which should be conducted mainly on dissections, especially of the head and neck. (c) Physiology, the oral examination in which should include practical physiological tests. (d) Histology, which may be included in the examination in either anatomy or physiology. (e) General pathology, the oral examination in which should be conducted with the aid of specimens, including those of diseases connected with dentistry. (f) Bacteriology, the oral examination in which should include simple practical tests. (g) Medicine and surgery, the oral examinations in which should include a clinical examination of patients. (h) Special anatomy, human and comparative.

(i) Dental mechanics, prosthetics and metallurgy, including practical tests. (j) Dental surgery, including special pathology and histology, materia medica and therapeutics, and the principles of orthodontics. (k) Practical dental surgery, which should include the usual dental operations—for example, filling and extraction of teeth and the giving of anaesthetics—and a clinical examination on the diagnosis and treatment of dental disease and abnormal conditions of the oral cavity. A candidate should produce a certificate of having administered general anaesthetics on at least ten occasions.

ACKNOWLEDGEMENT

The detailed information published in this Educational Number of the *British Medical Journal* for the benefit of intending students of medicine and newly qualified practitioners has been revised throughout with the co-operation of the deans and secretaries of the medical schools and kindred institutions and of officials in the several public services, to all of whom we wish to acknowledge our indebtedness.

POST-GRADUATE COURSES AND LECTURES
SEPTEMBER AND OCTOBER, 1934

The following post-graduate courses and lectures to be held in London during September and October have been notified to the British Medical Association. Further particulars may be obtained direct from the hospital concerned, or, in the case of arrangements made by the Fellowship of Medicine (F.M.), from the Secretary of the Fellowship at 1, Wimpole Street, W.1.

Subject	Date	Place of Meeting	Nature of Instruction
Anaesthetics	From Sept. 1 to Sept. 24-29	West London Hosp. Post-Grad. College, Hammersmith Rd., W.6	Course
Chest Diseases	Sept. 3-15	Infants Hospital, Vincent Sq.	F.M. course
Children's Diseases	Sept. 17-29	Westminster Hospital, S.W.1	"
General ...	Sept. 4	11, Chandos Street, W.1	"
"	Sept. 11	"	"
"	Sept. 18	"	"
"	Sept. 25	"	"
Proctology...	Sept. 24-29	Gordon Hospital, Vauxhall	"
Urology ...	Sept. 8	National Temperance Hospital, Hampstead Rd., N.W.1	"
Anaesthetics	From Oct. 1 to Oct. 8-20	West London Hosp. Post-Grad. College, Hammersmith Rd., W.6	F.M. lecture-demonstration on pleural pain
Cardiology	Oct. 8-20	National Hospital for Heart Diseases, Westmoreland St., W.1	Ditto on chronic cough
Chest Diseases	Oct. 27-28	Brompton Hospital, Fulham Rd., S.W.3	Ditto on hemiplegia
Children's Diseases	Oct. 1-13	Queen's Hospital, Hackney	Ditto on paraplegia
"	Oct. 22-27	Hospital for Sick Children, Great Ormond Street, W.C.1	F.M. course
Dermatology	Oct. 1-27	St. John's Hospital, 49, Leicester Square, W.C.2	F.M. lecture-demonstration
General ...	Oct. 8-21	Metropolitan Hospital, Kingsland Road, E.8	Course
Gynaecology	Oct. 22-27	Chelsea Hospital for Women, S.W.3	F.M. course
Infectious Diseases	Oct.-Dec.	North-Eastern Fever Hospital, N.15	"
Medicine ...	Oct. 13	National Temperance Hospital, Hampstead Rd., N.W.1	Course in fever hospital administration*
"	Oct. 2	Medical Society of London, 11, Chandos St., W.1	F.M. lecture-demonstration
"	Oct. 9	"	Ditto on tremor
"	Oct. 16	"	"
"	Oct. 23	"	"
Neurology	Oct. 30	"	Ditto on ataxia
Ophthalmology	Oct. 29-30	"	Ditto on giddiness
Pathology ...	Oct. 15-16	West End Hospital for Nervous Diseases, 73, Welbeck St., W.1	Ditto on convulsions
Physical Medicine	Oct. 8-15	Royal Westminster Ophthalmic Hospital, W.C.2	Ditto on headache
Psychotherapy	Oct. 1-27	Great Ormond Street, W.C.1	F.M. course
Surgery ...	From Oct. 1 to Oct. 20-21	Institute of Medical Psychology, 6, Torrington Place, W.C.1	Course
		Royal Albert Dock Hospital	F.M. course of clinical surgery

Courses in general hospital practice may be begun at any time, and may be taken for any period, at the West London Hospital Post-Graduate College, Hammersmith Road, W.6. In addition to the above courses the following for the higher qualifications have been arranged.

Subject	Date	Place of Meeting	Degree or Diploma
Medicine ...	Sept.-Oct.	Guy's Hospital Medical School	M.R.C.P.
"	"	King's College Hospital Medical School	"
Pathology ...	Sept.	Middlesex Hospital Medical School	"
Surgery ...	Sept.	University College Hospital	"
"	From Sept. 3 to Sept. 10	St. Mary's Hospital Medical School	M.B., B.S.
"	"	Middlesex Hospital Medical School	Primary
"	Sept.-Nov.	Guy's Hospital Medical School	F.R.C.S.
"	From Sept. 1 to Sept. 10	St. Bartholomew's Medical College	"
"	Sept. 25-30	St. Thomas's Hospital Medical School	Primary and Final F.R.C.S.
"	Sept. 27-30	National Temperance Hospital	"
"	From Sept. 1 to Sept. 10	London Hospital Medical School	Final F.R.C.S. (F.M.)
"	From Sept. 1 to Sept. 10	Dreadnought Hospital, Greenwich	Final F.R.C.S.
"	From Sept. 1 to Sept. 10	King's College Hospital Medical School	"
"	From Sept. 1 to Sept. 10	University College Hospital	"
"	From Sept. 1 to Sept. 10	London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1	M.S. or F.R.C.S.
"	From Sept. 1 to Sept. 10	Central London Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.1	Dip. Bact.
"	From Sept. 1 to Sept. 10	Royal Eye Hospital, St. George's Hospital, City Road, E.C.1	D.L.O.
"	From Sept. 1 to Sept. 10	Royal London Ophthalmic Hospital, City Road, E.C.1	D.O.M.S.
"	From Sept. 1 to Sept. 10	Tropical Medicine, Keppel Street, W.C.1	"
"	From Sept. 1 to Sept. 10	Royal Institute of Public Health, 23, Queen Sq., W.C.1	D.P.H.
"	From Sept. 1 to Sept. 10	Cancer Hospital, Fulham Rd., S.W.3	D.P.H.
"	From Sept. 1 to Sept. 10	King's College	D.M.R.
"	From Sept. 1 to Sept. 10	London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1	Primary
"	From Sept. 1 to Sept. 10	"	F.R.C.S.
"	From Sept. 1 to Sept. 10	"	D.T.M. and H.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.—Infants Hospital, Vincent Square, S.W.1. All-day Course in Infants' Diseases. *Medical Society of London*, 11, Chandos Street, W.: Tues., 2.30 p.m., Lecture-Demonstration (illustrated by cases) by Dr. Clark-Kennedy on Some Practical Points in the Diagnosis and Treatment of Urological Cases, by Mr. H. P. Winsbury-White. *Panel of Teachers*: Individual clinics in various branches of medicine and surgery are available daily. Courses of instruction, clinics, etc., arranged by the Fellowship are open only to members and associates.

* Inquiries to be made to Medical Officer of Health, L.C.C., Public Health Department (Special Hospitals), Victoria Embankment, E.C.4.

Naval and Military Appointments

ROYAL NAVAL MEDICAL SERVICE

Surgeon Lieutenant Commander R. W. Mussen to be Surgeon Commander.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenants A. E. Williams to the Victory, for Royal Naval Barracks; W. Gough to the Effingham.

ROYAL AIR FORCE MEDICAL SERVICE

Flight Lieutenant O. M. Fraser to No. 1 Armament Training Camp, Catfoss.

Flying Officer W. P. Stamm to No. 2 Armament Training Camp, North Coates Fitties.

British Medical Association

OFFICES, BRITISH MEDICAL ASSOCIATION HOUSE
TAVISTOCK SQUARE, W.C.1

Departments

SUBSCRIPTIONS AND ADVERTISEMENTS (Financial Secretary and Business Manager. Telegrams: Articulate Westcent, London).
MEDICAL SECRETARY (Telegrams: Mediscra Westcent, London).
EDITOR, BRITISH MEDICAL JOURNAL (Telegrams: Aitiology Westcent, London).

Telephone numbers of British Medical Association and British Medical Journal, Euston 2111 (internal exchange, four lines).

SCOTTISH MEDICAL SECRETARY: 7, Drumsheugh Gardens, Edinburgh. (Telegrams: Associate, Edinburgh. Tel.: 24561 Edinburgh.)

IRISH MEDICAL SECRETARY: 18, Kildare Street, Dublin. (Telegrams: Bacillus, Dublin. Tel.: 62550 Dublin.)

Diary of Central Meetings

SEPTEMBER

20 Thurs. Insurance Acts Committee, 11.30 a.m.

27 Thurs. Medical Students and Newly Qualified Practitioners Subcommittee, 3.30 p.m.

VACANCIES

ACTON HOSPITAL, W.—J.R.M.O. (male, unmarried).
ALL SAINTS' HOSPITAL FOR GENTO-URINARY DISEASES, Austral Street, S.E.—R.H.S. (male).

BARROW-IN-FURNESS: NORTH LONSDALE HOSPITAL.—R.C.O. (male).

BELFAST: FORSTER GREEN HOSPITAL FOR CONSUMPTION AND CHEST DISEASES.—H.P.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—R.S.O.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—R.M.O. (male).

BURY INFIRMARY, Lancs.—H.S. to Special Departments.

CAMBRIDGESHIRE COUNTY COUNCIL.—County M.O.H. (male).

CANCER HOSPITAL (FREE), Fulham Road, S.W.—H.S.

CHELTHAM GENERAL AND EYE HOSPITALS.—Hon. Pathologist.

COVENTRY AND WARWICKSHIRE HOSPITAL.—R.C.O. (male).

DEAL, WALSLEY, AND DISTRICT WAR MEMORIAL VICTORIA HOSPITAL.—Hon. P.

DURRY: DERRYSHIRE ROYAL INFIRMARY.—(1) H.S. for General Surgery and Ear, Throat, and Nose Department. (2) C.O. and Orthopaedic H.S. Devonport.

DEVONPORT ROYAL ALBERT HOSPITAL AND EYE INFIRMARY.—Assistant H.S. (unmarried).

DUNDEE AND DISTRICT GENERAL INFIRMARY.—(1) H.S. (2) Hon. Visiting Orthopaedic S.

DONCASTER ROYAL INFIRMARY AND DISPENSARY.—(1) Two Hon. Assistant S. (2) H.S. (male).

DONCASTER RURAL DISTRICT COUNCIL.—M.O.H.

EAST HAM MEMORIAL HOSPITAL, Shrewsbury Road, E.—(1) H.S. to Special Departments. (2) C.O. (male).

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—(1) H.S. (2) H.S. to Ear, Nose, and Throat Department. Males.

FIVE DISTRICT ASYLUM.—A.M.O.

GREAT YARMOUTH GENERAL HOSPITAL.—H.S. (male, unmarried).

HARROGATE AND DISTRICT GENERAL HOSPITAL.—(1) H.P. and C.O. (2) H.S. Males, unmarried.

HAVE GENERAL HOSPITAL.—R.M.O. (male).

HULL ROYAL INFIRMARY.—Hon. Assistant P.

HULL AND SCULCOATES DISPENSARY.—R.M.O.

INSTITUTE OF RAY THERAPY AND ELECTRO-THERAPY, Camden Road, N.W.—Part-time M.O. (male).

KING'S LYNN: WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL.—R.S.O.

LANCASHIRE COUNTY COUNCIL.—J.H.S. at Biddulph Grange Orthopaedic Hospital.

LEAMINGTON SPA: WARNEFORD GENERAL HOSPITAL.—H.S. (male, unmarried) for Casualty and Special Departments (combined 10-1).

LEICESTER ROYAL INFIRMARY.—(1) Two H.S. (2) Two C.O. (3) H.P. (4) Two Junior Resident Anaesthetists.

LUTON: BUTE HOSPITAL.—H.S. (male).

MANCHESTER: ANCOATS HOSPITAL.—(1) Whole-time Assistant Pathologist. (2) R.M.O. (3) H.P. (4) Medical Registrar.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—H.S.

MANCHESTER CITY.—Second R.A.M.O. (unmarried) at Abergele Sanatorium, North Wales.

MANCHESTER: ROYAL MANCHESTER CHILDREN'S HOSPITAL.—Two A.M.O.s (non-resident) for Out-patients' Department.

MANCHESTER: ST. MARY'S HOSPITALS.—(1) Two H.S. at Whitworth Street West Hospital (Males). (2) Three H.S. at Whitworth Park Hospital (Two for Gynaecological and one for Children's Department).

MARGATE AND DISTRICT GENERAL HOSPITAL.—R.M.O. (male).

MARRET DRAYTON: CHESHIRE JOINT SANATORIUM.—R.A.M.O.

MIDDLESBROUGH: NORTH RIDING INFIRMARY.—Hon. S.

MIDDLESEX COUNTY COUNCIL.—J.A.R.M.O. at North Middlesex County Hospital.

NATIONAL TEMPERANCE HOSPITAL, Hampstead Road, N.W.—R.M.O. (male).

NEWCASTLE THROAT, NOSE, AND EAR HOSPITAL.—H.S.

NORTHAMPTON GENERAL HOSPITAL.—(1) H.P. (2) Two H.S. (3) H.S. to Ear, Nose, and Throat Department. (4) C.O. Males.

NORWICH: NORFOLK AND NORWICH HOSPITAL.—(1) C.O. and H.S. (2) H.S. to Special Departments (Ear, Nose, and Throat, and Ophthalmic). Males.

PETERBOROUGH CITY.—Clinic M.O. (male).

POOLE: CORNELIA AND EAST DORSET HOSPITAL.—H.S. (male, unmarried).

PRINCESS BEATRICE HOSPITAL, Earl's Court, S.W.—(1) R.M.O. (2) H.P. and C.O. (3) H.S. and C.O. Males.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.—(1) H.P. (2) C.O. Radium Institute, Riding House Street, W.—H.S. (unmarried).

RICHMOND, SURREY: ROYAL HOSPITAL.—J.H.S. (male, unmarried).

ROYAL NAVAL DENTAL SERVICE.—Three Vacancies as Dental Officer.

ROYAL NORTHERN HOSPITAL, Holloway, N.—(1) H.S. (2) Obstetric H.S.

ST. BARTHOLOMEW'S HOSPITAL, E.C.—Whole-time Registrar in Cancer Department.

ST. MARY'S HOSPITAL, W.—Part-time Assistant Director of Venereal Diseases Department.

ST. PETER'S HOSPITAL FOR STONE, ETC., Henrietta Street, W.C.—H.S. (male).

SALFORD ROYAL HOSPITAL.—(1) Two H.S. (2) C.H.S. Males. (3) Hon. Assistant S.

SALVATION ARMY MOTHERS' HOSPITAL, Clapton, E.—J.R.M.O. (female).

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.—H.S.

SCARBOROUGH HOSPITAL AND DISPENSARY.—H.S. (female).

SHEFFIELD: CHILDREN'S HOSPITAL.—(1) H.S. (2) H.P. Males, unmarried.

SHEFFIELD: JESSOP HOSPITAL FOR WOMEN.—R.M.O. at Firth Auxiliary.

SHEFFIELD RADICAL CENTRE.—J.M.O.

SHREWSBURY: ROYAL SALOP INFIRMARY.—R.H.P. (male).

STOKE-ON-TRENT: NORTH STAFFORDSHIRE ROYAL INFIRMARY.—Assistant H.P.

SWANLEY: ALEXANDRA HOSPITAL FOR CHILDREN WITH HIP DISEASE.—R.A.M.O. (unmarried).

WATFORD AND DISTRICT PEACE MEMORIAL HOSPITAL.—H.S. (female).

WEST BROMWICH AND DISTRICT GENERAL HOSPITAL.—(1) H.S. (2) H.P. (3) C.O.

WEST LONDON HOSPITAL, Hammersmith, W.—(1) H.P. (2) H.S. (3) H.S. for Throat, Nose, and Ear Department. Males.

WINSLEY SANATORIUM, near Bath.—Whole-time A.R.M.O. (male).

WORTHING HOSPITAL.—H.S.

WREXHAM AND EAST DENBIGHSHIRE WAR MEMORIAL HOSPITAL.—Two R.H.S.

CERTIFYING FACTORY SURGEON.—The appointment at Holt (Norfolk) is vacant. Applications to the Chief Inspector of Factories, Home Office, Whitehall, S.W.1, by September 11th.

This list is compiled from our advertisement columns, where full particulars are given. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning. Further unclassified vacancies will be found in the advertising pages.

APPOINTMENTS

SCHOLEFIELD, B. G., M.D., M.Ch., F.R.C.S., Medical Referee under the Workmen's Compensation Act, 1925, for the Great Malvern, Hay, Hereford, Ledbury, and Leominster County Court Districts (Circuit No. 22).

STEWART, Matthew J., M.B., F.R.C.P., F.R.F.P.S., Honorary Pathologist, Leeds Public Dispensary and Hospital.

CERTIFYING FACTORY SURGEONS—T. B. Newman, L.R.C.P.I. and L.M., L.R.C.S.I. and L.M., for the Mullion District (Cornwall); J. C. C. Poole, M.B., B.Ch., for the Crowborough District (Sussex).

BIRTHS, MARRIAGES, AND DEATHS

The charge for inserting announcements of Births, Marriages, and Deaths is 5s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTH

JOHNSON.—On August 19th, at Lorna Lodge Nursing Home, to Annie T. Leigh, M.B., Ch.B., M.R.C.S., L.R.C.P., wife of J. R. Johnson of School Road, Sale, Cheshire, a daughter. (See Deaths.)

DEATH

JOHNSON.—On August 24th, at a nursing home, Annie T. Leigh, M.B., Ch.B., M.R.C.S., L.R.C.P., the beloved wife of J. R. Johnson.

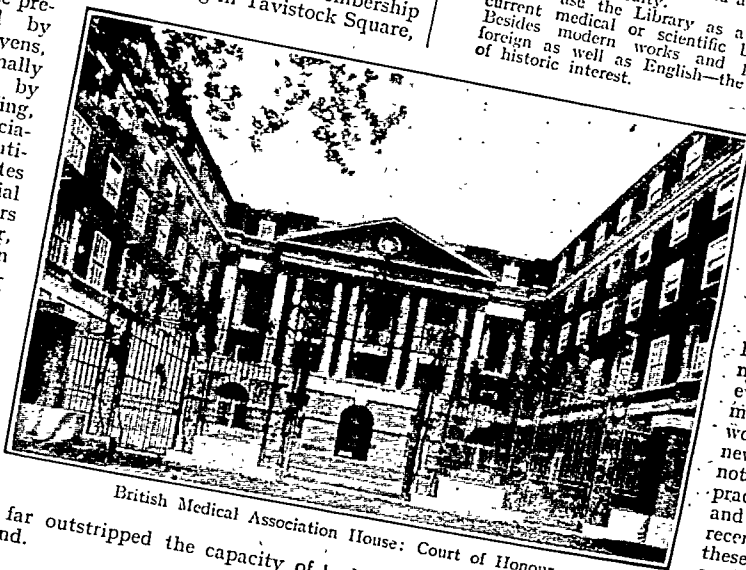
[The present issue being the Annual Educational Number, much current material is held over, and neither the "Supplement" nor the "Epitome of Current Medical Literature" is published this week.]

The British Medical Association:

ITS AIMS, WORK, AND CONSTITUTION

The British Medical Association, as stated in our introductory article on the Profession of Medicine, was founded in 1832 to promote the medical and allied sciences, to maintain the honour and interests of the profession, and to foster a feeling of friendship among its members. To attain these objects it holds meetings, local and central, for the discussion of medical and scientific subjects and of professional affairs; it publishes the *British Medical Journal*; it maintains a reference and lending library; it has instituted lectures, and scholarships and grants in aid of research. It concerns itself with every side of medical work—science, clinical medicine, public health, and the material interests of professional life. In addition to its work for them collectively and sectionally, the Association helps its members individually as to professional problems or difficulties, and the rendering of such help to its individual members forms a not inconsiderable part of the Association's daily work. The Association is the oldest, largest, and most powerful British organization devoted to the welfare of the medical profession. Its membership is now 34,750. It has a fine building in Tavistock Square, London, for its headquarters.

These premises, designed by Sir Edwin Lutyens, R.A., were formally opened in 1925 by His Majesty the King, Patron of the Association; and the beautiful wrought-iron gates erected as a memorial to the 574 members who fell in the war, by which the main quadrangle is completed, were dedicated on that occasion by the Archbishop of Canterbury. The need for larger accommodation had become insistent owing to the remarkable growth in the central work of the Association during recent years, which had far outstripped the capacity of the premises in the Strand.



British Medical Association House: Court of Honour

Constitution and Administration

The Association has Branches and Divisions throughout Great Britain and Ireland, and also in the Dominions, Colonies, and Dependencies. Thus, there are 47 Branches and 205 Divisions in the British Isles, and 86 Branches and 51 Divisions in the British Empire over-seas. The Branches in Australia and South Africa are linked up in Federal Councils for these respective areas. To the Association there is affiliated the Canadian Medical Association. Members of Divisions elect representatives on the Branch Councils and also a member or members of the Representative Body, which is the governing body of the Association and determines its policy.

The Council is the executive of the Association. It is elected partly by the Divisions and Branches and partly by the Representative Body, and includes representatives of the Navy, Air Force, Army, and Indian Medical Services elected by the Representative Body. The Representative Body and Council elect standing committees to take charge of different subjects. Among these may be mentioned the Science, Medico-Political, Ethical, Hospitals, Public Health, and Naval and Military Committees. There are Committees also for the Dominions, Scotland, Ireland, and Wales; and for the working machinery of the Association, such as the Organization, Finance, and Journal Committees. The Insurance Acts Committee, elected partly by the Association

and partly by insurance medical practitioners, is financed by the Association; it is the recognized executive and mouthpiece of the insurance practitioners of Great Britain and Northern Ireland.

Privileges of Members

- A member of the Association has the right—
1. To attend the annual and other general meetings of the Association and the meetings of the Division and Branch to which he or she belongs.
 2. To take part by personal vote (or in some Divisions by voting paper) in the election of the representative of his or her Division in the Representative Body, and also in the election of members of the Council.
 3. To receive by post the *British Medical Journal*, published weekly, which gives a full record, with commentary, of progress in clinical and scientific medicine, and of medico-political affairs and medical economics.
 4. To receive the help and advice of the central office in any professional difficulty.
 5. To use the Library as a reading room, and to borrow current medical or scientific books on payment of postage.
- Besides modern works and periodical medical literature—foreign as well as English—the library contains many books of historic interest.

The full benefits of the Association can only be secured by the co-operation of large numbers of the medical profession, for the greater the membership and the funds the more efficient and influential the organization. The Association has been the direct means of benefiting every class of medical men and medical women. In seeking new members it looks not only to the older practitioners but also and especially to those recently qualified. To these a generous concession is made as regards subscription, and there is a special appointment in the public services or in civil life. The Association's work for the Services is well known. It feels a special responsibility towards those members of the profession who by reason of their position are precluded from taking common action.

Subscriptions and Applications for Membership

The ordinary subscription to the British Medical Association is 3 guineas a year for members resident in the British Isles, but this is subject to various exceptions. Thus, newly qualified practitioners elected within two years of registration pay half this sum up to the end of the fourth year after registration; medical officers on the active list of the R.N., R.A.F., R.A.M.C. (Regular), and I.M.S. pay 2 guineas; concessions are made also to members (in the British Isles) of forty years' standing, to members of ten years' standing who have retired from practice, to married couples residing together, and to certain whole-time teachers and research workers. The ordinary subscription for members living abroad is 1½ guineas, but some Branches have special local subscriptions. A member elected after June 30th pays half the subscription for that year.

All duly qualified British medical practitioners are eligible for election. Full particulars can be obtained from the Medical Secretary, B.M.A. House, Tavistock Square, London, W.C.1; the Scottish Medical Secretary, 7, Drumsheugh Gardens, Edinburgh; or the Irish Medical Secretary, 18, Kildare Street, Dublin.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, SEPTEMBER 8th, 1934

B. COLI INFECTIONS: AETIOLOGY AND TREATMENT*

BY

D. M. LYON, M.D., D.Sc., F.R.C.P. (Ed.).

PHYSICIAN TO THE ROYAL INFIRMARY, EDINBURGH; PROFESSOR OF THERAPEUTICS AND CLINICAL MEDICINE IN THE UNIVERSITY OF EDINBURGH

The colon bacillus in the healthy individual is a harmless saprophyte, which possibly assists in the later stages of digestion. Under certain conditions it seems to be the organism responsible for infections in almost any part of the body. Inflammatory lesions in or adjacent to the alimentary canal are often due to this organism, and apart from these the sites most frequently affected are the urinary tract and the gall-bladder. In all cases the original source of the infection is doubtless the bowel, and much inquiry has been directed to the methods of spread to the secondary sites. The organism grows most freely in the caecum and ascending colon, where the contents of the bowel are still fluid, but the drier conditions in the lower colon are less favourable to it, and many die off. Some bacilli also exist in the lower ileum, though never in great numbers unless stasis be present. The neighbourhood of the duodenum is usually sterile. It was long believed that the healthy intestinal mucosa offered an effective barrier to the passage of organisms from the bowel. This does not seem to be strictly true, for several workers have confirmed the observation of Adami¹ that organisms may penetrate the wall of the bowel without causing any lesion during their passage. Doubtless lymphatic glands and liver serve as additional lines of defence. Warren and Whipple,² by x-ray application, destroyed the epithelium over large areas of the small intestine, and found that no massive invasion took place, though some organisms reached the neighbouring glands. Recent opinion suggests that a few organisms are constantly leaving the bowel, to be rendered harmless in the body.³

Infection of the Urinary Tract

There has been much controversy concerning the path by which colon bacilli may reach the urinary tract, but neither clinical nor experimental evidence is sufficient to give a conclusive answer. It is possible that under suitable conditions the organisms may pass by any of the paths suggested. Spread may occur by natural passages, by lymphatics, by the blood stream, or by a combination of these. At several points the alimentary canal and the renal system lie in close contact, separated only by a little connective tissue, and direct penetration may take place. In such situations lymphatic plexuses may offer a more ready path. There may also be invasion of the portal veins or of the general circulation by way of the thoracic duct. Ascending infection in the urinary tract is believed to occur along the lymphatics which surround the ureter. In females there may be direct spread across the perineum to the lower urethra, but upward extension along the lumen is usually considered

unlikely, even when gross obstruction exists.⁴ That urinary infection occurs more frequently in female infants at the diaper stage has been held to favour passage spread, but Nabarro⁵ has drawn attention to certain fallacies, and in any case the lesion appears most commonly in the right kidney before the bladder is involved. Most writers now seem to prefer the theory of blood spread to the kidney. If this be so, organisms circulating in the blood stream should reach other parts of the body, and should affect both kidneys equally, yet the right is involved much more frequently than the left. This theory also fails to explain why women are more liable to pyelitis than men.

Much experimental work has been done in trying to elucidate the problem. The feeding of large quantities of foreign *B. coli* to dogs resulted in the appearance of some organisms in distant tissues, and in the urine in three cases out of four.⁶ Direct injections into the blood stream have given information of rather negative value. The healthy circulation appears to possess an enormous protective capacity, for even when billions of organisms are introduced into a vein urinary infection may fail entirely,⁷ and the blood may be sterile within an hour.⁸ In similar experiments Book found that bacteria did not appear in the urine for many hours, and then only if local foci had been developed in the kidneys.⁹

Peritoneal injection of large quantities of *B. coli* culture result in a rapid appearance of the organisms in the blood stream,¹⁰ and some can be recovered from the urine within half an hour.¹¹ Thiele and Embleton¹² describe some interesting observations. They painted organisms in the anterior urethra of guinea-pigs, and found that they were rapidly conveyed by lymphatics to the capsule of the kidney and then by lymphatic paths to the general circulation. None were carried directly to the bladder. Reinfection of the body appears to occur readily from the urinary tract. Barrington and Wright¹³ investigated the blood before and after minor operations on the urethra. In a large percentage of cases slight trauma to the mucosa was followed by the arrival of organisms in the blood within a few minutes. The bacilli disappeared within half an hour.

Many observers have shown that the colon bacillus does not readily establish itself in the blood stream or in the urine in healthy animals. It would seem that factors other than the mere presence of the organisms are necessary for a lasting implantation.

Age and Sex Incidence

B. coli infections of the urinary tract may develop at any level from a urethritis to pyelonephritis and perinephric abscess. Pyelitis is probably the commonest

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

lesion, while others are so mild as to suggest a bacilluria. Some writers consider these terms unjustified, and believe that there is always some underlying invasion of the kidney substance^{12, 26}; it should be remembered, of course, that only the more severe cases are examined by the pathologist. Urinary infections occur at any age, and are more frequent in females, both infants and adults. In males they are seldom found unless some obstruction is already present. When lesions affect different levels of the urinary tract the kidney is usually involved earlier than the bladder. Debilitating conditions, the presence of other disease, exposure to cold, fatigue, overexertion, starvation, undernutrition, and addiction to alcohol and drugs will undoubtedly favour infection by lowering resistance. These may affect either the bowel or the urinary tract.

Many practitioners have considered constipation and intestinal stasis important factors, but proof is difficult because of the frequent occurrence of these. Colitis, ulceration, diarrhoea, and the abuse of purgatives are equally important. Walker⁴ has proposed that a dose of cascara should be given to test whether a case of bacilluria has been completely cured. Such a dose will result in a reappearance of organisms in the urine if health has not been restored. No claim has been put forward that foreign bacteria in the bowel are more likely to gain entrance to the body. In the urinary tract the most important factor seems to be the presence of some obstructive lesion which interferes with free drainage. Experimentally this is also true, though the lesion may be very slight; obstruction of the urethra for as short a time as fifteen minutes may enable an infection to occur.¹³ In men enlarged prostate, stricture, and calculus favour infection, also nerve lesions such as tabes. Enforced rest after an operation, and unduly long retention of urine from any cause, are also said to be of importance. Mechanical causes, such as prolapse and external pressure, act in the same way. Pyelitis is common about the middle of pregnancy, and this may depend on the dilatation of the right renal pelvis, which is almost constant in this condition.⁴ The presence of foci in the gall-bladder or appendix may keep up a bacilluria.

Gall-bladder Infection

Infection of the gall-bladder may take place in much the same way as in the case of the urinary tract. Organisms may reach the liver by the systemic or the portal blood vessels, by lymphatics, and by the common bile duct. The bile, though alkaline, is an excellent culture medium for the colon bacillus and similar organisms. Typhoid bacilli are believed to reach the liver by the blood stream, and colon bacilli may arrive by the same path. Hurst¹⁴ has pointed out that where achlorhydria is present the contents of the duodenum are more alkaline—a condition favouring the growth of organisms—and retrograde infection of the biliary system is more likely in such cases. He also states that laparotomy, when followed by complete inhibition of gastric secretion and movement for a time, will allow *B. coli* to appear in the stomach within twenty-four hours.

In the gall-bladder the bacilli attack the walls, and so form a focus from which the bile can be constantly re-infected. As in the case of the urinary tract, the mere presence of organisms in the biliary system is probably not the only factor. Williams and McLachlan, studying the bacteriology of the gall-bladder, formed the impression that the *B. coli* and streptococci which were found were secondary invaders, enabled to settle down because of some toxic or chemical injury to the parts.¹⁵ The presence of gall-stones favours infection, and these depend to some extent on the occurrence of a high blood

cholesterol, though bacteria may also play a part in their formation. Anatomical abnormalities and mechanical faults leading to stasis or defective drainage of the gall-bladder are also of importance. Again, the presence of other foci of infection may predispose. Hurst reports that 37 per cent. of cases of cholecystitis had appendix scars.¹⁴

Septicaemia

Despite the apparent ease with which intestinal organisms invade the blood stream, true *B. coli* septicaemia is comparatively rare. Experiments already quoted have shown that even after massive infection the organisms fail to maintain themselves in the circulation. On the other hand, transient bacteraemia is probably very much more common than is usually supposed. Barrington and Wright have shown that organisms frequently reach the blood from the urethra if the urine is already infected⁴; Baird, who investigated the blood after labour, found coliform organisms within a few minutes of delivery, though they rapidly disappeared after an hour.¹⁶ He also draws attention to the danger of urinary infection in the puerperium from inability to pass water for some hours post partum.

As in the case of the local lesions, other factors appear to be essential for the development of septicaemia. It has been suggested that many cases of *B. coli* septicaemia may really be the overflow of bacteria from some local focus, such as the appendix or gall-bladder.

Treatment of *B. coli* Infections

A knowledge of the factors which permit an invasion of the body by the colon bacillus suggests measures which may be taken to prevent the infection: avoidance of debilitating and exhausting conditions, and the correction of all lesions which interfere with free drainage in the urinary and biliary systems. As the bowel is undoubtedly the original source of all infections, special attention should be directed to its proper functioning. Constipation must be corrected, but, in dealing with this, drastic purgatives must be avoided, as these carry fluid contents and more active organisms to the lower colon, and it has been shown that this may cause an exacerbation of the distant infection.⁴ Diarrhoea must be controlled, and other lesions of the bowel should be attended to.

The importance of such conditions is beyond doubt, but there may be other less obvious factors which favour invasion of the body. Colon bacilli isolated from distant lesions are usually of the same types as are commonly present in the alimentary canal, and it has not been held that foreign strains are more prone to cause infections. The importance of increased numbers of active *B. coli* in the small intestine or in the distal colon is more difficult to assess. In health the proportion of the various groups of organisms in the faeces is practically constant,¹⁷ but in certain conditions the stools may show an unusual preponderance of one or other type. Recognition of such abnormalities would warrant an attempt to correct them.

The so-called intestinal antiseptics are probably of little assistance, for in doses which are safe they cannot possibly sterilize the gut, and little is known of their effect on the various kinds of bacteria. Calomel in non-purgative doses is probably as useful a drug as any, and sulphur may also be of service. Many practitioners rely on preparations of liquid paraffin and agar for keeping the bowel in order. High colon lavage may be employed to get the lower bowel into a healthy state. An attempt may be made to alter the intestinal flora by implanting *B. acidophilus* and by giving lactose. Whole-wheat bread, uncooked starches—such as oatmeal—and sour meal preparations have been proposed for the same purpose.^{2, 18} There

is a certain amount of evidence that excess fat in the diet favours penetration of the bowel wall by organisms⁷; butter and eggs are therefore usually restricted. Almost all writers agree that milk should be avoided during the acute stages of renal infections, and meat is usually also restricted.

Measures to Raise Resistance

In dealing with *B. coli* infections bacteriological measures have not proved as satisfactory as might have been expected. This is probably due to the fact that the term "colon bacillus" does not represent one organism (as *B. typhosus* does), but includes some scores of different though closely related germs. Vaccine therapy has proved of service in the case of other infections, especially where the condition has become chronic, and benefit might be anticipated in the case of *B. coli* lesions. Opinions on this matter are very varied, and the usual belief appears to be that vaccines are seldom helpful. In view of this uncertainty it might be well to rely on autogenous preparations whenever possible.

Introduction of the bacteriophage has suggested interesting therapeutic possibilities. The interaction of phage and bacteria is so specific that it is unlikely that stock preparations can be of universal service. Few writers have claimed success in *B. coli* infections, and most have expressed doubt as to whether the method is worth the trouble it involves. Cowie¹⁹ gives a good account of the elaborate steps which are necessary to develop a satisfactory phage for each individual patient, but the results he reports seem to justify the special technique.

The bacteria of the colon group are said to produce two toxins—an endo- and an exo-toxin. Antisera have been produced against *B. coli* which are claimed to be both antitoxic and antibacterial.^{20,21} Even polyvalent sera can only be made against a few strains of organisms, and this probably explains why inconstant and unsatisfactory results are obtained.

Treatment of Urinary Infections

Some infections of the urinary tract are extremely mild and clear up spontaneously, others with tissue invasion and destruction may defy all attempts at cure. The majority lie between these extremes. For the acute phase treatment is standardized, but the chronic stages require individual measures. In acute cases the patient must be put to bed and kept uniformly warm. Large quantities of fluid should be given, together with alkalis, and perhaps an antispasmodic, such as hyoscyamus. Milk, meat extracts, and soups should be avoided; barley water, fruit juices, and glucose drinks should make up the fluid intake to three or four pints a day. Many writers suggest that copious flushing of the urinary tract is by far the best remedy for these infections.

By Administration of Alkalis

Alkalis are also very helpful in the early stages, and it has been stated that if alkali treatment were more efficiently carried out there would be fewer chronic cases.^{22,23} The colon bacillus can grow in media ranging from pH 4.4 to 9.4, and flourishes best between pH 6 and 7, a little to the acid side of neutral. Relief of symptoms may be obtained with relatively small doses of alkali which scarcely affect the pH, and even very large amounts of alkali can hardly raise the pH above 8,²⁴ at which value the organisms can still grow. The beneficial action has not been satisfactorily explained, since the change in pH hardly seems sufficient. The alkalis most commonly employed are potassium citrate and sodium bicarbonate up to 150 or even 300 grains of each in the twenty-four hours. One or more doses may also

be given during the night. These salts should be continued for several days after the temperature becomes normal, but they are apt to cause depression if kept up too long. It is often useful to have each specimen of urine tested with litmus paper to make certain that sufficient alkali is being given. In children, after the subsidence of symptoms, the urine should be kept mildly alkaline for weeks, and in pregnancy the alkalis should be continued to the end of term.

By Acidifying the Urine

When satisfactory administration of alkalis has not been successful in relieving the condition, the effect of acidifying the urine should be tried. Alternate periods of seven to ten days on alkali, and then on acid, may prove more successful than the continued use of either. The production of an acid urine is a necessary preliminary to the use of hexamine. Dilute acids are seldom used for this purpose, but acid sodium phosphate is usually employed. This salt will readily change alkaline urine, but it does not have much effect on a urine already acid. Ammonium benzoate is probably better, but it also fails to carry the acidity beyond the normal range. The acidifying chlorides of ammonium and of calcium act in a different way, and can produce a lower pH. They are apt to cause nausea and general upset, and a highly acid urine tends to irritate the urinary tract.

The Action of Hexamine

In trying to modify the reaction of the urine the character of the diet is of the greatest importance, for if the foods yield an alkaline ash extra acid will be required to overcome it. A large series of internal antiseptics have been prepared for sterilizing the urinary tract, but none is perfect. Disinfection of a healthy canal is comparatively easy, but organisms which have penetrated the walls of passages are beyond their action. Another difficulty is to attain a sufficient concentration of the drug in the urine. Of the urinary antiseptics hexamine is probably that most generally used. It acts by liberating formaldehyde, a change which takes place only in an acid medium. A solution of 1 in 5,000 is bactericidal, but such a concentration is probably never attained in the urine. It is doubtful whether 1 in 20,000 is often exceeded, and at such a concentration the growth of *B. coli* would only be inhibited. In addition, some of the drug is probably decomposed in the gastric juice, especially if it is given after meals. Acid-forming salts must be given at a sufficient interval from the hexamine, so that interaction will only occur in the urine. The combination of antiseptic and acid urine may be very irritating in the urinary tract, and this treatment must be avoided in acute infections, since haematuria or even strangury may be produced. In an alkaline urine the hexamine is excreted unchanged. It is interesting to note that certain writers believe that here, as in the alkaline bile, hexamine can benefit the patient in some other way than by producing formaldehyde. Some *B. coli* infections clear readily with hexamine and an acid urine, but lesions in the kidney and renal pelvis are less easily controlled, as little formaldehyde may be evolved at this level. Failure with hexamine is undoubtedly due to the difficulty in obtaining a sufficient concentration of the antiseptic.

Hexyl-resorcinol is said to be germicidal in either acid or in alkaline urine. It has a remarkable effect in rapidly clearing up coccal infections of the lower urinary tract, but in other respects it is not better than other antiseptics.²⁵ *B. coli* infections may require months of treatment where other organisms disappear in a short time. The fluid intake should be restricted during the

use of this drug, to increase its concentration in the urine.

Dyes of the pyridine series have recently been employed as urinary antiseptics. They also can be used without regard to the reaction of the urine, and it is claimed that they can penetrate the walls of the tract and so exert an antiseptic action in the tissues. The flavine series have been used by mouth, intravenously, and for local irrigations. They have the advantage that their action is not impaired by the presence of serum. Euflavine is probably the best of the group, the urine being made alkaline with sodium bicarbonate. In chronic cases a succession of such remedies can be tried. Attention must be directed to possible foci of reinfection, and any factor which may cause stasis or retention must be dealt with. In certain cases, as in pregnancy, the indwelling ureteral catheter is of temporary advantage.

The Ketogenic Diet

The observation that the urine of diabetics with acidosis and of epileptics under the ketogenic diet did not readily become infected suggested the use of this type of diet in cases of urinary infection. To produce the appearance of ketone bodies in the urine a very strict dietary control is essential. The diet contains large quantities of fat, and the carbohydrate has to be restricted to between 20 and 30 grams. After a few days on this strict regime acetone bodies begin to appear in the urine, and the pH may fall to about 5. Tested on a group of chronic cases which had resisted all other forms of treatment, this method proved successful in about one-half the patients, the infection clearing up in remarkable fashion in some of the cases.²³ The ketogenic diet is unappetising and even nauseating, and it is difficult to get patients to co-operate thoroughly for any length of time. It is unlikely that this method of treatment will be much used except in the most resistant cases.

Biliary Infections

The effects of treatment in lesions of the biliary tract can be less easily observed than in the case of the renal system. During the acute phase general measures must be taken against pain and fever. For chronic infections, where surgery is not indicated, other medical methods may be tried. As in the case of the urinary tract, an effort should be made to flush the system. A copious intake of fluid may be helpful in producing a free flow of bile. Drainage of the gall-bladder and biliary passages may be regularly undertaken by introducing concentrated magnesium sulphate through a tube in the duodenum. Specimens of the bile can be withdrawn and examined bacteriologically if care be taken to avoid contamination, but the results so obtained are not very reliable. Hurst¹⁴ finds that magnesium sulphate by mouth (without the tube) is just as efficient. He gives each morning the largest dose of a concentrated solution which the patient can take without being purged. The action may be further enhanced by an injection of pituitrin a quarter of an hour before taking the Epsom salts. Half an ounce of olive oil before meals may stimulate a flow in the same way. Treatment can be reinforced by the administration of sodium salicylate or hexamine; the salicylate is an efficient cholagogue. Hexamine reaches the bile, and is frequently prescribed in conditions of the gall-bladder, but as the medium is alkaline it is difficult to see how it can act. Hurst says that it can clear up an infection in a few days.

In *B. coli* septicaemia a search should be made for a focus of infection which may be constantly passing organisms into the circulation. Intravenous medications are of doubtful value. Mercurochrome has been most often given, but it is not without danger.

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CONDITIONS PREDISPOSING TO B. COLI INFECTION AFTER POST-OPERATIVE RETENTION*

BY

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The *B. coli* infections of the urinary tract which follow post-operative retention can be studied with a completeness which is not possible in sporadic infections. Tests can be carried out before the operation to find if the urinary organs are healthy, and periodic examinations during convalescence will show at what time and in what circumstances the urine becomes infected. The observer is in the fortunate position of knowing when the patient will be exposed to the risk of infection: he can look for common factors in those who succumb and those who escape.

During the last six years I have had the opportunity of making daily observations on 214 cases of retention of urine following the operation of excision of the rectum for cancer. This operation does not open or directly damage the urinary tract, but like other extensive pelvic operations it disturbs the nervous mechanism of micturition, necessitating catheterization usually for three or four days. In many of these cases urinary sepsis supervenes, the infection being attributable either to instrumentation or to a lymphatic or haematogenous infection from the operation wound. Other patients escape infection. We are discussing the aetiology of *B. coli* infections to-day, and my contribution consists in a demonstration of those conditions which predispose to infection when the function of the bladder is temporarily deranged after surgical operations.

Incidence of Infection

It will help towards an understanding of the question if before describing the factors which predispose to infection in this type of case I mention some which do not

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

affect the frequency of urinary infections. Changes in nursing personnel, for instance, made no difference to the proportion of urinary infections, and the incidence was approximately the same in each ward of the hospital. It was natural to look into this question because the women patients were all catheterized by sisters and senior nurses. Retention in men patients was relieved by an indwelling catheter with an antiseptic seal,¹ and the fact that only a small proportion of the men patients became infected is a tribute to the good quality of the nursing at St. Mark's Hospital. If less care had been taken with the sterilization and passage of catheters there would no doubt have been a higher proportion of infection. Similarly, it was found that the incidence of infection was approximately the same in the practice of each of the six surgeons on the staff of the hospital, and did not vary in the three operations commonly performed for cancer of the rectum—namely, perineal, abdomino-perineal, and perineo-abdominal excision.

It was also interesting to notice that minor defects in renal function, such as are accompanied by a rise in the blood urea to 50 or 60 mg. or a fall in the van Slyke urea clearance test to 40 or 50 per cent. did not predispose to urinary infection: there was no greater frequency of infection in the group showing these defects compared with other patients whose renal function tests before operation were more satisfactory. More severe defects in renal function would probably have predisposed to urinary infection, but such cases were not accepted as operable.

Causative Factors

Turning to the factors which influence the frequency of urinary infections, much the most obvious is sex. Infections following post-operative retention are much commoner in women than in men. In the whole series

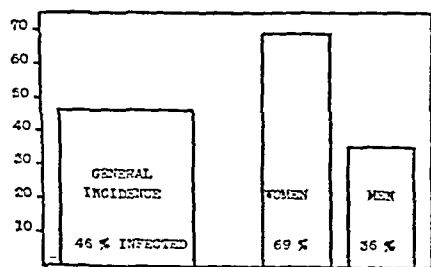


FIG. 1.—Infection following post-operative retention of urine. Incidence in each sex.

of 214 patients, *B. coli* infection developed in ninety-nine (46 per cent.). Infection occurred in forty-seven out of sixty-eight women (69 per cent.), but in only fifty-two out of 146 men (36 per cent.) (see Fig. 1). This higher incidence of infection in women is not unexpected when one considers the difficulty of catheterization in a woman helpless after an extensive pelvic operation. In these circumstances the urine generally becomes infected within twenty-four hours of the commencement of catheterization, and pyuria supervenes two or three days later. In men patients, drained by a self-retaining catheter with an antiseptic seal, it is possible to keep the urine sterile and free from pus for several days. Thus, during the last few years nearly 100 men patients have had a catheter tied in for three to six days without any infection other than a slight urethritis.

Next to sex the most important factor predisposing to urinary infection is old age. The risk of infection increases steadily with advancing years both in women and in men. Of the women under 60 only 62 per cent. became infected after post-operative retention, but in those over

60, 86 per cent. developed *B. coli* infections. Similarly with the men—only 28 per cent. of those under 60 became infected, compared with 47 per cent. of those over this age (Fig. 2). This increased frequency of urinary infections in elderly subjects is attributable in women patients chiefly to loss of muscle tone, and in men to the increasing incidence of prostatic disease. Both these influences result in a longer period of retention, and as a general rule the longer the period of retention the greater the risk of infection.²

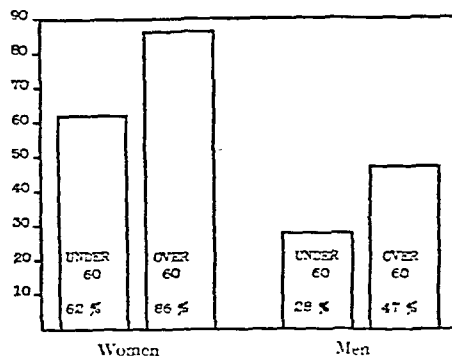


FIG. 2.—Influence of age in liability to infection in post-operative retention of urine.

The relation of the period of retention to likelihood of infection is shown by the fact that in men who suffered from retention for more than three days 38 per cent. became infected, but only 15 per cent. of infections occurred among those whose retention lasted a shorter

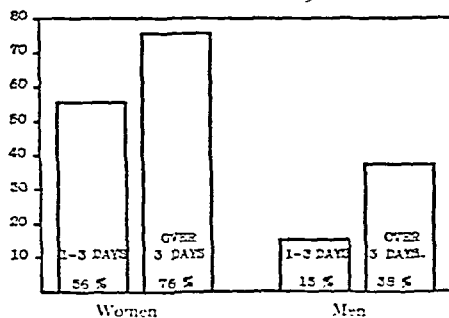


FIG. 3.—Influence of duration of retention of urine in liability to infection.

period. Similarly with the women—infections occurred in 76 per cent. of those requiring catheterization for more than three days, and in only 56 per cent. of those with retention lasting less than three days (Fig. 3).

Discussion

Finally, it is possible to show from this analysis that the patient's general state of health is an important factor in the incidence of urinary infection after post-operative retention. All the patients on whom these observations have been made had undergone the operation of excision of the rectum for cancer. In the early stages of this disease the general health is not impaired, but when the growth has ulcerated extensively and commenced to invade the extrarectal tissues there is a serious decline in the patient's general condition. Early cases are thus in a much better state of health at the time of operation than late cases. The lowered vitality is reflected in the increased incidence of generalized sepsis, and the higher operative mortality rate in the "C" group of cases, in which the glands contain metastases.³

The influence of the stage of the cancer on the risk of urinary infection is shown by the fact that among women 77 per cent. of the late cases became infected and only 59 per cent. of the early cases. Similarly, among men in only 32 per cent. of the early cases and 42 per cent. of the late cases the average age in each group was approximately the same, and it seems justifiable to attribute the increased incidence of urinary infection in the more advanced cases of cancer to a decline in general health.

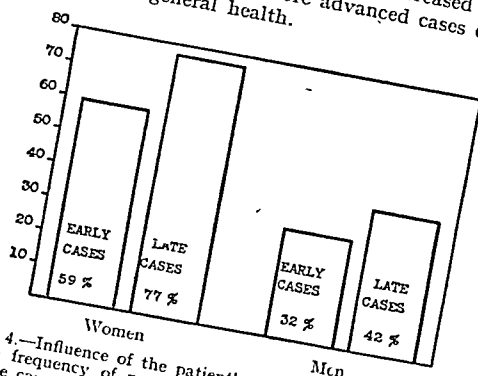


Fig. 4.—Influence of the patient's general condition as shown by the frequency of post-operative urinary infections in early and late cases of cancer of the rectum.

These four factors—sex, age, duration of retention, and general health—are each responsible for considerable variation from the average in the incidence of *B. coli* infections after post-operative retention. The last three are to some extent dependent on each other, the duration of the retention being related to the age group and also to the patient's general state of health. Moreover, although for descriptive purposes these four factors have been considered separately, it must be pointed out, in conclusion, that they all predispose to infection because of their influence on the functional activity of the bladder. From the point of view of the subject under discussion their main interest lies in the fact that they exemplify a principle, familiar in urinary pathology but not always so easy to demonstrate in detail, that urinary infections are often dependent on defective function of the urinary organs.

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The creation of new slum areas by smoke-polluted atmosphere is to receive special consideration at the annual conference of the National Smoke Abatement Society, which will be held at Glasgow from September 27th to 29th. Dr. J. Johnstone Jervis, medical officer of health for Leeds, will be the chief speaker on the subject of slum clearance and smoke prevention. Dr. J. S. Owens, who is in charge of the investigations into atmospheric pollution on behalf of the Department of Scientific and Industrial Research, and has invented many of the delicate instruments used for the measurement of atmospheric pollution, is to describe the latest development of smoke emission will also be demonstrated. Special delegates will be given a civic reception by the Lord Provost in the City Chambers, and the discussions will take place in the Council Hall. The chairmen at the various sessions will include Dr. H. A. Des Vœux, president of the society, and Dr. John R. Currie, professor of public health at Glasgow University.

THE VALUE OF RADIOLOGY (DIAGNOSIS AND TREATMENT) AS AN AID TO THE GENERAL PRACTITIONER*

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The three specialties—surgery, radiology, and pathology—have both a technical and a medical side, and have had eminent exponents of one or both aspects. Radiology occupies a position midway between the other two: it is in many ways ancillary, as pathology and bacteriology are (from the practitioner's point of view), while in other ways it is more independent, as the surgical specialties are. Again, the radiologist can rarely diagnose or treat "at a distance," as is the custom of the pathologist and the bacteriologist. The presence of the patient is usually as essential to him as it is to the surgeon. Radiology is therefore more a clinical specialty than a laboratory specialty.

Some of the more outstanding pioneers in the subject have been better known as biologists than as technicians. Some years ago Sir John Bland-Sutton, in speaking of members of his own craft, drew attention to this distinction, and few will deny that radiologists will be more likely to rise high in scientific reputation and in usefulness to their colleagues and the community when they regard themselves primarily as physicians—physicians who practise in radiology—than when they consider themselves only, or essentially, as technicians. In so far as they take their proper place as medical consultants rather than as technical consultants they will face far greater difficulties, and will have many opportunities, too, for exercising tact, both with patients and with their colleagues, but their value and general usefulness will in time be much greater.

Value of a Diagnostic or Therapeutic Method

The value of a diagnostic method is established by its affording evidence which can throw new light on obscure clinical problems, and still more when it can afford signs of such high value as evidence that they can be called pathognomonic. Radiology, it has been said with much truth, has brought forward a far greater number of such pathognomonic signs in its short existence than all the previous centuries of clinical observation could accumulate. In ancient medicine, and well on into the Middle Ages, physicians found, as they thought, infallible diagnostic and prognostic signs in astrological calculations or "images" (Chaucer): the position of the stars at the time of onset of the illness was generally agreed to be pathognomonic. Magic in diagnosis is less popular now, but in treatment, radium—to the public at large, and even to some members of the profession—has undoubtedly magical properties. The more scientific and less magical bases of diagnosis and prognosis began early in clinical observation, and later on progressed as the study of physical signs grew in accuracy. Thus in auscultation as a method we have relative and absolute examples of value in the discovery of a mitral systolic murmur, which can have one of many different interpretations, as compared with that of the presystolic murmur of mitral stenosis (crescendo, and heard supine). While some of radiological authorities, such as Köhler, regard the value of radiological diagnostic evidence as always relative and quite secondary to clinical findings, I rather agree with

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

those others, such as Holzknécht, who consider many roentgenological signs as pathognomonic, or more nearly absolute in value.

A long list of useful and pathognomonic signs could be given, but a few instances may suffice: a timely chest examination, which may reveal early tuberculosis masked as influenza, or military tuberculosis masked as enteric; bronchiectatic cavities made evident with lipiodol injection; horizontal fluid levels found in lung abscesses, or in gastro-intestinal diverticula, small bowel obstruction, or sinusitis; the demonstration of early aortic aneurysm, or of early heart enlargement; in the gastro-intestinal tract, the unequivocal signs of ulcer or growth, or of such conditions as diverticulitis and polyposis; again, in the examination of the gall-bladder, kidneys, nervous system, and bones and joints there are a great many signs which can well be called pathognomonic.

The value of a therapeutic method is established when it can relieve and possibly cure more "quickly, safely, and pleasantly" than any other method some or many groups of diseased conditions, and still more when it can show a specific curative action on malign processes which are otherwise intractable. In dermatology, gynaecology, and in almost all the other branches of medicine and surgery, the advances in radiotherapy have been immense; and in many fields, such as inflammatory infections, new discoveries are being made almost yearly—as, for instance, the possible value of treatment of pneumonia by short-wave diathermy, and the x-ray treatment of acute and subacute sinusitis and mastoiditis.

By all tests, diagnostic and therapeutic, radiology stands high. In diagnosis it has thrown a flood of light into most of the branches of medicine and surgery, and of its success in therapeutics the same may be said. Thus, apart from the knife or cautery (or to a much less degree foreign proteins and metals), x rays and radium are the only agents known to have an influence on malignant growth. This is the unique achievement of radiotherapy.

Good and Bad Radiology

The first criterion of the value of radiology must be that it is *good* radiology, as estimated by the higher current standards of excellence. Radiology is not nearly so established a science yet as pathology or surgery, with the result that there has been in the past, and still is, far too much imperfect radiology in all its branches—diagnostic and therapeutic x rays and radium therapy.

As an instance of diagnostic error we may recall the fact that hundreds of recruits for the armies of Great Britain and America were wrongly rejected because of the confident radiological diagnosis of "peribronchial phthisis." The boundaries of the normal and pathological in chest radiographs were not nearly so well established twenty years ago as they are to-day, and many radiologists in the war followed pseudo-scientific dogmas which some had laid down, based on false views of chest pathology. From time to time one still hears of extraordinary instances of wrong interpretations of radiographs. There was the recent case of an eminent foreign doctor who spent many months in bed owing to a wrong x-ray diagnosis of "spinal disease" which had been made by a surgeon. Again I may instance a patient who came home from a far-distant colony because of the wrong interpretation of his spasmodic "cascade stomach." He had returned expecting to have a gastric operation, but surgical intervention was shown to be quite unnecessary. Similar and more tragic instances of wrong x-ray and radium treatment are not infrequent, as are instances of failure to apply these agents where indicated.

Radiology: Major and Minor

The problems of correct interpretation in diagnostic radiology are so great, and the subject is still so far from fully explored, that Haenisch of Hamburg, for example, in a recent address in America on "Radiology as a Specialty," held that there is (and can be) no "minor roentgenology" corresponding to "minor surgery" or "minor pathology." I doubt, however, whether this position will meet with general agreement. Surely almost all fractures and dislocations, many foreign body localizations, and much of the fields of elementary thoracic and genito-urinary diagnosis can be held to be "minor roentgenology." If we admit no "minor" roentgenology how shall we prevent technical assistants, radiographers, or general practitioners from practising radiology to a greater or less degree? Granted that interpretation is a medical prerogative, it seems to me that technical and elementary diagnostic radiology cannot be restricted to medical specialists in the subject. In the spheres of electrotherapy and actinotherapy much may be said to be "minor," and can well be delegated to qualified biophysical assistants or technicians. On the other hand, in the sphere of radiotherapeutics (x-ray and radium therapy), little can be said to be "minor radiotherapy," except perhaps some of its dermatological applications.

Lay unqualified practice in radiology should be forbidden by law, just as the prescription and administration of poisons is legally restricted. An American doctor has reported recently a large number of cases of severe gum and jaw damage resulting from x-ray treatment for hypertrichosis administered in beauty parlours.

Radiology as a Specialty: Education

While a new medical science is emerging from the general body of medicine it first proves itself of value to medical and surgical specialists; only later on, when it becomes a consolidated science and art, does it make a wider appeal, reaching the general practitioner and the public. Radiological work is highly appreciated already by our specialist colleagues in medicine and surgery, for the statistics of all radiology departments show that year by year they refer a greater proportion of their hospital patients to us both for diagnosis and for treatment. Radiology has recently been accorded official recognition as a specialty by the institution, by some of the universities and colleges, of diplomas in this science and by insistence on a course of study in the subject by medical students—the general practitioners of the future. For graduate study with a view to specialism a three-years' course is required in some countries, as compared with our one year's special training. In some university hospitals abroad the students receive instruction during their earlier years in the anatomical, physiological, and pathological bases of both diagnostic and therapeutic radiology before the clinical applications are reached. This is an advisable, but at present only, I fear, an idealistic method.

Some raise objection to the overburdening of the undergraduates' curriculum by special teaching in radiology. Students are supposed by some to be able to acquire the knowledge they need in the subject in the wards and out-patient department, but this is impossible; they could gain little in the way of an adequate knowledge of pathology in this manner. Training in any subject must be reasonably full and precise. Take, for example, ophthalmology: here the medical student has to learn all the details of operations, such as those for squint, cataract, and the enucleation of the eye, but he is not likely to put his knowledge into effect by operating on

his patients once he commences private practice. No more is he likely to practise as a radiologist because of an elementary knowledge of the subject. If the curriculum is overburdened, much of what is unnecessary in it should be drastically excised so that sufficient attention can be paid to recent subjects of such great and general importance as radiology.

It is difficult for us to realize how the whole face of medicine and surgery has been changed within the lifetime of most of us by the advent of radiology. Thus the fourth edition (1902) of Osler's *Medicine* had only about 100 words on *x* rays in a monumental volume of nearly 700,000 words of text; and his 1912 edition was much behindhand in its references, failing to note the use of *x* rays in diagnosis of lung tuberculosis or gastric cancer, though it is mentioned as of help in "hour-glass stomach." But in 1907 there were already observations on pulmonary tuberculosis as shown by *x* rays; in 1908 on cancer of the stomach and colon; and in 1911 surgical and radiological advances.

Advance in any new specialty is slow enough owing to internal and external obstacles, but recognition by others of the advances made is even slower. We should realize that the diagnostic and curative possibilities of radiology will largely remain as, so to speak, capital locked up and not put to full use, unless its achievements can be so exhibited as to make a wide appeal to the general practitioners of each country. Many practitioners use it only as the medical defence societies urge—for fractures and dislocations. Others are over-credulous, as the practitioner in America who lately referred a patient to a radiologist for measurement of the mitral valve! Radiology offers an immense range of opportunities for proving its value, and has also very definite limitations: to diffuse more widely accurate knowledge of it the very active Radiological Society of North America has recently organized a three-year campaign of education in radiology throughout the country, and it might be well perhaps if its example were to be followed here. The private practitioners in a country have a unique position; they see the vast majority of patients first of all, and they are thus in a position to advise their patients (for example, in cases of gastric ulcer) whether they will undergo medical, surgical, or other specialist treatments. In addition, practitioners have a very good knowledge of the ultimate results of medical or specialist treatments. Their co-operation, therefore, must be solicited if the general level of health of the community is to benefit by recent advances in medicine.

As to delay in diagnosis, do we not often see patients who have suffered for years from undiagnosed gastric symptoms before a barium meal examination has been suggested? And in the sphere of treatment, how many patients suffering from exophthalmic goitre, leukaemia, and menorrhagia have spent months or years of ill-health with little-availing medical treatment before radiotherapy has been adopted?

Early Diagnosis and Treatment of Cancer

The most important sphere in which the co-operation of the general practitioner is essential is the early diagnosis and treatment of malignant disease. This has been insisted on by all the cancer organizations throughout the world, but it is only by the general practitioners gradually coming to realize the possibilities of radiotherapy that early treatment can be instituted for very many cancer patients. There are two reasons for this: (1) that so many patients are already at an inoperable stage by the time the disease is disclosed or discovered; and (2) that so many patients are not good operative

risks or have an invincible repugnance to operation. Because of this, the possibilities of radiotherapy should be widely known, and for each case should be explored without delay. Many of these patients would benefit by being referred directly to the radiotherapist. Professor Regaud has well said that the *first* treatment that the cancer patient has is the all-important treatment, and that it is quite indefensible to take up the attitude of only calling on the aid of the radiotherapist when surgery has proved a failure. On the contrary, the radiotherapy expert should be asked for his opinion before the commencement of each patient's treatment, in case radiotherapy is indicated then or at a later date.

If we consider the statistics of the Ministry of Health as to the number of deaths occurring annually from cancer of different regions—for example, 5,000 or more from cancer of the breast—we may ask: For how many of such cases has adequate radiotherapy been utilized? And where such a valuable aid has not been called in: What circumstances prevented its utilization? It is in the public interest that such questions be asked. I ventured to point this out in an article in the *Lancet* on breast cancer six years ago, but the question still awaits a satisfactory solution.

This discussion would, I believe, prove of permanent value if, under the auspices of the Section in the British Medical Association, or otherwise, steps could be taken towards an active campaign in radiology similar to that which has been carried out in Sweden at intervals in the past twenty years, and has been in progress lately in North America in the medical and lay press. Such campaigns have resulted in Sweden, and ought to result in Anglo-Saxon lands also, in a material raising of the general standard of the public health, and in an increased respect of the public for modern medicine, and for radiology, one of its most recent—and valuable—subdivision.

RADIOLOGY AS AN AID TO THE GENERAL PRACTITIONER*

E. KAYE LE FLEMING, M.A., M.D., B.Ch.

In this discussion I speak as a general practitioner who regards all kinds of specialist treatment as primarily arising from the needs of the general practitioner, and closely associated with, and dependent upon, his interest and co-operation.

In most forms of specialist practice the association between specialist and general practitioner is close, and necessitates consultation between the parties, to the advantage of all concerned. An exception to this relationship exists notably in the case of the bacteriologist and pathologist. Here the assistance required can generally be obtained without a personal interview. Nevertheless, even in this case, I am of opinion that there is a definite loss in the acquisition of knowledge by both parties resulting from the lack of personal discussion and the substitution of written reports.

The relationship between the radiologist and general practitioner may be said to fall somewhere between the ideal of the surgical or medical consultation and the more remote pathological or bacteriological report. My first point is to advocate a more close and personal contact between the radiologist and the general practitioner. I think that in the peculiar nature of your specialty there is a danger of the tie becoming weakened further

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

or even lost, to the disadvantage of all concerned. The reasons for this may be put under three heads.

1. The science of radiology (especially in its therapeutic aspect) is technically outside the sphere of knowledge of the general practitioner.

2. The science of its application is advancing so rapidly that the general practitioner in busy practice cannot hope to keep pace with it. In the case of those of my own standing in the profession it may be said to have developed altogether since we entered practice.

3. It is necessarily an *expensive* specialty. The general practitioner has to study closely the means of his patient, and must therefore often hesitate to recommend an expensive form of treatment without good knowledge of its nature and its probable efficacy.

With these general observations I turn to the main conditions which experience leads me to seek your assistance, and I have no doubt that if my knowledge of your specialty was more complete there would be fewer gaps in the rather disjointed category which I have made out.

The Field of Diagnosis

(a) *Bone Injuries and Misplacements.*—The value of x rays needs no emphasis in this class of case. While it is easy to point to the necessity of this kind of examination in all cases (the Medical Defence Union is eloquent on this point) in practice this is not possible. The general practitioner must discriminate to save needless expense. For example, as medical officer to a public school, if I acted literally on this advice I should be sending a daily stream over here to be examined by x rays. I could give more work to the radiologist if there were a simpler and less expensive method of examining minor injuries to show direct fracture or misplacement. I am quite aware of the difficulties involved, and am in no doubt as to the answer I shall receive.

(b) *The Thorax.*—I will not do more than acknowledge the great help of x rays in locating fluid in the pleural cavity. As regards pulmonary tuberculosis, the public has a blind faith in the result of an x-ray picture of the chest in the diagnosis of this condition. The interpretation of those films (in which I am specially interested) is, I think, one of the most difficult and highly specialized branches of x-ray reading. Their practical value is great in persuading a patient with early symptoms to appreciate the need for strict treatment. I think the practitioner without more than a general knowledge is apt to be unduly impressed by signs of disease. He would sometimes take a more reasoned view if he had a film of his own chest as a standard. The value of this form of examination in ascertaining whether disease is sufficiently unilateral, in deciding the suitability of limiting expansion by artificial pneumothorax or phrenic avulsion, is now well recognized.

As regards the heart, during war service at Netley I was fortunate in having opportunity during spare time of screening chests in the x-ray room. At first, chiefly interested in lungs, I soon became more and more interested in screening the heart shadow, and became accustomed to screen all patients with heart symptoms in my wards. The value of the information derived from this addition to the usual methods of examination impressed itself more and more forcibly on me. There is a saying that "Every picture tells a story," and I think this is true of the x-ray picture of the heart. The variation in shape and size, the vertical and transverse limits, the general appearances of the shadow can, I think, add appreciably to the knowledge necessary in treating heart conditions. On attempting to put this method into practical use on returning to civil practice I was confronted with a difficulty that I had not foreseen. It is only when the method used is the same that results are

comparable. I would press to-day the need for a fixed method of procedure in making these examinations. The upright position, the distance at which exposure is made, the clear definition of the mid-sternal line and the nipple point, when possible, are the most important points.

(c) *Abdomen.*—The bismuth meal raises a special problem. There is need for something more simple and less expensive than an elaborate and costly series of beautiful pictures where expense is so often an important consideration. In many cases a series of drawings from screening, with regional photographs, would be sufficient. The results of x-ray pictures of doubtful appendix cases is disappointing in my experience. How far can we rely on an x-ray of the gall-bladder or kidney in the case of suspected stone? Has the introduction of the use of dyes reached a degree of certainty in such cases?

Treatment

There are in my experience various conditions in which the general practitioner feels the need of this kind of treatment, but is often deterred by lack of knowledge of the likelihood of its success.

Exophthalmic Goitre.—I believe treatment by x rays of this group of diseases is carried out frequently. Personally, having seen one case where the result appeared to be most unsatisfactory, I have hesitated to advise it again. If there are cases which are suitable for this method of treatment, what are the conditions by which they can be distinguished?

Sterilization in the Female.—The general practitioner is keenly interested in the production of sterility in the female by x rays or radium. The most common type of case is where production of an artificial menopause or the quickening of the natural process is necessary for the welfare of the patient. I hope we shall hear to-day something definite on this point. The practitioner wants to be in a position to say to his patient that this form of treatment will entail (roughly speaking) so many visits to the radiologist and the approximate cost. I would emphasize at this point how much the practitioner needs to know the cost and time factors in all kinds of specialist treatments. A further important point in cases of this kind is how far we can assure or reassure our patients on the after-effects of such treatment.

Sterilization to Prevent Conception.—I am not one of those (and there are many in the profession) who view with alarm the state of the law in this country in this connexion. I have had cases, and I can envisage others, where I should not hesitate to advise and abet in obtaining security against conception by x rays or radium. It would be of interest to hear if radiologists view with disquiet the giving of treatment with this object on the request of a practitioner of experience and repute. One frequently hears in the ranks of both the profession and the public the opinion that the laws of this country need amending in relation to sterilization and the induction of abortion. I can only say in my professional experience I have never felt the need, nor have I felt handicapped in giving advice or treatment to this end.

Skin Treatment.—I imagine that practitioners as a class are fully alive to the success of radium and x ray treatment of malignant disease of the skin and epithelioma. Rodent ulcer, cancer of the lip and tongue, and of the cervix, are cases in point. But there are many conditions of the skin where the practitioner feels that x ray treatment might be of value, but he is ignorant of its possibilities. Many dermatologists must be using the form of treatment in the more chronic skin eruptions. Why do we not hear more of the results and the conclusions at which they arrive? How far can we rely on such treatment, for example, for a speedy cure of multiple warts on the hands? Patches of psoriasis and the like

TUBERCULIN TESTS IN INFANTS AND CHILDREN

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and Mantoux (1 in 1,000) tests appear equally sensitive, the Mantoux (1 in 100) more so, and no further positive reactions were obtained with the dilution 1 in 10. Roughly, the number of positive reactions per 100 children under 2 years with the Pirquet test and Mantoux test, in the three increasingly strong dilutions, are 4, 4, 6. In the older group comparison of the three tests is possible, as there were no reactions with the ether, and the number of positive tests is much greater. The number of positive reactions per 100 children, aged 2 to 16 years, for the three tests were therefore: Moro, 42 to 39 (see footnotes ⁴ and ⁵ in Table II); Pirquet, 48, and Mantoux (in the three increasingly strong dilutions), 50 (see footnote ⁶), 55 (see footnotes ⁸, ⁹, and ¹⁰), 61 to 55 (see footnotes ¹¹, ¹², and ¹³).

To summarize, it may be stated that the Moro test is the least sensitive of the three tuberculin tests, the Pirquet and the Mantoux (1 in 1,000) about equally sensitive (in favour of the latter), the Mantoux (1 in 100 and 1 in 10) increasingly more sensitive than the last two. It is interesting to note that while in children under 2 years the Mantoux (1 in 100) increases the number of positive reactions by 50 per cent. on the Pirquet, it is only two more children in a 100 that are found positive. In the older group the number of positive reactions is increased by 13 per cent. only, but six to seven more children per 100 tested are found positive. Thus in testing infants the chances of finding a positive reaction with the Mantoux test when the Pirquet is negative are very much smaller.

Finally, it should be noted that all the diagnosed or suspected cases of clinical tuberculosis were found to be Pirquet-positive and Mantoux-positive (1 in 1,000), but that two of these patients were negative to the Moro test: (a) pulmonary tuberculosis (T.B. found), and (b) tracheo-bronchial adenitis (no T.B. found).

(B) TECHNICAL ADVANTAGES AND DISADVANTAGES IN PRACTICE

The Pirquet test is undoubtedly the simplest to perform: the material is always at hand, the vaccinostyle looks like a nib and does not frighten the child, and the test can be carried out most rapidly. Certain precautions must, however, be taken. Thus: (1) so far as possible bleeding

should be avoided, as this may prevent contact of the tuberculin with the dermis; (2) the control scarification should be made above and not below the tuberculin, as otherwise the latter may run down on to the control area; (3) the lower scarification should be done *through* the tuberculin and the tuberculin should be left exposed to the air for at least a few minutes, after which it may be gently wiped off (a dressing should not be applied, as the latter magnifies the importance of the operation in the eyes of the parents); (5) it is suggested that whenever possible the test be carried out by the medical man himself.

The reputed claim of the simplicity of the Moro test cannot be maintained. Thus: (1) if Table I is referred to it will be seen that out of the twenty-six positive tests in nine the area rubbed with tuberculin only gave no reaction, and in thirteen more the reaction was less marked in the area which had previously not been rubbed with ether, the preliminary cleansing of the skin with ether thus appearing to be essential; (2) the rubbing of the skin with ether gives rise in the young children (for whom the simplification of a tuberculin test is particularly desirable) to false reactions (see Table I), presumably due to their more tender skin: hence, it is essential that a control area rubbed with ether only should form part of the test; (3) the older children in this investigation strongly objected to the smell of the ether, the rubbing with ether proving, in fact, to be the most trying part of all the procedures, and, presumably, is very disagreeable to infants who cannot voice their protests; (4) rubbing two areas with ether and then one with ointment renders the operation a more prolonged one than either the Pirquet or the Mantoux test; (5) the test is messier than either of the other two, as the grease does not dry; (6) a positive reaction often results in a group of papules covering an area as much as 7 cm. in diameter, and this is more objectionable to the parents than the single erythematous patch of a positive Pirquet or even Mantoux test; and (7) it is advisable to have the ointment freshly prepared.

The Mantoux test has the following disadvantages. (1) The dilutions must be fairly freshly prepared (not more than two weeks old); (2) the test is more of an operation in the eyes of children and parents, as something is injected and the apparatus is more complicated; (3) it is more painful. Even if the needle is small and sharp, pain is

TABLE II.—Relative Sensitivity of the Three Tuberculin Reactions.

Age	Pirquet			Moro			Mantoux								
	No. Tested		Positive	No. Tested		Positive	1 in 1,000			1 in 100			1 in 10		
							No. Tested		% Positive of Whole Series	No. Tested		% Positive of Whole Series	No. Tested		% Positive of Whole Series
	No.	%		No.	%		No.	%		No.	%		No.	%	
Under 2 years	104 ¹	4	3.8												
	66 ²	3	4.5	66	2 ³	3.0	104	4	3.8						
2 to 16 years	62	30	48.3	60	24	40.0	61	30	49.1	52.0 ⁴	49.2 ⁷	3.8	95	2	2.1
										22	2	9.0			
										3 ⁸	19.0 ⁸	54.8 ⁹	53.2 ¹⁰	19	4-11 ¹¹
														21.0-5.2 ¹²	61.1-54.8 ¹³

¹ In one child the test gave a linear erythema; this was not considered positive, as the Mantoux test up to a dilution of 1 in 10 remained negative.

² Excluding thirty-eight cases in which the Moro test was not performed.

³ One of these reactions was very feeble (see Table I).

⁴ Assuming that the two patients not tested (one was in a plaster jacket and the other had a rash on the chest) would both have reacted positively.

⁵ Assuming that these two patients would both have reacted negatively.

⁶ Assuming that the patient not tested (supply of tuberculin ran out) would have reacted positively; almost certainly so as the Pirquet reaction was positive.

⁷ Assuming that this patient would have reacted negatively.

⁸ Adjusted on the assumption that the nine patients not tested (left hospital) would have reacted in the same proportion as those who did.

⁹ Dependent on ⁴ and ⁷.

¹⁰ In only one of these was the test definitely positive by the criteria adopted; in the others it was doubtful; thus the reactions were: (a) 15 by 22 mm ill-defined erythema (control negative); patient not seen on fourth day; (b) 12 by 15 mm ill-defined erythema (control negative), negative on fourth day; (c) 6 by 6 mm. faint erythema and slight swelling (control negative), patient not seen on fourth day.

¹¹ Assuming all four reactions with 1 in 10 dilution and the one not tested with 1 in 1,000 were positive.

¹² Assuming only one of the four reactions with 1 in 10 was positive and the one not tested with 1 in 1,000 was negative.

TABLE III.—*Mantoux Test. Doubtful and Minimal Reactions.*

Age	1 in 1,000								1 in 100								1 in 10							
	No. Tested		No. Positive		Minimal Reactions		Doubtful Reactions		No. Tested		No. Positive		Minimal Reactions		Doubtful Reactions		No. Tested		No. Positive		Minimal Reactions		Doubtful Reactions	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Under 2 years	124	4	28 (23)	23	3 (2)	2	25	2	34 (32)	4	7 (5)	7	87	0	51 (33)	22	4 (3)	15						
2 to 16	61	32	51 (77)	84	2 (3)	3	22	2	81 (77)	10	4 (5)	7	19	4	7 (9)	28	14 (10)	22						

* One of these became positive with dilution 1 in 100; another showed a slight stain only till the fourth day, when it developed a faint erythema 10 mm. in diameter; the other three with dilution 1 in 100.

† One of these became positive with dilution of 1 in 10.

‡ See footnote to Table II.

Numbers in parentheses represent reactions visible or showing stigmata at least on fourth day after performance of test.

caused by the distension during the injection (in infants considerable force is often required to eject even 0.1 c.c.m. from the ordinary hypodermic syringe) (4) if the test is negative with 1 in 1,000 dilution the parents are more likely to object to the repetition of an apparently exactly similar operation.

The test is considerably simplified, however, by the use of a Pictet intradermic syringe (see above).

(C) MINIMAL POSITIVE REACTIONS

Papuet Test.—A reaction should be regarded as positive if there is at least 1 mm. of erythema on each side of the lower scarification, in the absence of such change in the upper one. A linear erythema should not be regarded as positive, and it is advisable in such cases to carry out the Mantoux test (1 in 100). It should be noted that six of the thirty-four positive Papuet tests were more marked on the fourth day after the test.

Moro Test.—The presence of even one definite large papule on the area rubbed with the ointment, in the absence of any change on the area rubbed with ether only and of papules or a rash on the neighbouring skin, may be regarded as a positive reaction. However, owing to the frequency of the latter on many chests, it is advisable, when only one or two papules are present, or any doubt is felt, to perform a confirmatory test with the Pirquet or the Mantoux (1 in 1,000). An area of erythema only should not be regarded as a positive reaction.

Mantoux Test.—An area of erythema 10 mm. in diameter, showing some swelling to touch, or a well-defined erythema of greater diameter, should be regarded as the minimum required for a positive reaction. Erythematous 5 mm. in diameter up to the above measurement should be regarded as doubtful reactions, and the test performed with the next stronger dilution. Table III gives the number of these doubtful reactions with each dilution in each group. Only two out of a total of thirteen (1 in 1,000 and 1 in 100 dilutions only) were positive with the next stronger dilution. One of the positive reactions with 1 in 1,000 and one of the positives with 1 in 100 were doubtful two days after the test, but became positive on the fourth day.* It is therefore advisable, when a doubtful reaction is obtained, to postpone carrying out the test with the next stronger solution until the test has been reinspected on the fourth day.

Table IV gives the number of obviously traumatic reactions as shown by blue, green, or yellow colouring of bruising. It is of interest to note that the percentage is the same for both groups of children and whether an ordinary hypodermic or Pictet syringe is used.

* It should also be noted that five of the thirty-four positive reactions with 1 in 1,000, one of the four positives with 1 in 100, and the definitely positive reaction with 1 in 10 were more marked on the fourth day after the test.

Table III gives the number of minimal reactions noted—that is, all reactions showing erythema, or erythema and swelling, less than 5 mm. in diameter. It will be noted that their percentage increases with each dilution, particularly in the younger group. It must be emphasized that 118 out of 145 (80 per cent.) of even these reactions show some staining at least on the fourth day after test. The need for the use of a control test (as described) when the Mantoux test with the dilution 1 in 10 is employed is obvious, especially if the test is stopped at this dilution. The 145 control injections gave rise to eight reactions showing bruising, sixty-three (43 per cent.) minimal reactions, eight reactions corresponding to those described as "doubtful" (seven still visible on the fourth day), and four reactions (two visible on the fourth day).

TABLE IV.—*Mantoux Test. Reactions Indicating Bruising.*

Age	1 in 1,000			1 in 100			1 in 10		
	No. Tested	No. Showing Bruising	%	No. Tested	No. Showing Bruising	%	No. Tested	No. Showing Bruising	%
Under 2 years	124	8	7	55	10	18	87	6	7
2 to 16 years	61	3	5	22	3	14	19	3	16

All Dilutions

Age	No. of Tests	No. Showing Bruising	%	Group I Only	No. of Tests	No. Showing Bruising	%
Under 2 years	255	24	9	Ordinary syringe	107	9	8
2 to 16 years	102	9	9	Pictet syringe	173	15	9

measuring 10 mm. in diameter or more. Eleven of these last twelve reactions occurred in the children under 2 years. As, from what has already been stated, these minimal and doubtful reactions cannot be attributed to the trauma of the injection or to the type of syringe used, one is tempted to suggest that they are due to the irritation of some substance* in the broth in which the tuberculin is prepared, and that the infant's skin is particularly sensitive to it.

(D) THE B.C.G. VACCINATED CHILDREN*

While admitting that the smallness of the numbers renders conclusions impossible, it is nevertheless of interest

* This is left intentionally vague. Further work on this question is now being carried out by one of us (G. G. K.).

† The results under this heading appear contradictory with those obtained by one of us in papers previously published. Account should therefore be taken of the small number of vaccinated children here tested.—B. W.-H.

TUBERCULIN TESTS IN INFANTS AND CHILDREN

[THE BRITISH
MEDICAL JOURNAL]

and Mantoux (1 in 1,000) tests appear equally sensitive, the Mantoux (1 in 100) more so, and no further positive reactions were obtained with the dilution 1 in 10. Roughly, the number of positive reactions per 100 children under 2 years with the Pirquet test and Mantoux test, in the three increasingly strong dilutions, are 4, 4, 6, 6. In the older group comparison of the three tests is possible, as there were no reactions with the Mantoux (in the three increasingly strong dilutions), 42 to 39 (see footnotes ¹ and ² in Table II); Pirquet, 48, 50 (see footnote ³), 55 (see footnotes ⁴, ⁵, and ⁶), 61 to 55 (see footnotes ⁷, ⁸, and ⁹).

To summarize, it may be stated that the Moro test is the least sensitive of the three tuberculin tests, the Pirquet and the Mantoux (1 in 1,000) about equally sensitive (in favour of the latter), the Mantoux (1 in 100) and 1 in 10 increasingly more sensitive than the last two. It is interesting to note that while in children under 2 years the Mantoux (1 in 100) increases the number of positive reactions by 50 per cent. on the Pirquet, it is only two more children in a 100 that are found positive. In the older group the number of positive reactions is increased by 13 per cent. only, but six to seven more children per 100 tested are found positive. Thus in testing infants the chances of finding a positive reaction with the Mantoux test when the Pirquet is negative are very much smaller.

Finally, it should be noted that all the diagnosed or suspected cases of clinical tuberculosis were found to be Pirquet-positive and Mantoux-positive (1 in 1,000), but that two of these patients were negative to the Moro test: (a) pulmonary tuberculosis (T.B. found), and (b) tracheo-bronchial adenitis (no T.B. found).

(B) TECHNICAL ADVANTAGES AND DISADVANTAGES IN PRACTICE

The Pirquet test is undoubtedly the simplest to perform: the material is always at hand, the vaccinostyle looks like a nib and does not frighten the child, and the test can be carried out most rapidly. Certain precautions must, however, be taken. Thus: (1) so far as possible bleeding

should be avoided, as this may prevent contact of the tuberculin with the dermis; (2) the control scarification should be made above and not below the tuberculin, as otherwise the latter may run down on to the control area; (3) the lower scarification should be done *through* the tuberculin and the tuberculin not be deposited on it afterwards; (4) the tuberculin should be left exposed to the air for at least a few minutes, after which it may be gently wiped off (a dressing should not be applied, as the latter magnifies the importance of the operation in the eyes of the parents); (5) it is suggested that whenever possible the test be carried out by the medical man himself.

The reputed claim of the simplicity of the Moro test cannot be maintained. Thus: (1) if Table I is referred to in nine the area rubbed with tuberculin only gave no reaction, and in thirteen more the reaction was less marked in the area which had previously not been rubbed with ether, the preliminary cleansing of the skin with ether thus appearing to be essential; (2) the rubbing of the skin with ether gives rise in the young children (for whom the simplification of a tuberculin test is particularly desirable) to false reactions (see Table I), presumably due to their more tender skin; hence, it is essential that a control area rubbed with ether only should form part of the test; (3) the older children in this investigation strongly objected to the smell of the ether, the rubbing with ether proving, in fact, to be the most trying part of all the procedures, and, presumably, is very disagreeable to infants who cannot voice their protests; (4) rubbing two areas with ether and then one with ointment renders the operation a more prolonged one than either the Pirquet or the Mantoux test; (5) the test is messier than either of the other two, as the grease does not dry; (6) a positive reaction often results in a group of papules covering an area as much as 7 cm. in diameter, and this is more objectionable to the parents than the single erythematous patch of a positive Pirquet or even Mantoux test; and (7) it is advisable to have the ointment freshly prepared.

The Mantoux test has the following disadvantages. (1) The dilutions must be fairly freshly prepared (not more than two weeks old); (2) the test is more of an operation in the eyes of children and parents, as something is injected and the apparatus is more complicated; (3) it is more painful. Even if the needle is small and sharp, pain is

TABLE II.—Relative Sensitivity of the Three Tuberculin Reactions.

Age	Pirquet			Moro			Mantoux											
	No. Tested	Positive		No. Tested	Positive		1 in 1,000			1 in 100			1 in 10					
		No.	%		No.	%	No. Tested	Positive	% Positive of Whole Series	No. Tested	Positive	% Positive of Whole Series	No. Tested	Positive	% Positive of Whole Series	No. Tested	Positive	% Positive of Whole Series
Under 2 years	101 ¹	4	3.8															
	66 ²	3	4.5	66	2 ³	3.0	104	4	3.8									
2 to 16 years	62	30	48.3	60	24	40.0	61	30	49.1	95	2	2.1	87	0	0			
										22	2	9.0						
										3 ⁶	13.0 ⁶	54.8 ⁹ —53.2 ¹⁰	19	4—11 ¹¹	21.0—5.2 ¹²	61.1 ¹² —54.8 ¹³		

¹ In one child the test gave a linear erythema; this was not considered positive, as the Mantoux test up to a dilution of 1 in 10 remained negative.

² Excluding thirty-eight cases in which the Moro test was not performed.

³ One of these reactions was very feeble (see Table I).

⁴ Assuming that the two patients not tested (one was in a plaster jacket and the other had a rash on the chest) would both have reacted positively.

⁵ Assuming that these two patients would both have reacted negatively.

⁶ Assuming that the patient not tested (supply of tuberculin ran out) would have reacted positively; almost certainly so as the Pirquet reaction was positive.

⁷ Assuming that this patient would have reacted negatively.

⁸ Adjusted on the assumption that the nine patients not tested (left hospital) would have reacted in the same proportion as those who did.

⁹ Dependent on ⁸ and ⁷.

¹⁰ In only one of these was the test definitely positive by the criteria adopted; in the others it was doubtful; thus the reactions were: (a) 15 by 22 mm. ill-defined erythema (control negative), patient not seen on fourth day; (b) 12 by 15 mm. ill-defined erythema (control negative), patient not seen on fourth day; (c) 6 by 6 mm. faint erythema and slight swelling (control negative), patient not seen on fourth day.

¹¹ Assuming all four reactions with 1 in 10 dilution and the one not tested with 1 in 1,000 were positive.

¹² Assuming only one of the four reactions with 1 in 10 was positive and the one not tested with 1 in 1,000 was negative.

TABLE III.—Mantoux Test. Doubtful and Minimal Reactions.

Age	1 in 1,000						1 in 100						1 in 10					
	No. Tested	No. Positive	Minimal Reactions		Doubtful Reactions		No. Tested	No. Positive	Minimal Reactions		Doubtful Reactions		No. Tested	No. Positive	Minimal Reactions		Doubtful Reactions	
			No.	%	No.	%			No.	%	No.	%			No.	%	No.	%
Under 2 years	104	4	29 (24)	27.9	3 (3)	2.9	95	2	33 (32)	40.0	7 (7)	7.1	87	0	54 (43)	62.0	4 (3)	4.5
2 to 15 years	61	30	9 (7)	14.7	2 (1)	3.2	22	2	8 (6)	36.3	1 (1)	4.5	19	4-15	7 (5)	36.8	1-4 (3)	5.2-21.0

¹ One of these became positive with dilution 1 in 100; another showed a slight stain only till eighth day, when there developed a faint erythema 10 mm. in diameter (negative with dilution 1 in 100).

² One of these became positive with dilution of 1 in 10.

³ See footnote ¹ in Table II.

Numbers in parentheses represent reactions visible or showing staining at least on fourth day after performance of test.

caused by the distension during the injection (in infants considerable force is often required to eject even 0.1 c.cm. from the ordinary hypodermic syringe); (4) if the test is negative with 1 in 1,000 dilution the parents are more likely to object to the repetition of an apparently exactly similar operation.

The test is considerably simplified, however, by the use of a Pictet intradermic syringe (see above).

(C) MINIMUM POSITIVE REACTIONS

Pirquet Test.—A reaction should be regarded as positive if there is at least 1 mm. of erythema on each side of the lower scarification, in the absence of such change in the upper one. A linear erythema should not be regarded as positive, and it is advisable in such cases to carry out the Mantoux test (1 in 100). It should be noted that six of the thirty-four positive Pirquet tests were more marked on the fourth day after the test.

Moro Test.—The presence of even one definite large papule on the area rubbed with the ointment, in the absence of any change on the area rubbed with ether only and of papules or a rash on the neighbouring skin, may be regarded as a positive reaction. However, owing to the frequency of the latter on many chests, it is advisable, when only one or two papules are present, or any doubt is felt, to perform a confirmatory test with the Pirquet or the Mantoux (1 in 1,000). An area of erythema only should not be regarded as a positive reaction.

Mantoux Test.—An area of erythema 10 mm. in diameter, showing some swelling to touch, or a well-defined erythema of greater diameter, should be regarded as the minimum required for a positive reaction. Erythematous 5 mm. in diameter up to the above measurement should be regarded as doubtful reactions, and the test performed with the next stronger dilution. Table III gives the number of these doubtful reactions with each dilution in each group. Only two out of a total of thirteen (1 in 1,000 and 1 in 100 dilutions only) were positive with the next stronger dilution. One of the positive reactions with 1 in 1,000 and one of the positives with 1 in 100 were doubtful two days after the test, but became positive on the fourth day.* It is therefore advisable, when a doubtful reaction is obtained, to postpone carrying out the test with the next stronger solution until the test has been re-inspected on the fourth day.

Table IV gives the number of obviously traumatic reactions as shown by blue, green, or yellow colouring of bruising. It is of interest to note that the percentage is the same for both groups of children and whether an ordinary hypodermic or Pictet syringe is used.

* It should also be noted that five of the thirty-four positive reactions with 1 in 1,000, one of the four positives with 1 in 100, and the definitely positive reaction with 1 in 10 were more marked on the fourth day after the test.

Table III gives the number of minimal reactions noted—that is, all reactions showing erythema, or erythema and swelling, less than 5 mm. in diameter. It will be noted that their percentage increases with each dilution, particularly in the younger group. It must be emphasized that 118 out of 145 (80 per cent.) of even these reactions show some staining at least on the fourth day after test. The need for the use of a control test (as described) when the Mantoux test with the dilution 1 in 10 is employed is obvious, especially if the test is stopped at this dilution. The 145 control injections gave rise to eight reactions showing bruising, sixty-three (43 per cent.) minimal reactions, eight reactions corresponding to those described as "doubtful" (seven still visible on the fourth day), and four reactions (two visible on the fourth day).

TABLE IV.—Mantoux Test. Reactions Indicating Bruising.

Age	1 in 1,000			1 in 100			1 in 10		
	No. Tested	No. Showing Bruising	%	No. Tested	No. Showing Bruising	%	No. Tested	No. Showing Bruising	%
Under 2 years	104	8	7.6	95	10	10.5	87	6	6.9
2 to 15 years	61	3	4.9	22	3	13.6	19	3	15.7

All Dilutions

Age	No. of Tests	No. Showing Bruising	%	Group I Only	No. of Tests	No. Showing Bruising	%
Under 2 years	236	24	10.2	Ordinary syringe	107	9	8.4
2 to 15 years	102	9	8.8	Pictet syringe	179	15	8.3

measuring 10 mm. in diameter or more. Eleven of these last twelve reactions occurred in the children under 2 years. As, from what has already been stated, these minimal and doubtful reactions cannot be attributed to the trauma of the injection or to the type of syringe used, one is tempted to suggest that they are due to the irritation of some substance* in the broth in which the tuberculin is prepared, and that the infant's skin is particularly sensitive to it.

(D) THE B.C.G. VACCINATED CHILDREN†

While admitting that the smallness of the numbers renders conclusions impossible, it is nevertheless of interest

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to point out that of the twenty-two infants who had been vaccinated with B.C.G. over six weeks before (sixteen over three months before)—all by mouth except two, four a second time since birth—only two were positive to a tuberculin test. Thus:

(a) Vaccinated subcutaneously nine weeks before test. Had been in contact with sputum-positive mother for a few days before admission. Negative Pirquet; positive to Mantoux (1 in 100).

(b) Vaccinated at birth by mouth seventeen months before test. Had been in contact for eleven months with a father who coughs, but whose examinations were stated to be negative as regards tuberculosis. Positive Pirquet and Mantoux (1 in 1,000).

Conclusions

In spite of the relatively small number of children here investigated we feel justified in drawing the following conclusions:

1. The Moro test is the least sensitive of the three tuberculin tests commonly employed. The Pirquet (pure tuberculin) and the Mantoux test (1 in 1,000) are about equally sensitive, the Mantoux (1 in 100) being definitely more sensitive.

2. For use in infants and young children the Moro test* has definite disadvantages as regards technique and interpretation of results. When employed, a control test with ether only should always be carried out.

3. The Pirquet test is, for infants and young children, the simplest and easiest test to perform, and should therefore be employed first. If found to be negative, an intradermal test with a dilution of 1 in 100 should then be carried out. In older children it is worth while to repeat the test, if still negative, with a dilution of 1 in 10.

4. The Mantoux test in a dilution of 1 in 10 should always be carried out with a control injection of the broth used for the preparation of tuberculin.

5. A Pirquet test should be regarded as positive only if there is at least 1 mm. of erythema on each side of the scarified area.

6. The minimum required for a positive Mantoux test with any dilution is an area of erythema 10 mm. in diameter, associated with some swelling to touch, or a well-defined erythema greater in area than this. Reactions showing an erythema 5 mm. in diameter or more should be regarded as doubtful, reinspected on the fourth day, and, if still doubtful or negative, the test should be repeated with a stronger dilution. If a reaction obtained with a dilution of 1 in 10 is on the fourth day definitely more marked than the control test, but still under the limit of a positive reaction as indicated above, it is advisable to regard the test as doubtful, and repeat it either within ten days or in three months' time.¹

7. It is suggested that instead of maintaining the controversy as to the relative value of the Pirquet and Mantoux tests, the test indicated here (Pirquet followed by Mantoux 1 in 100), combining both, should be adopted as a routine under a different name—for example, "the combined tuberculin test," or "the cutaneous intradermal test."

We should like to express our thanks to Professor Ombredanne for allowing us to test the patients under his care, to Dr. Guérin, of the Pasteur Institute, for supplying the broth used for the control test, and to the ward sisters for their help during the course of the investigation.

REFERENCE

* Hart, P. D'A.: Medical Research Council Special Report No. 164, 1932.

* The tuberculin ointment now prepared by Löwenstein and sold in small tin tubes as "dermotublin" contains only 40 per cent. tuberculin and is recommended to be used on the arm, back, chest, abdomen, or front of leg, after preliminary cleansing with benzene, ether, alcohol, or soap and water.

CHLOROFORM-HYOSCINE AMNESIA IN LABOUR

BY

JAMES CLARK, M.B., CH.B.ED.

In the *British Medical Journal* of May 26th, 1934, there is an admirable article on hyoscine amnesia in labour by Mr. Trevor Barnett. It stresses the value of hyoscine alone in producing an amnesia which is preferable to hyoscine-morphine narcosis. Mr. Barnett has verified that the use of hyoscine without the initial injection of morphine eliminates the oligopnoea of the newborn infant. In his conclusions he stresses three conditions which make it impossible for the general practitioner to employ the method he advocates. These are:

1. The need for constant supervision during labour.
2. Occasional necessity for two nurses to control the patient.
3. That the method cannot be employed unless one is assured of the presence of the possibly necessary skilled attendants. (These, perhaps, meaning a qualified medical assistant and two nurses.)

This valuable method, then, can only be utilized in a nursing home where such skilled staff is provided.

It is my intention to try to show that a modification of the hyoscine method has proved to be of great value as a domiciliary measure. During the last ten years in general practice I have conducted eighty-four confinements on the lines about to be described. The usual antenatal examination and care are observed, and the cases selected are those which one, as a general practitioner, would select for home treatment.

Details of Procedure

Treatment is commenced when the patient complains of pains which are regular and of moderate strength. The strength and duration of pains are best gauged by abdominal palpation. I have not found that any arbitrary division between first and second stages of labour assists one's judgement. The nervous constitution of the patient and the consequent degree of fear and sensitiveness to pain are more important. As the practitioner's efforts are directed towards saving the patient from any avoidable suffering, it is better to institute the treatment too early rather than let the pains assume too severe a character. Erring on the early side does not seem to protract the labour. After all, one is dealing with a psychosomatic process and not with a stereotyped mechanism which must conform to an average standard set by textbooks.

The patient is put to bed. One nurse is in attendance. An initial light anaesthesia is induced by chloroform until the patient is quiet and sleeping between pains. (It is the experience of most general practitioners that women in labour take chloroform very well.) A hypodermic injection of hyoscine (1/100 grain) is given immediately the patient is lightly under. The hyoscine is repeated in doses of half this amount at intervals varying from half an hour to an hour. The ideal to be aimed at is that the patient should be definitely drowsy and quiet between pains. During pains discomfort is evidenced merely by subdued groans and slight restlessness. Any indication of returning awareness can be controlled by immediate inhalations of chloroform and a subsequent injection of hyoscine. This use of chloroform as an intermediary often makes all the difference between a perfect amnesia and one in which a severe pain is recalled with extraordinary intensity.

One also finds that chloroform controls any restlessness which hyoscine may produce. This, however, is rarely

necessary, as the initial administration of chloroform seems to have a subduing effect throughout. The quiet nature of a confinement conducted in this manner is such that the assistance of only one nurse is ample. After experience of the method, one learns to judge for how long during labour the patient may be left in sole charge of the nurse. She receives instructions within the discretion of the medical attendant as to the times of the next one or two injections of hyoscine. As labour progresses the dose of hyoscine is diminished to 1/300 or 1/400 grain, and the intervals of injection lengthened or shortened according to the judgement of the practitioner. I always avoid giving any hyoscine during the hour immediately preceding delivery, and administer light chloroform from the time that the anus assumes the D shape until the head is born. Should labour be delayed, as it may be in any confinement, pituitrin may be used as in ordinary cases, with certain efficiency. Ordinary everyday stimuli should not affect the patient. By these are meant daylight or artificial light, sounds of outdoor traffic, sounds of quiet voices, and of walking in the room. There is no need, therefore, to darken the room, stuff the patient's ears with cotton-wool, or preserve in the house the silence appropriate to a death-chamber.

In no case does the amnesia seem to affect the condition of the infant at birth. The delivery of the placenta is often delayed, but not unduly so; in this one respect more patience is required than in the ordinary confinement.

Maternal loss and after-recovery remain unaffected. The mother sleeps or remains drowsy for some time. Anyway, the amnesia lasts beyond delivery for a period which is directly proportionate to the extent of the amnesia induced during labour. The mother usually emerges from her amnesia with a strongly expressed disbelief that her baby has arrived.

Advantages of Method

This method is particularly valuable in general practice for the following reasons:

1. Primiparae prefer to be confined at home; the first baby is an event, and the medical attendant is expected to get the patient out of her pain as soon as possible.
2. Multiparae who have previously had protracted or exhausting labours do reasonably demand that they should not "have to go through the same again."
3. It reduces the number of instrumental labours. The practitioner is relieved of the exhortations of the patient and her relatives to "get her out of her suffering soon."

It was in such a case that the writer developed the chloroform-hyoscine technique. A young primipara was sufficiently advanced in labour as to justify vaginal examination. This she subconsciously resisted. All that could be ascertained was that the head might be on the perineum. The patient and her relatives demanded early relief. Chloroform was administered with a view to applying Milne-Murray forceps. Under light anaesthesia it was found that though the os was paper thin, the head was not entirely on the perineum. Hyoscine (1/200 grain) was given immediately and two injections each of 1/400 grain at half-hourly intervals. (Morphine was avoided on account of the advanced stage of labour.) A further administration of chloroform was given on the first appearance of the head, which was born under control two hours after the first light chloroform was given. Three hours after delivery the patient was asleep, the amnesia having continued until she was in a natural sleep of fatigue.

4. It enables the general practitioner to enhance his reputation or to establish it. Here is something that clinics do not do, something that general nursing-homes might, but as a rule do not, countenance; yet something that still maintains the status of a medical man as the family doctor.

Clinical Memoranda

CARCINOMA VENTRICULI IN A WOMAN OF 90

In view of the extreme age of the patient and the scarcity of recorded cases of stomach cancers in old people, I think the following case worthy of record.

Mrs. A., aged 90, was admitted to the City Hospital, Plymouth, on May 30th, 1934, complaining that for the previous ten days she had had constant retching and vomiting, and had been "unable to keep anything down." The bowels had not been open for the last three days, but there was no history of previous ill-health. On admission the patient was obviously practically moribund and very wasted and cachectic, and there was also cyanosis of the lips and slight oedema of the ankles.

Abdominal examination revealed a hard, freely movable mass, with well-defined margins, situated in the mid-line just below the umbilicus. The mass was about 2 inches by 3/4 inch, and was dull to percussion. Examination of the heart and pulse showed that well-marked auricular fibrillation was present. A probable diagnosis of carcinoma of the transverse colon was made, but the patient was too ill for operation to be contemplated, and she died on June 1st.

At the necropsy it was found that the mass was due to a hard, sclerosing growth of an annular type involving the pyloric end of the stomach; the edges of the growth were extremely ill defined: there was no visible ulceration of the gastric mucosa, and a few hard glands were seen lying in the lesser omentum close to the growth. No visceral deposits were present apart from the primary growth. Microscopical section of the mass demonstrated the growth to be a typical columnar-celled carcinoma. There was extreme gastric dilatation above the growth, proving that almost complete obstruction had occurred. The heart showed extreme fatty degeneration.

COMMENTARY

The literature concerning cancer in the aged is very scanty, and no case of cancer of the stomach in a patient of this age has, I believe, been reported in recent years. According to Osler the ages at which cancer of the stomach occurred in 150 cases at the Johns Hopkins Hospital were:

Age	Cases	Age	Cases
20-30	6	50-60	49
30-40	17	60-70	36
40-50	38	70-80	4

In the *American Journal of Cancer* (February, 1934, xx, 477) Shore reports that in Finsterer's series of resections of the stomach for carcinoma, one-third of the patients were between the ages of 60 and 83. Finsterer found age *per se* no contraindication to operation; in fact, while the immediate mortality in the group (60-83) was 9.5 per cent., compared with 6 per cent. in the younger patients, the percentage of five-year cures was 40 in the aged, compared with 22 in the under 60 class, showing that carcinoma of the stomach in the aged is a relatively benign condition.

It is well known that cancer of the stomach can advance to the inoperable stage without giving much evidence of its presence, and in this case, though a growth was found post mortem which must, by its size, have been present for several months, no symptoms were complained of until a few days before the patient's death from pyloric obstruction.

It is, of course, possible that carcinoma of the internal organs in the aged occurs more often than is supposed, and that the diagnosis is seldom made owing to the rarity with which post-mortems are performed in such patients, and the difficulty in getting histories from persons of advanced years.

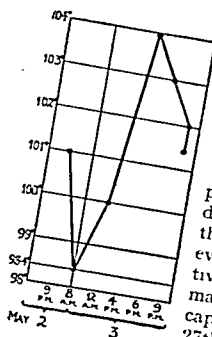
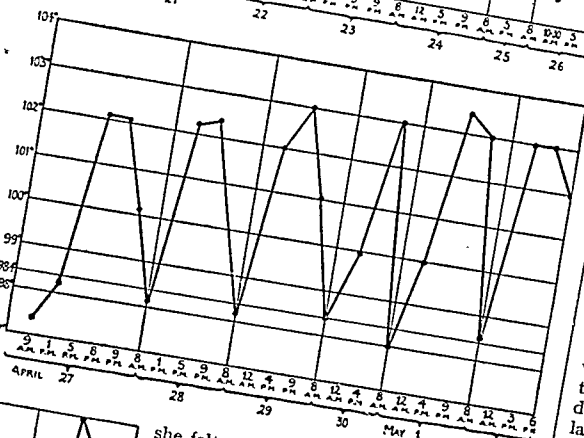
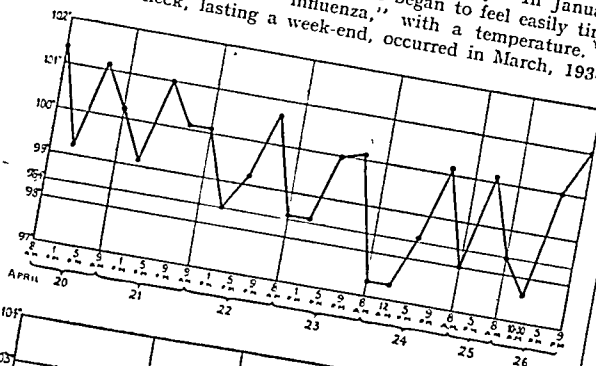
My thanks are due to the medical superintendent of the City Hospital, Mr. G. E. Larks, F.R.C.S., for permission to record this case, and to Mr. T. J. Shields, Librarian of the S.M.A. Library, for his kindness in searching the literature.

HENRY J. KNIGHT, M.B., B.S.
Resident Medical Officer, City
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A CASE OF BR. ABORTUS FEVER

The following case may be interesting to those whose work lies in association with the acute infectious diseases and to tuberculosis officers to whom cases of asymptomatic pyrexia are often referred.

Miss X, aged 35, was a school teacher, living and working in a rural area; she had always been healthy. In January, 1934, she had a bad head cold and began to feel easily tired. In February she had "influenza," with a temperature. A stiff sore neck, lasting a week-end, occurred in March, 1934;



she felt seedy, and her work was an effort to her. By lunch-time she wished it were bedtime. This post-meridian fatigue became so marked that she decided to go on holiday to North Berwick. There, during Easter, she developed a head cold, and first noted that she had a persistent temperature. Soon troublesome profuse and diffuse sweating also began to trouble her, evening and during the night. A tentative diagnosis of tuberculosis having been made, the patient was seen by me in the capacity of tuberculosis officer on April 27th, 1934. Her only complaint was her "temperature" and the drenching sweats.

Slight constipation was present, but the appetite was fairly good. The patient looked alert. The skin was velvety and clammy, and there was no loss of subcutaneous fat. Pulse rate 96, soft, compressible, and of full volume. There was no acrocyanosis. Tongue dry and somewhat furred on the dorsum, clean at the tip and edges. There were no abnormal physical signs in heart, lungs, or abdomen, and taking into consideration the fact that, despite the high temperatures, there were no evidences of toxæmia, a diagnosis of miliary tuberculosis

was thought unlikely. A provisional diagnosis of *Br. abortus* fever was made on the findings of high temperature, post-meridian fatigue, and profuse sweating, combined with the absence of localizing signs and toxæmia. On May 1st an agglutination test was performed. This gave a positive agglutination with *Br. abortus* of Bang to a titre of 1 in 5,000.

The appended day temperature charts (compiled by relatives, and therefore lacking in technical precision) show the interesting comparison between temperature, fatigue, and sweating.

S. HARVEY, M.B., Ch.B., D.P.H.

AUTOTRANSFUSION IN GRAVE EMERGENCY

The following case seems to illustrate the value of autotransfusion in certain urgent circumstances. It is therefore placed on record.

R. S., a motor lorry driver, was admitted on August 2nd to the King Edward Avenue Hospital, Dartford, with a history of "a violent fall off his lorry on to the mudguard, severely injuring his left ribs." On examination the radial pulse was almost imperceptible at 150 beats per minute, temperature 96°F., and extreme pallor obvious. The patient was collapsed, but felt tenderness and pain on pressure over lower left ribs and left side of the abdomen. The abdomen was rigid, distended, and dull on percussion from the costal margin to the left flank almost to the mid-line—definite indication of a ruptured spleen with intraperitoneal hæmorrhage.

Using open ether as an anaesthetic, the spleen was isolated, the pedicle being ligatured, and, with the splenic vessels, removed. It was grossly lacerated, and ruptured completely through to the pedicle at the lower two-fifths, the peritoneal cavity being distended with blood. The escaping blood and the free blood in the peritoneal cavity were collected to the amount of 600 c.cm., strained through sterile muslin, citrated, and returned into the circulation through the median basilic vein. Only clots were removed from the peritoneal cavity, the residue of blood with serum being deliberately left in the peritoneal cavity along with normal saline. As the autotransfusion proceeded pulse and colour gradually improved, and the patient was returned to the ward in a very much better condition than when he left it. Continuous subcutaneous saline was administered (rectal was not possible), and 1/6 grain morphine given. Apart from three slight rigors without any rise of temperature thirty-six hours after operation, recovery was uninterrupted, and the patient, after ten days, felt perfectly fit. I ascribe the success of this case largely to the autotransfusion suggested and promptly carried out with exact technique by Dr. A. N. F. Critchley, house-surgeon.

COMMENT

This hospital has a satisfactory transfusion service, with donors available with reasonable promptness, but at its best this accessibility is not comparable with that of autotransfusion, as in this case. Further, such blood must be definitely superior for transfusion to blood from the best of donors (correct group or universal), none of which can be guaranteed to be 100 per cent. free from the risk of anaphylaxis in some degree. It would be interesting to know how far the field of autotransfusion has been explored and made use of. Excluding blood from infected parts, or blood containing extraneous material, such as the contents of ruptured liver cells or bile ducts, it would seem that where the patient's own germ-free blood could be carefully collected it would prove of great service for autotransfusion in cases with danger of fatal shock through hæmorrhage—for example, ectopics, ante-partum and post-partum hæmorrhages, and operation cases in grave injuries with hæmorrhage before and during operation.

M. W. RENTON,
Consulting Surgeon to King Edward's
Avenue Hospital, Dartford.

Reviews

MEDICAL BEHAVIOUR

An extremely wise book is *The Doctor and his Patients*,¹ a collection of papers by Dr. ALBERT KRECKE of Munich, translated from the second German edition by Margaret M. Green. There are twenty-three articles, all of them relatively short, and every one of them worth while. They deal with the relations of medical practitioners with one another and with their patients, most of them written from the point of view of an experienced surgeon for the benefit of the young general practitioner. They are full of understanding both of the mental attitude of patients towards their maladies and of the difficulties of the young doctor, whether family doctor or junior specialist, in the daily conduct of his work. There is naturally some repetition, and the book should not be read straight through, but there is not a chapter which may not be read and reread with profit. Most of the articles may, indeed, be described as almost models of what the inexperienced practitioner would wish to be told, and of the way in which a senior member of the profession may best pass on the results of the experience which he has gathered to those who stand in need of it. Every operating surgeon of many years' standing must be well aware of the doubts and difficulties arising from the circumstances of his practice and the decisions with the making of which he is confronted; but not every surgeon has so clear and constant an appreciation of the psychological reaction of the patient. Papers on "How Do Patients Picture the Nature of their Malady?" on "The Prevention of Pain," and on "The Fear of Cancer," illustrate the value of such an appreciation.

Chapters of a different character are indicated by the titles "Mania Operatoria," "Operations in Patients of an Advanced Age," "The Visual Examination of Patients," and "Washing the Hands." A still further variety of questions is dealt with in those headed "The Hospital Doctor and the General Practitioner," "Collusion between Doctors," "Something Went Wrong"; and yet another under such captions as "The Doctor's Woman Assistant," "How the Doctor should Read his Weekly Journal," "The Doctor When Ill," and "Payment by One Doctor to Another." These subjects do not exhaust the contents of the book, but they indicate the wide range of kindred matter with which it is concerned. The author modestly says: "If I discuss a question concerning the mental attitude of patients it is only a matter of several perfectly innocent observations which any doctor who does not regard his profession merely as a trade might make any day"; and again, "We are not taught these little things enough in our student days. We have to learn slowly in our practice the many means by which patients can be spared mental strain"; and "A man must have reached a certain age in order to perceive that surgery is not the universal remedy for which we are often apt to take it in our youthful enthusiasm." All sorts of wisdom for the guidance of daily practice, and for the cultivation of correct judgement in emergencies will be found within the covers of this book, and just now, when the ethics and etiquette of consultation are under consideration, it might be well for all concerned to read Dr. Krecke's paper on "Is it Justifiable to Advise and Treat other Doctors' Patients?"

It was judicious to place the short biography and appreciation of the author at the end of the book rather than at the beginning, for no one can read a group of

articles like these without a desire to know who was the skilled surgeon, the untiring worker, the sympathetic friend, the wise counsellor, who penned them. The conditions in which he worked and for which he wrote are German, and it is clear from several passages that the economic stress of the medical profession in Germany, and the effects of the insurance system, are less favourable than in this country, but the character of the problems, both scientific and ethical, with which a practitioner is confronted are almost startlingly similar in that country and here. The book is valuable and the translation well done.

SYPHILIS

A full account of Experimental Syphilis,² from the earlier days in the last century, when human beings were employed for the purpose, down to modern times, when animals of many kinds—chimpanzees, catarrhines, rabbits, guinea-pigs, rats, and mice—have been much employed, is given by GASTINEL and PULVENIS. The subject is discussed from many points of view, and there are chapters given to such matters as the ways in which the infection becomes generalized, the factors that may modify its results, the curious "asymptomatic syphilis" that may be seen in rabbits or mice, the occurrence and nature of immunity to syphilis in both human beings and experimental animals, and observations on Meinecke's reaction in experimentally infected rabbits. The book is well written, and contains a deal of information; it should be in the hands of laboratory workers.

Dr. RAVAUT's essay on a New Form of Syphilis of the Nervous System³ deals with the detection of syphilis by the changes it produces in the cerebro-spinal fluid in the days before there is any clinical evidence to show that the central nervous system has become infected; he describes it as a biological form of neurosyphilis, which can be detected only by examining the fluid yielded by lumbar puncture, and no doubt it is comparable to the asymptomatic experimental syphilis of Gastinel and Pulvenis mentioned above. The importance of the diagnosis and treatment of neurosyphilis at the earliest possible moment need not be stressed; Dr. Ravaut deals with the whole subject clearly and at length, in all its different aspects. The book should be read by all medical practitioners interested in the early diagnosis and treatment of syphilis of the nervous system.

A good general account of the methods nowadays employed in the treatment of neurosyphilis in the Vienna clinics is given by Dr. DATNER in his volume on the Modern Therapy of Neurosyphilis.⁴ Professor Wagner-Jauregg has furnished the preface, and as is naturally to be expected the treatment of general paralysis by infection with malaria or recurrent fever is given in detail. The importance of the examination of the cerebro-spinal fluid is emphasized, and full descriptions of the correct methods of performing lumbar puncture and of examining the fluid by many laboratory procedures are described, with admirable illustrative coloured plates. The results of treatment with various drugs are set out, and the difficulties of assessing the values of the treatments recommended are fully recognized. The book will be found of value by all who are directly interested in the diagnosis and treatment of syphilis of the central nervous system.

¹ *La Syphilis Experimentale. Etude Critique et Nouvelles Recherches.* Par P. Gastinel et R. Pulvenis. Paris: Masson et Cie. 1934. (Pp. 244; 19 figures, 4 plates. 45 fr.)

² *Une Nouvelle Syphilis Nerveuse. Ses Formes Cliniquement Inapparentes.* Par Paul Ravaut. Paris: Masson et Cie. 1934. (Pp. 196. 45 fr.)

³ *Moderne Therapie der Neurosyphilis.* Von Bernhard Datner. Wien: Verlag von Wilhelm Maudrich. 1933. (Pp. xii + 334; 36 figures; 8 coloured plates. RM. 22.)

⁴ *The Doctor and His Patients.* By Albert Krecke, M.D. Translated from the second German edition of 1932 by Margaret M. Green. London: Kegan Paul and Co., Ltd. 1934. (Pp. 301. 10s. 6d. net.)

The illustrations and coloured plates are of a high order, though the drawings of the flies which concern themselves with meat are not up to the general standard. The work is intended for the information of meat consumers and for the guidance of those engaged in meat inspection. We think that it will serve both these objects in a thoroughly competent manner, and we recommend it to meat inspectors and medical officers in this country as a source of full and reliable information on the subject with which it deals.

PROTOPLASM AS A COLLOID

It has long been recognized that protoplasm behaves as a fluid, and that its solid constituents are not arranged in the form of anything like a fixed structure. It is a liquid, not a solid, and often a viscous liquid such as is classed by colloid chemists among the colloid solutions, or lyophilic colloids, of which examples are furnished by watery solutions of soaps, glues, and so forth. It has commonly been supposed that the massive and complex molecule of protoplasm, or biogen molecule, if such a thing may exist, is dissolved in the water that forms the major part of its substance ; or, if the idea of the biogen molecule seems too simple, one may say that protoplasm is a complex of substances of various chemical natures and in various states of aggregation, dissolved in water to form a sol while alive and liable to precipitation in the form of a gel when overtaken by death. In protoplasm and, indeed, in living tissues generally, it is the water that is commonly supposed to act as the solvent and to hold the solid constituents in colloid solution. The opposite view, however, is held by MARTIN FISCHER and MARIAN HOOKER,* who argue that protoplasm or, more generally, living matter, including the tissue juices like blood and lymph, is in essence a solution of water in a colloid matrix.

* Text-book of Meat Hygiene. With Special Chapters on Antemortem and Postmortem Inspection.
By Richard Edelmann and Martin Fischer and Marian Hooker. A. S. B. Co., New York.

⁵ *Text-book of Meat Hygiene. With Special Consideration of Antemortem and Postmortem Inspection of Food-producing Animals.* By Richard Edelman, Ph.D. Sixth revised edition by John R. Mohler, A.M., V.M.D., D.Sc., and Adolph Eichhorn, D.V.S. London: J and A. Churchill, Ltd. 1934. (Pp. 474; 162 figures, 5 coloured plates. 28s.)

⁶ *The Lyophobic Colloids. Their Theory and Practice.* By Martin H. Fischer and Marian O. Hooker. London: Baillière, Tindall and Cox. 1933. (1p. 246; 84 figures. 2s. 6d.)

The Lyophobic Colloids. Their Theory and Practice. By Martin H. Fischer and Marian O. Hooker. London: Baillière, Tindall and Cox. 1933. (1 p. 246; 84 figures. 22s. 6d.)

[THE BRITISH
MEDICAL JOURNAL]

Living cells, according to this view, are not droplets of dilute solutions in which colloid molecules (protein, fat, and carbohydrate) are suspended, but are described as lyophilic colloid systems, in which the water is dissolved in, and actually bound to, the colloid material. Protoplasm is briefly described as a base-protein-acid hydrated compound, an amphoteric electrolyte that is a solvent for water. Various applications of this revolutionary view of the constitution of living matter are made by Fischer and Hooker to such medical phenomena as oedema, acidosis, alkalosis, and the so-called permeability of living cells; they have abundant experimental methods and results to prove the correctness of their views, and argue that the physics and chemistry of dilute solutions, so long applied to the problems of living matter, should now be disregarded. They would concentrate attention on what, for lack of a better name, they call "solutions of inverse type"—solutions, that is, in which the dissolved substance is the water, the solid is the solvent.

LAW FOR THE ORDINARY CITIZEN

The plain man's ignorance of law is usually profound. This is unfortunate, for ignorance is no excuse for his breaking it. Moreover, it is no easy matter for him to ascertain the law on any given point. Legal textbooks are practically useless to him, and there are not very many good books which will explain the law to him in intelligent language. Some books of the type of *Everyman His Own Lawyer* are useful, but necessarily express themselves in general terms and attempt to cover too wide a range. *The Citizen and the Law*,¹ by "Solicitor," is without exception the best we have ever seen. One of its chief features is its vigorous detachment from the legal system, its humorous condemnation of the law's worst defects, and its wealth of illustrative anecdote. The author treats of such general subjects as litigation, the police, and dodging the law—which chiefly concerns income tax and bankruptcy—and deals at length with everyday puzzles in the field of household servants, motor-ing, and sport. He gives a very clear summary of the law of family relationships and of divorce. The chapter on doctors sets out shortly the law of qualification and the powers of the General Medical Council. "Solicitor" considers, rather surprisingly, that doctors charge too much. While he admits that many doctors charge too moderate fees or none at all to people without means, he suggests that some check ought to exist on doctors' bills similar to that by which solicitors' charges are taxed by officers of the Court. To his statement that to defend an action brought by a medical practitioner to recover his fees is generally useless, many doctors will be able to find a reply from bitter experience. One of the most serious and common bugbears of the doctor is the patient who brings a counter-action for negligence in order to avoid a perfectly reasonable account, and such actions owing to the usual sympathy of a jury with an ex-patient, not infrequently succeed. To appoint, as the author suggests, commissioners in every district to review doctors' bills would be an obvious and unjustifiable interference with private interests and the relationship between doctor and patient. It would be just as reasonable to have a similar tribunal to review the charges of every tradesman. Such tribunals have been set up in times of emergency, but there is no record that the results obtained were strikingly successful. Nevertheless, one can bear "Solicitor" no grudge for his opinions, which are sincerely held and add greatly to the interest of his book.

¹ *The Citizen and the Law*.
Routledge and Sons.

The Citizen and the Law. By "Solicitor." London: George Routledge and Son Ltd. 1934. (Pp. xiii + 249; 7s. 6d. net.)

Notes on Books

PERKIN and KIPPING's *Organic Chemistry*. Part III,* incorporates those matters which are not usually presented in a fundamental course of instruction in the subject. Such matters naturally include the newer developments of theory, the results of recent important research, questions which still await a complete explanation, and descriptions of organic substances of more than ordinary complexity. These are discussed in this part. They include the theory of valency, which is based on the behaviour of electrons, the relation of physical properties to molecular constitution, and various forms of geometrical isomerism. There is also a more extended treatment of the subject of optical isomerism than that given in the foregoing section of the work, together with an account of the optically active forms of nitrogen, tin, silicon, and sulphur. A considerable part of the volume is occupied with the study of certain groups of interrelated substances, among which are found the saccharides, the terpenes, and the carotenoids, but the alkaloids are not here included. Room has, however, been found for a monograph on the more remarkable forms of tautomeric change occurring in organic substances. All these matters are discussed with special regard to the needs of students intending to take the honours degree. The book has been carefully prepared, and forms a fitting supplement to Parts I and II of the authors' work.

In their little book on *Sex in Marriage*† Mr. ERNEST R. GROVES, research professor of sociology in the University of California, and his wife, Mrs. GLADYS H. GROVES, have attempted to give sex information to those entering marriage, in the manner and the spirit of a book for beginners in housekeeping and child nurture. The subjects discussed include the elementary anatomy and physiology of the sexual organs, the love art of husband and wife, common problems of marriage, and birth control. A short bibliography of English works is appended.

The fifth volume of the German publication on the Results of General Tuberculosis Research¹⁰ contains much of interest for workers dealing with this disease. Three of the six contributions in the present collection deal with tuberculosis in childhood. Professor Stefan Engel has written a masterly review on "The Hilus of the Child," which closely correlates pathological and radiological findings. Professor Hans Opitz deals with the difficult question of whether children with intrathoracic tuberculosis can act as sources of infection, and concludes that there is more danger for other children than is generally realized. Dr. K. Mattison (of Sweden) discusses the fate of school children infected with tuberculosis, and covers a very wide field in the whole question of the age of infection and the resultant mortality and morbidity.

We have received a copy of the latest issue of the *Liverpool Medico-Chirurgical Journal*, vol. xlii, Part I.¹¹ This contains an interesting article on language, jargon, and modern medicine by Dr. Herbert R. Hurter. Two historical articles by Sir D'Arcy Power and Professor John Hay (the latter being the Commemoration Address on the Centenary of the School of Medicine) are followed by practical papers on midwifery analgesia and allergy by Drs. R. J. Minnitt and R. M. B. MacKenna, while Professor Walter J. Dilling offers a scholarly contribution on David Waldie, prophet of the anaesthetic properties of chloroform.

* *Perkin and Kipping's Organic Chemistry*. Part III. By F. Stanley Kipping, Ph.D., Sc.D., F.R.S., and F. Barry Kipping, M.A., Ph.D. London: W. and R. Chambers, Ltd. 1934 (Pp. 967)

† *Sex in Marriage*. By Ernest R. Groves and Gladys H. Groves. With an introduction by Dr. Harry Roberts. London: Gerald Howe, Ltd. 1934. (Pp. 251. 6s. net.)

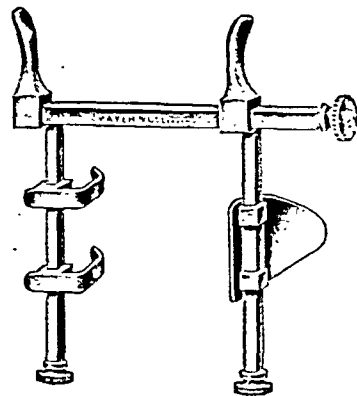
¹⁰ *Ergebnisse der gesamten Tuberkuloseforschung*. Band V. Leipzig: G. Thieme, 1933. (Pp. 427; 128 figures. M.43; geb. M.45)

¹¹ *The Liverpool Medico-Chirurgical Journal*. Edited by R. Coepe, M.D. Liverpool: Medical Institution; London: H. K. Lewis and Co., Ltd. 1934. (Pp. 132. 2s. 6d., published half-yearly)

Preparations and Appliances

RETRACTOR FOR EXTERNAL FRONTAL SINUS AND ETHMOIDAL OPERATIONS

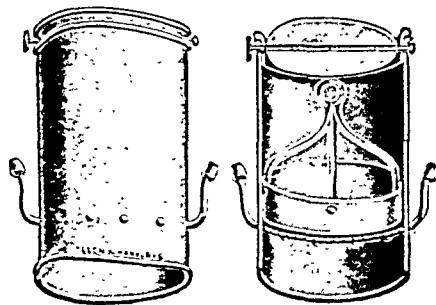
Mr. GILBERT H. HOWELLS (London, W.1) writes: The instrument described and illustrated here has proved most satisfactory in use. The broad, curved blade slips in under the orbital periosteum and retracts the orbital contents without any danger of damaging the eyeball. The two small hooks on the opposite arm slip under the integuments, and, owing to their mobility on the arm, will adapt themselves to the curve of the incision. It is made by Messrs. Mayer and Phelps, Chiron House, 59, New Cavendish Street, London, W.1.



MODIFIED ETHER INHALER

Dr. F. R. GUSTERSON (Worthing) writes: Having found Mr. Denis Browne's ether inhaler very useful for anaesthesia in children, I have modified it in the following details, and use it as a routine for adults.

1. The face end has been made wider, and the sponge rubber facepiece dispensed with, a piece of gamgee being used.
2. Two gas tubes have been inserted so that oxygen and CO₂ can be administered if necessary.
3. A lid with revolving shutter has been fitted. This enables a certain amount of rebreathing to take place, easily controlled by rotating the shutter.



I usually induce with ethyl chloride, the shutter being off. I go on as soon as possible to pure ether, the shutter being placed in position and gradually closed down. By this method the patient only breathes a warm ether vapour, a constant depth of anaesthesia can easily be maintained, and the actual amount of ether used is very small. For an abdominal operation lasting one hour, including induction, I use about 6 to 8 ounces of ether-all told.

I have to thank Messrs. Allen and Hanburys for several helpful suggestions and for making this model.

HEAT-STERILIZED SURGICAL DRESSINGS

We have received from Messrs. Southall Bros and Bartholomew Ltd. samples of dressings in sterilized packets which have been sealed by an ingenious new method. The dressing is packed completely, except for a small aperture which is covered by a film of resinous compound. It is then sterilized by moist heat at 125° C. The final drying process, at 130° C., causes the resinous film to adhere to the wrapper and thus to close the packet entirely. This automatic sealing during sterilization avoids any danger of contamination that may arise when packets are sealed after removal from the autoclave.

British Medical Journal

SATURDAY, SEPTEMBER 8th, 1934

INFECTION AND IMMUNITY IN
TUBERCULOSIS

The discovery of "Koch's phenomenon," and a disregard of the possible fallacy of comparing man with the highly susceptible guinea-pig, undoubtedly gave origin to the belief that non-fatal infection with tubercle bacilli produced immunity against subsequent reinfection. It is admitted, however, that whilst this immunity prevents rapid generalization it is, as a result of the tuberculin hypersensitivity associated with it, responsible for the destructive form tuberculosis assumes in the chronic phthisical adult. Clinical support for this view seemed to have been obtained when severe and generalized forms were found to be the rule in adults of native races—presumably the result of lack of childhood exposure to infection. When it was demonstrated that a positive tuberculin test proved tuberculous infection it seemed reasonable to assume that a positive test also indicated immunity. Two types of pulmonary tuberculosis were thus differentiated, recently labelled "childhood" and "adult" types by the American National Tuberculosis Association. The former, which is the result of primary infection, usually occurs in children, may be localized in any part of the lung, and involves the corresponding lymph nodes; and caseous lesions usually became calcified. The process results in a positive tuberculin test, and is not uncommonly followed by generalization. The adult type, on the other hand, which is the result of reinfection (whether exogenous or endogenous), usually occurs in adults, and is apical in localization, the nodes are not involved, and caseation is followed by excavation and fibrosis.

Recent work, however, suggests that these conceptions may have to be much modified. Rich¹ has shown that tuberculin hypersensitivity and immunity can exist independently, and that hypersensitivity may be abolished while immunity persists. Research in South Africa² has shown that nearly 70 per cent. of the "boys" arrive at the mines tuberculin-positive, and that "a highly fatal type of combined pulmonary and 'generalized' tuberculosis" is more common among those who were positive—clinical evidence of the disappearance of immunity while hypersensitivity persists. Moreover, recent investigations among medical students and nurses indicate that the response of the adult white to a first infection also differs entirely from that of the negro. Heimbeck³ found that nearly all the Pirquet-negative probationers—about half the number—become positive before the end of their training (during which

they come in contact with over 300 tuberculous patients), and that 29.6 per cent. develop some clinical manifestation of tuberculosis, as contrasted with 2.6 per cent. in those Pirquet-positive. A very large percentage of these "manifestations"⁴ consist of erythema nodosum and pleurisy, and "pulmonary infiltrations" appear to be of the mild childhood type. Greer⁵ found that nearly all the 70 per cent. of nurses who were tuberculin-negative (Mantoux 1 in 100) on entrance became positive, but, since 1930, only three (about 2 per cent.) have developed "tuberculous disease"—two pleurisy with effusion, and one a parenchymatous lesion of adult type. Shipman and Davis,⁶ on the other hand, state that the majority of the 40 per cent. tuberculin-negative nurses (Mantoux 1 in 10,000) did not become positive later, and that most of those who developed clinical tuberculosis were tuberculin-positive on entrance. They point out, however, that their nurses had little opportunity for tuberculous contact. Myers⁷ finds that nearly all the tuberculin-negative medical students at Minnesota University become positive during their training, but that this is accompanied in less than 25 per cent. by symptoms or physical signs (which consist of pleural effusion and/or small x-ray shadows, which soon disappear). Reviewing the subject, he notes that adults tolerate well the first infection type of tuberculosis, and that it differs in little respect from that in children, most of whom also pass through this phase without symptoms other than a positive tuberculin reaction. Naturally a smaller number of such cases are seen in adults (in whom they are detected only by systematic routine examination), and in children miliary and meningitic forms not uncommonly follow. Myers concludes that "the development of rapidly progressive and highly destructive disease in adults who have not been previously infected is apparently a myth." His views therefore support Stewart's⁸ plea for the use of the terms "first infection type" or "primary tuberculosis," and "reinfection type." The latter would probably cause less confusion at a time when the tuberculin sensitization appears to be much lower than is commonly considered.

It is essential to point out the lack of uniformity in the criteria adopted in these investigations as regards the type of tuberculin test employed, definition of clinical tuberculosis, and the opportunities for contact. The last is of great importance also in attempting to answer the question often put as to whether a tuberculin-positive or -negative child or nurse is more liable to "develop tuberculosis." According to the views quoted here the following would appear to be a "working" answer. When both are exposed to massive contagion the negative individual will almost certainly develop a symptomless or mild primary tuberculosis, which may become generalized in a child. The positive individual (child or adult) will perhaps develop

¹ *British Medical Journal*, Epitome, 1927, ii, para. 243.² *Ann. de l'Inst. Pasteur*, 1929, xlii, 1229.³ *Arch. Int. Med.*, 1932, xlix, 77; *Trans. Nat. Tuberc. Assoc.*, New York, 1932, p. 118.⁴ *Amer. Rev. Tuberc.*, 1933, xxvii, 474.⁵ *Ibid.*, 1933, xxix, 93.⁶ *Journ. Amer. Med. Assoc.*, 1933, c, 1077.¹ *Lancet*, 1933, ii, 521.² *Pub. South African Inst. of Med. Research*, Johannesburg, 1932, vol. v, No. 30.³ *Acta Med. Scand.*, 1930, Supplementum No. 34, p. 143; *Presse Méd.*, 1932, xl, 528; *British Medical Journal*, Epitome, 1932, ii, para. 27.

chronic phthisis (exogenous reinfection). This may presumably also occur later on in a primarily infected individual if the contact is prolonged. When there is no source of contagion the positive individual is at a disadvantage, as any lowering of his general or specific resistance may result in chronic phthisis (in both adult or child) owing to the presence of living bacilli somewhere in the body (endogenous reinfection). And clearly there is much more opportunity for lowering of the resistance in the adolescent than in the school child. If a primary tuberculous infection can be said to constitute an *individual* handicap—and prevention should consist in avoiding as long as possible a first infection with *virulent* bacilli—a positive tuberculin test may theoretically prove to be so in another way. B.C.G. vaccination is said to produce tuberculin hypersensitivity as well as immunity. While the vaccinated child would benefit by the prevention of generalized forms, the protected adult, who is not liable to the latter, might after vaccination be at a disadvantage when meeting his first virulent infection owing to this destructive hypersensitivity. It would be of great interest to have full individual details, in addition to numbers, of the tuberculous cases amongst Heimbeck's¹ B.C.G.-vaccinated and non-vaccinated nurses originally Pirquet-negative.

FALLACIOUS GENERALIZATIONS

It seems to us necessary to utter a word of protest about an article which appeared in a recent number of *The Listener* under the title "The Frustration of Medicine." This is the more needed in that the article was written by Professor Mottram. Anything he says is bound to have considerable weight, and should carry with it the assurance of scientific thought and accurate statement. The article in question does not confirm this assurance. Of course nothing written by Professor Mottram can be wholly without value, and in this article he points out the real need for further financial aid for medical research, illustrating this need by several excellent examples of what might be easily accomplished if adequate means were forthcoming. His main theme would seem to be the unfortunate effects of the lag in the practical application of the results of research in the medical field, and of the unscrupulous exploitation of some of those results for commercial rather than for scientific purposes. Here is a subject whose discussion might have been of great interest and value, though the reasons from which this lag arises are by no means necessarily unworthy.

Professor Mottram, however, departs widely from this main theme, and the general effect of a large part of his article on the great majority of his uninformed readers must be to produce a false impression, both as to medical education and as to the knowledge, skill, and even honesty, of general medical practitioners. Here again, of course, it has to be admitted that there are serious defects in medical education (though the

standard attained in this country may be truly described as the highest in the world), and that among the many thousands of general practitioners there are a number who fail to live up to their opportunities. It is, however, unwarrantable, and may indeed be highly mischievous, to build upon these defects or exceptions such general statements as Professor Mottram makes. It is not true to say that "the academic part of the medical student's training is hopelessly inefficient"; that "in ninety-nine cases out of a hundred he sloughs his scientific training when he enters the wards"; that of "biology, chemistry, physics, physiology, and anatomy he gets but a smattering, and of their serious import nothing"; that "only when the medical student is at last in the wards does he come into contact with anything which seems even remotely connected with his life's work." Incorrect, too, is the general statement which Professor Mottram makes that "it is only by a deep critical study of a subject that a man can begin to discover the spirit of scientific work." Happily even more than a beginning can be made by something less than this, otherwise not merely medical education but all general education would be impossible in less than a life-time of study, and then only for a few. Again, as to post-graduate study in some reasonable form, Professor Mottram is unduly pessimistic. He "hails with delight" the establishment of the new post-graduate medical school at Hammersmith, but prophesies that it will be attended only by "medical officers of health whose local authorities have the wisdom to subsidize them, keen private practitioners with private means, and budding consultants." The use made even of the existing limited facilities does not justify any such forecast; and has Professor Mottram never heard of the fund which enables certain insurance practitioners, whose circumstances would otherwise make it very difficult for them, to attend post-graduate courses?

Apart from this erroneous description of the general practitioner's education and of his attitude towards advances in professional knowledge and practice, the one concrete example which Professor Mottram gives of the inadequacy of the G.P. is with regard to the use of insulin in the treatment of diabetes. He says: "The general practitioner has neither the time nor the scientific background to understand the factors at work in producing diabetes nor the relation of insulin to diet and intercurrent disease." We cannot accept this of general practitioners as a class. It is true that the initial experimentation with a view to securing the correct balance between diet and the insulin dosage must in many cases be conducted in hospital, but Professor Mottram knows that this is a relatively short business and that the conduct of these cases is as a rule successfully supervised over a period of years by the general practitioner. Again, as Professor Mottram is not aware that insulin can be, and is, obtained for insured persons as readily as any other drug or preparation, and that the treatment of diabetes amongst such patients by insurance practitioners is a commonplace?

It is no reply to say that such treatment is unsuccessful because diabetics ultimately die.

It would be germane to inquire of Professor Mottram what is the implication of his statements that "no poor person, no one without well-to-do relatives to back him, can easily enter the medical profession: a career is not open to talent unless there is financial backing," and that "at the end of his training he is stranded . . . if he has no private means." Even in the days when scholarships were far less abundant than now these disabilities were frequently overcome; and, though the existence of certain scholarships is admitted in the article, there is no mention at all of the "senior scholarships" of local education authorities which of recent years have been granted, in quite numerous instances, to deserving students with inadequate means to enable them to pursue a medical course. But the statements quoted have no real force unless Professor Mottram believes, as he seems to imply, that everyone who "thinks he would like to be a doctor" and has passed the necessary preliminary tests ought to be supplied from public resources with the funds to go through his medical course and to set up in practice.

THE SWAB IN DIPHTHERIA DIAGNOSIS

A remarkable diversity of opinion and practice is revealed in the correspondence recently published in these columns on the subject of diphtheria diagnosis. Its origin is the allegation by Dr. E. James, supported by Dr. Sanctuary, that the results of swab examinations are so untrustworthy that swabbing were better abandoned. This, of course, should not be so. For a false report the blame may lie either with the practitioner or with the bacteriologist; a false negative usually with the former, since its common cause is failure to apply the swab to the actual site of the lesion. The technique of swabbing is an important factor, and it should be more generally realized that the lesion in diphtheria (when it is not laryngeal or nasal) may affect only a small area on the fauces; the swab should be applied to this and this alone, and not rubbed indiscriminately over a wide area. Likewise a swab heavily contaminated with saliva should be rejected, and the process repeated with another. The false positive may have one of two chief explanations: the patient may be a carrier of diphtheria bacilli and yet be suffering from a tonsillitis due to some other micro-organism; or the bacilli cultivated, although having a typical or suspicious appearance, may be avirulent diphtheria bacilli or diphtheroids. A positive report is the only safe course in doubtful cases pending further laboratory investigation. The errors due to all these causes should not be so numerous as to lend any support to Dr. James's proposal, and the answer to his complaint is better technique both at the bedside and in the laboratory. That the swab has many other uses than the diagnosis of the doubtful acute case we are reminded in the letters of Dr. A. G. Newell and Dr. French. That the laboratory might do more than it usually does to obviate delay, especially at inconvenient hours, when the post serves poorly, and at week-ends, is probably the opinion of many. This is in part a question simply of transport, com-

munications, and working hours; but in one respect it may be a question of technique, and if Dr. Ponder's admirable practice of examining direct films were generally followed, not only would most cases of frank diphtheria receive laboratory confirmation at once instead of on the following day, but fewer cases of Vincent's angina would go unrecognized, as unquestionably they often do at present. This proceeding, however, calls for a greater expenditure of time and a considerably higher degree of skill—if it is to yield the full results of which it is capable—than the ordinary practice of culture alone. The gravest conflict of opinion in this correspondence concerns the clinical aspect of diphtheria and the possibility of diagnosing the disease by its physical signs. The letters of Dr. A. T. Blease and Dr. Newell present a sharp contrast in this connexion, the former insisting that a diagnosis is sometimes impossible on clinical grounds, the latter emphasizing the well-known clinical points of distinction between diphtheritic and streptococcal tonsillitis. We find another divergence of opinion between the letters of Dr. P. R. Wallis and Dr. D. M. Gray: the former contends that if enough suspicion of diphtheria exists to call for a swab examination that suspicion demands the immediate administration of antitoxin; the latter recognizes a class of case in which antitoxin may be withheld until a swab report is obtained. Dr. Wallis would no doubt except from his rule the case in which a swab is only taken as a safeguard against a remote contingency; his proposal is incompatible with the suggestion that all sore throats should be swabbed. To pretend to judge between the conflicting opinions of so many experienced observers is more than we wish to undertake, except to propose the lame though obvious compromise that every case must be judged on its merits, taking into account not only the features of the case itself but the surrounding circumstances. If every practitioner devoted as much thought to this subject as the writers of these letters, it would become evident that diminishing the dangers of diphtheria is less influenced by matters of disputed clinical policy than by alertness and determination to take effective steps of some kind with the least possible delay. This whole controversy is, of course, superseded in importance by the issue introduced in the last sentence of Dr. Newell's letter. Our main business as a profession should not be to cure diphtheria but to prevent it, and if any further public health officers are to be appointed to deal with this problem, as is suggested by Dr. Crawford, prevention should be at least their chief concern. The number of children immunized in this country is still lamentably small, and much more could be done by the practitioner as well as by many public health authorities in advocating timely immunization. That this is an effective proceeding, and not merely safe but often unattended by even slight discomfort, should be preached insistently. Misguided public opinion has a lot to answer for, and in no respect is it more to blame in this country than in its attitude to all methods of immunization; between the ultra-moderns who believe in nothing unless they get it through a hypodermic needle and that large section of the population which maintains an almost religious prejudice against any sort of "inoculation" the common-sense intermediate class is still smaller than in many other countries.

BIOGRAPHY IN MEDICAL HISTORY

Of the six main articles in the July instalment of the *Annals of Medical History*¹ three deal with biography and three more or less with the wider aspects of the evolution of ideas, thus holding a balance on the question whether information about individual leaders and prominent members of the profession, or the progress of medical science, or both combined, should be the real object and ideal use of medical history. Thus baldly stated it is clear that medical history should be primarily devoted to consideration of fundamental principles and the development of ideas. But this is not all; the record of a man's life may be small beer and gossip, which, however attractive to the casual reader, is not of any permanent value, whereas the biography of a Hunter, Harvey, Pasteur, Lister, or a Virchow may describe and explain the birth and gradual growth of new conceptions and solid discoveries. In the case of science it would not be impossible to expand Thomas Arnold's definition of history generally as the biography of nations. The personal interest may be combined with the history of the achievements initiated or furthered by the individual. Thus the first article in this number of the *Annals*, that by Dr. Birkhaug of Paris on Albert Léon Charles Calmette, which may be included among the three of a biographical character, sets out the record of his work on tuberculosis, the history of the *Bacillus Calmette-Guérin* (B.C.G.), the invention and success of antivenin serum, and his recent work on cobra venom and its cytolytic action, with its possible application to human malignant disease. The graphic account of his persecution by the Germans when they captured Lille shows that there is an exception to prove the rule that science has no frontier boundaries. In contrast to this are the lives of two American practitioners, eminent in their, but not in all, time. The first, Walter Brashear, was a brilliant surgeon who, after an adventurous visit to China, declined a chair of surgery in Paris and retired thirty-six years before his death at the age of 84 in 1860 in order to make a fortune, first in politics, then in trade and planting in Louisiana, and was never a writer or a teacher. Dr. Guy Hinsdale's biographical note on the second, J. P. Moorman, gives the details of a resident physician at the White Sulphur Springs, Virginia, for the long period of forty-five years; he sat for two terms in the Virginia House of Delegates and for forty-five years was an elder in the Presbyterian Church. In his article on men and events in the history of the Philadelphia Pathological Society Dr. David Riesman combines many thumb-nail sketches of its presidents and of a few honorary members with a review of the changes that pathology has gone through in three-quarters of a century. Of one honorary member he says: "Virchow did for pathology what Vesalius did for anatomy." The influence of the Paduan professor's *De Humani Corporis Fabrica* on anatomy can be judged by Dr. W. T. Dempster's account of European anatomy before Vesalius. Another useful article is Dr. A. E. Fossier's history of medical education in New Orleans from 1834.

¹ *Annals of Medical History*, New Series, vol. vi, No. 4, July, 1934. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Pp. 291-380; illustrated. Volume of six numbers, £2 15s.; single number, 12s. 6d.)

MALARIA IN TRINIDAD AND TOBAGO

In a recent public lecture at Port-of-Spain Dr. E. de Verteuil, acting deputy surgeon-general, described the malarial survey of Trinidad and Tobago which began in 1930, and which had revealed a high spleen and parasite rate in several areas. Atebrin had been found effective in destroying the parasites inside the human host. While pond breeding places had been brought under control, the problem of dealing with the rice fields remained for solution. In Indian settlements and native villages a high degree of immunity seemed to have developed, but until the mangrove swamps had been attacked such towns as Port-of-Spain were riddled with malaria. Some of these swamps still persisted, and called for eradication. A similar process of land reclamation and parasite control had been extended along the shores, rendering it possible for new villages to come into existence without increasing the liability to infection. For the last three years special attention had been directed to the rice fields. Drainage operations were now being conducted with a view to the abolition of breeding places, and considerable success had been achieved, especially in those detected near the larger centres of population. These had resulted also in the improvement of the general sanitation, the provision of recreation grounds, street widening and the opening up of crowded areas; and the relief of housing congestion in certain parts of Port-of-Spain. Tobago still needed energetic treatment, for the malarial strains there were particularly virulent. Only a few swamps would have to be dealt with to ensure the permanent extinction of the disease in a year or two.

THE SPLEEN AND CARBOHYDRATE METABOLISM

The modern conceptions as to the function of the spleen do not in general include that of an endocrine organ. The suggestion was recently put forward by certain Japanese workers that the spleen had an anti-parathyroid function, the removal of the organ in rabbits leading to a marked increase in serum calcium: injection of splenic extracts were reported as diminishing it. This work has not as yet been confirmed, and it is not easy to reconcile such findings with either the histological structure of the organ or the results of its ablation in man. The possibility of some connexion between the spleen and sugar metabolism was put forward as long ago as 1924 by Charles Richet and some of his pupils. Thus Rathery found that the extirpation of the spleen in dogs led to a more or less persistent rise in free and combined carbohydrate in the blood, suggesting that the spleen might contain or elaborate an insulin-like substance. That a certain amount of insulin may be extracted from tissues other than the pancreas is well known, but the results of Rathery were interpreted as indicating the presence of a substance other than insulin. More recently Piessinger and his co-workers have reopened the question, and in a new series of experiments Rathery, Cosmulesco, and Grignon¹ re-examine the problem. These authors used an extract of spleen and followed the effects on the blood sugar of dogs after intravenous injection under

¹ *Presse Méd.*, June 13th, 1934.

various conditions. Details of the preparation of the extract are not given, but it appears to have been obtained by simple defatting and deproteinizing the splenic tissue. Having satisfied themselves that the blood sugar depressing effect was demonstrable in dogs, they proceeded to try it on diabetic human subjects, 2 c.cm. of the extract being injected intravenously. In eight out of ten cases the injection was followed by a more or less marked fall in blood sugar, the maximum fall being reached about one and a half hours after the injection, and the original level again in some two to three hours. In association with insulin the spleen extract seems to accentuate the insulin action. The suggestion is made that it might be useful to combine insulin injection with that of spleen extracts in certain cases of diabetes. The possible existence of a sort of activator of insulin in the body has been put forward recently by Himsworth, and it may be that the splenic extract here considered is of importance in this connexion. In none of the cases of diabetes treated with the spleen extract was there any question of hypoglycaemia, the fall in blood sugar rarely exceeding some 30 to 40 mg. per 100 c.cm. No suggestion is made (perhaps wisely) as to the mechanism of action of the spleen extract.

THE NATION'S FOOD SUPPLY

The Food Investigation Board, which has as its primary object the improvement of the food supply for the people of this country, has always followed the practice of according precedence first to home-grown, then to Empire, and finally to foreign produce. In its annual report, issued on August 20th by the Department of Scientific and Industrial Research, are reviewed the aims of the research work, now costing some £45,000 a year, which has been carried out on the transport and storage of foodstuffs. For example, the Torry research station finds that the period during which fish can be kept in first-rate condition on a trayler by the customary method of stowage in crushed ice can be extended from five to seven days to ten to twelve days. Work has also been done on the herring, with a view to improving the smoking of this fish and the production of a milder salt-cured herring. The latter has been obtained by a compromise between salting and cold storage. One interesting point emerges here—that kippers made from herrings which have been rapidly frozen in cold brine and then stored at low temperature for as long as four months are barely distinguishable from kippers made from the freshest fish. As regards meat storage, investigation has shown that beef can be maintained in perfect condition in the chilled state for sixty to seventy days in a 10 to 20 per cent. atmosphere of carbon dioxide, so that, providing gas-tightness can be secured in ships' refrigerated spaces, it would be possible to send Australian and New Zealand beef to this country in chill. Bacon cannot be stored successfully for any length of time by cold alone, and experiments have shown that this difficulty may be to some extent solved by the use of a complete atmosphere of carbon dioxide. Fruit storage is a somewhat complicated problem, and the best temperature for each variety can be found

only by careful trials. There are now twelve gas stores for apples in this country, and several more are in course of construction. Most of them are intended for England's most important cooking apple, the Bramley seedling. It is interesting to note that the correct atmosphere for these apples can be obtained by allowing them to produce their own carbon dioxide and controlling its amount by regulating the ventilation. Empirical storage trials should yield much important information as to the possibilities for other apples, and considerable progress has been made during the last two years with Cox's orange pippin. The flavour is, however, apt to be elusive: in this apple full flavour is not developed after effective gas storage until the fruit has been subsequently kept in air at ordinary room temperature for several days. Further research is being undertaken on these points. Other activities of the Food Investigation Board include work in an experimental ship's hold at the Ditton laboratory. This is designed to improve conditions under which food-stuffs are carried on board ship.

CONTROL OF TRAFFIC IN NARCOTIC DRUGS

The annual statement prepared by the Home Office for the League of Nations on opium and other dangerous drugs¹ reports that during 1933 there were no considerable seizures nor indications of illicit traffic in Great Britain, and repeats the assurance that "drug addiction is not prevalent" in this country. The alkaloids codeine (methyl-morphine) and dionin (ethyl-morphine) have now been brought under control as regards manufacture and distribution, import and export. Last year 35,890 ounces of codeine were produced and 23,366 ounces exported direct by the manufacturers. Great Britain is innocent of production of raw opium, prepared opium, Indian hemp, and coca leaves. Cocaine is, however, permitted to be manufactured by one firm in London, and last year 16,023 ounces were so produced. Two firms, both in Edinburgh, are licensed to manufacture morphine, and 30,757 ounces of morphine alkaloid and 44,169 ounces of morphine salts were produced last year. It has, however, to be remembered that morphine is largely used for conversion into codeine, 26,089 ounces having been so utilized in 1933. The export of British-made morphine was less than in the previous year and greatly less than was the case only a few years ago; 16,156 ounces were exported in 1933. While the story of unmasking illicit traffickers in narcotics in this country is not as dramatic as that related by Russell Pasha in Egypt, two cases of interest are noted in the Home Office report. One arrest in September, 1933, made by the London police on information from Canada of a trafficker in opium when landing, disclosed that the illicit supplies were derived from one Karl Jorgenson, a Norwegian resident in Belgium, who has since been expelled from that country. In the other case Gandarillas, a Spanish subject, was found, on landing at Southampton from Havre on a transatlantic liner, to be in possession of 140 lb. of opium. Communications with the German police traced the source of this

¹ The Traffic in Opium and Other Dangerous Drugs. Report to the League of Nations by His Majesty's Government in the United Kingdom of Great Britain and Northern Ireland for 1933.

contraband to one Otto Janffmann of Hamburg, who was found to be identical with the well-known trafficker Edward Bender, who, when released on bail in America, had fled to Europe. According to the latest information Bender is awaiting trial in Hamburg for offences in connexion with narcotics among others. The new draft convention for the suppression of illicit traffic in dangerous drugs is now being submitted by the Council of the League of Nations to the various Governments in an amended form; twenty-three Governments have thus far indicated approval, while the United States and South Africa have intimated that they are not prepared to participate in the new Convention.

ENGLISH HOSPITAL DEVELOPMENTS

The Quarterly Bulletins of the Health Organization of the League of Nations can be relied upon to contain valuable and accurate summaries of national or international health activities in some part of the world which form material for the information and guidance of other responsible health authorities. Extract No. 8 of volume iii of these Bulletins, now published as a separate pamphlet under the title *Recent Tendencies in the Development of General Hospitals in England*,¹ is no exception to this rule. It is compiled by Dr. Melville D. Mackenzie, a member of the Health Section of the League of Nations secretariat, and is a model of accuracy, selection, and arrangement. It is in two parts, the earlier dealing with matters of hospital administration, the later with those of hospital construction. Neither part contains much that is not known to those who are actively associated with either of these aspects of hospital work, but nowhere else, within relatively small compass, can be found such a complete and reliable survey of these fields. The work of the British Medical Association in relation to hospital policy and administration is acknowledged and adequately set out in relation to medical staffs, pay-beds, provident schemes, contributory schemes, out-patient departments, and the collaboration between voluntary and council hospitals. The peculiar position of nursing homes in the English system is described, and the ways in which they are beginning to be brought under regulation by local authorities are noted. In this connexion the "home hospitals" mentioned in the Association's Scheme for a General Medical Service for the Nation are referred to, and some of the reasons which make such provision necessary are stated. The question of establishing or continuing special hospitals for chronic cases only is discussed, and the particular needs of maternity, of mental, and of infectious cases are not overlooked. There is in the pamphlet no advocacy of any particular policy: it is an impartial statement of prevalent ideas, views, and suggestions. As such, it forms a most valuable, and almost indispensable, basis for further discussion by committees or at conferences which, during the ensuing year, will be considering some or all of these aspects of hospital work with a view to early and practical application.

¹ *Recent Tendencies in the Development of General Hospitals in England*. By Dr. Melville D. Mackenzie. Quarterly Bulletin of the Health Organization of the League of Nations. Vol. iii. Extract No. 8.

PUBLIC HEALTH IN SOUTH AFRICA

Science, it is said, knows no frontiers, and so medicine, as a science, is one the world over. Nevertheless, according to latitude and the like, its occasions differ, and even without passing the frontiers of the British Empire we find the widest variety in the scope and method of its applications. Thus in the Union of South Africa it is, as here, recognized that every medical practitioner should be trained in preventive medicine, and yet the climate and conformation of the country, its racial make-up, and its endemic diseases all raise problems which differ notably from those encountered in England. A work on public health in the Union, issued by Dr. E. H. Cluver¹ at Johannesburg, brings out these points well, and presents a most informative picture of the duties and the opportunities alike of the practising doctor and the medical administrator in that sunny land. The essentials of meteorology, ventilation, lighting, water supply, and nutrition are stated with exemplary clearness. The view is expressed that in South Africa indoor fires are an unhygienic luxury, and the question of plumbo-solvency is treated more in the interests of the water-pipes than of the human subject. The importance of town planning is urged, pre-planning for the growing towns, re-planning for those which have grown awry. Special merit belongs to the section on the prevalent communicable diseases, including the control of typhoid fever, with its H and O agglutinations; of plague, now enzootic among veld rodents; of small-pox, which has not been epidemic since 1881; and of typhus, which is an endemic infection of the Transkei and Ciskei natives. Rabies is enzootic in the yellow mongoose. Of leprosy there are over 2,000 cases in institutions. Tuberculosis in the mines is ascribed not to silica but to sericite. Malaria prevails along the Natal coast and in the low veld of the Transvaal, and schistosomiasis is widely endemic in the lands drained by the eastward-flowing rivers. Dr. Cluver's book reveals the wide range and interest of medical practice in South Africa. It is intended primarily to meet the requirements of medical and D.P.H. students in the University of Witwatersrand. They could not, we think, be better served. It should make also, as suggested in a foreword by the Chief Health Officer of the Union, a wider appeal to doctors and medical and lay public health workers, who will derive from it sound doctrine and valuable guidance to aid in deciding what course to follow in an hour of stress.

Sir George Seaton Buchanan has been appointed Master of the Society of Apothecaries of London for 1934-5, and Sir William H. Willcox and Dr. J. S. Fairbairn, Senior and Junior Wardens, respectively, for the same year.

We regret to announce the death in Copenhagen, on September 1st, of Professor Carl Olaf Jensen, director of the Danish Agricultural and Veterinary School, whose name is known throughout the world for his researches on cancer.

¹ *Public Health in South Africa*. By E. H. Cluver, M.A., M.D., D.P.H. Johannesburg. Central News Agency (32s. 6d.).

Nova et Vetera

THE MEDICAL AND MENTAL HISTORY OF DR. SAMUEL JOHNSON

Dr. W. Russell Brain, writing as a physician and neurologist, has contributed to the May number of the *London Hospital Gazette* a valuable paper on the medical history of Samuel Johnson. He calls his essay "A 'Post-Mortem' on Dr. Johnson" and read it to the Osler Club. It is much more than an anamnesis of an autopsy, for Dr. Brain considers some aspects of his subject which could not possibly be discovered after death—aspects which throw a new light on the mentality of one who dominated the literary circles of his generation and yet himself suffered from an inferiority complex.

The main outlines of Dr. Johnson's bodily health are well known. He had tuberculous glands as a child, and Queen Anne "touched" him for their cure. He suffered from such a high degree of myopia as to be practically blind in one eye. He was so hard of hearing that in later life he sat in the gallery at St. Clement Danes as close as possible to the pulpit. He suffered so severely from indigestion that he once wrote to Mr. Hector, whose sister was his first love, "My health from my twentieth year has been such as seldom afforded me a single day of ease." He had more than one cerebral thrombosis, and late in life he had asthma. A post-mortem examination was made in the presence of Drs. Heberden and Brocklesby and Mr. Cruikshank. The record exists, and from it, in the light of modern knowledge, Dr. Brain says:

"The pathological findings would appear to be due to hyperpiesia and chronic heart failure, ischaemic kidneys, chronic emphysema, and cholecystitis. Some writers have assumed that Johnson's asthma was bronchial asthma. This is unlikely, in view of its late onset; and his dyspnoea seems to have been due at first to emphysema and later to 'cardiac asthma'."

The most interesting and wholly new part of the essay is that dealing with a psycho-analysis of Dr. Johnson, and it gives much food for thought. Dr. Russell Brain, speaking as a neurologist, says:

"Johnson's physical infirmities were probably less distressing to him than his disorder of mind, of which the most obvious manifestations were his remarkable involuntary movements. . . . His gesticulations, like most of his other characteristics, were on a large scale. At times he would hold his hands at his breast in motion 'like those of a jockey at full speed.' He would stretch out his arm with a full cup of tea in his hand in every direction, to the alarm of his immediate neighbours. 'Sometimes,' says Miss Reynolds, 'he would twist himself round with his face close to the back of his chair and finish his cup of tea, breathing very hard, as if making a laborious effort to accomplish it.' He went through complicated manoeuvres with his feet, and had to carry out an elaborate ritual of movements before he would pass through any door. Sometimes he would stop in the street to gesticulate. . . . One Sunday morning in Twickenham Meadows his antics caused a crowd to collect. When he sat down by the river they nearly dispersed, but 'he pulled out of his pocket Grotius' *De Veritate Religionis*, over which he saw-sawed at such a violent rate as to excite the curiosity of some people at a distance to come and see what was the matter with him."

"Another symptom of his mental abnormality was his melancholy, which, in his own opinion, he inherited from his father. He seems to have first suffered from this when at Oxford at the age of 20. . . . He had a particularly severe attack when he was 56. . . . His fear of death was a constant obsession, and was probably the cause of that hysterical outburst of laughter which was aroused by Langton's making his will. He sat up late at night to avoid being left to himself. 'I lie down (said he) that my acquaintance may sleep; but I lie down to endure oppressive misery; and soon rise again to pass the night in anxiety and pain.' Yet Fanny Burney could say of him, 'Dr. Johnson has more fun and comical humour about him than almost anybody I ever saw.'"

"What was the nature of his disorder of mind? Was he, as he himself, to Boswell's distress, said, 'mad all his life, at least not sober'? Periodical melancholy, or at least depression, naturally suggests manic-depressive psychosis. Yet there are several reasons for believing that Johnson's depression was not due to a psychosis. The most important

is that to a large extent his lowness of spirits could be dispensed by distraction of mind, which leaves psychotic depression untouched. He himself practised distraction of mind as a cure for melancholy, and often recommended it to others. An amusing example of his method is given by Mrs. Piozzi. . . . When Dr. Johnson felt his fancy, or fancied he felt it, disordered, his constant recurrence was to the study of arithmetic; and one day that he was totally confined to his chamber, and I inquired what he had been doing to divert himself; he showed me a calculation which I could scarce be made to understand, so vast was the plan of it and so very intricate were the figures: no other indeed than that the National Debt, computing it at one hundred and eighty millions sterling, would, if converted into silver, serve to make a meridian of that metal, I forget how broad, for the globe of the whole earth, the real globe."

Johnson's melancholy, like his gesticulation, was a symptom of his severe obsessive-compulsive neurosis, says Dr. Russell Brain, and he concludes a very valuable essay by considering what Freud, Adler, and Jung would have made of Johnson. Freud, he thinks, would fit him in the somewhat Procrustean bed of Jocasta. Johnson's wife, old enough to be his mother, must surely have been a mother-substitute, and Mrs. Williams, Mrs. Desmoulins, and the other queer old ladies with whom he lived in a kind of platonic polygamy would have held a similar position. Adler would regard Johnson as a man of exceptional ability suffering from the fatal psychological handicap of several forms of inferiority; his physical defects of poor vision and facial disfigurement, his lack of comeliness relative to his younger brother, and his hampering poverty must all have been thorns in his flesh when he considered his intellectual capacity and what he might have been had it not been for these handicaps. Jung would classify him in the group of "thinking extroverts."

"In his religion intellectual dogmatism seems to have taken the place of mystical experience, and he was racked by a sense of guilt which made the thought of death an intolerable obsession. . . . Though in no sense a Pharisee, yet psychologically he was a whitened sepulchre, without—the *Thirty-nine Articles*, within—the dead men's bones of pessimism, terror and despair."

Dr. Brain's final picture of Johnson is that of a man of genius, harassed by physical infirmity and mental ill-health, failing to find adequate employment for his talents and satisfaction for his ambitions, yet triumphing over all handicaps and achieving an immortality in human affection that would have been denied to the successful politician or lawyer he might have been.

THE PORT OF LONDON IN 1933

General interest attaches to many parts of the annual report for 1933 of the medical officer of health for the Port of London, the extent of which is from Teddington Lock to the entrance of Havengore Creek in Essex and the Warden Point in Sheppey. The tonnage of entering vessels exceeded that of 1932 by more than 1,239,000 tons. Of the 13,575 vessels arriving from foreign ports 1,600 were inspected by medical officers. No case of plague arrived, and no plague-infected rats were found in any ships or on shore in the Port. Under the new sanitary regulations of 1933 a total of 1,027 certificates were issued in respect of deratization; the paper read last year before a meeting of the Association of Port Authorities by the medical officer of health on the rat-proofing of ships is reproduced. In it Dr. C. F. White indicates the main lines of this work, such as the opening up of pipe casings and the stopping of rat runs. He urges that the correction of rat harbourage should be indicated on certificates by the words "eliminated" or "protected," as the case may be. When harbourage has been really eliminated, the word "none" should appear in the rat-harbourage column of subsequent certificates. The Port of London Authority has issued instructions that all new work is to be structurally rat-proof. Dr. White concludes this section of his report by remarking that, although to some small extent *X. cheopis* fleas are found on ship rats in the Port, it is very rarely that they persist ashore. They certainly

do not multiply on the shore rat population, and if the spread of rodent plague ashore depends on the *X. cheopis* the Port of London should be practically immune from any danger of a rat epizootic.

SHIPS' WATER SUPPLY

Ships usually obtain water from the shore supplies afforded to the docks by the Metropolitan Water Board and the South Essex Water Company, but when no water is available at the berth, or the ship is lying at moorings in the river, the supply is drawn from water boats, of which there are twelve working in the Port. Every care is taken to avoid pollution of all the sources, but in August, 1933, an outbreak of enteritis on a ship in the Mediterranean was traced to the end of a canvas hose attached to a tap on a quay. It was found that samples from the end of this hose, but from nowhere else, contained coliform bacilli, although no true *B. coli* were recovered. It is concluded, therefore, that coliform organisms may gain access to pure water during its passage along a length of hose to a ship, and will, under favourable conditions, multiply during storage in the ship's tanks. These bacilli are not pathogenic, but they indicate the possibility of dangerous contamination. Dr. White adds the caution that in such cases it is important to discriminate between the true *B. coli* and coliform bacilli—a distinction which is not always made. He does not think that bacteriologists should unhesitatingly condemn a sample of water from a ship merely because coliform bacilli are present. Doubt should be expressed about the sample without a final condemnation. Coliform bacilli are probably present in the majority of samples of water from ships, but outbreaks of water-borne disease on ship-board are very rare: he remarks that it is very doubtful whether the outbreak of enteritis in this ship was actually due to the water supply, and that it is certain that the water supplied in the Port of London is above suspicion.

BOARDING OF VESSELS ON ARRIVAL

Dr. White hopes that some day the routine boarding of ships from infected ports will be discontinued, and in its stead there will be boarding of ships carrying cases of infectious disease and also any case of sickness which might conceivably be of an infectious nature, though not actually diagnosable as such. The port medical officer should be the person to carry the responsibility of deciding whether a case might possibly prove to be infectious. Many cases of typhoid fever, some of small-pox, and a few of plague have been landed in this country as "influenza"—a diagnosis which should always be regarded with suspicion by every medical officer. When a ship arrives which has on board a case of one of the major infectious diseases, or on which such a patient has died or has been landed abroad within the incubation period of that disease, it is the practice to regard every person on board as a contact and to arrange for his supervision. Those intending to leave the ship are required to give their names and future addresses before leaving, for it has been found useless to extract this information from the passenger manifest and the crew's articles. The introduction of a double postcard, one half for the notification of the immediate address and the other for notification of any change of address, has proved very successful in expediting the clearing of ships and the transmission of the necessary information to the medical officers of health of the districts of destination, and in making passengers realize their obligations under the regulations. The section for notifying change of address is on the "business reply card system," so that the passenger need not stamp it. The efficiency of the system was indicated by an instance when 289 such cards were issued and only one address could not be traced.

The Treasury has recently made, on the recommendation of the Advisory Committee, the Additional Import Duties (No. 28) Order, 1934 (S.R. and O., 1934, No. 921), under which the Customs duties on medical, surgical, dental, veterinary, and dissecting instruments and parts thereof will, as from August 25th, be at the rate of 20 per cent. ad valorem.

THE TWELFTH INTERNATIONAL VETERINARY CONGRESS

This was held in New York during the week beginning August 13th, under the presidency of Dr. JOHN R. MOHLER, chief of the United States Bureau of Animal Industry. It was attended by approximately 3,000 delegates from about sixty different countries—nearly twice as many as had attended any previous congress. This is the first occasion it has taken place in America, the last congress, as readers may recall, being held in London in 1930 (see *Journal*, August 16th, 1930, p. 259). During the course of the congress many topics relating to medicine and comparative medicine were discussed, and we give below a selection of those of more immediate medical interest.

ANTHRAX

On Monday afternoon (August 13th) Dr. MARIO MAZZUCCI (Italy) described his new method of vaccinating animals against anthrax. This method aims at localizing bacilli with a certain degree of virulence at the site of inoculation and attaining the slow absorption of an antigen with a high immunizing power. To do this he injects the organisms simultaneously with saponin ("carbozoo" vaccine) in order to bring about a gelatinous oedema around the injected bacilli. In sheep an immunity is still noticeable five months after vaccination, although this immunity is not observable before the ninth or tenth day. He claimed that this method of vaccination was a harmless and effective means of clearing up enzootic hotbeds of the disease, over two million animals having been treated in Italy alone in this way. Dr. VIDAL MUNNE (Spain) believed that immunity in this disease was possible only when the bacteria reproduce at the site of inoculation and there form capsules, and he concluded that intradermal inoculation is most efficient.

INFECTIOUS MASTITIS

Professor STECK (Switzerland), on the same afternoon, introduced a discussion on infectious mastitis. He held that the disease in cattle could be effectively controlled only by eliminating infected animals (by fattening and slaughter), by separation of all less seriously infected animals, and by chemotherapy to minimize the spread of the infection and shorten segregation. He believed that the repeated use of antiseptics such as the acridine derivatives gave an efficacy of over 90 per cent. Dr. MINETT (Royal Veterinary College) discussed streptococcal mastitis from its bacteriological and preventive medicine viewpoint. The disease was mainly caused by *Streptococcus agalactiae*, although two strains of haemolytic streptococcus were sometimes also involved. The latter were very similar to the human *Streptococcus pyogenes*. As a rule they did not cause disease in man, although human strains were occasionally seen in mastitis and were especially dangerous. The disease could be effectively controlled by milking infected cows last. Dr. SVEN WALL (Sweden) discussed mastitis due to *Diplococcus schütz*, and Professors CHRISTIANSEN and NIELSEN (Denmark) considered the methods by which cattle became infected. They concluded that under natural conditions this was always by the teat canal, although they admitted that some undiscovered factors existed which governed the entrance of the bacteria. Drs. JONES and LITTLE (U.S.A.) agreed. Their experiments indicated that the udder became sensitized by one or more preliminary infections which did not result in disease.

VETERINARY SANITATION

On Tuesday morning (August 14th), at a general session of the congress, a paper by Professor LECLAIRCHE (France) was read on State veterinary sanitation. The old methods which had already conquered—at least partially—many important diseases, such as glanders, rabies, anthrax, and various others, were insufficient against such widespread infections as tuberculosis, Bang's disease, and so on. Eradication of these was at present impracticable, and it was sought instead to limit the losses to a supportable

economic total. He expressed himself in favour of using only healthy stock to build up herds and to replace unprofitable animals, and advocated the issuing of State certificates of health, which would guarantee not only that the animals were free from disease themselves, but that they came from healthy herds. He opposed hasty methods of eradication as likely to lose the confidence of the stock owner. At the same session Dr. MOHLER, chief of the Bureau of Animal Industry (U.S.A.), discussed the relation of veterinary science to animal breeding and public health. In connexion with the latter he stressed the importance of meat inspection and of veterinary supervision of animals at the time of slaughter, of improvement in milk supplies, and of the value of research on animal diseases in providing information of value for the betterment of mankind.

PSITTACOSIS AND WEIL'S DISEASE

On Tuesday afternoon Professor MEYER (U.S.A.) discussed the 1931 outbreak of psittacosis, which took place in parakeets in California. The casual agent was a filterable virus, transmissible to a number of other species of birds and to man. Since 1929, 143 human cases had been definitely diagnosed in North America. United States health regulations now required certificates of health and other precautions to be taken before parakeets were transported anywhere. At the same session Dr. KLARENBECK (Holland) drew attention to the frequency of Weil's disease in dogs in Holland, and its importance in these animals, because of their intimate association with man. It was the more important on account of the difficulty of diagnosis in the dog and the variability of the symptoms which it caused.

TUBERCULOSIS

On Wednesday morning (August 15th) Dr. E. A. WATSON (Canada) introduced a discussion on tuberculosis. He had studied the B.C.G. method of vaccination over a period of ten years in a dairy herd of ninety cattle, fifty-four of which had been vaccinated, thirty-six acting as unvaccinated controls. All were equally exposed to natural infection, and on necropsy the incidence of tuberculosis was exactly the same—83.4 per cent.—in both groups. The anatomical distribution of the disease was similar in both groups, but in the vaccinated animals the lesions tended towards caseous, caseo-purulent, and exudative processes, with appreciably less fibrosis than in the unvaccinated group, in which caseo-calcareous lesions predominated. The critical age was between puberty and maturity—that is, 2 to 4 years in cattle—when the increased relative resistance attributable to B.C.G. vaccine was seen to fail rapidly and to disappear. Dr. GUÉRIN (of the Pasteur Institute, France) said that since the last congress in 1930 no fresh observations had been made which would give rise to the hope that a new approach to the problem of tuberculosis prevention in cattle might finally be found, and our two conceptions of prophylaxis were still based on (1) the use of tuberculin and (2) the production of a state of allergy. He believed that the production of an allergic state by the use of B.C.G. furnished a resistance to subsequent infection with virulent tuberculosis, and that it was of great value in controlling the disease. He considered that it was useless to try to eradicate the bacillus, and that we must aim at preventing its effects; further, that we must give up the idea of slaughtering all animals reacting to the tuberculin test, and concentrate on producing resistance to the disease. Dr. WIGHT (U.S.A.) described the campaign to eradicate tuberculosis in the United States, and stated that about 65 per cent. of the cattle in that country were now under supervision. Already 130 million tests had been made, and three million reactors had been destroyed. Dr. ZWICK (Germany), while expressing admiration of the American work, did not believe that it was practicable in Europe. In Germany they used the Ostertag plan, which aimed at the elimination of contagious cases. That this system was valuable was beyond doubt. He considered that the B.C.G. vaccine was still in its experimental stage, and stated that the tendency in Germany was to be cautious. Professor BASIL BUXTON (Cambridge) described the Cambridge experiments on B.C.G., which were commenced in

1927 and were still continuing. These results indicated that the vaccine could raise the resistance of a calf to a virulent experimental infection. The degree of resistance varied considerably, and appeared as a rule to be directly proportionate to the dose of vaccine. Experiments were now in progress to ascertain whether repeated vaccination at proportionate intervals over a period of years would maintain the resistance of cattle to reinfection with virulent bacilli.

IMMUNITY TO PARASITES

On Wednesday afternoon Professor T. W. M. CAMERON (McGill, Canada) discussed the question of immunity against animal parasites. He believed that the resistance mechanisms of the body against animal parasites did not differ in principle from those evoked against bacteria and viruses, but their method of attack was so different that their manifestations were often altered considerably. Our present knowledge of the subject was still fragmentary and confusing. It seemed possible, however, to summarize our existing knowledge in the following terms. Animals were *naturally immune* to parasites of physiologically unrelated animals, although a few worms appeared to have very wide physiological requirements—for example, fasciola, trichinella, and the larval stages of *echinococcus*. In certain circumstances *natural immunity* may be broken down. Animals were *naturally tolerant* to the effects of their own parasites, but this tolerance could easily be broken down by adverse factors. They were much less tolerant to abnormal parasites. Animals often become *premune* to their own parasites; this premunition might be broken down by unnatural factors such as lack of food, overcrowding, other parasites, and so on. This was a common method of resistance to protozoa; we were less sure of its operation against metazoa. Animals were sometimes susceptible to parasites proper to physiologically related animals; an age resistance was often shown to these as it was to other abnormal or recently introduced species. The evidence for breed immunity was still very scanty. There was little evidence yet of a true *acquired immunity* against adult helminth parasites, and, although theileria produced a sterile immunity and the coccidia might do so, premunition was, in general, the usual means of resistance among the protozoa. In practice an artificial premunition can be produced only against babesia. It seemed probable that hypersensitiveness was a normal defence reaction of the body. The phenomenon had been successfully used in diagnosis. Some of the serological changes observed appeared to have no necessary connexion with defence reactions, but some had. There was no evidence (with the doubtful exception of sarcocystis) that any of the animal parasites produced a true toxin, and the "foreign proteins" introduced by them into the body were probably normal secretions and excretions. If antibodies produced in response to normal secretions inhibited their actions, they might well prevent parasites from securing and digesting food, and consequently act as a mechanism of resistance. Other antibodies, especially in the protozoa, acted by interfering with reproduction, possibly in a somewhat similar way. The eosinophils, evoked in response to the presence of foreign proteins, seemed to play an active, but as yet improperly understood, part in the defence against metazoan parasites and their effects.

MILK MARKETING

On Thursday morning (August 16th) Dr. VON OSTERTAG (Germany) introduced a general discussion on the marketing of milk. As wholesome milk, he declared, could only be derived from healthy cows veterinary milk control was essential. Milk must not be marketed from cows with udder or "open" tuberculosis, but the question of the transmissibility of *Brucella* through milk required further investigation. Milk should not be considered dangerous in cases of European mastitis caused by *Streptococcus agalactiae*, in contrast with American mastitis caused by *Streptococcus pyogenes*; it was sufficient to exclude milk which had undergone changes. Milk from animals infected with one of the paratyphoid enteritis organisms must receive particular attention, owing to the dangers of human infection.

VIRUSES

At the same session Dr. MANNINGER (Hungary) introduced a discussion on filterable viruses, which he considered should be called "ultra-viruses," because of a filterable phase in the life cycles of some bacteria. They could be grown *in vitro* only in the presence of living cells—especially active cells. For the most part they caused exceedingly contagious diseases, although a few did not, and many gave rise to cell inclusions. Dr. GERLACH (Austria) commented on their striking resemblance to true enzymes and the unique position they held with regard to their antigenic behaviour. Viricidal power might be demonstrated almost regularly in their antibodies, and it was possible that these were closely related to the antitoxins and antiferments. After recovery from disease the supervening immunity might be of long duration and high titre.

CONTAGIOUS ABORTION

In a discussion on Brucella disease which followed Professor BANG (Denmark) declared that in northern Europe only *Brucella abortus bovis* had been demonstrated in human undulant fever, and that as the bacilli

do not multiply in the milk after it is drawn from the udder, mixed milk will usually contain only a small number of the organisms. Dr. COTTON (U.S.A.) described a nation-wide plan in America to reduce the condition by testing and slaughtering reacting animals. Dr. FINZI (Italy) discussed the desirability of standardizing the biological tests for the organism. He believed that there was a future for chemotherapy in the fight against Brucella infections, and that while live vaccines were dangerous dead vaccines were almost useless.

ANIMAL PARATYPHOID AND PUBLIC HEALTH

In the afternoon Dr. CLARENBURG (Netherlands) opened a discussion on the paratyphoid diseases of animals in relation to public health. Complete absence of danger to man could not be claimed for any of the animal salmonellos, and any meat from any animal harbouring the organisms was potentially dangerous, as well as infected milk and eggs. He advocated compulsory notification of salmonellos of animals, and minute differentiation of Salmonella occurring in man and animals. Dr. MURRAY (U.S.A.) and Dr. STANDFUSS (Germany) discussed the classification of the group in some detail, based on their reactions in various carbohydrate media.

France

[FROM OUR CORRESPONDENT IN PARIS]

The late Professor Léon Bernard

An international as well as a national leader of medicine has been lost in Léon Bernard, professor of tuberculosis at the University of Paris. His conception of a holiday was change of work, preferably in moving about from place to place, inspecting in France the many tuberculosis activities with which he was connected. A serious motor car accident a few years ago arrested his zeal only momentarily, and he was in the full exercise of all his faculties when, in the latter half of August, at the age of 62, he was admitted to a nursing home in Clermont-Ferrand on account of a dental abscess whose evolution proved fatal in a day or two. Médecin des Hôpitaux de Paris, Léon Bernard succeeded Chantemesse in 1919 in the chair of social hygiene in the Faculty of Medicine. Subsequently, he became clinical professor of tuberculous diseases. He was president of the Conseil Supérieur de l'Hygiène Publique, and the permanent delegate of France on the Health Committee of the League of Nations. His publications covered a wide range, and some of the most important were those concerned with public health. Holding a commanding position at the Laennec Hospital in Paris, he extended his tuberculosis activities throughout France, and was the chief promoter of the Cité de Clairvivre—the French equivalent of Papworth. He was also the originator, as well as the chief administrator, of the Colonies de Placement Familiale des Tout-Petits—a system for the removal of the newborn child from its tuberculous mother to healthy surroundings. Léon Bernard was a member of the Permanent Committee of the Office International d'Hygiène Publique, secretary of the International Union Against Tuberculosis, and adviser to the League of Red Cross Societies, to whose successful birth he contributed not a little at the Cannes meeting in 1919. Though he was best known as a clinician and administrator, his qualities as a laboratory and research worker were rated so highly by the authorities that, at the time of Roux's death, there was serious talk of Léon Bernard being asked to succeed him as head of the Pasteur Institute.

New Street Accident Hospital in Paris

In the past a goodly proportion of the street and other local casualties found their way to the old Beauljon Hospital, in which President Doumer died after being shot on May 7th, 1932. The Beauljon is now to have a successor in a less central part of Paris, and its emergency activities will be taken over by a small new public hospital to be devoted exclusively to street accidents. There are to be only forty-seven beds for such cases, and the hospital will be given the name of Fondation Paul-Marmottan in commemoration of its principal benefactor. The building will be one of four stories, the first three being for the accommodation of the patients themselves and for a radiological service. On the fourth floor there will be accommodation for operating theatres and for services ancillary thereto.

England and Wales

The British Post-Graduate Hospital and Medical School

The new buildings at Hammersmith are rapidly approaching completion. A priced schedule of equipment for all purposes was prepared some time ago, the estimated expenditure therefor amounting to £52,800, exclusive of sterilizers and certain constructions which had to be obtained, at an estimated cost of £1,450, as the building works proceeded. The total estimated cost for works and equipment is £198,000. It is thought that it would be a very complicated and difficult matter to determine, in accordance with the terms of the agreement entered into last year between the London County Council and the Corporation of the School, what equipment is required for the use of the hospital separately, and for the use of the school separately, particularly as a certain amount of equipment will be used by the hospital and school jointly. The equipment for the purposes of the hospital, having regard to the post-graduate teaching which is to be given therein, is necessarily on a more extensive scale than would ordinarily be required at a Council hospital; on the other hand, the superior equipment of the school will be to the hospital's advantage. It is therefore proposed

that the cost of the whole of the initial equipment shall be divided equally between the two parties, as has been done in the case of the buildings. Various developments are taking place at Hammersmith Hospital in anticipation of the establishment of the school. When the block containing the new labour rooms is opened additional maternity beds will be required, and these are to be obtained by the adaptation of a ward in another block to provide for seventeen maternity cases. Accommodation will also be provided for twelve cots, with a bathing bay and sun balcony. Additional isolation accommodation will be necessary, to be obtained by the adaptation of a single-story block hitherto used for maternity purposes, with accommodation for a nursing staff of five. It is also proposed to fix glazed sliding sashes to the six sun balconies so as to provide adequate fresh air and protection from the weather. The hospital formerly had only one entrance, but a new entrance, with a roadway for all goods traffic, is being constructed at its western boundary. As already announced, it is intended to make provision for a radiological department at Hammersmith which shall be a consultative centre for the whole hospital service of the L.C.C. To this department cases will be sent from other hospitals for expert opinion on diagnosis and treatment. The officer in charge, whose salary will be £1,500 a year, will be designated "Director of the Radiological Department of Hammersmith Hospital and Consulting Radiologist to the Council's Hospitals."

Medical Society of London

The first half of the session 1934-5 of the Medical Society of London will open on Monday, October 8th, with the annual general meeting at 8 p.m., followed by Lord Horder's presidential address on "Medicine and Morals," at 8.30 p.m. On Monday, October 22nd, at 8.30 p.m., a discussion on the anaemias and their treatment will be introduced by Dr. Leslie Witts. A clinical evening will be held on Monday, November 12th, at 8 p.m. A discussion on the value of accessory methods in the diagnosis of intracranial tumours and allied conditions will be opened by Mr. Hugh Cairns on November 26th, at 8.30 p.m. On Monday, December 10th, at 8.30 p.m., Dr. H. Graham Hodgson will introduce a discussion on the future of diagnostic radiology. The Lettsomian Lectures will be delivered by Mr. J. E. H. Roberts on February 18th and 27th and March 4th, 1935, at 9 p.m. Sir William Willcox will deliver the annual oration on Monday, May 13th, 1935.

Residential Treatment of Tuberculosis

For many years the London County Council has published after-histories of patients who have received residential treatment for tuberculosis under its scheme. The latest particulars relate to the number of survivors of those who received treatment and were discharged in 1923. The number of adult patients discharged from institutional treatment during that year was 4,867, in 290 of whom the diagnosis of tuberculosis was not confirmed, and of the remaining cases the subsequent history of 437 cannot now be traced. Of 766 early cases 71.8 per cent. have been found to be alive after the five-year interval, of 2,149 moderately advanced cases 34.6 per cent. have been found to be alive, and of 960 advanced cases 4.7 per cent., while of 261 surgical cases 75.8 per cent. were surviving. During the same year (1923) the number of children discharged from residential institutions after having received at least one period of residential treatment was 938. In 171 cases the diagnosis of tuberculosis was not confirmed, and in eighty-six others reports were not available. Of 148 early pulmonary cases 12.2 per cent. were dead after five years, of thirty moderately advanced cases 63.3 per cent. were

dead, and of twenty-eight advanced cases all were dead. The proportion of deaths, after five years, in 475 surgical cases was 5.9 per cent. The London County Council is proposing no longer to require contributions towards the cost of the residential treatment of tuberculosis from patients or persons legally responsible for them. In the opinion of the Hospitals and Medical Services Committee the requirement is neither sound in principle nor desirable in practice. In fact, less than 30 per cent. of the cases treated have been so assessed, and the sums collected annually in recent years have been about £11,000, while the cost of collection has been £1,800. It is pointed out that it has been a principle in connexion with the assessments for tuberculosis in the past that regard should be paid to the importance, on medical grounds, of maintaining the standard of living of the family. Tuberculosis is a disease in dealing with which it is vitally essential that nothing should be done which might give cause for financial worry or anxiety to the patient or patient's family during treatment, or be likely to lower the resistance of the family to disease. It is, moreover, a disease specially liable to recur, and the heaviest mortality among tuberculosis patients occurs during the first four or five years after discharge from institutional treatment. It is very necessary that employment undertaken by ex-tuberculosis patients should be suitable, and that they should not be forced by financial circumstances to take unsuitable employment. It is added that there is no desire that the discontinuance of assessments should in any way affect the carrying out by Care Committees of their primary and important functions with regard to the tuberculous. The new Council appreciates greatly, as its predecessors did, the services rendered by voluntary workers on the Care Committees and by the officers of the borough councils associated with the work.

Coroners' Inquests in London

During 1933 the number of deaths reported to London coroners was 8,533, an increase of 173 on the figure for 1932. Of these 3,025 took place in mental hospitals and other institutions. The coroners held inquests in 3,543 cases and directed post-mortem examinations in 2,896 of these cases, as well as in 2,962 of the other cases in which no public inquiry was necessary. A verdict of murder was returned in seven cases and of manslaughter in two. The total number of suicides was 760, an increase of forty-one on the year. Three inquests were held in connexion with executions. Deaths from want of attention at birth decreased from forty to twenty-eight. The number of people who met their death by accident was 1,965, as compared with 1,892 in 1932. Injuries accounted for thirty-two deaths, and there were fifty-four deaths by drowning. A verdict of "Death from natural causes" was returned in 504 cases, and there were seven verdicts of "Cause of death unknown." Inquests on newly born children decreased from sixty-seven to forty-four, and verdicts of murder of the newly born were returned in only two cases. Excessive drinking accounted for fifty-three deaths, as compared with fifty-four a year ago.

Fire and Explosion Risks in Operating Theatres

The London County Council has asked the Minister of Health to consider the desirability of an investigation being made into fire and explosion risks in operating theatres due to the use of modern anaesthetics and electrical appliances, with a view to the formulation of effective safety precautions. Until such time as an authoritative decision on the matter is available, the practice of requiring that switchgear provided in registered nursing homes shall be of the highest standard commercially obtainable will be continued.

Salaries of District Medical Officers

Last year the London County Council fixed provisional salaries to be attached to certain positions of district medical officer, but statistics now available as to the work in the new medical relief districts show that in certain cases the provisional salaries are not commensurate with the amount of work the officers have to undertake. From October 1st next, and until the whole question of the district medical service is reviewed, the salary will be increased, in three districts by £35, in six by £50, in one by £75, and in one by £110.

Hull Royal Infirmary

During the past five years the work of the pathological department of the Hull Royal Infirmary has more than doubled, and in the annual report of this institution for 1933 it is announced that certain alterations and extensions have consequently had to be effected at a cost of over £850. The permanent appointment of an assistant pathologist is also recorded. The efficiency of the x-ray department has been increased by structural alterations and the provision of a new dark room. Other new staff appointments rendered necessary by the increase in the work of the Infirmary include that of a third honorary physician to relieve the strain imposed by the opening of the Sutton Branch, and of a resident surgical officer to co-ordinate this side of the work. There was an increase in the number of in-patients treated during the year under review, establishing a new high record for the Infirmary. As regards the associated activities, it is reported that a preliminary training school has been opened in order that probationer nurses may receive some preliminary instruction before taking up ward duties. This innovation has proved to be valuable to the institution as well as to the students. In order to help out-patients who would normally have to attend daily at the Infirmary for dressings, and for whom the journey would have been a hardship owing to distance or home conditions, the executive committee of the Hull Jubilee District Nursing Association made arrangements during 1933 for their nurses to attend such patients in their homes. In this connexion it may be noted that there was a marked decrease in the number of out-patients treated at the Infirmary in 1933 as compared with 1932, though the number of casualties treated increased. An arrangement has been made with the Hull Incorporated Law Society whereby patients admitted as the result of accidents, and who express a desire for legal advice, are put into touch with local solicitors on the society's rota. The service is not necessarily free, but where it is found, on investigation, that a patient is not able to pay for the legal aid required, the case is passed on to the Poor Man's Lawyer Committee of the Hull Community Council. The main object of the scheme is to prevent patients from getting into the hands of touts, and it is also hoped that where the Infirmary is legally entitled to payment for maintenance (as in certain cases under the Road and Rail Traffic Act) the new arrangement will be of value in securing a speedy and satisfactory settlement in this respect. Another arrangement with the Hull Community Council provides that the council's social service secretary shall act as part-time almoner in the case of patients needing after-care treatment and advice. A Samaritan fund has been brought into being for helping indigent patients who require such accessories as special appliances. In the year under review there was an excess of ordinary expenditure over ordinary income of nearly £7,000; not since 1928 has there been a year when ordinary income equalled expenditure, and the accumulated deficit since that time now amounts to more than £23,000. Several large special donations were received, however, during the year, and various voluntary committees have rendered generous help.

Scotland

Housing Amenities in Scotland

The Secretary of State for Scotland has set up an advisory committee to the Department of Health to consider how architectural quality and amenity may best be incorporated in the layout, planning, and external treatment of houses for the working classes in both town and country, and to consider whether higher tenements than have hitherto been accepted should be permitted. The chairman of the committee is Mr. J. R. Richmond, C.B.E., director of an engineering firm in Glasgow, and the members include a number of prominent Scottish architects and surveyors. It is hoped that the work will lead to improvement in the general amenity and quality of buildings to be erected, especially in places where clearances are to be made and where it is desirable to rehouse as many of the dispossessed dwellers as possible in sites near their work. It is proposed that new tenements shall follow the present Continental models, with balconies, gardens, and possibly roof-gardens. The new scheme is part of the Government's housing plan, under which it is estimated that some 200,000 houses are still required in Scotland.

New Scottish Hospitals

The Aberdeen Town Council has approved the erection of a special block in the new Aberdeen Royal Infirmary buildings, Foresterhill, for the treatment of diseases of the ear, nose, and throat at an estimated cost of £60,000, as part of the Joint Hospital Scheme, for which a sum of £400,000 was subscribed. The Public Health Committee of Dunfermline Town Council has recommended a site at St. Leonard's, on the south side of Dunfermline, for the erection of a new maternity home and hospital. The accommodation in the present hospital, which has been successfully managed by the Corporation for some years, has recently been found insufficient for the number of patients applying for admission. It was intimated at a meeting of Peterhead Town Council that a gift of £5,000 had been received from Mr. William Shewan to provide a hospital for the town. A condition of the gift was that within five years a suitable hospital should be established and equipped.

Pithead Baths in Fife

Pithead baths, which have been erected at a cost of £13,000, provided by the Miners' Welfare Committee, were opened at the Aitken Colliery, Kelty, on August 23rd, by Dr. T. G. Nasmyth, Edinburgh, senior director of the Fife Coal Company, to which the Aitken Colliery belongs. The baths are the second largest in Scotland, accommodating 912 men. Dr. Nasmyth said that the provision of pithead baths was one of the best sanitary reforms of recent years, and it was satisfactory that this matter was being dealt with all over the mining areas of the country.

Mr. J. B. Priestley and Mr. G. L. Stampa have collaborated in the preparation of an impressive foreword to an interesting little book issued by the Anti-Noise League of 18, Old Cavendish Street, London, W.1. Mr. Priestley, who confesses to having written the article while his ears were stuffed with cotton-wool in a vain attempt to secure a reasonable degree of silence, laments that "hardly anybody is busy inventing quietness." The book reveals that the Anti-Noise League, of which Lord Horder is chairman, has already accomplished a good deal of useful work during the ten months of its existence. It appears that the League was largely instrumental in securing the new Road Traffic Act provisions for silence zones in which hooting at night is prohibited and the placing upon manufacturers of the responsibility for fitting effective silencers to cars.

CORRESPONDENCE

Medical Education

Responsible Clinical Experience

SIR,—While a member of the Education Committee which has now reported to the Council and the Representative Body, I gave my support to what may be described as the main objective of the committee—namely, that the medical graduate should have the benefit of a period of responsible clinical experience before taking up the duties of public practice—I differed, however, from the majority of the committee as to the means of achieving this objective. As I was assured by the Chairman that an expression of individual opinion in the *Journal* would be considered by him a proper proceeding, even though it was at variance with the recommendations of the committee, and believing that the particular point of difference is an important one, I desire to put my alternative proposal on record.

The committee's recommendations achieve the end in view by:

1. Compressing the organized institutional tuition into a period of four years and three months.
2. Requiring the student, still a pupil and unlicensed to practise, to employ the remaining nine months of the five years' curriculum in some responsible clinical appointment.

My alternative proposition was:

1. To leave the period of organized institutional tuition unchanged (that is, five years), and to admit the student to the *Medical Register* at the end of this period.
2. To require from every so registered medical practitioner a period of one year in a responsible clinical appointment before a licence for independent public practice is granted to him. I proposed that this year should be spent either as a resident in hospital or as an assistant in general practice, or as both, according to the intentions of the individual practitioner.

The committee was influenced by two important considerations—that the curriculum should not be lengthened and that its expense should not be increased. Both requirements are met by both of these alternative propositions, but in my view my own alternative is the better in that:

1. It avoids the further compression of an already overburdened curriculum.
2. It avoids all the difficulties incident to the responsible and comprehensive employment in hospital or in general practice of an unregistered practitioner.
3. It ensures, in a simpler way, the two main requirements—adequate theoretical instruction and an adequate training in the public application of that instruction.

It is impossible to discuss details in a letter, and I must content myself with pointing out that the practitioner registered under the alternative scheme, but not independently licensed, would be worth a salary to a general practitioner or to a hospital sufficient to keep him, whereas the general practitioner and the hospital would have great difficulty in finding employment for a fifth-year student: the responsibilities which could be entrusted to him would be limited. Admitted that this difficulty might be evaded by an alteration in the "covering" regulations of the General Medical Council, but it is questionable whether the alterations which would be necessary are desirable.—I am, etc.,

London, W.1, Sept. 2nd.

K. W. MONSARRAT.

Occupational Therapy

SIR,—Before the correspondence with the above heading is closed I would like to add my testimony to the great value of wisely directed work for cases of mental illness, especially when this is selected and organized under medical control. To be wisely directed, it must not be pressed to the point of fatigue, it must have the concurrence of the patient, and it must not appear to be an attempt to secure an equivalent return for treatment. It must also be regarded as wholesome and beneficial exercise for the individual concerned.

At the recent annual meeting of the Royal Medical-Psychological Association in Northampton, several members—who were entitled by personal experience—spoke of the necessity of work in the interests of health, happiness, and the welfare of the patient; but there was a general feeling that the euphuistic terminology of "occupational therapy" was no new treatment in mental hospitals. The same paper was also read in London at the annual meeting of the Society for Promoting Mental Hygiene, which further demonstrates the importance of the subject. The physiological effect of occupation as exercise is evident in the quickening of the circulation, the aeration and purification of the blood in the expanding lungs, an improved appetite and digestion, and the general tranquillity of the patient through the refreshing sleep that follows. The psychological effects noted are a keener observation, a help to fix the attention—and therefore a distraction from delusional states—the correction of undesirable habits, the encouragement of self-control, and an increase in the skill of the worker. There can be great delight in muscular exercise and an added interest can be kindled in the production of others, whose good opinion is shown in return, and this acts as a further incentive to effort. Your recent contributor (Dr. A. J. Brock, August 25th, p. 375) adds other incentives to "occupational therapy"—namely, self-expression and the satisfaction of creative striving—which offer further inducements.

In my early experience at Claybury, the first asylum of the first L.C.C., opened in 1893, the patients were infused with as lively an interest as the staff in evolving order out of chaos: new roads were made; the grounds and drives were planted and the gardens laid out by the voluntary help of patients. Many scores of standard rose trees were budded by patients and flower borders arranged and afterwards tended with gratifying results upon the recovery rate. In the last years of my administration, during the war, the L.C.C. extended "occupational therapy" by undertaking the manufacturing, in the asylum workshops, of munition shells for artillery guns, under the direction of the late engineer (Mr. W. C. Clifford-Smith). Many hundreds of steel shells were turned out and taken to Woolwich to be charged with explosives for the front. This is, I believe, the first public statement that munitions were made in an asylum, and probably it is a unique record. Finally, I would like to add that the corridors and workrooms still bear evidence of the aesthetic decoration of the walls by "occupational therapy."—I am, etc.,

Plás Dinas, Carnarvon,
Aug. 28th.

ROBERT ARMSTRONG-JONES.

Is High Blood Pressure a Risk?

SIR,—With reference to your correspondent's letter of August 25th (p. 370) I give the following experiences. I was once asked to examine lives for a certain insurance company. On my first visit two young men presented themselves, and both had systolic blood pressures in the vicinity of 150 mm. Hg. The next day the manager of the office and his worthy benchman assured me that my examination was unsatisfactory, as the blood pressure

readings were too high and would preclude their acceptance.

I must say that I had been provided with a sphygmomanometer by the company, and I was expected, though I did not then know it, to use the stethoscope method. This I did not employ, reading the instrument, which was an aneroid, when the pulse could no longer be felt. The manager forthwith blamed my "wrong methods" for the wrong readings. After some unpleasant discussion I indicated that perhaps his sphygmomanometer was wrong, since it was an aneroid. He repudiated this suggestion on the grounds (1) that it was the best possible make, and (2) that it had been recommended by a certain consultant. Not being intimidated by either (1) or (2), I forthwith took the sphygmomanometer to a near-by instrument maker, where, with the aid of a "Y" connexion, I calibrated the aneroid against a mercury manometer. At about 150 mm. Hg the aneroid was exactly 11 mm. too high! Knowing the frequency with which aneroids are used and the trust with which physicians year in and year out use them for blood pressure readings, it is to be expected that many are badly out of calibration and their readings worthless.

In general practice I frequently come across cases of men and women (more often the latter) in whom the blood pressure has been very high for years and whose readings are more often in the neighbourhood of 300 than 200 systolic. I have one patient who has been in this state for the past seven years and is apparently none the worse. So much is this the case that I habitually tell a good and deliberate lie to patients as to what their pressures really are. Statistical investigations doubtless prove high blood pressures to be dangerous, but when it comes to a given patient there is no criterion whereby to judge the prognosis.

Average results are the bane of medicine and utterly useless to the individual, and as for insurance companies, anyone who has followed the trend of medicine for the last twenty years knows that, like the law, they are asinine.—I am, etc.,

Glasgow, Aug. 29th.

THOMAS ROBERTSON.

The Swab in Diphtheria Diagnosis

SIR,—May I direct attention to a method I have found convenient during the last twenty-five years. It was, I think, originally suggested by Hewlett. Assuming a visit late at night to a doubtful case, when one may not have an outfit for taking a swab at hand, a hard-boiled egg is almost always obtainable. This provides, in my experience, a reliable culture medium. An incubator is not essential; the inoculated egg may, for example, be kept near the hot-water cistern. The culture can be examined the following afternoon, and very valuable time saved.

It would be too much to expect the average practitioner of the present to make his own diagnosis in this way, but why should the average practitioner of the future not do so?—I am, etc.,

Manchester, Aug. 29th.

J. STAVELY DICK.

SIR,—With regard to the negative swab in cases of true diphtheria, perhaps an experience of mine in 1929 may be interesting.

I was called on August 5th to a case of nasal catarrh, and, being suspicious, took a swab: result, negative. A fortnight later I sent another with the same result. Four further cases, which had been in contact with the original, developed bad throats—swabs of all were negative. I injected all cases with 20,000 units of diphtheria antitoxin, and asked the county medical officer of health

to come and inspect, as I was certain they were cases of diphtheria. Both county medical officers came down and took swabs. Some were sent to London and some to Exeter: result, negative to diphtheria, but the pneumococcus was found. Not until October 29th did I get a swab positive to diphtheria. Two patients died in a few days, and the eldest sister died of complete paralysis.

It appears to me that the pneumococcus has an inhibiting effect on the growth of the Klebs-Loeffler bacillus, either *in situ* or on cultivation. When I have had a report of streptococcus I have never had diphtheritic symptoms develop.—I am, etc.,

Lynton, North Devon, Aug. 22nd. ARTHUR P. CUMMINGS.

SIR,—In view of recent correspondence on swabbing throats in diphtheria, my last three cases bearing on this question serve to illustrate the difficulties from the general practitioner's point of view.

1. A young labourer presented himself at surgery with some slough on right tonsil: Not ill in himself, but had been home two days. I labelled him septic throat, did not give serum, but swabbed him. Two days later throat was quite clear of slough, and I told him he could return to work. Five minutes after he had left surgery I received result of swab by 'phone—positive! As he had a family of young children I had no alternative but to send him to isolation hospital. Four days later he was discharged with two negative swabs and "not clinically diphtheria" (with which, of course, I could only agree).

2. Ten days later I was called in to one of his children, suffering from "clinical diphtheria." I isolated her at home, gave 24,000 units, and swabbed. On receipt of positive result I sent her to hospital two days later.

3. A young married woman, with what I considered typical clinical diphtheria: I sent her into hospital straightway. Seventeen days later she was discharged with the report, "Not diphtheria, but septic throat."

In theory, Nos. 1 and 3 should not have been sent to hospital, and No. 2 should have been admitted at once! Nevertheless No. 1 probably was a carrier, and possibly gave it to No. 2, who perhaps did not suffer much by delay in admission, as she got her serum immediately. Cases like No. 3 make one chary next time of sending a case straight into hospital.

It is quite obvious from the correspondence on this subject that I am not the only G.P. who could sign himself

August 28th.

PERPLEXED.

** Readers are referred to the annotation on this subject at page 476.

Typhus in the Tropics

SIR,—In the *Journal* of August 18th (p. 320) I notice a statement in the report of the discussion on typhus fevers in the Tropics which, if not amplified, may give rise to misunderstanding. Dr. J. L. Gilks is reported as having said that the first description of typhus in East Africa was given by himself in 1920. This is correct as far as it goes, but I am sure that Dr. Gilks does not mean it to be understood that he was the first to recognize that the disease, known for years in Nairobi as "dengue," was in reality mild typhus. The credit for this discovery belongs solely to Dr. G. V. Anderson, as I pointed out in a communication to the *Kenya Medical Journal* some years ago. The clinical and laboratory work which established Dr. Anderson's diagnosis was done by members of the Government Medical Service. The results were published by the Director of Medical and Sanitary Services, Dr. Gilks, in his annual report.—I am, etc.,

Belfast, Aug. 20th.

P. A. CLEARINK.

Rectal Prolapse Complicated by Procidentia

SIR,—The divergent views which have been expressed in the correspondence portion of your estimable *Journal* on the treatment of rectal prolapse is further proof that no universally successful operation has yet been evolved for the treatment of this most harassing condition. It seems to me that the ideal operation will only be evolved when our views on the aetiology of rectal prolapse are as well established as those on genital prolapse. The pre-eminent success of the Fothergill operation for the latter condition bears out the truth of my statement.

It is well known that rectal prolapse is common at the extremes of life and rare in adults. Beyond these known facts, the aetiology of rectal prolapse, as it occurs particularly in the adult, seems to be wrapped in mystery. Relaxation of the anal sphincter (and I include the levator ani muscles as part of the sphincter mechanism) may be a factor in the production of rectal prolapse, but, as we shall see, it is not the whole story. Jeannel and Verneul have called attention to the rarity of this condition after traumatism and destruction of the sphincter ani muscles, as, for example, after fistula in ano operations or in perineal lacerations. Stress is laid upon relaxation of the supporting structures of the rectum as an important aetiological factor but what precisely are these structures?

Some years ago I presented to the Obstetrical Section of the Royal Academy of Medicine in Ireland a case of complete prolapse of the rectum, complicated by procidentia. The partial cure obtained by surgical treatment in this case throws a certain amount of light on the aetiology and treatment of rectal prolapse. The patient was a nulliparous woman in the late forties. The first stage of the Fothergill operation for procidentia was carried out in the ordinary way. The second stage, which consists of a colpoperineorrhaphy, was slightly modified. The levator ani muscles, as well as being sutured to each other, were sutured also to the rectum. The external sphincter of the anus was exposed, as in the operation for complete perineal tear, and so complicated as to diminish the size of the anal orifice. The procidentia was permanently cured, and there was no recurrence of the rectal prolapse. A month or so afterwards, however, the patient developed a high rectocele. I had intended to perform a complete obliteration of the pouch of Douglas for the permanent cure of the rectocele, but the patient refused to have the operation. At present the rectocele is fairly well controlled by a ring pessary.

In order to appreciate the inferences which I think logically follow from this case it is necessary to understand the meaning and aetiology of a high rectocele. It is a protrusion of the rectum into the upper portion of the posterior vaginal wall and into the posterior fornix. It is due to the relaxation of the specialized portion of endopelvic fascia which maintains the rectum at its proper level in the pelvis. This consists on either side of a broad vertical band of dense fascia, which contains the middle haemorrhoidal artery, and which extends from the lateral aspect of the rectum to the pelvic wall at the point where the ureter enters the bladder. A high rectocele differs essentially from a low rectocele (the common type), which is a protrusion of the lower portion of the posterior vaginal wall, and which, on account of a mild inflammation of the cellular tissue plain, carries with it a portion of the anterior rectal wall. Should the sphincter ani be relaxed a high rectocele never develops.

In the light of the explanation of the significance of a high rectocele I believe I am entitled to draw the following conclusions from the results of my operation. That, in the adult at any rate, complete rectal prolapse, like a high rectocele, is essentially due to weakness, either congenital or acquired, of the true lateral supports of the rectum, and that weakness of the anal sphincter is a contributory factor. Rectal prolapse in the adult, therefore, is of the nature of sliding hernia. In the female, however, if the sphincteric mechanism of the anus is intact, a high rectocele may develop instead. If the view is accepted that relaxation of the sphincter ani is a contributory factor in the production of rectal prolapse in the adult, then an attempt should be made in the first instance to restore normal sphincteric control. In the female, then, the treatment for complete prolapse of moderate degree is a modified colpoperineorrhaphy. A few years ago a contributor

to the *Journal* reported three cases of complete rectal prolapse in the female successfully treated by this method. In the adult a somewhat similar operation may be carried out by making an anterior curved incision in the perineum and continuing the operation by an approach much like that for a perineal prostatectomy. Lockhart-Mumery's operation for a moderate degree of rectal prolapse is successful in a large number of cases. It is a most inelegant operation, however, requiring a considerable amount of post-operative care and confining the patient to bed for weeks. In an extreme degree of prolapse, or in the event of a recurrence of the prolapse in the male, or the development of a post-operative high rectocele in the female, then an operation for the complete obliteration of the pouch of Douglas (Moschowitz's operation) should be performed.

As visiting surgeon for many years to a large children's hospital in Dublin, I have had the opportunity of seeing and treating many cases of rectal prolapse in children. Mucosal or partial prolapse is observed particularly in children, and complete rectal prolapse, unlike that in adults, is invariably preceded by mucosal prolapse. When the latter condition persists for some time the anal sphincter becomes stretched and temporarily weakened, and so the partial prolapse becomes complete. The mechanism of production of complete prolapse in children is, then, essentially different from the rarer form which occurs in adults. In children, operation for prolapse is rarely indicated, because healing practically always occurs spontaneously, and the anal sphincter regains its tone when the aetiological factors responsible for mucosal prolapse, such as diarrhoea, hernia, etc., are removed. Occasionally the prolapse persists in spite of appropriate treatment for the removal of the causal factors. It is in such cases, and in the intractable cases of old age, that injection treatment finds its most fruitful application. Personally I have not tried this method of treatment in children.

I have found the simple rectopexy operation, so accurately described by a recent correspondent, almost invariably successful in the treatment of intractable rectal prolapse in children. That the injection of alcohol or any other drug into the perirectal tissue should permanently cure a case of complete prolapse in which the supporting structures of the rectum, as well as the sphincteric mechanism of the anus is permanently damaged, is too much for my credence.

—I am, etc.,

D. J. CANNON, M.B., B.Ch., M.A.O.

Infirmary House, Kildare, Aug. 27th.

Menorrhagia after Splenectomy for Purpura Haemorrhagica

SIR,—Your readers may be unduly influenced by the success attending splenectomy for menorrhagia as recorded by Dr. Stanley Hartfall and Mr. Carlton Oldfield in your issue of July 7th (p. 8); with encouragement in a later issue by Dr. Bernard Myers (August 11th, p. 284). The purpose of this letter is to show the other side of this question.

Splenectomy for purpura haemorrhagica was introduced into this country by Dr. G. A. Sutherland, assisted by the writer, in 1924, with two cases recorded in the *Lancet* in February, 1925. Dr. Parkes Weber was our source of information on the origination of this treatment by Kaznelson of Prague in 1919. The post-operative histories of our original two cases, which were classical examples of the so-called essential thrombocytopenic purpura haemorrhagica, clearly show that splenectomy is certainly not the solution of the problem.

During a post-operative period of ten years one of these patients, a female, has had many serious haemorrhages, and at the onset of her menses five years after splenectomy menorrhagia reduced the numbers of red cells below two millions, and she lay in hospital for many weeks. For a period of eighteen months following the operation all signs of purpura haemorrhagica disappeared. After this they gradually returned, and her constant state now is one of purpura simplex—that is, petechiae and ecchymoses are seldom absent—but, in addition, she has occasional epistaxes. The third patient whose case

was reported in our original article, and who was later subjected to splenectomy, is in the same condition as the case just described: she has skin manifestations of the condition as a constant feature, occasional external haemorrhages, and a definite tendency to menorrhagia.

Splenectomy has established itself beyond doubt as an emergency measure in purpura haemorrhagica. In my experience, apart from such a state of emergency, it has been completely disappointing. Our original cases at the present time can be diagnosed clinically at sight, and the blood state shows a constant thrombocytopenia despite the removal of the spleen. This has been recorded by others. The spleen is only one unit in the reticulo-endothelial system, and if this system is the primary fault the rest of the system appears to be able to ensure the continuance of the disease.

Experience has modified my views during the past ten years. I now look upon purpura haemorrhagica as a manifestation of obscure infection in which the capillaries are especially prone to attack. The platelets disappear from the circulation because these are employed in caulking the damaged vessels. Measures to raise the general standard of health by eradicating sepsis, combating anaemia, and attending to the diet have brought me more permanent results, and I now reserve splenectomy for cases of utmost emergency where haemorrhages endanger life.—I am, etc.,

London, W.1, August 22rd.

BRUCE WILLIAMSON.

Treatment of Phlebitis

SIR,—Thrombosis and subsequent phlebitis of the saphenous vein and its tributaries is very common, especially among females, and causes considerable loss of working time. Treatment has always been most disappointing. Some patients, unable to bear the pain, seek their beds, and lie there for months courting pulmonary embolism through clotting of the internal iliac veins; others walk about and appear to do as well as, if not better than, the recumbent cases. The exhibition of massive doses of potassium citrate has been recommended, but it is difficult to understand how this substance taken by mouth can affect a clot, still less have any effect on the inflammation.

Mr. Dickson Wright's treatment of encasing the whole leg from the toes upwards is the only one I have known to be of any avail. I have used it in two cases since reading his article. One had been under treatment for months, the other was a recent one of clotting only; both patients had varicose veins. As a modification I used animal wool over the areas of thrombosis. This wool shows no tendency to mat and is very elastic, for which reasons it is used by chiropodists. The result in both cases was most gratifying.—I am, etc.,

A. P. BERTWISTLE, F.R.C.S.Ed.

London, W.1, Aug. 23rd.

Thrombosis of the Penis

SIR,—I am very glad to see Mr. Clifford Morson's extremely clear explanation of the difference between the terms "priapism" and "pseudo-priapism" (*Journal*, August 25th, p. 371), though it makes the title of a paper which I wrote long ago ("Persistent Priapism from Thrombosis of the Corpora Cavernosa," *Edinburgh Med. Journal*, new series, 1898, iv, p. 267) contain a contradiction in terms. With the progress of knowledge the definition of terms has, I admit, not rarely to be modified or altered, especially for teaching purposes, and Mr. Morson's definition is certainly more intelligible to me than Dr. G. W. Theobald's statement (*Lancet*, 1922, ii, p. 506): "Priapism is not synonymous with 'prolonged erection' or with satyriasis, but is a condition in which

the penis is erected without there being any associated sexual excitement."

I must apologize for having at first doubted the advisability or necessity of Mr. Morson's use of the term "pseudo-priapism," but doubt, just as hope, springs eternal in many human breasts, and now I find myself doubting whether Priapus himself—standing day and night through all kinds of weather in the fields and groves of the ancient classical world, always exhibiting his enormous and erect phallus—may not have been, after all, a sufferer from some kind of vascular pseudo-priapism.

I am sorry that I have no information to give Mr. Morson as to subsequent history of impotence, etc., in the few leukaemic and non-leukaemic cases of penile thrombosis which I have seen.—I am, etc.,

London, W., Aug. 25th.

F. PARKES WEBER.

"Closed" Anaesthesia

SIR,—I am struck by the following passage in your leading article on the above subject (August 25th, p. 360):

"The author notes that 'relative overdosage'—a phenomenon long familiar to anaesthetists—which means, in a sentence, that a given saturation of the blood by anaesthetic agent produces a deeper level of anaesthesia in the later than in the earlier stages of an administration, occurs much more noticeably in nervous than in stolid patients . . . that in the latter type a larger proportion of the drug used is absorbed into the blood."

It is then suggested that this is due to some physical difference in the blood of these different types of patients. This appears to conflict so much with clinical experience and with the theoretical evidence of such men as Crile and Henderson that I venture to disagree with this last statement, and for the following reasons.

In a closed system of anaesthesia once the level of anaesthesia has been reached which is desired clinically the supply of anaesthetic agents is stopped, and with an airtight system the anaesthetic content is from this time on a constant fixed amount. The contents of the system are in gaseous equilibrium with that of alveolar air, which is in turn an accurate measure of the gas pressure to which blood leaving the lungs is saturated. Thus, for this level of anaesthesia the anaesthetic content of the blood will be in equilibrium with the contents of the closed system, which is a constant fixed amount. In these circumstances it follows that when this relative tolerance does appear it cannot be due to an increase in the anaesthetic content of the blood, for until more anaesthetic agent is added to the system the anaesthetic content of the blood cannot rise, as it is in gaseous equilibrium with the contents of the system. Since in closed anaesthesia the control which one has over the anaesthetic agents used is absolute, one can vouch for the degree of blood saturation and its maintenance once the level of anaesthesia desired clinically has been attained.

If alterations occur in the patient's clinical condition these alterations must therefore be due to an altered reaction on his part—an increased susceptibility to that quantity of anaesthetic agent already present. In the nervous or the toxic patient this relative tolerance occurs earlier and more readily, and one must take it that his psychic or toxic state predisposes to the earlier onset of this phenomenon. Clinically one has come to look upon this phenomenon as a sign of incipient surgical shock. Crile's definition of shock is "a state of exhaustion which has been rapidly developed by psychic, traumatic, toxic, or thermal stimuli." His researches denoted that the psychic factor incident to major operations was exceedingly important: it was sufficiently powerful to overwhelm the patient, so that in some cases death was due to the emotional factor alone. I have seen just such a case.

If a basal anaesthetic is employed the nervous patient comes to the theatre freed from the influences of the higher cerebral centres. He is in effect a standard physiological preparation, in much the same manner as a decerebrate animal, and will consequently react in a standard physiological manner to a given set of conditions brought about by the anaesthetist. Patients so prepared do not so readily show signs of relative tolerance, but react after the manner of the stolid type. In closed anaesthesia a relative tolerance can develop apart from this toxic or nervous type. I believe this to be due to a too complete absorption of carbon dioxide by the soda lime, which lowers the carbon dioxide tension of the blood. This depresses the respiratory centre and reduces the amplitude of respiratory movement which, by preventing the relaxation of the heart in diastole, hinders the venous return and makes a circulatory failure possible as a result of the diminished cardiac output. Of equal importance is the production of an anoxaemia of the anoxic type. In spite of the fact that the oxygen tension in the blood is adequate, oxygen is not readily available owing to the low carbon dioxide tension hampering the dissociation of oxyhaemoglobin. By increasing the carbon dioxide contents of the system this clinical condition is rapidly rectified. If these causes have been allowed to act for too great a length of time the oxygen supply must also be increased. In event of an increase of carbon dioxide and oxygen failing to rectify the clinical condition of relative tolerance, the inference is that the causes have been acting for too great a length of time, and consequently the damage has been done and surgical shock is actively present. In this state the condition of relative tolerance or susceptibility—I would prefer to call it shock—has been established, and a reduction of the pressure of the anaesthetic agent in the system is necessary to reduce the tension of anaesthetic in the blood. At the same time the routine treatment of shock is instituted.

In a closed method of anaesthesia one can recognize clinically a "pre-relative tolerance" stage, a relative tolerance stage, and, finally, the stage of established surgical shock. The pre-relative tolerance stage is manifested by irregularities in, or shallowness of, the amplitude of respiratory excursions as shown on the manometer. The use of the carbon dioxide by-pass valve will rapidly rectify matters. In the relative tolerance stage, again, there are irregularities of respiratory movement, depressed breathing, and inspiratory tugging. The blood pressure falls, the pulse becomes full and soft, and may become rapid. These two stages are "pre-shock" stages, and are relieved by the exhibition of carbon dioxide, or carbon dioxide and oxygen. Shock is not established, and consequently, if those forces acting to produce it are relieved, its advance is arrested. This becomes a therapeutic test, for if the condition is not arrested then one can be perfectly sure the patient has reached the third stage—the state of surgical shock.

These facts lead one to consider that relative tolerance or overdosage is not due to any physical peculiarities of the blood *per se*, but rather to an increased tolerance—in effect, the early onset of shock. Its incidence can be reduced by the use of basal anaesthetics. In a closed system of anaesthesia it offers a reliable clinical index of approaching surgical shock. The physiological regulation of that hormone of the respiratory system, carbon dioxide, which in a closed system can be accurately controlled, will reduce the incidence of surgical shock, delay its onset, and provide a reliable guide as to whether it is actually established. A survey of surgical shock in anaesthesia and the relative value of different agents and methods is being investigated at present, and will be the subject of a future communication.—I am, etc.,

London, W.6., Aug. 29th.

T. A. B. HARRIS.

Treatment of Lupus Vulgaris

SIR,—Dr. Burnell-Jones is evidently of opinion that, however extensive the trials of tuberculin in lupus may have been in the past, they have not been adequate, and that the clinical work now in progress in London and elsewhere is likely to remedy the defect. I agree entirely with him on both points.

The London work to which he refers is described in a paper by Dr. H. Semon and himself entitled "Tuberculin in the Treatment of Cutaneous Tuberculosis," and published in the *Proceedings of the Royal Society of Medicine* (January, 1934). In this the authors describe cases of lupus showing definite improvement under progressively increasing doses of tuberculin B.E., rising to large quantities. If this work, on visible cases where we can see what is happening, is steadily continued for a sufficient length of time, we shall at last obtain material from which to learn the truth about the value of tuberculin, not only in lupus, but eventually in other forms of tuberculosis as well. Lack of the Hunterian method, carried out with intimate knowledge of Koch's work, has been to a large extent responsible for the inadequacy of the investigations into this subject in the past.

An article by Sir Malcolm Morris and Dr. Arthur Whitfield, entitled "Six Cases of Lupus Vulgaris Treated by Koch's New Tuberculin" (*British Medical Journal*, 1897, ii, 207), is almost the only serious attempt reported in this country to confirm, in lupus Koch's completed work on tuberculin. This article still merits close attention, but the work was too soon abandoned, owing apparently to the introduction of Finsen light treatment, or to being diverted by the opsonic index and fear of dangerous consequences—strangely enough after the authors had reported "full confirmation of the good effects referred to by Koch" and remarkable improvement in the cases treated.

It is greatly to be hoped that the work now in progress in London will not be hampered by want of support. Those who have worked at this problem know how heavy are the demands it makes on time, energy, and staying power. There are sufficient funds in the hands of the Medical Research Council and other bodies entrusted with the patronage of medical research to subsidize work of such potential practical value. I have no hesitation in calling upon all who are in sympathy with these views to unite in creating the demand for support of every description for one of the most promising, long overdue, medical researches of our time.—I am, etc.,

London, S.W., Aug. 26th.

ROBERT CARSWELL.

SIR,—In a letter from Dr. H. S. Burnell-Jones, published in the *Journal* of August 25th (p. 375), he declares that "it is wrong and unscientific to condemn tuberculin without an adequate trial. The endeavour should be made to learn how to use it."

It is pertinent to inquire on what grounds Dr. Burnell-Jones charges the medical profession with not having given tuberculin an adequate trial. Tuberculin has now been before the profession for some forty years. Having been widely given up after its first rather disastrous start, it was re-boomed about 1911. For some years it was tried on a most extensive scale, so much so that letters appeared in the *Journal* expressing a fear of tuberculosis dispensaries becoming "tuberculin dispensaries." Possibly these events do not fall within the memory of Dr. Burnell-Jones.

Further, he quotes Dr. Lomholt as saying—with regard to the use of tuberculin in lupus vulgaris—that it "had been tried extensively at the Finsen Institute," so we are left to infer that he does not consider this extensive trial at the Finsen Institute to have been an "adequate

trial," because the result was that tuberculin had been abandoned. Dr. Burnell-Jones thinks that we never learnt how to use it. Perhaps he will be kind enough to explain how our methods were all wrong, and what is the proper method as known to him.

We agree that "it is wrong and unscientific to condemn tuberculin without an adequate trial," but we deny the impeachment (which is surely just a little presumptuous on the part of Dr. Burnell-Jones), and we would point out that it is equally wrong and unscientific to credit tuberculin with the cure of tuberculosis on the strength of occasional good results in a disease which, as common experience shows, provides many instances of improvement or arrest of disease by the *vis medicatrix naturae* alone. He must produce satisfying evidence, supported by proper controls. Also, to talk of "widely different actions [of tuberculin] in different individuals" is simply to hedge. Not so do we speak of those specific remedies which have proved to be trustworthy in other diseases.—I am, etc.,

E. WEATHERHEAD.

Southborough, Tunbridge Wells, Aug. 26th.

Haemorrhage from Peritonsillar Abscess

SIR,—Both Professor J. B. Dawson (August 11th, p. 284) and Mr. Charles MacAuley (August 25th, p. 371) consider it wiser to tie the external, rather than the common, carotid in cases of haemorrhage from a peritonsillar abscess. I would remind them, however, that the tonsil is partly supplied by the descending palatine branch of the internal carotid (Cunningham). Should the bleeding originate from this source, ligation of the external carotid alone would certainly not "meet the case." Ligation of the external carotid will undoubtedly stop the majority of haemorrhages from the peritonsillar region, but the exceptions will most likely prove fatal. Any considerable further haemorrhage would certainly have killed my patient, and this fact was kept in mind when deciding which artery should be tied. Perhaps the best procedure would be to ligature the external carotid, and at the same time to leave a stout catgut ligature loosely around the internal carotid, ready to be tied at a moment's notice. Alternatively one could dissect out the tonsil and look for the bleeding vessel in its bed, as has been already suggested.

Both Professor Dawson and Mr. MacAuley comment upon the operative difficulty caused by swollen lymph glands. This was not present in my case, presumably because of the long interval which had elapsed between the bursting of the quinsy and the ligation of the artery.—I am, etc.,

Dublin, Aug. 27th.

T. G. WILSON.

Use of "Oil" Vaccine in Rheumatism

SIR,—In the *Journal* of August 25th Drs. Walsh and Frazer (p. 374) ask the size of the globules in the dispersed phase of the "oil" vaccine described in my letter (*Journal*, August 4th), stating that in their experience globules of a size of 2 to $2\frac{1}{2}\mu$ are too large to be of any value (2 to $2\frac{1}{2}\mu$, as their letter states, is no doubt a misprint— 2μ would, of course, be much too small to measure).

In our oil the average size of the particles is 1μ , gum acacia is used for protection, and the emulsion is rendered isotonic with mannite. The oil is sterilized by heat and preserved by 0.3 per cent. tricresol; 1 c.cm. of vaccine in carbol saline is then added to 9 c.cm. oil emulsion at 37°C . After an hour or two it is allowed to cool. We have found that the addition of the protective to the emulsion prior to the adsorption of vaccine is in no way detrimental, and the isotonicity obviates any local reaction at the site of injection. This, then, is the general "oil"

vaccine which the staff of the Charterhouse Rheumatism Clinic has now used in a considerable number of cases.

Experimental work is proceeding under Dr. Harry Coke's direction in order to determine: (1) a clinical elution isotherm in relation to the size of the particles and the relative surface available (at the other end of the scale we are therefore using a 50 per cent. protected isotonic emulsion of olive oil in which the average size of the particles is the same and the available surface very large); and (2) the effect of the chemical constitution of the dispersed phase. Here an attempt is being made to determine the relative value of other colloids in producing specific immunity and desensitization phenomena. We are trying colloidal cholesterol, calcium, and magnesium oleate (with an average size 0.1μ), calcium and magnesium phosphates and hydroxides, and, perhaps most important of all, the selective adsorption of calcium or magnesium salts with vaccine on a neutral colloid, such as silica. The preparations, as before, are by British Colloids, Ltd.

I should add that no means are taken for solution of the bacterial content of the vaccines. Partial autolysis is always to be found in vaccines prepared from broth cultures and put up in carbolized saline.—I am, etc.,

London, W.1, Aug. 30th.

H. WARREN CROWE.

"Port Sanitation and Common Sense"

SIR,—The article, so ably written by "A Ship Surgeon," in the *Journal* of August 25th raises many points of interest and calls for some comment.

His remarks anent "bills of health" are sound and true, but it is worth emphasizing that the reason for their loss of value is due to two things. First, news nowadays travels faster than the ship, hence the bill of health is out of date and valueless by the time a vessel reaches any port a reasonable distance from the port of origin. Secondly, thanks to the work of the International Bureau of Hygiene at Geneva, a weekly confidential list of all ports where infection exists, together with facts and figures, is circulated to all port medical officers, who are thus kept strictly up to date in information. With regard to British bills of health they are at least issued free, and not like some foreign ones where fabulous sums have to be paid for a piece of paper the philatelic interest of which far exceeds any potential or actual value. In the second part of your correspondent's paper, under the heading "Ship Hygiene," I think his outlook and picture are drawn from the interior of a first-class liner. Has he inspected many cargo vessels and smaller fry of the "tramp" class?

It is in the last part of his article, in which he criticizes port authorities, that I would cross swords with "Ship Surgeon." Abroad things may be out of date—in many cases I know they are. In Great Britain the port authorities have a very definite reason for every measure they take, and I cannot recall, or think off-hand of, a single matter which could be reasonably cavilled at. I agree that the status of the ship surgeon has improved, and in the larger companies, where something approaching a permanent career is offered, the best type of doctor is obtained. Port authorities have to consider all types, however, both British and foreign, and one cannot make one routine for the one and a different routine for the other.

The question, "Have you had any illness on board, whether of an infectious nature or not?" is most important, as "Ship Surgeon" promptly proceeds to substantiate in his succeeding remarks. Port medical officers have both the time and the patience to listen to a recital of the bo'sun's lumbago, the carpenter's rheumatism, and the steward's diarrhoea; for there at once lie the potential

and perhaps ambulatory cases of small-pox, gonorrhoeal sequelae, and typhoid fever, to name a few. The mere mention of the diagnoses "Ship Surgeon" gave would at once excite in the mind of a port medical officer such possibilities, and *quite possibly* would not have aroused suspicion in the mind of the ship's surgeon. Having been "let down" by each of these three types of case, I can speak with feeling on that point. I feel that I should personally treat "Ship Surgeon" with some suspicion if he declined to answer that question properly.

Surely he has taken the parochial outlook rather than the broad view with regard to port authorities. Does he not realize that they are out to help and not to hinder? The port medical officer, even abroad as well as at home, has special qualifications for knowing the major infectious diseases when he sees them, and in most instances meets them so frequently that he has the practice as well as the knowledge. Let the ship's surgeon therefore avail himself of a second and expert opinion whenever he can, lest one day he trip up over the differential diagnosis between his pimples and his small-pox. The port medical officer knows the local facilities for dealing with "the commander's indigestion" and "the stewardess's debility," not to mention "the fireman's whitlow," etc., and if assistance in landing and catering for these cases is required the port authority will help in the matter.

In short, the port authority does its best to take all the responsibility possible off the hands of the ship's surgeon, and it is up to him "to deliver the goods." In conclusion, let "Ship Surgeon" remember that most port medical officers know his difficulties, and most of them have been through them in the past; but whereas his charge is the relatively small "parish" of the ship the port medical officer's "parish" is the entire population of the country whom it is his duty to protect from imported disease.—I am, etc.,

August 26th.

"A PORT MEDICAL OFFICER."

Pineapple Juice in Oedema

SIR,—I should like to add another old-fashioned remedy to Dr. F. C. Bottomley's list for the treatment of oedema (as reported in the proceedings of the Section of Medicine, *Journal*, August 18th, p. 315). At Broken Hill (Australia) in 1929 I saw a case of cardiac oedema in a woman of 30 with a patent ductus arteriosus completely relieved in three weeks by the daily administration of pineapple juice. When the treatment was started the patient was oedematous to the waist, and there was fluid in both pleural cavities. Digitalis, mercurial compounds, and so on had been tried without success, and the pleural sacs had been drained and were filling up again rapidly. She was given the juice from a tin of pineapple daily, and in a fortnight her urinary output had risen from 18–20 oz. to 60–100 oz. in twenty-four hours. The oedema of her back and legs completely subsided and the fluid disappeared from the pleural cavities in about three weeks. The patient left the hospital, reporting some months later still apparently free from oedema: she was then consuming one tin of pineapple per week. The pineapple juice was administered in the first place because I was told that it was a good old-fashioned remedy for reducing the swelling of sore throats and quinsies, and nothing seemed to be doing the patient any good. The action of the juice may have been due to some essential constituent of the pineapple or to its sugar content, but this point has not been investigated. The case was fully reported in the *Medical Journal of Australia* in 1930.—I am, etc.,

BRIAN MAEGRAITH.

Sir William Dunn School of Pathology,
University of Oxford, Aug. 21st.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

During the months of June and July the title of the degree of B.Chir. was conferred by diploma upon C. M. Cavell and D. J. Thompson (Newnham College), and R. A. Kellgren (Girton College).

Charles Montague Fletcher, B.A. (Trinity College), has been elected to the Michael Foster Research Studentship.

The General Board gives notice that the composition fee for all medical students and for other students reading for the Natural Sciences Tripos, Part I or Part II, or for the Preliminary Examination in Natural Science, will be as follows: For undergraduates in their first, second, or third year an annual composition fee of £45, payable in three equal terminal instalments of £15; for students in their fourth year a terminal fee of £8.

The *Cambridge University Reporter* of August 14th included a list of lectures and courses of practical instruction in medicine, surgery, pharmacology, therapeutics, and pathology, and for the Diploma in Medical Radiology and Electrolgy, approved by the Board of the Faculty of Medicine for the academic year 1934–5.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—F. A. Frank, F. M. Kerry, J. T. Moohalaparakel.
MEDICINE.—S. Adams, T. D. R. Aubrey, M. T. Curran, A. H. El. S. El Mahallawy, R. C. H. Ensor, F. A. Frank, W. H. Jervis, C. W. O'Donoghue, J. F. Owen, H. Paroulakis, D. Walton.

FORENSIC MEDICINE.—F. G. S. Alderson, F. A. Frank, W. H. Jervis.

MIDWIFERY.—J. A. Amor, N. A. Bicchieri, D. P. Hickey, F. M. Kerry, K. P. Pauli.

The diploma of the Society has been granted to F. G. S. Alderson, M. T. Curran, J. T. Moohalaparakel, C. W. O'Donoghue, J. F. Owen, and H. Paroulakis.

The Services

AWARDS

The Gilbert Blane gold medal for this year has been awarded to Surgeon Lieutenant-Commander T. C. H. Neil, M.B., Ch.B., who obtained the highest aggregate marks at the examination for the rank of Surgeon Commander.

The King has conferred the Efficiency Decoration of the Territorial Army upon Lieut.-Colonel C. H. Budd, M.C., and Major V. H. Wardle, M.C., R.A.M.C.(T.A.).

DEATHS IN THE SERVICES

Lieutenant-Colonel Edmund Hasell Wright, Madras Medical Service (ret.), died at Woking on August 13th, aged 65. He was born at Masuri on September 16th, 1863, the son of George Augustus Wright, indigo planter, and was educated at St. Thomas's, taking the M.R.C.S., L.R.C.P. in 1887. Entering the I.M.S. as surgeon on March 31st, 1890, he became lieutenant-colonel after twenty years' service, and retired on November 8th, 1921. After fifteen years' military duty he was appointed civil surgeon and superintendent of the medical school at Tanjore in 1906, and civil surgeon of Merkara, Coorg, in 1916.

Major James Lafayette Lauder, D.S.O., M.C., R.A.M.C. (ret.), died on July 18th, aged 45. He was born on June 18th, 1889, the son of J. S. Lauder, Esq., and was educated at Dulwich and at Guy's, and took the M.R.C.S., L.R.C.P. Lond. in 1913, and the M.R.C.P. Ed. in 1916. He took a temporary commission in the R.A.M.C. on August 8th, 1914, was confirmed as lieutenant and temporary captain on January 1st, 1917, became captain on February 8th, 1918, and major on August 8th, 1926. He went on temporary half-pay on account of ill-health on August 17th, 1932, and retired two weeks later, on August 31st, 1932. He served throughout the war of 1914–18, was mentioned in dispatches in the *London Gazette* of December 11th, 1916, and December 24th, 1917, and received the D.S.O. and the Military Cross, the former for his services during the typhus epidemic of 1916 in the Wittenberg prisoners' camp.

Obituary

ROBERT ALEXANDER GIBBONS, M.D.,
F.R.C.P.Lond., F.R.C.S.Ed.

Consulting Gynaecologist to the Grosvenor Hospital for Women

We regret to record the death in London, on August 23rd, of Dr. R. A. Gibbons, the well-known gynaecologist. Born in Canada, he studied medicine at Edinburgh, graduating M.B., C.M. in 1874, and M.D. in 1877. Five years later he took the F.R.C.S.Ed. and the M.R.C.P.Lond.; he was elected F.R.C.P. in 1932. Dr. Gibbons held resident appointments at the Royal Infirmary, Edinburgh, and was for two years R.M.O. at the East Suffolk and Ipswich Hospital. He later obtained the post of resident medical officer to the Great Ormond Street Hospital for Children. Settling in a house in Cadogan Place in the 'nineties, he soon built up a



large and fashionable practice, and it was not long before he became known to a wide and important circle in London. He held the appointments of obstetric physician to the St. George's and St. James's Dispensary and the Royal Pimlico Dispensary, but it is in connexion with the Grosvenor Hospital for Women, Vincent Square, that Dr. Gibbons is best known. He was the founder of this hospital, which began in a very small way in two houses in the Square, and it was

owing largely to his energy and enthusiasm that the present well-equipped hospital was built. He collected considerable donations for it from his rich and grateful patients, and the hospital is, in truth, his child. He spent a large portion of his life doing excellent work there, and at his death was the senior consulting gynaecologist. Dr. Gibbons contributed a number of papers to medical journals and also the articles on dysmenorrhoea, sterility, and dyspareunia in Latham and English's *System of Treatment*. He also wrote two brochures on sterility in women and another on the causation of labour, a subject in which he was greatly interested and to which he devoted much thought, industry, research, and experiment. He had been a member of the British Medical Association for nearly sixty years, and was vice-president of the Section of Obstetrics and Gynaecology at the Belfast meeting in 1909.

Sir JAMES DUNDAS-GRANT writes:

The death of Dr. R. A. Gibbons will be a blow to a large circle of patients, friends, and fellow practitioners. For his patients it will be difficult to find an adviser who, in addition to having good judgement and skill, possesses in so high a degree his qualities of tact, delicacy, and sympathy, which are particularly indispensable in one who devotes himself to the obstetrical and gynaecological department of medicine. His personality, brightness, and loyalty endeared him to many friends, lay and professional. One who was a few years his junior when he was house-surgeon and house-physician at Edinburgh well remembers the example he set of business-like intensity in his devotion to work, and the consistent maintenance of the dignity of his calling in his conduct and bearing, even down to his preciseness in dress. The demand in London for his services as an obstetrician was so great that he decided not to accept the post of

obstetric physician to a teaching hospital, as he felt unable to devote to it the amount of time that would have been required for the conscientious performance of the duties as he conceived them. Among those who will deplore his loss will be the members of the Order of St. John of Jerusalem, in which he held the position of Knight of Grace, and many freemasons of all ranks. Up to the last he enjoyed his round of golf and maintained his appearance of youthful freshness, to which moderation in diet and regimen no doubt contributed. He took the serious things of life with seriousness, the lighter ones with good humour, and in more ways than one he was an ornament to his profession.

Sir GOULD MAY writes:

From the very beginning Gibbons's success in practice was phenomenal. Having studied under Lister in Edinburgh, he fully realized the importance of antiseptics, and he may be said to have been one of the pioneers of aseptic midwifery in London. A man of fine presence, courteous manners, and most generous instincts, he was always anxious and willing to help the younger man, while he was never puffed up by his wonderful success. Few doctors have been more beloved by their patients, and he will have the only monument worth having—a safe place in the hearts of all those who knew and loved him.

CECIL W. HUTT, M.D., M.R.C.P., D.P.H.

Medical Officer of Health for Holborn

The sudden death of Dr. Cecil W. Hutt, medical officer of health for the Borough of Holborn, at the comparatively early age of 54, removes a public official of undoubted distinction.

He was a Londoner by birth, and while at St. Paul's School he showed those gifts of scholarship which remained with him throughout his life. In 1898 he gained an exhibition to Trinity College, Cambridge, taking his B.A. in 1902 with a first class in the Natural Sciences Tripos, Part II. Then followed his medical training at St. Bartholomew's Hospital, where he was awarded the Matthews Duncan Prize and Brackenbury medical scholarship, qualifying in 1905.

After holding several clinical appointments he took the Oxford D.P.H., entering on his public career as assistant M.O.H. in Warrington, and later as deputy to Dr. Duncan Forbes, medical officer of health for Brighton, with whom he remained on the most intimate terms of affectionate friendship. He always looked back on the years at Brighton as the time of happy apprenticeship, and remembered with gratitude the valuable and varied experience he acquired there. There was much to do in Brighton during the war, for in that city was established the chief hospital organization for the Indian contingents, and the incidence among them of infectious disease, such as cerebro-spinal fever, gave much anxiety to civilian health officers there as elsewhere. As soon as he could be released Hutt joined the Army, and after a period of service in home commands was drafted to Egypt, where he had the misfortune to contract dysentery in a severe form. There is little doubt that the after-effects of this infection remained, and played a part later in undermining a constitution normally robust.

Soon after the war he was appointed medical officer of health for Dudley, and later for Richmond, Surrey, but it was not until 1921 that he succeeded the late Dr. Bond as medical officer of health for Holborn. A metropolitan borough does not offer so wide a field for an official of imagination and initiative as an area of comparable size in the provinces, but Dr. Hutt soon set the seal of energy and progress on the health services of the borough.

He found most scope in the newly developing maternity and child welfare movement, and to-day it would be difficult to find anywhere a more complete or better-organized service. He was the first medical officer of health in London to grasp the value of protective immunization against diphtheria, and his scheme for the general population was probably the first in operation in England. He was a Fellow and member of the Council of the Royal Institute of Public Health, Fellow of the Society of Medical Officers of Health, one of the founders of the School Medical Service Group, and took a prominent and executive part in the activities of the National Baby Week Council and the National League of Health Maternity and Child Welfare. Further, he occupied a position of considerable responsibility as the medical member among the advisory experts attached to the special subcommittee of the Metropolitan Standing Joint Committee which is dealing with the urgently important question of refuse disposal in London.

Hutt was a lucid and facile writer, and throughout his public career contributed very frequently to the medical and health journals on a variety of subjects dealing with public health. Among these may be mentioned "The Urgent Need of Reform of the Sale of Food and Drugs Act Administration (Public Health)" and "Diphtheria Immunization in a Metropolitan Borough (*Lancet*, 1925). School hygiene was the subject of his special interest, and he wrote a number of articles embodying much original thought both in French and in English journals. He was the author and part author of a number of textbooks, perhaps the earliest and best known being his *Hygiene for Health Visitors, School Nurses, and Social Workers*—one of the best books of its kind ever published. He collaborated with several others in bringing out a later edition of that excellent textbook, Sir William Hamer's *Manual of Hygiene*, and at the time of his death had almost ready for publication a more ambitious work on preventive medicine under the co-editorship of Dr. Hyslop Thomson. Travel abroad was one of the joys of Hutt's existence. Difficulties or discomforts in the means of travel never dismayed him, and he would be happy even to tramp rather than miss an interesting place or people. He had an intimate knowledge of many parts of the Continent, and often while on holiday made a point of studying health administration and institutions in different lands. These visits were afterwards recorded in such journals as *Health*, *National Health*, etc. Possessed of a wide and detailed knowledge of the whole subject of public health, he was able, as a lecturer to the D.P.H. students of the Royal Institute of Public Health and to the undergraduates at Charing Cross Hospital, to present the subject in an illuminating and impressive manner.

He was a man of the most kindly and generous disposition, always willing and helpful if approached, but extremely modest and most unwilling to thrust himself forward. As an old friend once wrote of him: "An unassuming worker whose quiet endeavours to gather knowledge and to aid others inspire his colleagues with a sense of fellowship and partnership in the common work." He retained his youthful appearance, and sometimes associated with it a delightfully boyish shyness. Rarely did he speak harshly of anyone, and even for those who might occasionally merit a bitter word he almost apologized with a deprecating smile. He applied to the problems of public health a finely imaginative and constructive mind; his outlook on the issues which emerge in the unfolding of this scroll of knowledge was philosophic. Hutt looked across and beyond the questions of the hour to the horizon of the future, and the ideas he expressed were the products of a highly cultivated intellect. But he likewise possessed the ability to put those ideas into practical form, and many a scheme which he

has brought into execution serves, and has served, as a useful pattern to others. He was whole-heartedly devoted to his profession, and there is little doubt that he sacrificed his life to a passion for work. His health had broken down earlier in the year, and he returned after a period of rest and change, but far from fully recovered. The demands of his official work and those entailed by the completion of his latest textbook were more than an already overtaxed constitution could bear. So he has passed on in middle life while intellectually at the height of his powers, leaving behind him the sincere regrets of many friends and colleagues.

E. D. MACNAMARA, M.D., F.R.C.P.

Consulting Physician for Psychological Medicine, Charing Cross Hospital

We regret to record the death, on August 24th, at the age of 64, of Dr. Eric Danvers Macnamara, the well-known psychiatrist. He had had a busy life. After taking the ordinary qualification of the English Royal Colleges in 1897, he became a surgeon in the Royal Navy for five years or more. During his term of service he was almost exclusively attached to the China Squadron, and served in the Pekin relief force, for which he obtained a medal and clasp. But surgical life in the Navy was so distasteful to him that he resigned rather than remain another couple of years to qualify for a pension. He then graduated at Cambridge, taking the M.B., B.Ch. in 1903 and the doctorate in 1908. It was then that he switched over to medicine, and became particularly interested in mental diseases; the clinical aspects of which he first studied as house-physician to Bethlem Royal Hospital. With the same object in view he became house-physician to the National Hospital in Queen Square, neurology and psychiatry being supposed, in those days, to be more intimately related than they are to-day. He was appointed assistant physician to Westminster Hospital, his Alma Mater, where he subsequently became dean of the medical school, and he had many other appointments to keep him busy. He was on the staff of the West End Hospital for Nervous Diseases and the Paddington Green Hospital for Sick Children. He was lecturer on mental diseases to Charing Cross Hospital, and gave post-graduate lectures regularly at Bethlem Royal Hospital. At one time he was examiner in psychology to the Conjoint Board of the Royal Colleges of Physicians and Surgeons. During the war he served in the R.A.M.C. and also in the Medical Department of the Admiralty. His contributions to medical literature appear to have been almost limited to articles in various encyclopaedias of medicine: Latham and English's *System of Treatment*, *The Practitioner's Encyclopaedia*, the *Dictionary of Practical Medicine*, and Price's *Textbook of Medicine*.

Macnamara was a cheery companion, but had a very retiring nature. He devoted his life to mental disease, and was unusually devoid of such hobbies as would have brought him into more intimate contact with his fellows. Even his domestic life had many associations with his special study. He married Frances Mary, daughter of Dr. W. Simpson Craig, who was proprietor and superintendent of Bishopstone House, a successful private mental home in Bedford, and sister of Sir Maurice Craig, with whom Macnamara collaborated in several of the above-mentioned articles. He leaves two sons.

Surgeon Commander G. ERNEST MACLEOD, R.N. (ret.), writes: The medical profession has sustained a great loss by the recent untimely death, after a short illness, of Eric Danvers Macnamara. A man of attractive presence and exceptionally charming personality, his quiet, unassuming manner concealed the outstanding ability and wide

sympathies which he possessed and devoted in such full measure to that department of medicine which he had made his own. To an extensive knowledge of men and matters he added a keen sense of humour, an enjoyment of life, and an optimistic outlook on affairs generally, which made him a most delightful companion. On his academic and professional attainments it would be superfluous to dwell, but I think it is no exaggeration to say that his name and work will long be remembered with affection and gratitude by patients, students, and colleagues alike. My friendship with him began many years ago, when we entered the medical department of the Navy together, and has continued ever since, and it is less than three weeks since I last had one of his usual cheery letters, in reply to one of mine, in which he asked me to hurry up and come to town again soon for one of our periodical dinner-and-theatre meetings which were always such a great pleasure, and to which I was looking forward. It is painfully sad to think that we shall not meet again.

C. C. ELLIOTT, M.D.ONT., F.R.C.S.ED.

Dr. Charles Coyne Elliott, who died on August 10th, had had a varied and interesting career before settling in general practice in Leicester. Born and educated in London, Ontario, his intellectual gifts manifested themselves very early. In fact, his contemporaries in the Medical School remember him as "the man who made one mistake," for he was said to have only once answered a question incorrectly. He took his M.D. degree in 1900, at the same time winning a gold medal, which had not been awarded for so many years that the possibility of securing it had almost been forgotten. After a few years' practice in Canada, Elliott went to China as a medical missionary, and found great scope for his scientific attainments in the treatment of patients in the extreme Western Province of Szechuan. Before his day it had not been recognized that the many severe cases of anaemia were due to ankylostomiasis, and he was the first to understand that the terrible abdominal pain "which ceases at cock-crow" was due to duodenal ulcer. He contributed to the *China Medical Journal*, September, 1918, a study of forty cases of duodenal and gastric ulcer submitted to operation. Dr. Elliott was very successful in training male medical students and nurses, and the hospital which he built was a model of economy, efficiency, and thoroughly scientific method. As time went on it became clear to him that medical students needed more than the spare time of a busy doctor, and he decided to throw in his lot with the medical school in Chengtu, where he taught clinical surgery. He was very successful in gaining the respect and affection of the Chinese medical students (not, at that time, a very amenable class of men), and many of those whom he taught are now doing most excellent work.

He used some of his time on furlough to obtain the F.R.C.S. at Edinburgh (1913), and on his last return from China spent time in study at University College Hospital and in Paris with a view to maintaining the high standard of the West China Union University in Chengtu. It was only the pressure of domestic affairs which forced him to abandon his intention of returning to China.

Dr. JOHN TERTIUS CLARKE died at his home in Harrow on August 31st at the age of 69. Born at Hinckley, Leicestershire, in 1865, Clarke was educated at Dulwich College and St. Thomas's Hospital, and qualified M.R.C.S., L.R.C.P. in 1889. In 1891 he became house-surgeon to the Royal Hants County Hospital, Winchester, where he met his future wife, Miss Mary F. Cosgrove. He served as ship surgeon for two years, and in 1896 he joined the

Perak Medical Service. In 1906 he took the D.P.H. Cantab. and became medical officer in the public health department, Federated Malay States, in 1911. In 1920 he retired from the service, but remained in Malaya till 1926, carrying on an extensive practice on various rubber estates, the work consisting chiefly of the prevention of malaria and ankylostomiasis. In 1926 his heart began to trouble him seriously, and he came home to England via Canada. On his way home he was taken very seriously ill in British Columbia, but recovered, and through his indomitable pluck was able to lead a life of useful though restricted activity for another eight years. Clarke was impressed by the rarity of rheumatic fever in the Tropics, and during his eight years at Harrow he worked at the Ross Institute at Putney, carrying out researches into the causes of rheumatic fever. He wrote several articles in the *British Medical Journal* in support of his theory that rheumatic fever is transmitted by sewer rats. He was also much interested in the research work on cancer of the late Dr. Shaw Mackenzie, and gave him great help and encouragement in his labours. Tertius Clarke was keen on the work of the British Medical Association, and was a constant attendant at meetings of the Harrow Division while his health permitted; he served as honorary secretary in 1929-30. The Malaya Branch elected him a complimentary member. He broke his thigh at the age of 15 and could never afterwards move quickly enough to excel at active games, but he was a keen golfer and no mean performer. His courage and keen sense of humour in the face of grave physical disability endeared him to all who met him, and their sympathy will go out in abundant measure to his widow and two sons.

The death took place suddenly at Buxton, on August 30th, of Dr. DAVID DUNCAN MAIN, who for many years was one of the best-known missionaries in China. Dr. Main was born at Kirkmichael in 1856, and after studying medicine in Glasgow and Edinburgh took the triple qualification of the Scottish Corporations in 1881. He immediately began work as a medical missionary in China, and from 1881 to 1927 was superintendent of the Church Missionary Society Medical Mission at Hangchow, and principal of the Hangchow Medical Training College. Here he was in charge of a large hospital, and was the head of a native medical school where many hundred Chinese men and women were trained for medical work. He organized a centre for training in industrial work, at which the mission provided practical instruction for masons, carpenters, tinsmiths, painters, etc., and inaugurated sanatoria for convalescents and tuberculous patients, and a leper hospital. During intervals of return to his native country Dr. Main took the Membership of the Royal College of Physicians at Edinburgh in 1901, proceeding to the Fellowship in 1905; in 1911 he joined the Royal College of Surgeons of Edinburgh as a Fellow. In addition to his active practical work he rendered valuable service to Chinese medicine by translating several medical works into Chinese, including *Whitla's Dictionary of Treatment*, Caird and Cathcart's *Surgical Handbook*, and Playfair's *Midwifery*. For his services to China he received various high decorations from the Republic; he was also decorated as a Fifth Class Mandarin by the Emperor of China in 1901. In 1927, after forty-five years of continuous work in China, he settled in Edinburgh, where he took considerable interest in the medical life of the city. The interment took place in the Dean Cemetery, Edinburgh, on September 4th.

We regret to announce the death of Dr. ANNIE T. LEIGH, the wife of Mr. J. R. Johnson of School Road, Sale, Cheshire. Dr. Leigh qualified M.B., Ch.B. in 1925 at Manchester, and took the diplomas of M.R.C.S. and L.R.C.P. in 1926. She devoted the whole of her time to anaesthetics, and before qualifying she began research work with the late Dr. S. R. Wilson, and continued with him in this work till his tragic death. Her first appointment was as visiting anaesthetist to the Manchester Royal Infirmary (Central Branch). After the

death of Dr. S. R. Wilson she was appointed to his post of honorary anaesthetist to the Manchester Dental Hospital, and was a member of the Board. At the time of her death Dr. Leigh was also honorary anaesthetist to St. Mary's Hospital, Whitworth Street, visiting anaesthetist to St. Mary's, High Street, and to the Northern Hospital for Women and Children. She had only recently been appointed by the Manchester Corporation as visiting anaesthetist to Booth Hall Infirmary. Dr. Leigh was also a medical examiner for the Sun Life of Canada Assurance Co., Ltd. She was the sister of Dr. Gertrude B. Leigh of Sunderland. Her death came as a great shock to her medical friends.

We regret to record the death of Dr. EDWARD BUXTON at Jersey on August 25th. Dr. Buxton qualified L.R.C.P.Ed. and M.R.C.S. in 1885, and took the diploma of M.R.C.P.Ed. in 1893 and F.R.C.S.Ed. in 1894, and the D.P.H. in 1892. In 1897 he received the degree of M.D.St.And. Dr. Buxton was an honorary life member of the St. John Ambulance Association, and had been a member of the British Medical Association for forty-eight years. At one time he was physician to the Nazareth House Orphanage, Great Crosby, and medical officer of health for the Little Crosby Urban District Council. He had retired from practice for some years. Dr. Buxton was of a genial disposition and had many friends. He leaves a widow, one son, and one daughter.

The death is announced, on August 10th, of Dr. RUDOLF BOLLING TEUSLER of St. Luke's International Hospital, Tokyo, who was one of the leading figures in the foreign community in Japan. Dr. Teusler, who was a cousin of Mrs. Woodrow Wilson, was born at Rome, Georgia, in 1876. He died at St. Luke's, the hospital and public health institution which he founded as a small eight-roomed mission hospital when he went to Japan for the American Episcopal Church in 1900. After graduating M.D. at the Medical College of Virginia he was in private practice and on the teaching staff of his college. His little hospital grew to a great institution, the training school for nurses being approved by the Japanese Government as the college for nurses. To Dr. Teusler more than to anyone else was due the raising of the status of the nursing profession in Japan, while he was also a pioneer with regard to children's clinics and the provision of visiting nurses in poor districts. In the earthquake of 1923 his hospital was destroyed, but the foundations for a new building, which had just been completed, remained intact, and the site became a refugee centre where medical aid of all sorts was given. The present buildings were opened and dedicated last year. In all his work Dr. Teusler was aided by a fine band of Japanese colleagues, who at the present time include leading specialists in almost every branch of medicine and surgery. It is illustrative of the regard for him that he was referred to by friends as "Sir Galahad." Teusler was decorated with the Fifth Class Order of the Rising Sun, the Russian Order of St. Vladimir, and the Czechoslovak war medal, which were awarded him for his work with the American Red Cross in Siberia from 1918 to 1921, and for the evacuation of Czech invalid prisoners from Siberia.

The following well-known foreign medical practitioners have recently died: Dr. EUGENIO TANZI, professor of psychiatry and neurology at Florence, aged 78; Professor E. JOSEPH, a Berlin urologist; Dr. GASCARD, professor at the Rouen medical school and national correspondent of the Académie de Médecine in the Section of Surgery; Dr. LOUSTE, general secretary of the Société Française de Dermatologie; Hofrat Professor Dr. HERMANN SCHLESINGER, head of the third medical department of the General Hospital at Vienna, aged 68; Dr. C. C. DELPRAT, a former editor of *Nederlandsch Tijdschrift voor Geneeskunde*, aged 79; and Dr. ERNEST SCOTT, professor of pathology, Ohio State University College of Medicine, since 1915, aged 58.

Medical News

The annual prize distribution at St. George's Hospital Medical School will be held in the Board Room of the hospital on Monday, October 1st, at 3 p.m., when Professor W. Langdon Brown will deliver the inaugural address.

The Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W.C.) has arranged an intensive course in laryngology, rhinology, and otology from October 1st to 27th. The course includes an anatomy and physiology class, an operative surgery class, a practical course in peroral endoscopy, and a course in pathology and bacteriology (specially suitable for D.L.O. students). The fee for the whole course is £21, but classes may be taken separately. Full particulars may be obtained from the secretary-superintendent.

On Tuesday, September 18th, a play called "Muggleston on the Map," by A. V. Williams and Ernest Milligan, will be broadcast from the North Regional radio station (Manchester) in the night programme. This play is a municipal comedy, with a special appeal also to football "fans." Dr. Milligan is M.O.H. for the borough of Glossop, and "The Ballad Singer," an Ulster comedy written by him, was broadcast in 1933 from Belfast.

The jubilee meeting of the Medical Officers of Schools Association will be held at Eastbourne on Friday and Saturday, September 14th and 15th, by invitation of the mayor and council of the county borough of Eastbourne. There will be a paper by Dr. J. Alison Glover and Dr. Fred Griffith on "Acute Streptococcal Throat Infections," on September 15th, at 10 a.m., at the Town Hall, Grove Road, Eastbourne.

A lecture on the theory and practice of contraception will be given to medical students who have completed their gynaecological course and practitioners by Dr. Gladys Cox on Friday, September 14th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Practical demonstrations will be given on each subsequent Friday till September 28th (inclusive). Tickets admitting to the lecture (5s.) are to be applied for in advance.

Instruction to post-graduates and medical students in the theory and practice of contraception will be given at the North Kensington Women's Welfare Centre (12, Telford Road, Ladbroke Grove, W.10) during the next three months. Particulars may be had from the secretary.

The Fellowship of Medicine and Post-Graduate Medical Association announces further lecture-demonstrations at 11, Chandos Street, W., at 2.30 p.m., on September 11th (chronic cough) and September 18th (hemiplegia). There will be a "refresher" course in medicine, surgery, and the specialties at the Westminster Hospital, from September 17th to 29th. Other forthcoming courses include diseases of the chest at the Brompton Hospital, September 24th to 29th, and, during the same period, proctology at the Gordon Hospital; diseases of children at the Queen's Hospital, October 1st to 13th; dermatology at St. John's Hospital, October 1st to 27th; physical medicine (evening course) at the St. John Clinic and Institute of Physical Medicine, October 1st to 27th; cardiology at the National Heart Hospital, October 8th to 20th; medicine, surgery, and the specialties at the Metropolitan Hospital, October 8th to 21st.

A conference of some of the leading paediatricians of the world will be held at Lyons on September 27th and 28th. The conference, which will deal specially with the prevention of malaria, rickets, and convulsions, has been organized by the International Association for Preventive Paediatrics, which is the medical section of the Save the Children International Union. The British representative on its council is Dr. Leonard Findlay.

The twelfth Rumanian Congress for oto-rhino-laryngology will be held at Bucarest from September 28th to 30th. Discussions have been arranged on thrombosis of the lateral sinus and balneotherapy in oto-rhino-laryngology.

According to a correspondent writing in the *Times* of September 5th, Dr. W. von Brehmer, head of the anatomical laboratory of the Reich Biological Institute at Dahlem, believes that he has proved cancer to be a bacterial disease, having discovered, isolated, and transplanted a visible organism, to which he gives the name of *Siphonospora polymorpha*. This bacterium exists in close contact with the erythrocytes in cancerous subjects, and its discovery is associated with the observation that the disease occurs only in cases where the blood shows a strong alkaline content. Tumours have been produced in inoculated animals, and seven stages in the development of the organism are described.

The National Smoke Abatement Society announces that the sixth annual conference will be held at Glasgow, in conjunction with the Scottish Branch, on September 27th, 28th, and 29th. Papers will be read by Professor J.-R. Currie, Dr. J. S. Owens, Messrs. W. J. Grassie, O. Cochran, W. D. Besant, and Dr. J. J. Jervis. The conference headquarters will be the North British Station Hotel, George Square; further information may be obtained from the secretary, National Smoke Abatement Society, 36, King Street, Manchester.

The fifteenth congress of the Italian Paediatric Society will be held at Sienna from September 19th to 22nd, when the following subjects will be discussed: the autonomic nervous system in childhood, introduced by Drs. G. Careddu and B. Trambusti; septicæmia in newborn infants, introduced by Drs. A. Bocchini, M. Gerbasi, and R. Vaglio; and indications for climatotherapy in childhood, introduced by Drs. G. C. Bentivoglio, A. Foa, and L. Maghi.

The Societas Oto-rhino-laryngologica Latina will hold its fourth congress at Brussels from September 20th to 24th, under the presidency of Dr. Buys. Further information can be obtained from the secretary, Dr. Vues, Rue de Livourne 9, Brussels.

The annual congress of the Chartered Society of Massage and Medical Gymnastics will be held from September 24th to 28th, and all lectures and demonstrations will be given at Bedford College for Women, Regent's Park, N.W. Registered medical practitioners will be admitted free of charge to the lectures and demonstrations, for which a card of admission may be obtained from the offices of the society, Tavistock House (North), Tavistock Square, W.C. The annual dinner of the society will be held at the Café Royal, Regent Street, W., on Wednesday, September 26th, at 7.30 p.m. On Friday, September 28th, at 8.30 p.m., the Founders' Lecture will be delivered by Sir Humphry Rolleston, on "Occupational Diseases of Those in Attendance on the Sick."

The National Children's Home and Orphanage, whose head office is at Highbury Park, London, N.5, has issued invitations to the opening of the new wing at the sanatorium, Harpenden, on Saturday, September 22nd, at 2.45 p.m., by Dame Janet Campbell. The chair will be taken by Sir Thomas Barlow.

The address of the British Empire Leprosy Relief Association has been changed to 131, Baker Street, W.1 (telephone, Welbeck 5913).

We are asked to announce that the new edition of the *Belfast Hospitals' Pharmacopœia*, revised and brought up to date with the collaboration of the medical profession and issued by the Ulster Retail Drug Trade Association, came into official use on September 1st. Copies are obtainable from the principal Belfast booksellers and wholesale drug establishments.

An epidemic of acute poliomyelitis, threatening to reach large proportions, is reported from Denmark, where cases have been notified in Faaborg, Odense, and elsewhere. Preventive measures have been adopted, and the Lister Institute, London, on a telegraphic request from Professor Madsen of Copenhagen, recently dispatched 800 ampoules of its anti-serum (horse). Given intramuscularly in 5 c.cm. doses this is believed to offer the best prophylaxis, giving passive immunity for about three weeks. Statistics illustrating its effect in the present epidemic will be awaited with interest.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

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(Advertisements, etc.), Articulate Westcent, London.

MEDICAL SECRETARY, Mediscera Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62530 Dublin), and of the Scottish Office, 7, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Earth Burials and Disease

Dr. CHRISTOPHER ROLLESTON (Stamford) writes: I should be glad to know if there is any modern evidence that earth burials cause disease. On looking through the literature on the subject all the evidence seems to go back to the pre-bacteriological era. I should be glad to know whether any epidemics have been traced to this cause in recent years. I have Thompson's book on *Cremation*, but that, of course, is an ancient book.

Over-smoking

"E. T. P." (Orpington), in reply to "F. C. R." (Sussex), writes: I found (when I was in general practice) invariable success with the following plan. Ascertain as exactly as possible how many cigarettes per day the patient smokes; if this number was fifty direct him to fill his box or case first thing in the morning with forty-nine, carry that around with him, and make it do for that day. Repeat this process for perhaps two days, and on the third put only forty-eight in the case. As time goes on and the number per day decreases, the interval between the "decreases" must be increased. A smoker will not really notice the loss of one cigarette in one day when the difference is between fifty and forty-nine, but when he has dropped from forty-nine to forty-five he should keep at the forty-five for several days before dropping to forty-four, and so on. I would emphasize the importance of exact instruction as to the number of cigarettes and the number of days' interval, and of the personal interest of the doctor in asking for the patient's report as to how conscientiously the directions have been carried out. This method takes time; in fact, it must be allowed to take so much time that the patient does not know he has been deprived of one cigarette every so many days.

Removal of Tattoo Marks

Dr. E. BAYLIS ASH (Birmingham) writes in reply to Dr. George Steane's inquiry: Three methods are available: (1) excision of the mark and skin grafting gives a moderately good result in small tattoo marks up to two inches square; (2) freezing with CO₂ snow in fairly new tattoo marks results in a scarred area hardly discernible after a year; (3) old tattoo marks, particularly those containing red and yellow pigments, are best removed with a fine spark of the diathermy needle. Numerous treatments are necessary, and the scar is rather more pitted than that from the CO₂, but quite good when examined after two years. The treatment is tedious, and requires a good deal of patience on the part of the medical man and the patient.

Income Tax**Expenses of Assistant**

"J. K." was an assistant to August, 1932, using two rooms of his house for seeing patients; his maid had to answer the door and telephone. Since August, 1932, he has held another assistantship, his principal making it a condition that he rents the flat over the surgery and keeps a competent maid to answer telephone calls and take messages for the practice. He puts his car expenses at £150 a year, including depreciation, but excluding running costs during holidays.

* * The expenses of the maid's services are partly private and the amount deductible professionally is a fair proportion having regard, *inter alia*, to the time expended by her on the two classes of work. Probably one-third would not be unfair to "J. K." as a professional charge. As regards the rent the same proportion might be claimed in the first case, but in his present circumstances apparently no part of the flat is used for the reception of patients and no part of the rent will be allowed. Apparently practically the whole of the £150 car expenses will be allowable, but "J. K." will have to show the amount of depreciation claimed as a separate item, and some slight restriction of that claim may be due in respect of holiday use of the car.

LETTERS, NOTES, ETC.**English Children in the Alps**

The Queen Alexandra Sanatorium Fund, which owes its origin to the appeal for an English sanatorium in Davos made by the late Lord Balfour of Burleigh thirty years ago, has investments valued at £64,000 and an annual income of about £2,400. Since the sanatorium was given up as a war-time necessity the income has been used to enable patients of small means suffering from curable tuberculosis to stay long enough in Davos to make a substantial recovery. Last year the number of suitable cases applying was not very large, and it was possible to extend the grants for more than the usual five or six months on medical advice in Davos; but the council of the fund in London recognizes that a limited stay in the Alps, particularly if it must be followed by a return to straitened conditions at home, does not produce the best possible return for expenditure. For the last two years the council has had an object-lesson of a different kind in the Davos Valley. By the generosity of the president of the Birmingham Children's Hospital, acting in concert with its staff, a group of forty or more Birmingham children have spent several months in the Alps, with results which have been critically watched by a number of British and foreign paediatricians. About one-half of these children had various forms of surgical tuberculosis; the remainder illnesses such as asthma, interstitial pneumonia, recurrent bronchitis, debility, and malnutrition after prolonged ill-health. When last reported, of the eighty children who had been to Switzerland forty-one were discharged "cured" after a stay averaging seven months, and at a weekly cost per patient of £2 2s. 6d. The experiment having surpassed the expectations of its promoters, the council of the Queen Alexandra Fund, a year ago, adopted the principle of helping children. At that time negotiations for collaboration with the Birmingham scheme did not mature and the money was allowed to accumulate, so that for the coming year there is a larger balance, and the council has agreed to allot, if suitable cases offer, as much as half its available income for the purpose. No hard-and-fast rules have yet been laid down as to the qualifications for a child candidate. The fund's honorary examining physicians in London will decide on its merits any application received for help from the fund, which now has the benefit of the advice of Professor L. G. Parsons, who was elected a member of council at the recent meeting. Practitioners with youthful patients who would, they think, benefit under the scheme may obtain further information from the honorary secretary of the council, Mr. A. Stanley Herbert, 25, Birch Lane, E.C.3, or from the local secretary, Mr. W. G. Lockett, Davos-platz, Switzerland.

Conan Doyle, Bell, and Laycock

Dr. T. JOHNSTONE (Ilkley) writes: We have heard much of Sir A. Conan Doyle and Mr. Joseph Bell, but nothing from either as to who was Joe Bell's teacher. He was Professor Laycock, the first Englishman appointed to a medical chair in the University of Edinburgh, and who, all his life, was simply persecuted by some of his colleagues, both privately and in public. Their behaviour

is recorded in a book or collection by the late Dr Stark Currie, and was presented by me to the library Morningside Mental Hospital, then under the care of Professor Robertson, who intended, had he lived, to produce a lecture on, or short biography of, Laycock. He was a remarkable man, a teacher at the old York medical school, where his pupils included Sir Jonathan Hutchinson and Hughlings Jackson, and he was friendly to Sir Clifford Allbutt. In Edinburgh he inspired, and had his full share in teaching, such men as Sir David Ferrier, Sir Dyce Duckworth, and Sir Lauder Brunton. Laycock was a pioneer in psychology and mental ailments, and did much to simplify the lunacy laws. He taught that people could carry the "poison" of diphtheria and give it to others, though they themselves escaped. He drew our attention to the effects of poisons on the nervous system after the exanthemata or injuries, and, instead of shell-shock, we were taught of "cannon fever" as the cause of nervous troubles after a war. Some of his teachings were wonderful, and time has verified many. He used to teach us physiological diagnosis and many other things, by observation and inference. I wonder what he thought of Joe Bell? Time, education, and evolution have widened the outlook of the men who select the medical professors at my old university, and I will merely mention my old teachers, Sir William Turner and Lord Lister.

"Praise and Dispraise of Doctors"

Dr. J. N. DUGDALE (Johore Bahru, Malaya) writes: I was interested to read (*Journal*, June 30th, p. 1172) the quotation of the Latin epigram attributed to Euricius Cordus in Dr. Hutchinson's illuminating MacAlister Lecture. It reads: "Three faces the physician hath . . . first as an angel . . . next . . . a god . . . and last of all . . . a very fiend of hell." Some time ago a Chinese patient described to me a cartoon in a Chinese paper in which the physician is depicted as an angel on arrival at the sick-bed, a god on recovery of the patient, but as a demon when he sent in the bill! Many Chinese maxims are similar to our own, and it would be interesting to know if they had a common origin.

Transport of Invalids by Railway

Dr. MAURICE CAMPBELL (London, W.1) writes: In these days, when motors are almost universal, I am not sure if doctors realize how easily patients can travel by train. Recently a friend of mine had to come from Manchester to London, and I was surprised at the comfort, or even luxury, of the invalid coach. He was, indeed, more shaken in a ten-mile motor ambulance journey than on the rest of the way. He had the additional advantages of meals and of seeing the country after many weeks in bed, and greatly enjoyed the day. Patients may be deterred by the thought of the cost, but this was most reasonable. I am sure no one who has experience of this will ever be willing to travel any other way.

Autoclaving of Gum-elastic Catheters

Dr. MALCOLM BAILLIE (Urological Department, King's College Hospital, S.E.5) writes: We have found that the brown gum-elastic Eynard urethral catheters will stand indefinitely repeated autoclaving, and when cool have lost none of their stiffness. This method of sterilization recommends itself by its saving of labour and killing of all organisms, including spores.

Surgical Films at the Annual Meeting**Acknowledgement**

In the Section of Surgery at the Annual Meeting of the British Medical Association at Bournemouth cinematographic films were lent by Sir John Thomson-Walker, Mr. Tudor Edwards, and Professor G. Grey Turner, dealing respectively with prostatectomy, lobectomy, and construction of an extrathoracic oesophagus after oesophagectomy. These were highly appreciated on the several occasions on which they were shown.

The Medical Supply Association, Ltd. (167-73, Gray's Inn Road, W.C.1), inform us that they are opening new show-rooms at 95, Wimpole Street, W.1 (opposite the Royal Society of Medicine).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 40 and 41. A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 164.

BRITISH MEDICAL JOURNAL

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DIFFERENTIAL DIAGNOSIS OF FUNCTIONAL AND ORGANIC NERVOUS DISORDERS*

BY

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It would be well at the outset of the discussion to define the terms "functional" and "organic." Strictly speaking, all symptoms of illness are, of course, functional, in that they are manifestations of disordered function; but here I propose to use the word in a narrower sense as indicating those symptoms which are psychogenic. By "organic" will be meant symptoms which result from abnormal physical alterations in the nervous system. The word "abnormal" is advisedly used, for all forms of activity of the nervous system must be associated with physical changes. These morbid alterations may be so gross that they can easily be detected by the pathologist, and have long been recognized. Others are less obvious, and, like those in the basal ganglia in paralysis agitans, have only come to light in recent years through the development of histological technique. There is still another group of cases in which the symptom is believed to be organic, although structural changes may or may not be found post mortem; this group is largely composed of disorders of function which are transient and recurrent. During the attacks there may be present signs which are accepted as of organic significance—for example, in epilepsy, loss of consciousness, abolition of tendon reflexes, or extensor plantar responses—while in others, such as narcolepsy, there may be no physical signs of this order.

It is therefore clear that, although the pathologist has done much in the differentiation of organic from functional nervous disorders, the main burden has rested on the clinician, and still does. By the sifting of accumulated experience gained at the bedside, through careful investigation of the natural history of disorders, the characteristics of individual symptoms, and the searching for physical signs, he has led the way in differential diagnosis. The physical signs of organic disease are often crude and are comparatively few, but they are gradually becoming more refined and are increasing in number. But it is not only on the elicitation of physical signs that the physician ought to depend for differential diagnosis. Symptoms, including the patient's own sensations, have for long been taken seriously by the clinician, and will, in the future, yield information of the greatest value, for frequently they indicate the earliest stages of disordered function before structural changes develop of sufficient severity to give rise to physical signs. This leads up to the importance of careful history-taking, the methodical investigation of symptoms, and their temporal relationships. An adequate history should, of course, include an account of the patient's past illnesses and his habits,

and of the health of his family. One should, in addition, attempt to get some idea of the main psychological influences that have affected him, particularly if diagnosis is uncertain. In other words, a proper medical history is one which recapitulates the life of the patient as a whole, of which his present illness forms but a part. "Disease" is a vital process with a natural history, and symptoms are not a series of isolated events.

Clinical Criteria of Differential Diagnosis

What, then, are the indications which have been proven to be of use in the separation of functional and organic nervous illnesses? The psychological aspect of the problem will be dealt with by Dr. Petrie, but let me say that the history of a psychoneurotic almost always shows a tendency, from childhood onwards, to face trouble badly. In the past, he may have been able to carry on with his work, and may not have broken down before; nevertheless, emotional disturbances have produced symptoms of a psychogenic kind. In fact, to borrow a definition, a neurotic is a person who is unable to strike a sensible bargain with existence. Dr. T. A. Ross, as the result of his great experience, stresses this point by saying that in an obscure case the diagnosis of a psychoneurosis should not be made in the absence of a psychogenic history. It may be argued, with justice, that every individual has his breaking-point, and that an anxiety, resulting from a threat to himself or to those to whom he is deeply attached, may precipitate a mental illness. But it is questionable whether the illness would persist for long if the individual possessed an average capacity for adaptation as shown by his behaviour in the past. If the present illness was not preceded by emotional strain, and if the past history shows that the ill person had passed through experiences distressing to him, and yet was able to adjust himself to them in an adequate manner, the symptoms which now trouble him, however much they may resemble those of a psychoneurosis, should not readily be accepted as such.

For example, sleeplessness at night with or without lethargy during the day is now a well-recognized symptom of lesions of the hypothalamus from various causes, and, when due to encephalitis lethargica, is often, especially in children, associated with irritability, tearfulness, and fear. Fatigability, a common complaint in neurotic persons, may also be an organic manifestation, as in Parkinsonism and myasthenia gravis. Certain headaches—for instance, those of intracranial hypertension—pains in the trunk and limbs as in tabes or polyneuritis, and the paraesthesia in subacute combined degeneration, are of the same order, but a careful analysis of such symptoms in the process of history-taking and a knowledge of features

* Read in opening a discussion in the Section of Neurology, Psychological Medicine, and Mental Diseases at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

of organic significance should prevent many mistakes in diagnosis.

A single symptom such as sudden diplopia or misty vision in one eye, which persists for a few weeks, ought, especially in a young adult, to make one suspect organic disease. This suspicion becomes almost a certainty that one is dealing with a case of disseminated sclerosis if, as the story is unfolded, other transient disorders, like numbness and clumsiness of a limb, or hesitancy of micturition, are found to have occurred even after intervals of many years of good health, in spite of a complaint from the relatives, that the patient has become more emotional than before. This symptom in itself is significant in such a story, for it is common for patients with disseminated sclerosis to laugh or cry too easily, and has undoubtedly an organic basis. To stress the meaning of a history of this kind is perhaps to underline the obvious, if it is supported by the presence of physical signs; but experience has shown that its diagnostic importance is not much diminished by the absence of physical abnormalities. They will almost certainly appear later.

Physical Signs

Coming to the physical signs of neurotic ailments, we can put to one side the exaggerated reactions to fear, at the same time remembering that they may be indications of mild hyperthyroidism, which is often mistaken for a psychoneurosis. It is sometimes difficult, or impossible, to say which is primary—the glandular disorder or the anxiety state. Long-continued emotional stress seems to stimulate thyroidal activity, and it may be said with some reason that the naturally over-anxious person has also, as a part of his heritage, an abnormally active thyroid gland. This association probably determines the onset of illness in many women who break down at the climacteric. The major part of the symptomatology of the so-called menopausal neurosis as well as the physical signs are those with which we are familiar at earlier periods of life in cases of mild hyperthyroidism. The neurotic physical signs which will be particularly discussed are those of hysteria. From the point of view of physical examination the diagnosis of hysteria rests on: (1) the absence of signs of organic disease; and (2) the presence of positive signs of hysteria.

Certain manifestations are invariably organic in origin. Of these the most important are dysphasia with or without dysgraphia, papilloedema and optic atrophy, nystagmus with the slow movement towards the rest position and the quick movement towards the object of fixation, absence of vestibular reactions, local muscular atrophy with alteration in the electrical excitability coming on within a few weeks of the onset of paralysis, inequality of the abdominal reflexes or the tendon jerks or abolition of the latter (the abdominal reflexes are difficult to obtain in people with lax abdominal walls), and a true extensor plantar reflex.

Many sensory abnormalities are of equal value. Some only will be mentioned, and others will be referred to later. Of defects in the visual fields, central scotoma for red and green, with reduction of visual acuity and homonymous or bitemporal field defects, especially if quadrantic, are important; so also is pain which consistently is in the distribution of spinal posterior roots, all the more if it is associated with cutaneous tenderness or sensory loss. There are other pains, such as those of tic douloureux and the lightning pain of tabes, and the neuralgias of the head and face, due to sinus infection, which have features of their own. Certain varieties of sensory dissociation occur only from organic lesions. Obvious examples are the analgesia and thermo-anaesthesia of segmental distribution with preserva-

tion of tactile sensibility in syringomyelia and other central lesions of the spinal cord, and loss of postural sensibility with ataxia, diminished vibratory sense, and astereognosis as the predominant sensory defects from posterior column lesions.

To the unwary, however, some of these physical signs may appear to be present, whereas they are the result of faulty methods of examination or a lack of familiarity with normal variations. Thus, in testing the tendon jerks, care must be taken that the two limbs which are being compared are in the same position and the muscles relaxed. In regard to the plantar reflex, most stress should be laid on the response obtained from the outer edge of the sole, which is the focus of the receptive field for the reflex. With slight lesions of the pyramidal tract the abnormal reaction may be obtained only from this part, and stimulation of the rest of the sole may yield the normal downward movement of the toes. In doubtful cases help is usually obtained by observation of the reaction of the rest of the limb to plantar stimulation. In normal people who are not over-sensitive, the flexor plantar response is often accompanied by a quick contraction of the muscles in front of the thigh, whereas if the reflex is organically abnormal, whether the toes move up or fail to move, the limb flexors tend to contract. This contraction can be best appreciated in the hamstrings by feeling their tendons tighten. If then the toe response is different on the two sides, observation of the effects of the response on the quadriceps and hamstrings in each limb is often helpful. If the patient is over-sensitive, and especially if the stimulus is painful and applied roughly without due warning, the reaction in the limb is likely to be a sudden flexion or withdrawal of the limb, and the toes may either extend or flex. This is largely a voluntary response.

A superficially similar reaction is common in severe spastic paralysis of organic origin, but there are important differences. In the organic case, as the pin is being drawn along the sole from the back to the front of the foot, jerky flexion movements associated with extension of the toes commonly occur before the limb becomes vigorously flexed. Sometimes, however, violent withdrawal is almost immediate. Observation of the after-response is then of value. In the organic case, if the spasticity is more extensor than flexor, the limb, after a brief delay, is vigorously thrust out with the muscles in strong contraction, the toes being usually extended. Should the spasticity be predominantly in the flexor muscles of the limb, the subsequent reaction to withdrawal is slower and jerky. Once these reactions have been seen they can again be easily recognized. Usually, however, the response to stimulation of the sole is not the only available physical sign for diagnosis. The tendon reflexes, the reaction of the muscles, if rigid, to passive stretching and to voluntary efforts, are all of the greatest value. The final conclusion will rest on the whole available evidence.

The other source of fallacy lies in the want of recognition of normal variations—for example, the confusion between the haziness of the optic disk in a hypermetropic eye and papilloedema, and between a large physiological cup and optic atrophy; so also is apparent weakness of one side of the face and tongue the result of natural asymmetry of the facial bones.

Physical Signs of Hysteria

A psychoneurosis is the outcome of an attempt to solve a mental conflict. The imperfect and irrational solution results in illness which, as in anxiety states, still leaves the patient with fears and obsessions. In hysteria, however the development of a physical disability, such as paralysis or blindness, is, as a rule, completely satisfy-

ing, and with its appearance worry vanishes. "Belle indifference" has long been known to be characteristic of the simple hysteric whose anxiety returns if he is compelled by the suggestions from a personality he believes to be stronger than his own, or by sudden emotional shock, to give up his fears and obsessions. The cure of hysteria, therefore, demands not only the disappearance by suggestion and explanation of physical disabilities, but also a reasonable adjustment, satisfying to the patient, of the conflict which led to their appearance. Hysterical symptoms may, however, and frequently do, form an incidental part of other psychoneurotic illnesses, and psychotic states, such as depression and schizophrenia, as well as gross physical illnesses, are often not free from them.

Hysterical manifestations are mental in origin, and are determined by the individual's idea of what constitutes paralysis, loss of sensibility, or a fit. They do not, therefore, conform to the rules of pathological physiology and anatomy. It is this discrepancy that enables the physician to differentiate between signs of hysterical and those of organic origin.

Hysterical Paralysis

Almost the whole body, or one side of it, or a limb, or only the peripheral part of it may be affected. Paralysis limited to the adductors of the vocal cords, resulting in aphonia, is common. The distribution and form of the paralysis is determined by suggestion frequently provided by a physical illness or accident, which in itself is often trivial. Thus laryngitis may lead to aphonia, or a slight wound to the hand to paralysis of this part. The factor which determines the perpetuation of disability in hysterical form is a state of anxiety with consequent unhappiness, or a fear of the future, after the physical illness is over, and it may be that the patient unconsciously welcomes disablement so that he need not continue with disagreeable tasks or can attract sympathy, while at the same time the necessities of life, flavoured with luxuries, can be provided for him by others.

Characteristics of Hysterical Paralysis

It is often selective. All voluntary movement in the affected part may appear to be impossible, but there are no reflex signs of organic significance or wasting, unless the paralysis has lasted for many months. The paralysis may, however, be incomplete. In such cases two forms of reaction may be observed. The first is that the patient is unable to use certain muscles for one voluntary movement, while he is able to employ the same muscles for all other voluntary movements for which they are required. The following examples are illustrative. The hysterical aphonic talks in a whisper but can usually cough to command, equally a voluntary act. So also the act of writing is difficult or impossible in writer's cramp, although the hand is as good as ever for all other movements. That the paralysis represents an idea of disability is again shown by the case of the sergeant who, after fighting successfully for three years, quite naturally became tired of it, but discipline and a sense of duty compelled him to struggle on in spite of his desire to escape. During a bombing attack he was slightly wounded on the forearm, and soon after became unable to grasp a bomb or a rifle with his right hand, but never lost the power to use it for other purposes. The paralysis, which incapacitated him from fighting but for nothing else, enabled him to get the rest he required with preservation of his self-esteem.

Again, in the form of hysterical paralysis known as *astasia-abasia*, the inability is confined to standing and walking, for in bed all voluntary movements of the lower limbs can usually be well carried out. The same incon-

sistency can be observed in cases of ataxia. Thus, although the patient staggers in walking and sways when standing, especially if asked to do so with closed eyes, so long as these actions are in his mind; he will, nevertheless, stand steadily if his attention is directed to the examination of his pupillary reactions.

The second form of reaction consists of the display of excessive effort, which is manifest not only in a general way by clenched teeth and hands and of violent muscular exertion of the non-affected portion of the body as if the patient were trying to show that he was doing his best, but also by strong contraction of the opposing muscles at the joint of the affected limb which he is asked to move. Either no movement results, or it is accomplished in jerks due to irregular relaxation of the muscles opposed to the prime movers. These two modes of behaviour are diagnostic of hysteria, and, if recognized, cannot lead to confusion in diagnosis.

Passive movement of a paralysed limb in hysteria may evoke no resistance, or resistance of a diagnostic kind may be encountered. It is then proportionate to the effort expended by the physician in the sense that the more he tries to move the joint so the resistance steadily increases. This reaction, which is due to muscular spasm brought about by the unconscious or, more truly, the partially conscious efforts of the patient to resist, can easily be differentiated from the two common varieties of organic muscular rigidity. These are due to pyramidal and extra-pyramidal motor lesions. When one attempts to bend the paralysed knee of a patient with spastic hemiplegia, the so-called clasp-knife rigidity is encountered. At first the movement is easy, then resistance is suddenly encountered, but if pressure is maintained it gives, although not completely, and the rest of the movement can be carried out fairly easily and with diminishing effort. In Parkinsonism the tonic reaction of the affected muscles is different. It is displayed throughout the whole movement at the joint, but is jerky, hence the term "cogwheel" rigidity. Its jerky character can, as a rule, in slight cases of Parkinsonism, be most easily detected at the wrist, but it should be remembered that the hand may have to be moved in flexion and extension several times before it appears.

The various contractures met with in hysteria are the result of muscular spasm, which increases when attempts are made to overcome the abnormal posture either by the patient or the physician. Furthermore, postures of the limbs always differ, at least in detail, from those of organic spastic states, and not uncommonly the hysterical contracture is limited to a hand or foot. That hysterical contracture is due to active spasm is well shown in cases in which there is apparent weakness of one half of the tongue. The tongue, say, is protruded to the right, but when withdrawn into the mouth it still deviates to the same side, whereas if the unilateral paralysis had been organic, retraction would inevitably cause deviation to the opposite side. So, also, hysterical diplopia with convergent squint is the result of voluntary or semi-voluntary contraction of the internal recti.

No manifestation of hysteria can be recognized so quickly as the manifold disorders of gait. One or both limbs may be affected. The patient may drag the paralysed limb along behind him with the foot firmly scraping along the floor, or will ostentatiously, in his jerky and irregular progress, clutch at objects in his way that would give him support. The observer who may be helping him to walk is soon aware that the patient is trying less to support himself than to sink to the ground, quite unlike the sincere efforts of the paraplegic whose disability is of organic origin. Hysterical helplessness in walking is all the more striking if, as may be the case, movements of the lower limbs are well carried out in bed.

Hysterical Sensory Disorders

Loss of sensibility in hysteria differs fundamentally from that due to organic causes. In the first place, it fails to conform to anatomical distributions—central, root, or peripheral. Thus, cutaneous analgesia in a limb tends to stop short at obvious landmarks such as the wrist, ankle, or knee. If it extends to the groin in front it is bounded behind by the fold of the buttock, and does not include the lower sacral areas. If the whole upper limb is analgesic the upper border encircles the shoulder-joint, a distribution which would be impossible in organic states. So also the front of the trunk may be insensitive while the back is intact. Secondly, the boundary of the analgesic area is sharply defined. Polyneuritis and subacute combined degeneration give rise to cutaneous sensory loss encircling the lower limbs or trunk, but the analgesic areas correspond to peripheral or segmental sensory distributions and their upper borders are never abrupt.

In organic states examples of sharp delimitation between regions of normal sensibility and sensory loss are few and are well explained on anatomical and physiological grounds. When, for example, there is analgesia over one half of the body, the line of demarcation between the areas of abnormal and normal sensibility is sharp. But should there, in addition, be absence of vibratory sense in the limbs and abdomen, on one side, a vibrating fork can still be appreciated by the chest, especially if it is placed near the sternum, since the chest is a sounding-box. In complete hysterical hemianaesthesia, however, appreciation of vibration may well be abolished on one half of the chest as well as cutaneous sensibility.

When there is complete loss of sensation below a level on one or both sides of the body, if the sensory loss is organic its upper border will have segmental or root characteristics, whereas in hysteria it will not. For example, the upper border of analgesia on the trunk, when organic, is never strictly transverse, but follows well-known wavy lines, whereas in hysteria it does not. Lastly, because of the budding out of the limbs, certain sensory root and segmental areas become contiguous with others from which they are separated by those which correspond to intervening roots or segments, so that the sensory overlap is absent. When this happens the borders of sensory loss are sharply defined. These regions of strict delimitation are especially between the outer and inner aspects of the upper arms, the anterior and posterior aspects of the thighs, and the sacral saddle-shaped areas in the buttocks; on the trunk, a similar abrupt transition is found roughly at the level of the second ribs in front and the spines of scapulae behind, where the dermatome of the fourth cervical segment marches with that of the second thoracic.

A third characteristic of hysterical sensory loss is that it can be varied and abolished by suggestion. A fourth is that the inevitable, indirect consequences of organic sensory loss may be absent in hysteria. For example, ataxia of the lower limbs in polyneuritis, tabes, or Friedrich's ataxia is due to loss of postural sensibility from lesions of peripheral nerves, sensory roots, or posterior columns, and is naturally worse in the dark and if the patient's eyes are covered. In carrying out Romberg's test in the hysteric, however, the response obtained will, as has already been mentioned, depend upon whether or not he understands that his steadiness or some other function is under investigation. Hysterical loss of vision illustrates the same principle. Blindness may appear to be complete; but, even so, the pupillary reactions to light are brisk, the fundi are clear, and the patient usually succeeds in avoiding objects when he attempts to walk about. Spiral fields of vision have long been known to indicate hysteria, and doubtless are the result of sugges-

tion in performance of the test. Unilateral blindness and deafness may occur in association with complete hemianaesthesia. The psychogenic origin of the deafness as in cases of bilateral deafness can be recognized by evoking nystagmus by rotation of the body, and the blinking reflex by a sudden noise.

Fits

It is sometimes difficult, if an attack has not been observed by a competent witness, to decide whether a fit is epileptic or hysterical, especially if there is no history of injury during a fall, incontinence, or tongue-biting. All these features, which are common in epilepsy, may at the same time be absent. If the physician or a trained nurse has observed an attack it is usually easy to arrive at a correct diagnosis. The hysterical seizure is characteristically a dramatic performance with arching of the limbs and trunk, violent purposive movements, and often shouting and articulate speech. The patient may become cyanosed from holding his breath, but his eyelids are usually tightly shut and resist efforts to open them, and his pupils react normally to light. Furthermore, after the attacks the tendon-jerks and the plantar responses are invariably normal. Difficulties may, however, arise if the physician is unacquainted with less recognized forms of epileptiform attacks. Thus, in so-called tonic fits due to sudden disturbance of function of the upper part of the brain stem from organic lesions such as tumour or tuberculous meningitis, there is opisthotonos and the limbs are rigid, the lower in extension with pointing of the feet and toes and the upper flexed or extended; but the eyes are open, the pupils are usually inactive to light, and incontinence may occur. Certain minor seizures, especially if unassociated with loss of consciousness, may present more difficulty. Thus in "myoclonus epilepsy" as the result of sudden muscular contraction the patient, although conscious, may fall down, or, if an upper limb is the part affected, an object held in the hand may be thrown across the room. So also in cases of "inhibition epilepsy," in which muscles of the limb are suddenly relaxed, falling may occur without apparent loss of consciousness. Again, involuntary clonic movements are often limited to a limb or one side of the face in Jacksonian attacks associated with focal cerebral lesions, but physical signs are to be found in the affected part at least for a time after the seizure. The necessity for routine examination of the optic disks is recognized but is not always applied.

Hysterical amnesias and fugues may occasionally be difficult to differentiate from automatism following petit mal attacks, but a careful history is usually decisive. Moreover, the hysteric in a fugue is not inclined to empty his bladder, as in the classical case of Trousseau's Judge, remove his clothes in public, or be homicidal; in fact, his actions usually pass unnoticed. A chronic epileptic is often an emotional subject, and may show hysterical symptoms from time to time like other unstable persons. Nevertheless, there is little justification for the term "hystero-epilepsy."

This leads to the last point to which I would draw your attention. Emotionalism does not necessarily mean that the ill person has not some organic illness. It is perhaps equally unnecessary to say that states of anxiety may act as precipitating causes of physical disturbances, such as migraine, intracranial hypertension headaches, and occasionally epileptic attacks, as well as aggravating enfeeblement of organic origin. But it is less generally recognized that emotionalism may in turn be due to proven structural disease of the brain. Emotional facility, with an undue tendency to laugh or cry, is one of the commonest manifestations of disseminated sclerosis, a disease in which the transient character of the early disorders of function is apt to lead the unwary into making a wrong diagnosis.

All the more so if at the time of examination no physical signs are discovered. A similar emotionalism occurs also in pseudo-bulbar palsy, progressive bulbar palsy, chronic alcoholism, dementia paralytica, and occasionally with cerebral tumours, but by the time it appears, clear indications of structural damage can usually be found.

Lastly, the apathy of Parkinsonism, which is often more apparent than real, may be wrongly interpreted as psychogenic. But quite apart from the unmistakable physical abnormalities, even in early cases, which are now common knowledge, the lack of emotional reaction should in itself lead one to suspect its organic basis.

In conclusion, while the analysis of symptoms and signs is of the utmost value in the subject under discussion, the investigation of the behaviour of the individual as a whole in the past as well as in the present is the basis upon which diagnosis has often to rest. Let us not forget, too, that a neurotic may develop organic troubles like other people, and also that a person may become mentally unstable as the result of anxieties consequent upon physical disabilities. In this respect, minor head injuries ought especially to be remembered.

DIFFERENTIAL DIAGNOSIS OF ORGANIC AND FUNCTIONAL NERVOUS DISORDERS*

BY

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The differential diagnosis between functional and organic nervous disease is obviously a wide subject. At the outset an exact definition is needed as to what constitutes functional nervous disease. Broadly, this may include all nervous manifestations in which no evidence of pathological changes in the nervous system has been demonstrated. Cases of dysfunction without demonstrable organic lesion may therefore be classed among the functional cases, and disturbances resulting from psychological stresses in the highest psychic level will also need to be included. The symptoms of the diseases commonly known as the neuroses or psychoneuroses will, of course, come under review, as will some of the psychoses. While some psychoses, such as general paralysis, have a very evident organic basis, others represent derangement of function, and little objective organic evidence may be obtainable.

The association of so-called functional elements with organic lesions raises an even wider issue. Cases in which no functional element was apparent before an organic lesion developed bring up the whole question as to the relation between these groups, and as to how far they can be justifiably separated. The attempt may be difficult, as may be judged from the fact that a leading neurologist stated, in discussing hysteria, that there were few organic symptoms which he had not seen reproduced in that disease. Functional disorder of the nervous system may disturb any bodily system and lead to confusion with diseases other than those of the nervous system, and separating the functional incapacity in a given lesion from that due to organic disease may be very difficult. In a short paper it is obviously impossible to deal with all aspects, but I shall endeavour to show the importance of examining the problem as a whole, and of not neglecting the psychological approach.

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Consideration of the person's whole make-up and circumstances often renders the diagnosis clear when individual symptoms may be very puzzling. Recognition of a hypochondriacal attitude of mind is of great importance in the valuation of symptoms. This abnormal concentration on the individual's own body represents a psychological abnormality, whether it is present as a simple neurosis or whether associated with a depressive or paranoid psychosis.

Neurasthenia

As I am approaching the subject rather from the functional point of view, I shall first consider the different aspects of the neuroses. While hysteria and its subsidiary, the traumatic neurosis, perhaps provide the principal problem, neurasthenia and anxiety neurosis, and the various mixed types, also need consideration. By neurasthenia I mean the exhaustion neurosis, in which the patient shows marked mental and physical fatigability.

The individual is usually a limp, sparsely nourished, unhealthy-looking person, unable to concentrate, finding all exertion, mental or physical, too great. If attempting to perform a physical act he rapidly tires, and he becomes increasingly inefficient when faced with a mental task. Special tests prove this to be a feature of a genuine case. Such a state of affairs exists to some extent after any great and debilitating illness, but the conditions persist in the neurasthenic long after the recuperation would have taken place in the normal individual.

The presence of anaemia, tuberculosis, or any chronic associated factor must of course be eliminated, and then arises the question of some chronic toxæmia. The teeth and intestines fall under suspicion, sometimes rightly, but at times drastic measures in regard to these are adopted without avail. Sometimes the case is one of incipient melancholia, the loss of interest and disinclination to exertion being a stage in the depressive phase of a cyclothymic or manic-depressive psychosis. What is at first regarded as a post-influenzal debility, and then as neurasthenia, may ultimately prove to be the early stage of a depressive psychosis. Usually, however, the associated depression, as opposed to a limp apathy, differentiates between them. Too much listless apathy and indifference to external circumstances would, on the other hand, arouse the fear that the case was really one of schizophrenia, but the pure neurasthenic is not given to fantasy, "day dreaming," and other features of the *præcox* case. Although the fatigability of the muscles in myasthenia gravis to some extent suggests neurasthenia, it is not common to confuse the condition. The facial muscles are usually quite mobile in neurasthenia, and there is no paralysis of groups of muscles such as the orbicularis palpebrarum or palatal muscles. The acute symptoms of encephalitis lethargica are hardly likely to be confused with neurasthenia. The dulling and immobility of mind of the encephalitic might be confused with a neurasthenic or depressive individual, but the mask-like rigidity and salivation so common in the former are quite uncharacteristic of the latter. The dull immobility of the *præcox* syndrome, possibly associated with salivation, is far more likely to be confused with the effects of the encephalitis lethargica, and confusion has at times arisen. The encephalitic, however inhibited, is more fully alert, given time to express himself, while the *præcox* is actually confused, and no amount of time allowed for expression will improve matters. The mannerisms and wrinkled forehead of the *præcox* are usually distinctly different from the mask-like face of the encephalitic. Mentally, variability and in consequence, or perhaps stupor, will contrast with the slow, inhibited endeavour to find expression. This slow,

hesitant expression may perhaps resemble the retarded melancholic, whose furrowed facies contrasts with the encephalitic. Genuine acute depression is sometimes added to the encephalitic syndrome. A full recognition of the mental and physical wreckage that the disease has brought may cause the individual to feel that death is the only solution to his difficulty. Suicide is a real risk in such cases, which are sometimes very logical in their depression.

The older type of neurasthenic presents other problems. Such cases are not obviously of the type of which it has been said that their vitality has been squandered by their ancestors. In other words, the predisposing congenital element is less evident, and one seeks other causes. Real mental and physical strain may have preceded a collapse, and the toxins of alcohol, tobacco, etc., may have influenced them. When the stress reaches breaking-point quite a sudden collapse may occur in these cases. Eliminating the more obvious alcoholic syndromes, neurosyphilis should be remembered as a possible cause. A neurasthenic attack in the middle-aged should always be regarded with suspicion, particularly if the patient has not previously shown tendencies of this type, and signs of neurosyphilis should be looked for and the serological findings tested if there is doubt.

Anxiety States

The varied manifestations of the anxiety states perhaps provide more difficulties than other syndromes owing to the variety of the symptomatology, and also owing to the fact that the patient is obviously so sane and so genuinely affected by his symptoms. Fear and apprehension is the prevailing feeling of the individual, who is in a general state of excitation. Many symptoms suggest sympathetic stimulation. Some symptoms, however, suggest disturbance of the parasympathetic supplied through the vagus, and while the names vagotonia and sympathicotonia have been applied to the different conditions, the symptoms are so frequently mixed in type that it is better merely to say that they represent functional disturbances of the autonomic nervous system.

Closely allied are the vasovagal attacks, in which the patient exhibits a sudden sense of oppression, usually starting with an epigastric sensation, followed by dyspnoea, and disordered action of the heart and even a sense of impending death. Similar symptoms are observed in the acute or paroxysmal phase of the anxiety syndrome, and when, as rarely happens, consciousness is lost, the condition may even suggest epilepsy. It is, however, much more likely to suggest some other cause for fainting, and may even be mistaken for some cardiac condition such as coronary thrombosis. The patient usually merely fears he is about to lose consciousness; he is in a state of acute fear and apprehension, and may fall over slowly, clutching at things as he falls, and making every effort to regain control. There is not the careful disposition and dramatic effect seen in the true hysterical fit, the patient being genuinely distressed.

At times the condition may suggest a minor cerebral attack, as the patient may complain of a feeling of congestion in the head or say he feels as if his head were going to burst. The pulse is rapid, and may even seem inhibited, but irregularity apart from cardiac disease is, in my experience, not usual. Respiratory attacks, with a breathlessness resembling air-hunger, may also be a feature of the acute attack. A study of the interparoxysmal symptoms and of the psychological basis will help to make diagnosis clear. Where there is obvious sexual excitation without relief, faulty methods of contraception, leading perhaps both husband and wife to seek advice, or general causes likely to lead to anxiety, the

nature of the case becomes clearer. The interparoxysmal symptoms, although more likely to resemble diseases of other systems, will help in elucidation. The disordered action of the heart with precordial pain, and no evident organic lesion, so commonly seen during the war, is a common symptom. Sweatings of the palms may occur, and this may be more generalized. The tremor, combined with the rapid cardiac action, may suggest exophthalmic goitre, with which the condition may, indeed, be associated. Symptoms of intestinal disorder have been referred to, such as eructation, vomiting, various results due to irregular peristaltic contractions, and diarrhoea, even with tenesmus—all symptoms of the fear syndrome, and aptly illustrating the well-known phrase, "Their bowels were turned to water."

In some cases the psychological basis may be less evident, and abnormal vagal stimulation on the lines of oculo- and gastro-cardiac reflexes appears to result from gastro-intestinal movements. At times abdominal manipulation will make the patient realize that the origin of the vague discomforts and sensations complained of lies in movements of the gut. Between the anxiety syndrome and the hysteric occurs anxiety hysteria, a definite neurosis, in which are classed those whose hysterical reaction mainly expresses itself in mental anxiety symptoms. Apart from this, mixed types occur in which it may be difficult clearly to separate the anxiety and hysterical symptoms.

Hysteria

The hysteric is the classical simulator of many diseases, but much time and trouble might be saved if more effort were made to study the patient as a whole, instead of concentrating upon individual symptoms. To deal with a hysteric much study of the patient's immediate and remote situation is necessary, but an accurate appreciation of the immediate situation will often enable a quicker and more accurate diagnosis to be made than if the approach had only been from the physical aspect.

Some hysterics are first seen in the psychological department of a general hospital, while others arrive there with a dossier from all the other departments, elusive symptoms having been followed from system to system. The family doctor is in a particularly favourable position to see and appreciate the family situation, which is the basis of the faulty reaction. At times, by judicious advice, he may alleviate the intolerable situation which is being shirked. Hysterical symptoms represent an idea of the patient tending to satisfy the subconscious purpose. The nature of the symptoms may be determined by the type of disability most useful to obtain that end, or in case of a traumatic neurosis by an original injury to that part. The lesion is usually a loss of function, but is associated with the general petulant emotional reaction of a hysteric. Such lesions may occur either on the psychological or on the physical plane. Among the former may be mentioned the amnesias, fugues, cases of double personality, and also the stupor, while the latter will show sensory and motor changes—that is, anaesthesia, hyperaesthesias, and, on the motor side, convulsions and palsies.

Dealing first with convulsions, a case of major epilepsy seen in a fit is probably the simplest problem. The hysteric seldom produces the different stages of the fit at all realistically, and still less the post-epileptic confusion and coma. A well-described true aura is also against a diagnosis of hysteria. In the post-epileptic state extensor plantar responses would negative hysteria but not epilepsy. To some extent the general mental make-up will help to differentiate the childish and probably dull and irritable epileptic from the petulant but quicker-witted hysteric. In some cases this will not help

particularly in the very difficult problem of the hysterical epileptic—that is, the epileptic with hysterical manifestations. Where obvious attacks of true major epilepsy alternate with equally obvious hysterical outbursts, little difficulty arises, although an observer who has only seen one or other group may be deceived. Rarely, epileptics can simulate genuine fits to an extent which can deceive, and I have known a hysterical epileptic have realistic "pseudo-fits" at a demonstration. It is usually, however, the combination of petit mal with hysterical manifestations which deceives, and until some indication of the epilepsy, such as unexplained bed-wetting, occurs, the real nature of the case may be missed, always remembering that even these symptoms have been counterfeited by hysterics. The many other causes of convulsions are more likely to be confused with epilepsy than with hysteria, but an unexpected fit without previous history may arouse suspicion as to a functional origin.

Some Causes of Convulsions

Among the other causes of convulsions may be mentioned conditions causing intracranial tension. Fast-growing tumours are unlikely to be confused, as the evident signs of pressure develop, but slow-growing tumours in which signs of pressure develop slowly may cause confusion. In a case in point of one of these slow-growing tumours, an oligodendroglioma produced the first fit, for which the patient was invalided from the Navy seventeen years before death.

Localization by mental symptoms is not reliable owing to the variability of these symptoms, which may occur even in subtentorial cases. Tumours of the frontal lobe, and perhaps of the corpus callosum, are, however, more apt to be associated with early mental symptoms than those in other areas, and deterioration and dementia may occur even before signs of pressure make the nature of the case obvious. At times such a dementia may be associated with dysarthria, causing general paralysis to be suspected in what is really a frontal tumour syndrome. Confusion and deterioration occur in cases of Pick's and Alzheimer's diseases, as well as in cases of cerebro-arteriosclerosis, where temporary confusion from a recent vascular lesion may be added to a permanent deterioration. In all the above cases convulsions may occur which need differentiating from epileptic or hysterical manifestations, and similar convulsions may occur with alcoholism, and certain cerebral poisons such as lead, mercury, etc. The convulsions due to metabolic disturbances must be remembered, such as uraemia, eclampsia, and hypoglycaemia, and, in childhood, disturbances associated with infection, rickets, and teething, which last may represent the earliest signs of epilepsy.

A further convulsion which may need differentiating from epilepsy or hysterical convulsions is the fit associated with tetany. In one case, a woman of about 30 years, who had had a partial thyroidectomy for exophthalmic goitre, developed fits of a tetany type, some of which developed into generalized convulsions. Her blood calcium was low, but improved to normal under treatment with calcium and parathyroid. Her fits became less and less suggestive of tetany, and more characteristic of genuine epilepsy.

Convulsions can also occur in disseminated sclerosis, but it is not in this way that the disease is usually confused with hysteria. It is in the early stages that the variable losses of power with remittent tendencies occur, which cause the diagnosis to be at times in doubt before evident signs of the organic lesion develop. The reaction of the disseminated case is at times not unlike that of the hysterical, and hysterical symptoms may even be added to those due to the organic disease. Generally, the paraplegia is more suddenly and dramatically complete in

a hysteric, whereas other organic symptoms will be evident in the disseminated case, presenting a complete spastic paraplegia.

Motor and Sensory Disturbances in the Hysteric

Hysterical paralysis may affect any of the senses or limbs, or a combination of limbs. The lesions most commonly met with are probably paraplegia or monoplegia of an upper limb, and aphonia. The hysterical paraplegia leads to a complete incapacity, necessitating the care and eliciting the attention and pity that the hysteric desires. In the poorer classes it may lead to admission to a hospital, and so cause a removal from irksome home conditions. Signs of organic lesion will, of course, be absent, although disuse phenomena may occur later. Control of organic sphincters will usually be retained, although at times lack of control of these functions may occur which may be accompanied by neglect of person. Usually, however, apart from the lesion complained of, conduct will be excellent, and the individual will suffer as little inconvenience as possible, consistent with the lesion. Sensory loss may or may not accompany the paralysis, and when present may help with the diagnosis, owing to inconsistencies incompatible with an organic lesion. The underlying psychological idea of a paralysis may at times be traced, as in the case of a girl with a monoplegia of an upper limb which she had used to repulse her lover when he attempted liberties, the paralysis representing subconscious regret that she had so repulsed him. Usually the diagnosis is not difficult, the paralysis being limited to a movement or limb. When a movement is taking place, apparently with great difficulty, marked contraction of the antagonistic group of muscles will be evident, as well as contraction of the primary movers, which would not occur in a genuine paralysis. If rigidity is present investigation increases it, and endeavouring to overcome it provokes emotion from the patient. In gait, the tendency of a hysteric is to call attention to his lesion by dragging the limb, whereas the paralytic endeavours to compensate for his deficiency by circumduction. Similarly, tremors increase on observation and cease when attention is distracted to other parts.

The movements known as tics are commonly attributed to automatic or habit spasms, possibly associated with a local irritation or stimulus. At times, and in their early stages, they represent definite symbolic movements on the lines of a compulsion neurosis, the performance of which satisfies the unconscious wish whose emotional effect has been transferred to the symbolic act. The treatment of such cases is difficult, but tracing the tic to its origin, where this is possible, should release the pent-up affect attaching to such symbolic movements. Sensory loss without paralysis is much less usual in hysterical patients, although hyperaesthesia may be complained of as a means of eliciting sympathy. The hallucinatory disturbances of cutaneous and organic sensations seen in some of the psychoses are complained of in more general terms as burning or electrical sensations, and not as painful points or definite specified hyperaesthetic areas. Further, the depressed cyclothymic patient has a very different general reaction, and, although in certain phases the schizophrenic may resemble the hysteric, his reaction is essentially introverted, and he is unlikely to obtrude his symptoms.

Hyperaesthesia and other disturbances associated with dyspareunia due to some sexual incompatibility are important, as the whole group of symptoms is readily understood when the underlying attitude is revealed. Such symptoms mainly cause confusion with minor gynaecological conditions, and range from simple complaints of pain to elaborate hypochondriacal ideas with abnormal

paranoid trends. They include real cases of abnormal sexual incompatibility, ranging down to cases which have failed to adjust in regard to contraception, with fears of pregnancy, and menopausal cases, where one of the parties has ceased to desire sexual relations. An appreciation of this saves much investigation of elusive symptoms.

Coming to the special senses, blindness, deafness, and loss of speech may all occur. Elaborate tests to deceive the senses have been evolved to prove the functional nature of the cases. Unilateral blindness is perhaps more usual; conjunctivitis is not uncommon, being easy to produce and resulting in a similar incapacity. Aphonia, where phonation is lost but articulation is preserved, is the common hysterical lesion, as the patient can still converse in a whisper, again suffering incapacity without great inconvenience. The partially adducted state of the vocal cords is characteristic. The adoption of face-saving methods in inducing speech by faradism facilitates cure of this symptom.

Mutism is more generally a sign of stupor, although it may occur in persons fully alert mentally, but silent owing to hysterical or delusional ideas. Among the common causes of stupor may be mentioned post-epileptic phenomena, depressed cyclothymic cases, hysterics and schizophrenics, and cases of so-called idiopathic stupor. Somnolent cases of encephalitis lethargica may resemble this state, and cases of pathological somnolence or narcolepsy, some of which may be associated with organic lesions, such as cerebral tumour. Among the rarer conditions may be mentioned such a phenomenon as cataplexy, a condition in which movement is impossible, although consciousness is retained. While some of such cases have a physiological basis, many on investigation will be found to be cases of hysteria.

Without an adequate history, differentiation between the conditions may be difficult. The principal difficulty is in separating the cases of hysteria from the praecox syndrome. The hysterical type, fully alert to her surroundings, who, under suggestion or other suitable conditions, passes into a hysterical trance, is usually obvious, but when extended periods of stupor, with few if any remissions, occur, with marked dissociation, the fear will be that the case is one of serious schizophrenic dissociation, even when mannerisms and other suggestive schizophrenic symptoms are absent.

In conclusion, I would again repeat that neglect of the psychological aspect leads to failures in diagnosis and treatment, owing to undue emphasis being placed on the individual symptoms. When both physical and mental aspects are considered, a true perspective is obtained, with beneficial results both to doctor and to patient.

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MECHANICAL TRANSMISSION OF TRYPANOSOMIASIS, LEISHMANIASIS, AND YAWS THROUGH THE AGENCY OF NON-BITING HAEMATOPHAGOUS FLIES

(PRELIMINARY NOTE ON EXPERIMENTS)

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In this preliminary communication it is not intended to review and discuss fully the immense literature on experimental and field observations regarding the direct transmission of trypanosomes, leishmania, and other blood-inhabiting organisms. It is proposed, however, to emphasize the important part which may be played by non-biting haematophagous flies in the mechanical dissemination of blood-inhabiting organisms, which appears hitherto to have been largely overlooked.

Most authorities are in agreement that, apart from cyclical transmission through the agency of tsetse flies, direct methods of infection by *Tabanidae*, *Stomoxys*, and other biting flies play an important part in the active spread of trypanosomiasis. Thus Duke (1919, 1921, 1923) believes that the sleeping sickness epidemics which sweep over certain parts of Africa are due to mechanical infection from man to man by tsetse flies; and Hornby (1921) states that the direct spread of trypanosomes among domestic stock is by no means uncommon as the result of the introduction of an infected animal into a clean herd living in a tsetse-free area. Wenyon (1926), in summing up the evidence on mechanical transmission, says it has been clearly demonstrated that a purely mechanical infection may occur by a biting fly contaminating the wound it inflicts with infective blood which it has recently taken into its proboscis from another host.

Earlier Observations on Fly Transmission

In proportion, however, to the amount of research that has been undertaken on direct transmission, the positive experimental evidence that has been brought forward incriminating these biting flies is so meagre as to suggest that the mechanism of this method of transmission is not fully understood. It was concluded so recently as 1933, at the conference at Entebbe on the tsetse and trypanosomiasis, that further information based on experimental work was necessary to elucidate the problem of mechanical transmission.

Work on the transmission of the tissue-inhabiting pathogenic protozoa by Diptera other than the biting species, *M. domestica* in particular, is on record, though the observations are scanty. Castellani (1907) fed *M. domestica* and allied species of flies on scrapings from yaws which contained *Treponema pertenue*, and afterwards, by transferring them to scarified sores on monkeys, produced an infection in one of the experimental animals. The flies were kept in position on the sores of the monkeys for two hours. Darling (1913) reported mechanical transmission of *T. evansi* (*T. hippicum*) to animals through the agency of house-flies which infested the open sores on mules in Panama. Laveran (1880) first suggested that oriental sore in Biskra might be due to transference of infection by flies, and Wenyon (1926) stated that it was highly probable that the house-fly, which swarms round

exposed oriental sores, especially in children, might sometimes carry the causative organism on its feet or proboscis to abrasions on the skin of another person. The same observer thought that leishmania bodies might pass rapidly through the gut of the fly and so be deposited with the dejecta.

Observations relating to non-biting hematophagous flies appear to be very few, probably from the fact that most observers have failed to distinguish the various species from *M. domestica*. It is apparent, however, from a study of their life-history and habits, that they are far more likely to be agents in the dissemination of blood-inhabiting protozoa than *M. domestica*. Patton recognized that the wounds produced by biting flies might be infected subsequently through the agency of non-biting blood-drinking muscids. His observations related to an Indian species named by Austen (1910) *M. pattoni*. Patton and Cragg also give a chapter on the hematophagous flies in their classical textbook, and emphasize their character and habits.

The Non-biting Muscid in Nyasa

In Nyasaland various species of these muscids abound, one in particular—*Musca spectanda* Wied—being, as recent work by W. A. Lamborn has shown, almost entirely dependent throughout its whole life on man. The eggs are laid solely on human excreta, on which the larvae feed to maturity. The adult flies, often in large numbers, especially in the early morning, settle on man, awaiting the opportunity to slake their thirst and deposit their eggs on his freshly excreted faeces. Swarms of non-biting hematophagous flies, including *M. spectanda*, may be found infesting abrasions and sores on domestic animals. They drink greedily the blood which oozes from the bites of *Fabianus*, *Stomoxys*, and other biting flies, and actually hustle them off in order to secure a meal. *M. spectanda* appears to be almost unique in the way in which it concentrates on man. It attacks persistently and with great determination scratches, wounds, open sores, tropical ulcers, yaw nodules, etc., and greedily drinks to repletion blood, serum, or secretions from the nose, eyes, or mouth. In one instance thirty-five *M. spectanda*, all females, were captured in three-quarters of an hour from a linear scab half an inch long on the dorsum of the foot of a native, when, despite the abundance of *M. domestica* in the neighbourhood, not a single specimen was included in the catch. Catches of fifty to sixty *M. spectanda* can be made readily within an hour in the early morning from the shoulders of any native.

These observations by Lamborn, and the hypothesis put forward by him (1932) concerning the part muscids may play in the spread, not only of trypanosomiasis, but also of cutaneous leishmaniasis, led to the experimental work described below, for which the senior author was largely responsible. As will be noted, the most important fact that has emerged is that this group of flies is capable of taking up and actively depositing blood-inhabiting protozoa and spirochaetes, either by regurgitating them from the proboscis or by passing them unchanged and alive in the excreta over a period of five to six hours.

Mechanical Transmission of *Trypanosoma brucei* through the Agency of *Musca spectanda*

In the experiments over 200 flies, both bred and wild, were used. The usual procedure was to feed them on blood excreta from a puncture of the ear of a dog or from the tail of a rat infected with *T. brucei*. A certain proportion of flies thus fed commenced in about five minutes to pass in their dejecta either pure blood or blood-stained food full of actively motile trypanosomes,

while some flies continued to pass, at intervals, living trypanosomes for a period of at least six hours after an infective feed. A smaller proportion of flies were seen to blow a blob of blood containing living trypanosomes from their proboscis five or ten minutes after a feed.

Blood-stained excreta and regurgitation of blood were observed not only in the case of the flies fed on infected blood but in those fed on the normal blood of man and domestic animals and on other fluid material. The blood-passing capacity of various batches varied to a very marked degree. This variation may be associated possibly with the food requirements necessary for the maturation of the ova in the female.

Thus in one experiment twelve flies were fed on a dog infected with *T. brucei*, and although numerous drops of clear excreta were passed over a period of five hours in no instance was either blood or trypanosomes detected. This batch of flies was killed after five hours, and motile trypanosomes were seen in the gut of eight of them.

In another experiment seven out of twelve of the flies fed on a dog infected with *T. brucei* commenced to pass drops of blood-stained excreta in from five to ten minutes, and continued to excrete numerous drops for five hours. All these drops contained active trypanosomes. One fly also regurgitated a drop of blood from its proboscis full of active trypanosomes.

Over a period of five hours one fly passed forty-one drops of dejecta, another seventeen drops, and a third fifty-three drops, all of which were blood-stained and contained living trypanosomes. As an example of the extraordinary capacity of this muscid to deposit living trypanosomes in its excreta it may be stated that a batch of ten, fed to repletion on the blood of a dog infected with *T. brucei*, passed in six hours 265 droplets stained with blood and containing living trypanosomes.

In carrying out experimental infections flies, after a feed on *T. brucei*, were placed in specimen tubes covered with gauze, and the drops of excreta containing living trypanosomes passed on to the sides of the tube were drawn up into a capillary in saline or citrate solution.

Into one rat excreta containing trypanosomes was introduced intraperitoneally, infection duly taking place. A second rat was successfully infected by placing a drop of excreta on a small fresh cut on the ear, and a third rat developed an infection with *T. brucei* after a drop of the fly's excreta had been placed on a drop of blood exuding from a fresh puncture made by a tabanid, *T. fisterius* Ric.

From the experimental observations here recorded there cannot be any doubt that, apart from any mechanical transmission by the action of biting flies *per se*, the combined action of these and the non-biting blood-drinking species is capable of bringing about the transmission of trypanosomes under natural conditions. The presence of hordes of these flies, which persistently infest and annoy both man and other animals—especially when abrasions or sores are present—is a significant fact when it is realized that their capacity for distributing viable trypanosomes is so perfect. Their predilection for the mucous surfaces, moreover, suggests a means whereby infection with trypanosomes may take place. Experimental work to test the possibility of infecting rats through the eye, nose, and mouth by the excreta of these flies containing *T. brucei* was, however, unsuccessful.

Passage of Living Leptomonads of the Cultural Forms of *Leishmania dorovarti*, *L. infantum*, and *L. tropica* through the Intestine of *Musca spectanda*

Observations on visceral leishmaniasis indicate that this form of the disease has the same geographical distribution as sandflies of the same group—*Phlebotomus argentipes* in India, *P. chinensis* in China, *P. perniciosus* in Italy,

paranoid trends. They include real cases of abnormal sexual incompatibility, ranging down to cases which have failed to adjust in regard to contraception, with fears of pregnancy, and menopausal cases, where one of the parties has ceased to desire sexual relations. An appreciation of this saves much investigation of elusive symptoms.

Coming to the special senses, blindness, deafness, and loss of speech may all occur. Elaborate tests to deceive the senses have been evolved to prove the functional nature of the cases. Unilateral blindness is perhaps more usual; conjunctivitis is not uncommon, being easy to produce and resulting in a similar incapacity. Aphonia, where phonation is lost but articulation is preserved, is the common hysterical lesion, as the patient can still converse in a whisper, again suffering incapacity without great inconvenience. The partially adducted state of the vocal cords is characteristic. The adoption of face-saving methods in inducing speech by faradism facilitates cure of this symptom.

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The Non-biting Muscid in Nyasa

In Nyasaland various species of these muscids abound, one in particular—*Musca spectanda* Wied—being, as recent work by W. A. Lamborn has shown, almost entirely dependent throughout its whole life on man. The eggs are laid solely on human excreta, on which the larvae feed to maturity. The adult flies, often in large numbers, especially in the early morning, settle on man, awaiting the opportunity to slake their thirst and deposit their eggs on his freshly excreted faeces. Swarms of non-biting haematophagous flies, including *M. spectanda*, may be found infesting abrasions and sores on domestic animals. They drink greedily the blood which oozes from the bites of *Tabanus*, *Stomoxys*, and other biting flies, and actually hustle them off in order to secure a meal. *M. spectanda* appears to be almost unique in the way in which it concentrates on man. It attacks persistently and with great determination scratches, wounds, open sores, tropical ulcers, yaw nodules, etc., and greedily drinks to repletion blood, serum, or secretions from the nose, eyes, or mouth. In one instance thirty-five *M. spectanda*, all females, were captured in three-quarters of an hour from a linear scab half an inch long on the dorsum of the foot of a native, when, despite the abundance of *M. domestica* in the neighbourhood, not a single specimen was included in the catch. Catches of fifty to sixty *M. spectanda* can be made readily within an hour in the early morning from the shoulders of any native.

These observations by Lamborn, and the hypothesis put forward by him (1932) concerning the part muscids may play in the spread, not only of trypanosomiasis, but also of cutaneous leishmaniasis, led to the experimental work described below, for which the senior author was largely responsible. As will be noted, the most important fact that has emerged is that this group of flies is capable of taking up and actively depositing blood-inhabiting protozoa and spiröchaetes, either by regurgitating them from the proboscis or by passing them unchanged and alive in the excreta over a period of five to six hours.

Mechanical Transmission of *Trypanosoma brucei* through the Agency of *Musca spectanda*

In these experiments over 200 flies, both bred and wild, were used. The usual procedure was to feed them on blood exuding from a puncture of the ear of a dog or from the tail of a rat infected with *T. brucei*. A certain proportion of flies thus fed commenced in about five minutes to pass in their dejecta either pure blood or blood-stained fluid full of actively motile trypanosomes,

while some flies continued to pass, at intervals, living trypanosomes for a period of at least six hours after an infective feed. A smaller proportion of flies were seen to blow a blob of blood containing living trypanosomes from their proboscis five or ten minutes after a feed.

Blood-stained excreta and regurgitation of blood were observed not only in the case of the flies fed on infected blood but in those fed on the normal blood of man and domestic animals and on other fluid material. The blood-passing capacity of various batches varied to a very marked degree. This variation may be associated, possibly with the food requirements necessary for the maturation of the ova in the female.

Thus in one experiment twelve flies were fed on a dog infected with *T. brucei*, and although numerous drops of clear excreta were passed over a period of five hours in no instance was either blood or trypanosomes detected. This batch of flies was killed after five hours, and motile trypanosomes were seen in the gut of eight of them.

In another experiment seven out of twelve of the flies fed on a dog infected with *T. brucei* commenced to pass drops of blood-stained excreta in from five to ten minutes, and continued to excrete numerous drops for five hours. All these drops contained active trypanosomes. One fly also regurgitated a drop of blood from its proboscis full of active trypanosomes.

Over a period of five hours one fly passed forty-one drops of dejecta, another seventeen drops, and a third fifty-three drops, all of which were blood-stained and contained living trypanosomes. As an example of the extraordinary capacity of this muscid to deposit living trypanosomes in its excreta it may be stated that a batch of ten, fed to repletion on the blood of a dog infected with *T. brucei*, passed in six hours 265 droplets stained with blood and containing living trypanosomes.

In carrying out experimental infections flies, after a feed on *T. brucei*, were placed in specimen tubes covered with gauze, and the drops of excreta containing living trypanosomes passed on to the sides of the tube were drawn up into a capillary in saline or citrate solution.

Into one rat excreta containing trypanosomes was introduced intraperitoneally, infection duly taking place. A second rat was successfully infected by placing a drop of excreta on a small fresh cut on the ear, and a third rat developed an infection with *T. brucei* after a drop of the fly's excreta had been placed on a drop of blood exuding from a fresh puncture made by a tabanid, *T. fraternus* Ric.

From the experimental observations here recorded there cannot be any doubt that, apart from any mechanical transmission by the action of biting flies *per se*, the combined action of these and the non-biting blood-drinking species is capable of bringing about the transmission of trypanosomes under natural conditions. The presence of hordes of these flies, which persistently infest and annoy both man and other animals—especially when abrasions or sores are present—is a significant fact when it is realized that their capacity for distributing viable trypanosomes is so perfect. Their predilection for the mucous surfaces, moreover, suggests a means whereby infection with trypanosomes may take place. Experimental work to test the possibility of infecting rats through the eye, nose, and mouth by the excreta of these flies containing *T. brucei* was, however, unsuccessful.

Passage of Living Leptomonads of the Cultural Forms of *Leishmania donovani*, *L. infantum*, and *L. tropica* through the Intestine of *Musca spectanda*

Observations on visceral leishmaniasis indicate that this form of the disease has the same geographical distribution as sandflies of the major group—*Phlebotomus argentipes* in India, *P. chinensis* in China, *P. perniciosus* in Italy,

Malta, and Algeria, and *P. major* in Greece. Cutaneous leishmaniasis, on the other hand, occurs where *P. papatasi*, *P. sergenti*, or *P. caucasicus* are found.

The problem of the relationship of these flies to the transmission of leishmaniasis has been ably reviewed by Wenyon, and more recently by Adler, and it would appear that the entire mechanism of transmission through their agency requires further elucidation. It is a curious fact that out of numerous attempts to transmit leishmania through the bites of infected sandflies very few positive results have been obtained. Shortt, Swaminath, and Krishnan recorded one successful transmission of *L. donovani* to a Chinese hamster through the bites of sandflies, and more recently Napier, Smith, and Krishnan report further successes. The numerous negative results in transmission through the bites of these flies is not easily explained when it is considered that the Chinese hamster is a very susceptible animal. Napier, Smith, and Krishnan (1933) have shown that both the rounded tissue forms and the flagellate forms of *L. donovani* can produce infection in hamsters when introduced intraperitoneally, subcutaneously, percutaneously, orally, and conjunctivally. A very high proportion of infections was produced by both forms of the parasite by all the routes tested, and it was further shown that except by the conjunctival route the flagellate form was always the more infective.

It would seem that, apart from infection through the agency of sandflies, direct or mechanical transmission by non-biting haematophagous flies of both visceral and cutaneous leishmaniasis is possible. Considering the capacity of these flies for taking up blood or tissue parasites, it is difficult to conceive of a more ideal method whereby all species of leishmania can be distributed to abrasions or to the conjunctiva, mouth, or nose, especially as this group of muscids is so well represented in the countries where leishmaniasis is endemic. Oriental sores during ulceration can be a source of infection to the flies, and in kala-azar of man and the dog involvement of the cutaneous tissues allows haematophagous flies easy access to the leishmania bodies. Moreover, as it has been shown that viable leishmania occur in the faeces of man, it is quite possible that the flies could ingest them and pass them on as a result of the habits already described.

Experimental Observations.—In our opinion the following experiments point definitely to the fact that all the species of leishmania in man could be transmitted directly to healthy individuals by these flies, either through skin abrasions, or through the mouth or conjunctiva.

Cultures of *L. donovani* (three different strains) of Indian origin and cultures of *L. tropica* and *L. infantum* (dog strain) were obtained from the London School of Hygiene and Tropical Medicine and maintained in Nyasaland. About 250 *M. spectanda* were fed in groups on these cultures, almost invariably to repletion, and, as in the experiments with *T. brucei*, many of the flies passed living leptomonads of all three species in their excreta from five minutes up to a period of three hours afterwards. One insect, fed on a culture of *L. donovani*, passed, during a period of three hours, twenty-three droplets of excreta containing living flagellates, and during the first five minutes after feeding regurgitated from its proboscis a drop containing them alive. A second fly, fed on the culture of *L. tropica*, passed in the same time thirty-one drops, all containing active flagellates, and a third, fed on a culture of *L. infantum*, passed eleven drops containing living leptomonads, also within the same time.

Unfortunately, owing to the fact that it was impossible to obtain the rounded tissue forms of the various species of leishmania, experimental work to ascertain the viability of these in the fly was not carried out, but from the work on the viability of trypanosomes and the flagellate forms of leishmania, it would seem to be practically

certain that these tissue forms would be readily passed viable in the dejecta of the flies over a period of several hours. It is hoped that an early opportunity may be made available to test this important point, as it is possible that during their sojourn in the gut of the fly some, at least, of the tissue forms may make an attempt to flagellate, especially if retained for several hours.

Passage of Living *Treponema pertenue* through the Gut of *M. spectanda*

In these experiments three cases of yaws were used, and about eighty flies, all of which were bred.

Before feeding the flies on the yaws sore, the presence of the causative organism was determined by dark-ground illumination and by staining. Two of the cases had spirochaetes numerous enough for easy detection after passage through the flies. The sores were then cleaned thoroughly to get rid of any surface pus, and the flies were allowed to feed on the exuding fluid. They did so greedily, and again a certain percentage commenced to pass fluid, which was found to contain living *T. pertenue*. In this experimental work the spirochaetes were only detected up to a period of one hour after a feed. Lack of time prevented a fuller determination of the period they will remain viable in the excreta of the flies.

Flies could infect any breach of the surface of the skin either through their dejecta or by regurgitation, as already indicated in the previous paragraphs. In this connexion it is significant that primary yaw sores have been recorded as arising not infrequently on such sites.

Summary

1. Non-biting haematophagous muscids feed readily to repletion on blood, serum, serous exudate, ulcers, sores, and also secretions from the nose, eyes, and mouth. After a meal a certain proportion of these flies pass blood or serum in their numerous dejecta, which may contain large numbers of living trypanosomes, leishmania, or the *Treponema pertenue* of yaws.

2. These haematophagous flies have their preferred hosts—for example, *Musca spectanda* Wied, which occurs in great abundance in Nyasaland, favours man. It lays its eggs exclusively in human faeces, breeding very freely; it derives moisture from human faeces, and could thus take up *L. donovani* from this source, since the organism is known to occur sometimes in this medium. Large numbers attack persistently and with determination scratches, cuts, and sores of the skin of man in search of food, and also haunt the eyes, nose, and mouth in search of fluid.

3. *Trypanosoma brucei* in the blood of rats and dogs are readily ingested by *M. spectanda*, and during a period varying between five minutes and six hours these flagellates can be passed alive in the numerous droplets of dejecta passed through the gut of the fly. Rats were experimentally infected by the intraperitoneal injection of these dejecta by placing a drop on a fresh cut on the ear and by placing the dejecta on a drop of blood exuding from the bite of a tabanid. *T. brucei* in the dejecta introduced into the eye, nose, and mouth did not produce infection. Certain flies after a feed extrude a drop of the ingested blood containing living trypanosomes from their proboscis five to ten minutes after a full meal.

4. Living leptomonads in cultures of *L. donovani*, *L. infantum* (dog strain), and *L. tropica* are freely ingested by *M. spectanda*, and are passed viable in the droplets of excreta for several hours after a feed. There can be no doubt that these flies could ingest the round tissue forms of all the human forms of leishmaniasis and pass them in a viable state either through the gut or by regurgitation from the proboscis to sores or mucous membranes. It would seem certain that both kala-azar and oriental sore could be actively transmitted through the agency of these flies.

5. *Treponema pertenue* of yaws passes rapidly in a viable form through the gut of *M. spectanda*, and so could easily be deposited on cuts and abrasions.

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THE POST-OPERATIVE COMPLICATIONS AND RESULTS OF TONSIL AND ADENOID OPERATIONS IN CHILDREN*

BY

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This clinical investigation into the post-operative complications and results of tonsil and adenoid operations on children under 14 years of age was suggested by Dr. J. S. Fraser, surgeon, ear, nose, and throat department of the Royal Infirmary, Edinburgh.

Source of Material

1. *Hospital Patients* (1,457 cases).—These cases were operated on as out-patients in the three years 1927–9 inclusive in Dr. J. S. Fraser's department. Out of the 1,457 hospital out-patients 1,138 reported at the Royal Infirmary, and 315 were visited at their homes by the hospital social service. The post-operative complications were considered in all the cases, but only in 1,138 of them were the operation results noted.

2. *Private Practice* (900 cases).—These patients were operated on in private by Dr. J. S. Fraser and Dr. W. T. Gardiner during the ten-year period 1919–28.

The following points were ascertained from the parents of each out-patient who reported, and by means of a questionnaire sent to each private patient's doctor: (a) occurrence of any post-operative complications; (b) disappearance of the preoperative symptoms; and (c) condition of the general health since operation.

The following routine is adopted in Dr. J. S. Fraser's department as regards the out-patient operations on children under 14 years of age. Only those who live within a radius of three miles from the Infirmary are operated on as out-patients. Exceptions are admitted as in-patients—namely, (a) very delicate children, or children with some complication requiring observation (for example, acute suppurative otitis media), and (b) patients living in overcrowded or unsuitable houses. The parent is given full written instructions as to the pre-operative preparation and post-operative care of the patient. The clinical assistants give the anaesthetics and do the operations (tonsil guillotine enucleation and removal of adenoids by curettes) under the supervision of the clinical tutor. When the haemorrhage has ceased the patients are put to bed in a ward for three or four hours after the operation. A clinical assistant examines each patient's throat before the parents take the child home in a taxi.

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Statistics

Preoperative examination of 1,138 hospital cases gave the following results:

Enlarged tonsils and adenoids	...	1,109 cases
Enlarged tonsils, no adenoids	...	10 "
Adenoids only (tonsils previously removed)	...	19 "
		1,138

There was a previous history of a peritonsillar abscess in three cases, and a fourth patient presented himself for operation, but owing to the existence of a peritonsillar abscess his tonsil was not removed.

Operations in the 1,138 hospital and in the 900 private cases were as follows:

	Hospital	Private
Tonsils and adenoids removed	1,089	825
Tonsils only	10	0
Adenoids only	39	75
	1,138	900

Results of tonsil and adenoid operations in the private and hospital cases:

	Hospital per cent.	Private per cent.
Tonsils		
Complete enucleation	80.3	97.0
Incomplete enucleation	19.0	3.0
Results unascertained (refused examination)	0.7	—

Complete enucleation of one tonsil with the guillotine and dissection of the other was done in eleven of the private cases.

	Hospital per cent.	Private per cent.
Adenoids		
Complete removal	81.8	99.5
Adenoids remains	17.5	0.5
Results unascertained (refused examination)	0.7	—

The above percentages of incomplete tonsil and adenoid operations are somewhat high in the hospital cases, but these operations were done and the anaesthetics given by thirty-three successive clinical assistants.

Post-operative Complications

The material reviewed below comprises 1,457 hospital and 900 private patients.

HAEMORRHAGE

In all cases, to safeguard against avoidable haemorrhage, a careful inquiry was made as to any tendency to haemorrhage—for example, from an ordinary wound or tooth extraction. If the patient was known to be a haemophilic the coagulation index of the blood was ascertained and appropriate preoperative treatment adopted. In the groups of hospital and private patients under consideration there was no case of congenital haemophilia.

* Attention to some points in the preoperative preparation and immediate post-operative treatment of the patients is productive of quick haemostasis. They are: (1) preliminary injection of atropine sulphate, (2) short ethyl chloride anaesthesia, (3) the use of a blunt tonsil guillotine and sharp adenoid curette, and (4) immediate post-operative treatment: this consists of sponging the face and neck with ice-cold water, and the adoption of the sitting position when the patient has recovered from the anaesthetic.

It should be noted that the age of the children is important, as under 14 years severe haemorrhage occurs less frequently than in older children.

Reactionary Haemorrhage.—Out of 1,457 hospital cases sixteen (slightly over 1 per cent.) had some reactionary

haemorrhage; this was slight in fifteen patients, but severe in one. In all cases the haemorrhage stopped spontaneously. Out of 900 private patients reactionary haemorrhage occurred in ten cases (1.1 per cent.). This was slight in eight (one from adenoids only) and severe in two, requiring special treatment to arrest it.

Secondary Haemorrhage.—In the hospital series fourteen cases (1 per cent.) of secondary haemorrhage were reported. This was slight in eleven cases and severe in three. Two of the latter were admitted to the Royal Infirmary, and one of them required special treatment to arrest the haemorrhage. The onset of the haemorrhage occurred on or between the second and seventh days after the operation. This is important, as hospital in-patient tonsil and adenoid cases are usually detained in hospital for only forty-eight hours. In the private series secondary haemorrhage was slight in one case (0.1 per cent.).

Thus we see that while in the private patients two cases of severe reactionary haemorrhage occurred, in the hospital there were three cases of severe secondary haemorrhage. No case of collapse or shock occurred from haemorrhage. The tendency to bleed shown in the above thirty hospital cases could not be credited entirely to partial removal of tonsils and adenoids, for later examination showed that in eighteen cases the operation was complete, while in only five cases were the tonsils incompletely enucleated and in seven there was still some adenoid tissue present.

AURAL SYMPTOMS AND COMPLICATIONS

Earache.—Fifty hospital patients (3.4 per cent.) and twenty-five private patients (2.8 per cent.) complained of post-operative bilateral earache. The earache was probably a reflex otalgia from the operation area, via the glosso-pharyngeal nerve. Analysis of the preoperative histories of these cases showed that six of the private patients had preoperative pathological aural conditions predisposing them to attacks of earache—for example, one had scars in the tympanic membranes, four had previously had acute suppurative otitis media, and one had had a left Schwartz operation. In addition, two had previously suffered from earache.

Acute suppurative otitis media occurred shortly after operation in one private patient (0.1 per cent.), as compared with twenty-two hospital patients (1.5 per cent.); in half of them it was unilateral, in half bilateral. In the preoperative histories of these twenty-two patients the following factors had predisposed to an acute otitis media. Ten cases had complained of frequent colds, two of earache, and twelve of deafness. Of the latter, four had catarrhal otitis media and one had scars in the tympanic membranes. In the post-operative examinations another factor was revealed as influencing the incidence of otitis media after operation—namely, the incomplete character of the operation. In six cases the tonsils were enucleated incompletely, and in nine cases remains of adenoids were still present. The end-result in fifteen of the nineteen cases examined was cessation of the otorrhoea within fourteen to twenty-two days. Three cases went on to chronic suppurative otitis media, and one case had recurring attacks of acute suppurative otitis media. On examination, it was found that the perforations in the tympanic membranes had healed in fifteen cases, and persisted in four cases in the following positions: two central, one anterior, and one posterior.

SEPTIC THROAT

In the hospital patients there were four cases (0.22 per cent.) of septic inflammation of the throat with pyrexia and local inflammatory changes on the tonsillar fossae. No similar condition occurred in the private patients.

NASAL CATARRH

There were twenty-six hospital cases (1.8 per cent.) in which nasal catarrh supervened on the operation. In twenty-five of these it lasted only four days, but in the remaining case it developed into a chronic nasal catarrh lasting for a few months; five months after operation there was no macroscopic pathology in the nose, and an x-ray film of the nasal accessory sinuses showed no comparative obscurity; the patient had recovered. There was post-operative nasal catarrh in only two (0.2 per cent.) of the private patients. These children had previously complained of frequent colds, mouth-breathing, and deafness. In both cases the ultimate result of the operation was satisfactory, and all the preoperative symptoms were cured.

PARESIS OF SOFT PALATE

In the hospital series there were eight cases (0.5 per cent.) of paresis of the soft palate. All complained of difficulty in swallowing and of fluids regurgitating through the nose; six of them were very ill and feverish. All cleared up spontaneously within seven or eight days. The soft palate was injured in one private case (0.1 per cent.) at operation. Recovery was slow, but the symptoms gradually disappeared.

TORTICOLLIS

There were five hospital cases (0.35 per cent.) of torticollis. All recovered; four were well in three days, but one patient had a stiff neck for three weeks, which eventually cleared up with special treatment. No private patient suffered from this symptom.

CHEST SYMPTOMS AND COMPLICATIONS

Cough, lasting for a few days after operation, without pain, sputum, physical signs, or constitutional disturbance, occurred in twenty-six hospital patients (1.8 per cent.). No pulmonary complications occurred in the private cases. There were five cases of pulmonary disease among the hospital patients (0.35 per cent.). All recovered, the bronchopneumonia within six weeks, and the other cases within three weeks. The operation had been done completely in all. These cases are briefly summarized below.

Pneumonia: Case 1.—Female, aged 5 years, following operation on 12/1/28 developed a right upper lobar pneumonia: recovery complete. Case 2.—Female, aged 9 years, after operation on 9/11/29 developed pneumonia: recovery.

Bronchopneumonia: Case 3.—Bronchopneumonia occurred in a male aged 8 years; operation on 4/7/29: recovery.

Pleurisy: Cases 4 and 5.—Two cases of pleurisy (one aged 8 and the other 10 years) occurred following operation on 25/6/27 and 29/8/29 respectively: recovery.

SEPTIC RASH

Septic rash occurred in one case (0.07 per cent.). Previous to operation this patient had a follicular tonsillitis, so that a good deal of infection was present. The septic rash appeared four days after the operation, and disappeared after a purgative was administered. No case of septic rash occurred in the private patients.

SEPTICAEMIA, TOXAEMIA, AND PYREXIA

There was one hospital case of septicaemia after operation. He made a good recovery within three weeks. No case of septicaemia occurred in the private patients.

Toxaemia, due to toxic absorption from the operation areas, occurred in two private cases (0.2 per cent.). Both patients were in a nursing home for four days, and had a rise in temperature for some days after returning home.

Pyrexia, due to persisting preoperative cervical adenitis, occurred in two private cases (0.2 per cent.). Operation

muters were operated on for enlarged tonsils and adenoids, but were, of course, not benefited as regards their hearing.) Attacks of earache recurred in forty-five out of 152 cases after operation. Tinnitus in two patients (aged 8 and 12 respectively) disappeared. Acute suppurative otitis media healed in twenty-nine out of thirty-one cases, and chronic suppurative otitis media healed in fifty-six out of eighty-nine cases.

Patients complaining of headache (fifteen) and nocturnal enuresis (two) were not improved.

General Summary of Results in 1,138 Hospital Patients

The local symptoms for which the operation was recommended were completely cured in 851 (75 per cent.), partly cured in 204 (18 per cent.), but persisted in eighty-two (7 per cent.).

There was a marked improvement in general health in 982 (86.4 per cent.), but no improvement in 139 (12.2 per cent.). There were seventeen cases (1.4 per cent.) examined three weeks after operation—that is, too soon to estimate improvement in general health.

Discussion and Summary

On reviewing the post-operative symptoms and complications one sees that their total percentage is higher in the hospital patients (13.02 per cent.) than in the private patients (5.3 per cent.). If we exclude symptoms—for example, earache and cough—and complications—such as, exanthemata—we find that the percentage of 7.54 for complications in the hospital patients still remains higher than in the private patients (2.2).

The difference between the two figures can be accounted for as follows: (a) Some inherent factor is probably present in the preoperative condition of the hospital patients. Their general nourishment and constitution are, as a rule, inferior to those of the private patients, while in this hospital series several patients had predisposing factors in the causation of aural complications, and a number of them were possibly operated on in the prodromal stages of the exanthemata. (b) The results of hospital operations carried out by junior operators are not so good as those done by experienced surgeons in private practice. (c) Complications may be due to chill on the journey home in a taxi after operation; this was a possibility in the five cases of pulmonary complications, though the aspiration of septic blood clot during the operation—for example, in the case of bronchopneumonia; or of septic embolism from the operation area, as in the atypical case of pneumonia (right upper lobe) and in the two cases of pleurisy—cannot be excluded. No lung complication occurred in the private cases. (d) The only case of death after discharge from the Royal Infirmary was the case of meningitis. (e) No complication was found due to neglect of the parents to carry out written instructions given them for the preoperative and post-operative care of the children.

In this series of hospital out-patients, for whom every precaution was taken as to the general state of their health, their preoperative preparation, conveyance from the Infirmary to their homes, and the suitability of their homes for convalescence, the total percentage of complications was rather more than twice as high as that in the private cases. Considering the nature of some of the complications recorded in hospitals—for example, temporary torticollis, paresis of the soft palate, and nasal catarrh—the difference in the percentages is hardly of sufficient importance to make us condemn the present out-patient operation system and recommend hospital authorities to provide beds for all tonsil and adenoid cases. One acknowledges that the ideal post-operative treatment for these cases would be to detain the patient

in hospital for at least forty-eight hours after the operation, but even with this precaution complications may occur. In support of this there are the statistics published by J. A. Keen in the *Journal of Laryngology* (January, 1932) in an article entitled "Medical and Surgical Complications of Tonsillectomy in Childhood." In his series of 9,344 cases each patient was kept in hospital for at least twenty-four hours after operation; sixty-six cases (0.66 per cent.) of aural complications occurred, consisting of sixty cases of acute suppurative otitis media and six cases of mastoiditis (including three deaths from this cause), as compared with our twenty-two cases (1.5 per cent.) of acute suppurative otitis media (no mastoiditis, and no deaths) in the Edinburgh hospital cases. Further, there were five cases of septicaemia (0.05 per cent.), including one death; in Mr. Keen's group, as compared with one case (recovery) (0.07 per cent.) in the Edinburgh group.

I wish to thank Dr. J. S. Fraser and Dr. W. T. Gardiner for allowing me to use the records of their private patients; also to acknowledge my indebtedness to Dr. J. S. Fraser and Dr. Logan Turner for their interest in, and helpful criticism of, this paper. Finally, I should like to thank Miss Watt and other members of the Royal Infirmary of Edinburgh Social Service Department for the records they obtained for me of cases which did not report for examination.

PULMONARY TUBERCULOSIS IN ASTHMA CASES

BY

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Among 522 cases of asthma seen in recent years there were 369 which I have investigated with a uniform method between 1930 and 1932—200 men and 169 women of the working class in active employment. In all of these cases a detailed examination was made both by clinical and x-ray methods for any signs of active or healed tuberculous lesions in the lungs (E. Fraenkel').

Evidence from the Literature

The view that asthma and pulmonary tuberculosis are mutually exclusive is widespread in this country as well as abroad. Regarded from the statistical point of view there is undoubted justification for this attitude. The work of Schroeder,² for example, shows that out of 4,716 cases of pulmonary tuberculosis only thirty cases showed typical symptoms of asthma. Kaemmerer,³ an experienced German clinician, considers that tuberculosis plays no part in the genesis of asthma. Bandelier and Roepke⁴ believe that asthma may produce some immunization against the disease. In support of this we have the observation that tuberculous guinea-pigs appear to be protected against horse-serum shock; this is explained by Pagel⁵ as due to diminution of antibody formation, which is dependent on the number of tuberculous foci. In conjunction with Pulvertaft⁶ I have recently been able to show that a similar protection may be obtained by massive and repeated injections of Calmette's B.C.G. On the other hand, a single dose or the injection of dead or damaged B.C.G. was ineffective, and did not produce a local lesion. These results would seem to support in some degree the hypothesis of Pagel.⁵

Such authors of standing as Liebermeister,⁷ Krez,⁸ Zdansky,⁹ and Wernscheid,¹⁰ however, insist that the majority of asthma cases are of tuberculous origin. Harkavy and Hebal,¹¹ working at the Mount Sinai Hospital, report in a series of 400 asthma cases over 10 per

cent. as being tuberculous. Among these 400 cases eighteen were examined very thoroughly by the x rays, and seventeen of these showed cavities. In 1912 I¹² observed a case of bronchial asthma in which a tuberculous bacillaemia could be demonstrated by animal injection. Two cases of Kenner¹³ and Loewenstein in 1931 gave similar results. Further evidence of a relationship between these conditions is presented by the demonstration of a filterable tuberculous virus in a case of asthma by Sergeant and Kourilsky.¹⁴ Jiminez Diaz¹⁵ is of opinion that tuberculous allergy may bring about asthma, and later there may ensue a hypersensitiveness to other substances. On the other hand, Tauxk¹⁶ is of opinion that asthma may predispose to tuberculosis. That tuberculosis is activated and accelerated by asthma is held by Lueg.¹⁷ Opposed to this is the statement by Schroeder¹⁸ that frequently in cases of coexisting asthma and tuberculosis the latter is of the slow and relatively unprogressive kind. The classical work of the late Professor von Pirquet¹⁹ has made us familiar with the allergic phenomena associated with tuberculous infections. We are thus always faced with the possibility that this sensitization may be extended to other allergens.

Apart altogether from the theoretical significance of the simultaneous appearance of the two conditions, there can be no doubt, as has been shown by my own investigations,¹ by Eichhoff,²⁰ and by Hamann²¹ working at my suggestion, that a careful investigation and assessment of a large number of asthma cases will reveal the presence of active, even cavernous, tuberculosis in some of them. Hamann has reported on eight of my cases with asthma and active tuberculosis, of which two died and two others developed tuberculosis within two years. The facts which I wish to present here are of a similar nature to those of these two authors, except that they rest upon a considerably larger material.

Results of Investigation

The 369 cases of my series were all sent to me with the diagnosis of bronchial asthma by medical men, among whom were specialists in pulmonary diseases. Investigation showed that, of these, sixteen patients had active tuberculosis. They could be classified as follows: four of open tuberculosis with demonstrable bacilli in the sputum, four others having cavities without demonstrable bacilli, and eight others with active tuberculosis both clinically

Pulmonary Tuberculosis in Cases of Bronchial Asthma

	Males (202)	Females (169)	Total (369)
Open tuberculosis	3 } 10* (5 %)	1 } 6 (3.5 %)	4 } 16 (4.3 %)
Active tuberculosis	7 }	5 }	12 }
Inactive tuberculosis	17 (8.5 %)	9 (5.3 %)	26 (7.0 %)
Healed tuberculosis	17 (8.5 %)	3 (1.75 %)	20 (5.4 %)
Total cases ...	44 (22 %)	18 (10.5 %)	62 (16.7 %)

* 4 had cavities.

and roentgenologically. Of the sixteen only one case had been sent with the diagnosis of asthma and tuberculosis. In addition to this we found in twenty-six other cases definite evidence roentgenologically of productive cirrhotic inactive tuberculosis. Finally, twenty further cases showed healed lesions. That is to say, that of the 369 asthma cases sixty-two (16.7 per cent.) showed signs of present or past tuberculous infection.

Discussion

The epidemiological importance of tuberculosis undiagnosed on account of the concurrent symptoms of

asthma is at once obvious. In two instances a suggestive history was obtained. In one the undiagnosed patient's wife developed tuberculosis of the eyes, and in another two children had tuberculous meningitis and pulmonary tuberculosis. Eichhoff²⁰ and Hamann²¹ have also drawn attention to this danger, and there can be little doubt that it merits our serious attention. It would appear also—and I shall give an example of this—that a tuberculosis may become established after asthma alone has been recognized. Of course, the asthma may, as a result of an allergic predisposition, be at first monovalent, later becoming polyvalent. The possibility of a secondary hypersensitiveness to tuberculous allergens now arises. Thus, a chemist's assistant who possessed a sensitization to sodium salicylate with typical asthma later developed under our observation a rapidly progressive exudative tuberculosis with persistence of the asthmatic picture. That this patient had previously been completely free from tuberculosis there could be no doubt. Another case was that of a medical man who had had asthma practically all his life and became infected with tuberculosis whilst working in the tuberculosis department of a hospital. This infection led to cavity formation, and after treatment at Davos was followed by healing. The investigation of this asthma case is still continuing. On the other hand, the history of the patient frequently shows an "influenza" infection or a catarrh of the apex. In some of such cases there is found an inactive tuberculosis, which can only be demonstrated by the x rays.

The most important aspect of these observations is the fact that an active and open tuberculosis can be concealed for a lengthy period under the guise of a bronchial asthma with both eosinophilia and skin reactions against specific proteins.

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E. J. Canal Feijoo (*Rev. Med. Latino-Americana*, June, 1934), writing from the province of Santiago del Estero, draws attention to anomalous forms of leishmaniasis met with in his region and not described before. As they differ so widely from the ulcerative, impetiginous, ethymoid, nodular, verrucous, framboesic, and non-ulcerative varieties, of which many observers have written, he considers them as constituting a true morbid entity, even though they are caused by the same germ. In great detail, and illustrated by a wealth of excellent photographs, he describes these indigenous forms as trichophytoid, erythematous-pigmentous, oedematous, and mucous, and gives the history of the evolution of each. From his communication it may be concluded that kala-azar, like other diseases, assumes aspects which differ in various regions owing to the influence exerted upon the germ by different telluric, climatic, and meteorological conditions.

Clinical Memoranda

UNREDUCED OCCIPITO-POSTERIOR PRESENTATION WITH SHORT CORD

The following account of a recent personal case seems of sufficient interest to be recorded.

The patient, aged 23, and formerly a typist, started labour at 6.30 p.m. two days after the estimated date. Abdominal palpation suggested an occipito-posterior position. At 4 a.m. on the following day dilatation was complete, the membranes ruptured, and the child's head descended lower in the occipito-posterior position. At 5.10 a.m. the presenting portion of the head was visible at the vulva. The pains were good, but not frequent, and the head could be observed rotating into the occipito-anterior position. When rotation was complete, the head was born at 7 a.m. With a sudden movement—almost amounting to a jerk—the head at once returned to its former occipito-posterior position, and there was no further progress in the birth. Considerable traction was necessary before the shoulders were born, and the anterior arm had to be completely extracted first. There being again no further progress, the head was pushed on to the mother's abdomen and steady traction was required to secure birth of the legs. An abnormally short umbilical cord was then discovered, which had prevented rotation of the child's body. This had to be divided with the child's abdomen pressed closely against the mother's vulva. Apart from the need for three perineal stitches and the subsequent occurrence of a slight prominence of the child's umbilicus, there were no ill effects from the tension on the cord. The third stage was normal, being accompanied by considerably less bleeding than is usual. The weight of the child was 7½ lb. Unfortunately no actual measurement of the cord was made.

London, S.W.11. F. P. N. PARSONS, M.B., M.M.S.A.

BILATERAL RUPTURE OF THE TENDON OF EXTENSOR POLLICIS LONGUS

In the literature at my disposal I can find no reference to a case of bilateral rupture of this tendon from any cause. It seems, therefore, that a record of the case might be of interest.

On March 5th, 1932, a motor mechanic, aged 30, was brought to my house following an accident with his motorcycle, in which he was thrown into a ditch. He landed with his right hand doubled under him and the left hand extended in front. On examination the only wounds found were several superficial cuts about the hands. On the right hand there was a fair-sized cut extending from the first interphalangeal joint of the thumb to the back of the wrist, midway between the tubercle of the ulna and Lister's tubercle. It was not deep, and did not display the superficial fascia. On the left hand, over the "anatomical snuff-box," was a large bruise. The remaining abrasions were only superficial. No bony injury could be detected in the damaged regions, either by clinical examination or by radiography at a later date. The movements of both thumbs, although painful, were of normal range. The man received the usual treatment with antitetanic serum, and after cleansing the wounds they were dressed with tincture of iodine.

On March 9th the patient returned to tell me that he had felt something "go snap" in his right thumb while at work that morning. Since this he had not been able to use his thumb because of difficulty in manipulating the end. In fact, it was easy to confirm the man's statement, as he held his thumb up to view when he entered my room. The terminal phalanx drooped and could not be extended. Other movements were unaffected. The wound was dry, and healing in the normal manner; the swelling from bruising was almost gone. The tendon of the long extensor of the thumb could not be made out as a boundary of the "anatomical snuff-box."

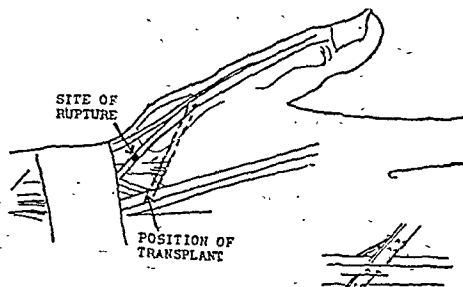
It was decided to explore the region of the wound where it crossed the long extensor tendon. Accordingly, on March 10th, the wound over the thumb and the wrist was excised; the anaesthetic used was a "nerve block" at the elbow with

2 per cent. novocain, 15 c.cm. in all being used. This gave a perfect anaesthesia of the area of operation. The tendon was easily displayed, and there was found to be a rupture about half-way across its course as the boundary of the "snuff-box." The proximal end of the tendon was not in view. The ruptured end of the distal part was not ragged, but had the appearance of being cut with a not too sharp knife. The surface appeared normal and shiny. The small branch of the radial nerve proceeding up the radial side of the index finger crossed the tendon exactly at the point of rupture, and showed the effects of this relation in the form of a tiny blue fusiform swelling. (No area of anaesthesia had been detected previously.)

Search was now made for the end of the proximal part of the tendon, but was fruitless. The exploration was carried as far as the posterior annular ligament without result. An Esmarch bandage was applied from above down, but proved equally ineffective in bringing the end of the tendon into view.

With the state of affairs thus, it was decided to split the tendon of the extensor of the index finger, and having passed the distal end of the ruptured tendon through the split and back again, to suture it in this position. This was easily done, and the wound duly closed without drainage. The hand was then well wetted with surgical spirit, dried, and the dressing applied. A palmar plaster cast was then made to maintain the thumb and index in extension.

On March 21st the whole of the splintage and dressing was removed and the sutures taken out. The wound had healed neatly and firmly. The splint was cleaned, repaired, and



The smaller illustration shows the method of fixing transplant.

reapplied. The hand was inspected several times during the next eighteen days, passive movement being applied during this time. Active movements were started on April 12th. These were free but somewhat clumsy. The scar was healthy and firm without being adherent to any underlying structures.

In the meantime, on March 19th, the patient suffered an exactly similar occurrence to the left thumb: on this occasion the gap in the tendon could be felt in almost exactly the same place as the rupture had occurred on the right. Suffice it to say that on exploring the tendon the two ends were found little separated, being held together by some slight fibrous reaction, no doubt due to the resolution of the large haematoma that had occupied this space at the time of the accident. The ends of the tendon at the rupture were not sharply "cut" as they had appeared on the right side, but frayed and unhealthy-looking; there was a strong resemblance to a piece of string which had been cut through by fraying it on the edge of a sharp stone. The tendon sheath was adherent, both above and below the site of rupture.

The ends were cleaned and sutured with fine catgut. The obstructing fibrous tissue was cleared away as far as possible, and the wound closed, no attempt having been made to clear the adherent tendon sheath. The same procedure was carried out with this thumb as has already been described for the right thumb. The wound healed by first intention, and active movements were obtained after twelve days from the time of operation.

Now (March, 1933) I have seen the patient again in order to see the result. The left thumb functions as it normally did before the accident. The right thumb has improved remarkably, and functions nearly as well as before, but is a little awkward at times, when fine movements are required. The patient finds nothing to complain of in either hand, and can do all his work without any trouble.

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Reviews

GREEN'S PATHOLOGY

In editing the fifteenth edition of *Green's Manual of Pathology*,¹ Dr. H. W. C. VINES has not only submitted the book to a drastic revision, but has greatly enlarged it. The present volume is more than one-third larger than its predecessor, the 650 pages of the latter having been increased to 930. Moreover, 150 new illustrations have been introduced, and over a hundred of the old figures replaced by new ones, all of them of the best quality. In carrying out the revision Dr. Vines has had the assistance of Dr. K. M. Lynch, professor of pathology, South Carolina. The original division of the work into general and special sections has been retained, the author noting with disapproval the tendency to combine the two which is exhibited in some of the recent textbooks. In other respects the order adopted in the last edition has been considerably altered, as shown in the table of contents, which has been amplified in details and thus rendered more useful.

Additional chapters have been written on avitaminosis, diseases of the ductless glands, diseases of the breast, and diseases of the genital tract. Many sections and chapters have been amplified and brought up to date, the section on tumours of the brain, for example, having been nearly doubled; on the other hand, in a few instances the descriptions have been rendered more concise, as in the general account of tumours, which has been reduced by twenty pages. All sections show evidence of careful revision and of an endeavour to introduce such modern views as experience has proved to be sound, as in the description of the cells involved in inflammatory processes. It may be said that the editor has produced what almost amounts to a new book, yet it still retains the characters of the original *Green's Pathology*, which has probably always been the most popular textbook on the subject among English students, and in its new edition deserves to remain a favourite.

HEATING AND VENTILATION

The heat losses from the body of man are effected by means of radiation, convection, and the evaporation of moisture. When one of these processes is checked another develops compensatory activity, but they are not all equally comfortable, and their due adjustment so as to reduce discomfort, where the environment is amenable to control, is always important. Problems thus present themselves in the heating and ventilation of buildings for which engineers have devised solutions. Engrossed, however, in the mechanical or other complexities of practical schemes, the technical textbooks have been apt to pass too lightly over the fundamentals. To fill this gap Dr. H. M. VERNON has written a book² on the principles which underlie, or should underlie, current practice in these matters.

After referring to the kata-thermometer scale and the Pittsburg effective temperature, the author describes the eupatheoscope and the globe thermometer, which take account of radiation. He indicates how loss of heat by buildings may be reduced. He says of the coal fire that with its flue on an inner wall as much as 50 per cent. of the total heat goes to warming the house. The various methods of heating by hot water and steam are considered. The long low wall-type hot-water radiator

beneath the whole length of windows receives commendation. The account of low-temperature radiant heating includes the panel system with embedded hot-water pipes, the non-embedded panels or rayrads, under-floor heating by air ducts as in Liverpool Cathedral, electric panels, and also electric tubular heaters.

In the chapter on natural ventilation the laws of flow in air circuits are cited, and the importance urged of having a ventilating flue in every habitable room. While natural ventilation through chimneys and flues is usually adequate for private houses, it may not suffice for schools, assembly rooms, and factories. In the chapter on mechanical ventilation the upward and downward methods for places of assembly, where lateral distribution might be difficult, are compared with one another. On the upward plan the fresh air is introduced low—in the House of Commons at floor level, in the Cambridge Examination Hall seven feet above the floor—and exhausted at the ceiling. On the downward plan—exemplified in the United States Hall of Congress and the Empire Cinema, London—the fresh air enters by way of the ceiling and is withdrawn at floor level. The concluding chapters deal with the control of humidity and air conditioning in industry.

The foregoing summary may convey some impression of the scope and contents of Dr. Vernon's book. Its merit can be fully appreciated only by perusal and study. We cordially recommend it, for guidance and information, not only to engineers, but to medical officers, factory inspectors, sanitary officials, and others who are concerned in their several ways with heating and ventilation.

NEPHRITIS.

Dr. ROBERT PLATT'S *Nephritis and Allied Diseases*³ is an excellent account of present-day knowledge. It is no mere compilation; the author has studied the authorities, but has in addition expressed his own views in writing the various divisions of the subject. That these views are orthodox and at the same time up to date makes the book a valuable one to place in the hands of the senior students and practitioners for whom it is designed. After a short introduction on the structure and function of the kidney, Dr. Platt discusses the renal function in disease, following mainly the modern theory of kidney secretion propounded by Cushny and elaborated by Verney and his co-workers, and the methods by which renal functional capacity is assessed. These are adequately and clearly dealt with. The clinical section which follows constitutes the main part of the book. Here the reader will find a full description of the aspects of the form of nephritis, chiefly seen in young people, in which three stages can frequently be recognized: an acute onset with haematuria and oedema, a prolonged oedematous stage, and a terminal stage without oedema. The two latter stages may be separately named "subacute" and "latent" respectively, and are followed by a chronic stage in which renal insufficiency has developed.

Many names have been proposed by the various writers on Bright's disease for these stages and the varied combinations of them which are met with in patients. Practitioners will find that Dr. Platt's descriptions will enable them to place their own cases under the appropriate heading so that the indications for treatment which he has so well detailed may be applied. The kidney changes and alterations of renal function in pregnancy, in hypertension and generalized vascular disease, in bacterial infections of the kidney and in affections of the renal pelvis and urinary tract are described, together with the treatment to be adopted. The reader will find a series of diet lists which can be used in hospital or private work, in-

¹ *Green's Manual of Pathology*. Revised and enlarged by H. W. C. Vines, M.A., M.D. Fifteenth edition. London: Baillière, Tindall and Cox. 1934. (Pp. xii + 928; 425 figures, 8 coloured plates. 25s.)

² *The Principles of Heating and Ventilation*. By H. M. Vernon, M.A., M.D. London: Edward Arnold and Co. 1934. (14s. net.)

³ *Nephritis and Allied Diseases: Their Pathology and Treatment*. By Robert Platt, M.D., M.R.C.P. London: H. Milford, Oxford University Press. 1934. (Pp. 166. 7s. 6d. net.)

cluding two examples of ketogenic menus for the induction of acidosis in the treatment of coliform affections of the urinary tract. At the end of each section there are a few clinical histories illustrating the actual course of typical cases of the condition described. Dr. Platt's book strikes one as having just that amount of theory which makes the subject interesting, and the practical part is wholly good.

OBSTETRICS AND GYNAECOLOGY

The sixth volume of the *Practitioners' Library of Medicine and Surgery*, dealing with *Obstetrics and Gynaecology*, is a handsome and clearly printed book, which runs to about 1,000 pages, a generous amount of space being devoted to lists of contributors, tables of contents, and index. The general purpose of this library is to "present material which is pre-eminently of practical utility to the man in general practice." Most of the contributors are apparently relatively junior men of the status of associate professor or instructor. The article on diseases of the uterus is by a clinical associate in surgery of the University of Oregon.

The opening chapter deals appropriately enough with development. In order to obtain an insight into the difficult subject of embryology the reader is advised that "the mind must conceive of four functions simultaneously—length, breadth, depth, and time." The practitioner need not be discouraged at being asked to visualize these abstractions as functions, for the descriptions which follow are clearly written and well illustrated. A short section on the chronology of foetal development is particularly interesting and useful. In discussing the hygiene of pregnancy the author, Dr. Emerson L. Stone of New Haven, strikes a note of optimism which is hardly justified when he writes that pre-natal care and the development of obstetrics have been "the chief factors in the achievement of a negligible rate of morbidity and mortality for mother and child." The view that the present rate of maternal mortality is negligible is certainly not shared by the senior obstetric teachers in the United States, as has been shown by recent reports from the White House Conference and the New York Academy of Medicine. The detailed advice given about ante-natal care and about the home equipment necessary for a confinement is sound and adequate.

Professor Karl L. Wilson of Rochester, N.Y., has contributed an admirably written and well-illustrated account of normal labour, which readers of this System will value as a reliable and practical guide. In discussing the physiology of the puerperium full consideration is given to recent experimental work on the hormonal influences which excite and regulate lactation, while the possible influence of the placenta as an inhibitor of lactation is also considered. In this article an admirable balance is maintained between scientific advance and practical requirements, for the clinical details dealing with the process of nursing and the care of the breasts are entirely praiseworthy. Many useful recommendations with regard to posture and exercises are also given. One of the most interesting contributions is that of Professor Thoms of New Haven on the pathology of labour and the puerperium. In writing of subnormal expulsive forces the wise remark is made that women who show "more or less marked asthenic tendencies cannot be expected to be athletes in the process of parturition." The treatment recommended for inertia in the first stage is one-quarter to one-sixth of a grain of morphine, and, after the patient has slept, one to two ounces of castor oil, followed by the controlled use of pituitrin by intranasal application until labour is actively progressing. Dealing

with the prevention of post-partum haemorrhage, Professor Thoms states that it is his rule never to leave the bedside of a patient for at least an hour, even if a competent nurse is in attendance; this is an admirable example for a teacher to set his students.

The description of gynaecological conditions has been considerably abbreviated by the omission of all details of operative procedures. The clinical pictures are, however, well drawn both with pen and with pencil, and the aim of the contributors in this part of the work has clearly been to emphasize only those aspects in which the general practitioner is directly interested. It cannot be doubted that the American doctors who consult this work and follow its advice will be well equipped in the departments of obstetrics and gynaecology.

LATENT PLUMBISM?

The reader will be somewhat surprised to discover that under the title of *The Menace and Geography of Eclampsia in England and Wales* Dr. NORMAN PORRITT has developed the disturbing hypothesis that a considerable section of the population of this country is either actually suffering from, or is exposed to the menace of, a latent form of lead poisoning. The author's thesis is that a mild form of plumbism exists, hitherto unrecognized by the medical profession, which reveals itself, not by the classical signs and symptoms, but by a symptom-complex which in fact (although the author does not say so) resembles that of general neurasthenia. The proof of this hypothesis offered to the reader is that a series of such cases have come under the personal observation of Dr. Porritt, in which the subjects were found to be drinking water which contained a variable amount of lead, and were also excreting lead in the urine. Some of these persons who went away from home for a change were relieved thereby of their symptoms, but the reader is not told that the drinking water in the new places of abode was shown by analysis to be free from lead. In no case apparently was it demonstrated that along with the disappearance of the symptoms the urine became free from lead, nor is it shown that the severity of the symptom-complex was proportionate to the amount of lead in the water or to the amount excreted in the urine. The author's lament that he failed to convince the medical officer of health of the town in which he then practised of the truth of his theories seems scarcely justified. Who could be convinced by such incomplete evidence?

In this book Dr. Porritt advances the further theory that lead in drinking water, even in very small amounts, constitutes a predisposing cause of abortion and of eclampsia. The evidence adduced is that the mortality from "eclampsia and other accidents and diseases of pregnancy" is higher in districts supplied with soft, plumbo-solvent water than elsewhere. Dr. Porritt rightly draws attention to the well-known abortifacient action of lead exerted through its destructive influence upon chorionic tissues. Lead also injuriously affects the functional activity of the kidney, and so may predispose to the occurrence of eclampsia. All this is undoubtedly possible, but unfortunately the statistical material requisite for properly testing the theory was not available to the author. The group figures upon which he relies include other causes of maternal death of equal importance to eclampsia. It would seem very improbable that the Public Health Service can have overlooked a latent form of plumbism due to potable water, as the author would have us believe. In any case the questions he raises are for the medical officer of health, not the obstetrician, to deal with.

* *The Practitioners' Library of Medicine and Surgery*. Vol. vi. *Obstetrics and Gynaecology*. London: D. Appleton-Century Company. 1934. (Pp. xlv + 900; illustrated. 50s.)

* *The Menace and Geography of Eclampsia in England and Wales*. By Norman Porritt, M.R.C.S., L.R.C.P. London: H. Milford, Oxford University Press. 1934. (Pp. 88. 5s. net.)

OCULAR ASTIGMATISM

Astigmatism of the refractive media of the eye was first discovered by the English physiologist Young in 1801: twenty-six years later the Cambridge astronomer Airy made the first correction of the defect by the use of cylindrical lenses. Since then there have been many investigations into the causes of the defect. At one time, owing to the work of Javal, there was a tendency to ascribe the finding to irregularity of the corneal surface, and with his ophthalmometer measurements of the inequalities of the curvature of the eye were made. The perfection of the instrument showed, however, that though the anterior surface of the cornea was a large factor in the production of the defect yet the total astigmatism varied considerably from that of the cornea; it might be more or less, and the axes of the corneal and total astigmatism might vary. It became evident that other surfaces of the refracting media took part in the production of the defect, and the measure of the whole by means of retinoscopy was more accurate and useful than the measure of the corneal surface. In a recent monograph on *Blastigmatisme*,* by Drs. M. MARQUEZ and T. BUSTO of Madrid, there is presented a detailed discussion of these matters, and therewith a consideration of the value of correcting astigmatism by means of bicylindrical lenses, set at varying angles to each other so as to produce a great variety of fine corrections. The authors have worked out a series of tables which give the values, in spheres and cylinders, that result from these combinations.

Notes on Books

In *The Healthy Infant*† Dr. E. R. C. WALKER has given a very clear account for the intelligent mother of how to manage her child. Besides describing in detail the general principles of diet and hygiene, Dr. Walker has successfully shown the reasons for many of the measures advocated, and he includes a very good adaptation of modern psychological teaching for use in regard to the early period of life. It is possible to find fault with small, almost controversial, matters in certain sections—as, for example, the advocacy of one breast at a feed instead of both—but in general the presentation of teaching where there is room for a difference of opinion is scrupulously fair, and the intelligent mother should easily be able to make up her mind upon a course of action. It is a pity that while such elementary details as care of the nails receives mention, there is no discussion of what the mother is to do about the foreskin. Professor Charles McNeil has written a foreword commending Dr. Walker's book, and with what he says there we heartily agree.

A book which has proved highly popular with nurses is the *Complete System of Nursing*, by A. MILLICENT ASHDOWN; it has been reprinted eleven times since 1917. The author has now issued her book with certain additions and deletions as *A Complete System of Nursing for Male Nurses*.‡ For this purpose chapters dealing with diseases of women and children have been deleted and several illustrations have been added. The volume treats of the general duties of a nurse and the minor surgical and medical procedures which the nurse may be called upon to carry out—such as drawing off stomach contents, the testing of urine, catheterization, etc. The application of bandages, splints, extensions, etc., is fully treated. A chapter on the general observation of symptoms appears

* *Le Blastigmatisme dans la Pratique. Tables pour la Transformation des Verres Bicylindriques d'Axes Obliques en Verres Sphéro-cylindriques*. By M. Marquez and T. Busto. Second edition. Madrid: J. Cosano. 1933. (Pp. 55. 5 pesetas.)

† *The Healthy Infant*. By E. R. C. Walker, B.A., M.B., F.R.C.P. Edinburgh: W. Green and Son, Ltd., 1934. (Pp. 137. 3s. 6d. net.)

‡ *A Complete System of Nursing for Male Nurses*. By A. Millicent Ashdown. London and Toronto: J. M. Dent and Sons, Ltd.; New York: E. P. Dutton and Co., Inc. 1934. (Pp. xvi + 639; illustrated. 12s. 6d. net.)

to be particularly helpful. Medical nursing, with general descriptions of various diseases and the special points of attention required from the nurse in each, is treated with considerable fullness, and surgical nursing is similarly dealt with. Special chapters are devoted to ophthalmic nursing, nursing in diseases of the ear, nose, and throat, massage, medical electricity, the administration of drugs, and treatment of poisoning, and there is a brief, final chapter on diets and sickroom cookery. This book, like the manual upon which it is based, should prove very useful to nurses.

Mr. J. E. R. McDONAGH has now written the third volume of *The Nature of Disease Journal*.* Like its two predecessors, this is a substantial book of more than two hundred pages in which the author presents his original (one might almost say his unique) views on medical problems. The chief subjects discussed in volume iii are included under the headings "Rheumatism," "Women's Diseases," and "Infections from Within." There is also an editorial on the origin and nature of disease, and a chapter on the factors which determine the part of the body selected for attack in disease. The book will be added to the Library of the British Medical Association.

* *The Nature of Disease Journal*. By J. E. R. McDonagh, F.R.C.S. Volume iii. London: William Heinemann (Medical Books) Ltd. 1934. (Pp. 245. 10s. 6d. net.)

Preparations and Appliances

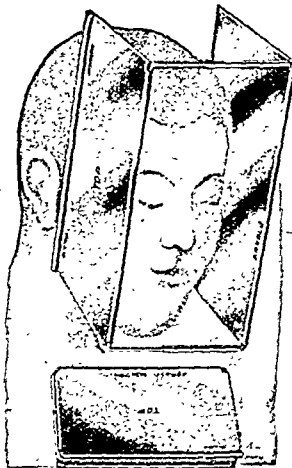
ANAESTHETIC SHIELD FOR USE IN MASTOID OPERATIONS

Mr. C. HAMBLIN THOMAS, F.R.C.S. (London, W.1), writes:

In mastoid and other operations on the ear, when the face is covered by the usual towel to shield the operation area, there is always a certain amount of discomfort to the operator and the anaesthetist. The latter has difficulty in keeping the patient's face under observation for the state of the pupils, etc., and a possible seventh nerve twitch of the face muscles, and the former is apt to have his towels and instruments displaced by the anaesthetist's manipulations. I have had made for me a simple and cheap metal shield, on the principle of the pattern I saw at the Manhattan Ear and Throat Hospital, New York.

Its method of use and its appearance when folded are illustrated here. When folded it is less than the size and about the thickness of this *Journal*, and it is easily packed. When in use it has sufficient rigidity to maintain its position. It can be sterilized, or it can be covered with a narrow sterilized towel folded around it. The lower plate is placed between the under side of the patient's face and a flat surface on which the patient's face (which has been turned well over) lies. The upper plate can be fixed by tapes or by towel clips engaging the upturned edge of the plate and the other towels around the patient's head. This upper plate acts as a small instrument table for the assistant.

The shield is made for me by Messrs. Arnold and Sons (John Bell and Croyden), 52, Wigmore Street, London, W.



VIONASE TABLETS

Vionase tablets (Wilcox, Jozeau and Co. Ltd., London) contain medicinal yeast (2½ grains per tablet), exsiccated ferrous sulphate (2½ grains per tablet), and small quantities of copper and manganese. They are recommended for the treatment of microcytic anaemia, and also for neurasthenia, debility, etc.

British Medical Journal

SATURDAY, SEPTEMBER 15th, 1934

THE ACTION OF INSULIN

In no section of metabolic research has more intensive work been carried out than in that of carbohydrate metabolism. The dramatic results obtained by the application of insulin to disturbed sugar metabolism need no comment at this stage. From the clinical point of view, one of the most outstanding results of insulin treatment is gain in strength, and this is true even when the patient is still not completely stabilized. From a condition of weakness, which may render the diabetic subject a pathetic figure, there gradually or sometimes rapidly is brought about an increase in muscular power which astonishes even the practised specialist in diabetes. There can be no doubt that insulin produces in some peculiar way a re-establishment of those processes in the muscles which lead to a normal capacity for work. This is undisputed, and yet the actual mechanism of this extraordinary result is entirely obscure. In a recent series of lectures Macleod¹ enters in some detail into the experimental work in this field, but, interesting as are the results of individual experiments, the problem is not very much nearer solution. The well-known researches of Dale and his collaborators, showing that in the eviscerated, decapitated, and glucose-perfused cat the injection of insulin produces an amount of glucose oxidation and glycogen deposition in the muscles exactly accounting for the disappearance of glucose from the perfusing fluid, are strongly criticized by Macleod. Whilst Dale's results were of a precision that appealed to the physiologist as apparently demonstrating an almost mathematical accuracy in a biological experiment, the clinician continued to wonder what the relation was between a very depleted and abbreviated cat and a normal or diabetic subject. Macleod, however, has again marshalled very strong evidence against the hypotheses and assumptions made in these perfusion experiments.

An outstanding source of error in the usual methods of calculation is the interpretation of the respiratory quotient. Cathcart some years ago insisted that the non-protein respiratory quotient is not a true oxidation quotient, and more recently Thunberg goes so far as to say that *none* of the oxygen used in general metabolism is found in the expired CO_2 , but that it is transformed to water. Investigation of the mechanism of insulin action in the intact animal is complicated by so great a number of accessory mechanisms that it seems almost impossible to expect any all-embracing conceptions to emerge. Macleod has reinvestigated and extended the *pigûre* experiment of Claude Bernard,

and has shown that carbohydrate metabolism is, at least in part, under the control of a centre or centres in the upper part of the pons. Interpreting his results, he considers that the process of glyconeogenesis is under the control of the parasympathetic, and glycolysis under that of the sympathetic. In conjunction with these purely nervous controls must be considered the demonstrated existence of a diabetogenic influence exerted by the anterior pituitary. This has been shown strikingly by Houssay, who found that removal of the pituitary before pancreatectomy prevented the development of typical pancreatic diabetes. In this connexion the association of glycosuria, and sometimes of true diabetes, with acromegaly must be kept in mind. There is also the delicately adjusted response of the adrenal gland to changes in blood sugar, directed to maintaining the latter at normal levels.

The recent striking findings of Ellis,² showing that patients with severe diabetes can tolerate enormous doses of glucose with doses of insulin not exceeding, and even less than, those necessary for stabilization on restricted diets, will give an important impetus to new ways of thinking on the pathogenesis of diabetes. Ellis's work will require extended investigation before interpretation will be possible, for he does not give in his paper any metabolic figures except those of blood sugar and qualitative urinary findings. These results, at any rate, dispose of the common notion that diabetes is entirely a matter of pancreatic dysfunction. The older view that insulin produces some change of alpha-beta glucose into a more active form has never been convincingly substantiated, but it is significant that so eminent an authority as Macleod should state that he has "a suspicion that insulin acts primarily on the glucose molecule and that the various physiological effects which follow its injection are secondary to this change."

RECONSTITUTED AND SOPHISTICATED MILK

The establishment of the Milk Marketing Board, and elimination of the "cut price" wholesale milk upon which considerable profits were made, has led to ingenious devices for replacing lost incomes. One of them which has recently been engaging the attention of the ever-vigilant guardians of the public health is a new device to enhance the value of skimmed milk. This can be bought on a large scale for something in the neighbourhood of a penny a gallon, and, if cream is added to it, the result is a fluid resembling genuine milk. Skimmed milk powder is a cheap article of commerce. If this is dissolved in water and cream added the resulting solution is something not easily distinguishable from the natural secretion of the cow. Sold at about a shilling a gallon, this product of cream and skimmed milk, or skimmed milk powder, yields an enormous profit. It is true that few would

¹ Bull. Johns Hopkins Hosp., February, 1934, p. 79.

² Quart. Journ. of Med., April, 1934.

accept it as real milk did they know the method of manufacture; but it is an extremely difficult matter to stop the traffic because, after all, this commercially made solution contains the ordinary constituents of cow's milk and passes the ordinary tests applied by the food inspector. The percentage of water and cream can be regulated to a nicety.

It must not be forgotten, however, that while the minimum fat content of milk as laid down in the Milk Regulations, 1901, is 3 per cent., the average fat content of genuine cow's milk is approximately 3.6 per cent. It is not surprising that the manufacturers of this product are concerned more with satisfying the legal minimum than with the preparation of a product as rich in fat as genuine milk. In consequence the artificial product often yields on analysis the bare minimum or little more in fat content. In other words, this product is 20 per cent. deficient in fat, and it has been pointed out that milk which consistently yields on analysis a fat content of 3 per cent. or thereabouts is open to grave suspicion. Now that attention has been drawn to this product food inspectors will be on the alert. There is one further loophole in the armour of the faker: the Milk and Dairies Order, 1926, states that the vessels used for the conveyance of skimmed or separated milk or for containing such milk at any time when it is exposed for sale must be marked with the words "skimmed" or "separated" milk. Naturally the persons concerned in the concoction of "pseudo" milk are not anxious to advertise their activities and in some cases the label has been omitted and the law broken. There is need, however, for tightening up the law in this respect because the Article of the Order in question does not clearly indicate whether churns containing skimmed milk are required to be marked as such when in a dairy and not exposed for sale.

There is a second device, to which the Medical Officer of Health for Kensington has drawn attention. This is the addition of skimmed milk to ordinary milk in contravention of Section 4 of the Milk and Dairies (Amendment) Act, 1922, which provides that: "No person shall add any colouring matter or water or any dried or condensed milk or any fluid reconstituted therefrom or any skimmed milk or separated milk to milk intended for sale, and no person shall, either by himself or by any servant or agent, sell, or offer or expose for sale, any milk to which any such addition shall be made." It was discovered that skimmed milk to which a quantity of cream had been added was being mixed with ordinary milk, the product being sold as genuine milk. The result of adding cream to skimmed milk in the proportion of one gallon of cream to sixteen gallons of skimmed milk is to produce a liquid with a fat content slightly below the minimum standard of the milk regulations. Genuine milk, of course, contains fat in excess of the proportion required by law. The result of the mixture of the two fluids is a product with a fat content above the legal minimum but less than the average obtained from genuine milk.

By this device is obtained, in addition to the legitimate trading profit, a further 9s. 6d. per churn of seventeen gallons.

Both devices—the reconstitution of milk from milk powder and the sophistication of milk by the addition of skimmed milk—are dishonest and undesirable practices. Present legislation is by no means adequate to deal with these new activities. The Kensington Town Council suggests that by new legislation the storage of milk powder on registered dairy premises should be prohibited; that dealers in skimmed milk should be registered and required to keep accurate records of consignments of skimmed milk arriving at or leaving the premises; that vessels containing skimmed milk should at all times be marked with the words "skimmed milk"; and, finally, that legislation relating to the addition of skimmed milk to milk should be amended so as to provide that milk includes cream. Great efforts are being made to improve the purity and quality of the most valuable of foods—milk. It is of first importance to stop the activities of persons who, in pursuit of personal profit, are placing on the market as genuine milk a liquid which is reconstituted or sophisticated.

CANCER CLAIMS

The recent publicity given by the Press both in this country and abroad to the alleged discovery of the cause of cancer by Dr. W. von Bréhmer, a member of the Reich Biological Institute in Berlin, cannot pass without comment. Dr. von Bréhmer¹ brings forward a hypothesis which rests on two series of observations—one physico-chemical and the other bacteriological. The first deals with the hydrogen-ion concentration of the blood, which he claims to be highly alkaline in cases of carcinoma, and the second purports to show that it is possible to isolate an organism from the blood and tumours of human beings and animals suffering from cancer, an organism which is only capable of active growth in an alkaline medium. From these observations he concludes that conditions which bring about marked alkalinity of the blood produce a suitable pabulum for the growth of the organism in question, which is responsible for the proliferation of the epithelium to form a cancerous growth.

In the first place, it would appear hardly believable that the extreme degrees of alkalinity of the blood claimed to have been observed by Dr. von Bréhmer—as great a pH as 8.2 is described by him in an earlier article²—would be compatible with the continuation of life, and it is certainly contrary to previous belief and experience. This matter has been taken up by Professor Heubner and Dr. Druckrey,^{3,4} who investigated the method adopted and have come to the conclusion published in the *Klinische Wochenschrift* that the palladium-hydrogen electrode hitherto used in the investigations

¹ von Bréhmer, W.: *Med. Welt*, August 25th, 1934, No. 34, p. 1179.

² *Idem*: *Ibid.*, December 9th, 1933, No. 49, p. 1737.

³ Druckrey, H.: *Klin. Woch.*, July 14th, 1934, No. 28, p. 1027.

⁴ Heubner, W., and Druckrey, H.: *Ibid.*, September 8th, 1934, No. 36, p. 1284.

gives results which are so wholly inconsistent that no correction factor is capable of making them reliable. If this is so it is clear that the whole of the alkalinity theory is open to very grave doubts.

In regard to the organism isolated, Dr. von Brehmer gives an elaborate and lengthy description which forms the greater part of his publication. Its morphology appears to be highly complicated, and it only assumes a bacillary or "tubular" form in the blood when the latter is alkaline, or in a special highly alkaline culture medium. The life-cycle is elaborate, and no fewer than seven stages are described. In alkaline broth it grows as a pellicle, is motile, and forms spores under unfavourable conditions. When growing actively some forms break up and discharge fine granules, which are capable of regenerating into the tubular form. In acid broth it breaks up into minute bodies, which are filter-passing and which vegetate when returned to an alkaline medium. With such an elaborate morphology it is not surprising that Dr. von Brehmer reserves for a future date the placing of his organism in an ordered classification, but disappointment must be expressed at seeing in the text of his article published in the *Medizinische Welt* large-scale drawings containing detail almost, if not quite, beyond the limits of microscopical visibility, and yet not seeing a dark-ground photomicrograph of sufficiently high power or definition to show any detail.

When consideration is given to the significance of such an organism, many questions arise which require satisfactory answers before its connexion with the aetiology of cancer can be accepted. First, there is the question of contamination during manipulation. Professor Schilling⁵ has carried out isolation experiments on the same lines and claims to have obtained similar organisms with complicated morphological forms. It is not to be suggested that any but the most careful manipulation was employed in either case, but at the same time bacteriologists will agree that there is a certain crudity in obtaining blood for cultivation from a finger prick and in grinding up a portion of a tumour in a mortar with saline solution and transferring a copious inoculum of the emulsion for cultivation in a fluid culture medium, the technique for both of which procedures is described. Then there is the question whether the tumour may not be harbouring some non-pathogenic organism. It is well recognized that in dealing bacteriologically with tissues it is not uncommon to meet with organisms of one kind or another which have invaded the tissues but which have no aetiological significance. Further, it does not appear that the most elementary of all questions has been satisfactorily answered or discussed—namely, whether the organism is constantly found in cases of cancer and in no other conditions. There is no information given as to how many cases have been investigated or from how many cases the "tubular" form of the organism has been isolated; nor is there information as to whether the organism has been sought for in, for example, lymphadenoma or the granulomas—conditions which

might well serve as controls. Lastly, there is so far no real evidence that a pure culture of the organism will reproduce the condition in animals. Dr. von Brehmer claims that it does do so, but reserves this most important point for future publication.

That Dr. von Brehmer and his associates have been carrying out their work for many years is well known, and last year, from information received, it was expected that an important communication would be made at an early date. It was hoped that such proof as was wanting would become available. Careful perusal of the data must, however, point in one direction only—namely, that the highly alkaline condition of the blood described in cancer patients is a myth, and that the idea that the organism isolated, whatever it be, acts by virtue of its ability to thrive only in alkaline medium is therefore irrelevant, and, further, that there is so far no proof forthcoming that it is a factor in the aetiology of cancer. It seems highly probable that the present claims will sink into obscurity, and, like many such claims in the past, will leave no impression on cancer research. Let it suffice to add that information received from the recent medical congress at Frankfurt indicates that the many eminent scientists present there, who heard the communications and also saw the slides and photographs exhibited, were entirely unconvinced.

Cancer "cures" and the alleged discoveries of the cause of cancer have been flooding the world of late years, especially in more recent months, since the taboo of the word "cancer" has begun to disappear. It is no exaggeration to say that during the last decade more than 500 such "cures" or "discoveries of the cause of cancer" have been investigated. It is true that the majority of these are frivolous in the extreme, but a fair proportion are built upon a basis of fact, and who is to say there is nothing in them? Experience has shown, however, that any real advance in our knowledge concerning cancer is obvious and credible from the start, and that those theories and hypotheses which, when fully examined, are found not to be based on sound argument and accurate and controlled observations have invariably fallen to the ground. The time has come for the public to be educated to think of cancer as they think of other ills, and not to consider it to be a thing unclean and not to be discussed. The greatest fear is the fear of the unknown, and knowledge regarding cancer and its nature largely dispels that fear of falling victim to the disease which is so prevalent in the minds of the community. At the present time the greatest hope of safety lies in early diagnosis. Fortunately, early diagnosis can be made with little difficulty in those forms of cancer which are the most common. It only requires the co-operation of the public to bring the patient and the doctor together in the early stages to effect a permanent cure in 50 per cent. of these more common forms. Let us educate the public to become aware of the problems of cancer and of the stages already reached in investigation and treatment, rather than let them catch at any straw in the shape of alleged cures which may drift their way.

⁵ Schilling, V.: *Med. Welt*, August 25th, 1934, No. 34, p. 1186.

INFANTILE CONVULSIONS

An association of general practitioners in France, under the name of *Assises Nationales de Médecine Française*, was founded to study in the everyday life and experience of its members various problems which could only receive a fragmentary type of investigation at the hospitals and clinics. A recent meeting dealt with the subject of infantile convulsions, and the discussion has been summarized in an article by Dr. P. Hartenberg.¹ It is pointed out that there are at least four schools of thought on convulsions in infancy: one holds that all such fits are epileptic, with the same aetiology as in adult life; one denies this view and thinks convulsions have a relatively banal importance without any relation to epilepsy; one holds that the underlying cause in all cases is tetany; and a fourth doctrine admits the possibility of all three preceding views. While the congress did little to elucidate this fundamental problem of causation it reached agreement on many points. It was reported from every area that there has been a great diminution in infantile convulsions in recent years, and that the actual fit must be regarded as a symptom of some more radical malady. The list of existing causes contains such well-known disturbances as fevers, gastro-intestinal infections and parasites, dentition, meningo-encephalitis and birth trauma (including asphyxia), while a familial predisposition was also noted in many instances. Syphilis was admittedly not as common as has been previously taught, while an alcoholic heredity is rarer than heretofore. In general the assembled practitioners thought that spasmophilia was an unusual factor in convulsions. It was agreed that the immediate prognosis is better than formerly, there being fewer fatal cases; but as to the eventual prognosis, especially concerning the possible development of epilepsy in later life, there was difficulty in reaching agreement as to the necessary criteria for prophecy. The proportion of all infants with fits who develop mental deficiency, paralysis, or epilepsy was variously put between 1 and 10 per cent. Dr. Hartenberg expressed a personal view by stating that the only guiding line is the presence or absence of a cerebral lesion. Another recent review² of the causation of convulsions in childhood by Dr. M. Peterman approaches the subject from a different aspect, and the conclusions have a bearing on the special period of infancy. The author has reviewed 500 cases in children brought to him in hospital or private practice for fits in the past ten years. The percentage distribution is as follows: epilepsy (idiopathic), 33; acute infection, 22.8; cerebral birth injury or residue, 15.4; spasmophilia or tetany, 13.6; miscellaneous, 8.8; and cause unknown, 6.4. Taking the period of infancy in more detail, Dr. Peterman shows that with six to thirty-six months as the age of onset acute infection heads the list with nearly 30 per cent., and spasmophilia is next with 22.4 per cent. His cases have been very fully analysed, with investigation of the blood chemistry when necessary, so that in this series tetany looms larger than in the French report. "It is only when the convulsions recur," he writes, "and after various unrelated stimuli and when all organic lesions are excluded, that the diagnosis of idiopathic epilepsy is

made." With this strict method of diagnosis Dr. Peterman is able to select three cases in the first month of life and a further five between one and six months of age as definitely epileptic. It is obvious, therefore, that although the percentage of such cases in the whole series is small, the occurrence of epilepsy among babies with convulsions cannot be excluded, and time must elapse before a final statement is made. A conclusion drawn by Dr. Peterman may be quoted to summarize the whole matter: "It is obvious that a convulsion is only a symptom, the final explosion of a complex reaction, the trigger mechanism of which may be a number of factors. . . . I wish simply to point out that there are certain disease entities which create in a patient a susceptibility to the convulsive state." While disagreeing in detail the French and American views are united on this point.

CHEVALIER JACKSON AND ENDOSCOPY

Killian has been called the "Father of Bronchoscopy," and, as the title indicates, he originated endoscopic methods upon which all later work has been founded. There is, however, no one either in the past or in the present who has contributed so much to the advancement and development of endoscopy as Dr. Chevalier Jackson. When *Peroral Endoscopy and Laryngeal Surgery*, completed in 1914, was published in 1915, it seemed as though no further territory remained to be explored and conquered by the endoscopic method, to such perfection had its technique been brought by Dr. Jackson and his staff. That book will always remain a milestone in the history of laryngology and a treasured possession of the fortunate, but when Dr. Jackson, in collaboration with his son, presents, twenty years later, *Foreign Body in Air and Food Passages*¹ it is interesting to endeavour to trace in what direction subsequent advances lie. The book in question makes no attempt to cover the whole field of endoscopy, but it is in the localization and removal of foreign bodies that the great triumphs have been won, and it is here shown how close the collaboration between the radiographer and the endoscopist must be. The sixteenth volume of the *Annals of Roentgenology* is much more than an atlas of x-ray pictures, which is all that it claims to be. Selected from a study of 3,000 cases of foreign body in the air and food passages, in order to illustrate the different pathological effects produced, the difficulties in finding opaque foreign bodies, the methods of recognizing the presence of non-opaque foreign bodies, the necessity of lateral in addition to antero-posterior views and sometimes of views from intermediate angles, and the possible errors in localizing foreign bodies which are plainly visible, the pictures, with the comments and the lessons which they teach, are an endoscopic education in themselves. The chapter at the end on fluoroscopic endoscopy for removal of foreign bodies which are endoscopically invisible shows how close and perfect this collaboration can be, and with what ingenuity the latest model of biplane fluoroscope had been constructed. Figure 137 and those immediately following need no comment beyond the simple statement that a bar pin is shown deep in the lower lobe of the right lung. The

¹ *Presse Méd.*, June 2nd, 1934, p. 885.² *Journ. Amer. Med. Assoc.*, May 26th, 1934, p. 1729.¹ Chevalier Jackson and Chevalier L. Jackson: *Ann. of Roentgenol.*, vol. xvi. New York: Paul B. Hoeber, Inc. 1934. (Pp. 265; 236 figures. 12 dollars.)

case was published as beyond the limits of bronchoscopy in 1907, the patient being a woman then aged 18. In 1930 extensive pathological changes were seen to have developed in the intervening twenty-three and a half years. Yet the pin was removed in two and a half minutes from the patient at the age of 43—a demonstration of the progress made in the technique of bronchoscopy. That foreign bodies hidden in the extreme periphery of the lung, even in the costo-phrenic angle, can now be removed endoscopically provided that the skill, the equipment, and the collaboration are available seems to leave nothing fresh to be accomplished in the art of removing foreign bodies.¹ Future advance seems to be in the application of endoscopic methods to the treatment of morbid processes, but it remains for the few to whom opportunity is given to maintain the exacting standard which Dr. Jackson has set.

THE STUDY OF ANIMAL BEHAVIOUR

Several of the papers presented to the British Association at its meeting in Aberdeen, and of the discussions following thereupon, have emphasized the fact that the results of scientific analysis, especially in physics and physiology, must be taken simply for what they are, and not regarded as ultimate realities by a summation of which the whole, particularly the organic whole, can be reconstructed or explained. In biology, for example, it is found to be essential to study the organism as a whole and not simply its component parts or systems. This tendency of present-day science is, in fact and in effect, a harking back to common sense. On August 25th last (p. 361) we noticed an important book entitled *The Behaviour of Animals*, by Dr. E. S. Russell, in which this point of view in relation to its subject was admirably expounded and illustrated. In his presidential address to the Section of Zoology Dr. Russell made an excellently clear and reasoned statement of the same thesis. It was a noteworthy utterance to which the attention of all who are interested in the teaching or the study of biology and physiology should be directed. He contests alike the dualism of mind and matter, the mechanistic explanation of all physiological processes, and the underlying assumptions of the stimulus-response theory of animal behaviour. It is necessary to get back from Descartes to Aristotle. "Instead of being the most concrete of realities, both matter and mind are highly abstract concepts, the product of the reflective intelligence working upon the data of immediate experience. There is given in individual experience only the perceiving subject and his objective world. This dualism does not correspond with the dualism of matter and mind." The complete phenomena of life are shown only by individuals or organized unities. Moreover, "all living things pass through a cycle of activity which normally comprises development, reproduction, and senescent processes leading to death. The life-cycle is in each species a definite one, passing through a clearly defined trajectory, admitting of little deviation from normality." The behaviour of a living thing is, therefore, the activity of the organism "as an intact and unitary whole," and is directed towards an end, the completion of the normal life-cycle. This directive-

ness need not be consciously purposive, but it shows a certain measure of adaptability, and often the power of learning and profiting by experience. The "plain tale" of animal behaviour, as Professor Lloyd Morgan has recently called it, must start by direct observation of the animal in its natural surroundings, and should be continued in experimental conditions which approximate as nearly as possible to the normal; and the whole life-cycle of activity, not merely isolated parts of it, must be regarded as the primary thing. Analysis is justifiable and useful but lets slip the essential thing, the continuity and directness of actions taken as a whole. "A very great part of the behaviour of animals is response to needs (or deviations from normal) and not to direct external stimulation. . . . A good deal of what ranks nowadays as experimental biology is not biology at all, but physico-chemical research carried out on organic systems with complete disregard for the distinctive characteristics of such systems." Similarly, Dr. Russell points out, though we cannot know exactly what the quality of an animal's perception is, its response is not usually to separate physico-chemical stimuli, but to the perceptual field as a whole or to relations, patterns, or general images. This method for the study of animal behaviour is likely to be the method of the future and must have very important reactions not only upon the relation of biology to medical education, but even upon the teaching of human physiology.

MEDICAL TERMINOLOGY, INTERNATIONAL AND NATIONAL

A correspondent of the *Münchener medizinische Wochenschrift*,¹ after a passing reference to the present precarious position, in the school curriculum, of the study of Latin—already eliminated in some of the countries speaking a Latin-derived language, and in others threatened because of its alleged uselessness in comparison with the time taken up by its study—alludes wistfully to the happy position enjoyed, in the Middle Ages, by the possessor of a working knowledge of the Roman tongue. For this reason, rather than for the stock reasons which are put forward for the retention of instruction in Latin—the intellectual exercise, the enlargement of the intellectual horizon, the assistance given in mastering modern languages of Latin derivation—the writer is all for keeping Latin teaching alive. Possessing eight modern languages, he nevertheless finds it impossible to read a large proportion of modern scientific literature. Three or four centuries ago all that was of value would have been accessible to him after the learning of one foreign tongue only; but scientific literature, unfortunately, becomes nowadays less cosmopolitan and more "nationalistic." The nationalist quality of terminology in German medical literature has indeed become a source of difficulty not only to the investigator who seeks to refer to the work, often most valuable, of German authorities in similar fields, and to the medical journalist in particular, but also, as it would appear from a note in the same issue of the *Wochenschrift* by Professor Enderlen of Stuttgart, to the German medical man himself. Enderlen, reading a review of a surgical treatise, noted four "Verdeutschungen" which left him—a good German, as he says—in doubt concerning

¹ Chevalier Jackson and Chevalier Laurance Jackson: *Arch. of Otolaryngol.*, June, 1932, xv, 860.

¹ February 16th, 1934, p. 256.

the meaning of these "Germanizations" of anatomical (classical) terms. Further, as he slyly remarks, - a reference to a German-French dictionary convinced him that a French medical reader would be equally at sea. The retention of Graeco-Latin forms of nomenclature is therefore recommended, as simplifying international, and even also national, understanding. In an appended note the editor of our contemporary lends the weight of his authority to the retention of classical terminology. Nevertheless, he is against the incorporation, in German medical literature, of a jargon of new foreign terms from contemporary foreign literature: if noteworthy, he thinks, they deserve translation into good German. He would even purge his country's archives of the French or English terms, such as "*défense musculaire*" or "*missed abortion*," which have already crept in and been accorded general understanding. It is with some regret, it would seem, that he rejects as Utopian the counsel that we should revert to Latin as the universal language of medical science: thus we might at once make the world-literature accessible at its sources to the educated person, and exclude from it the uneducated laity.

RED CROSS AND ST. JOHN

A wide range of activities is reviewed in the report for 1933 of the Joint Council of the Order of the Hospital of St. John of Jerusalem and the British Red Cross Society. Through the auxiliary hospitals for officers department, assistance was given to 256 officers, of whom eighty-one were new cases; 18,402 have now been helped since 1914. As in recent years tuberculosis was responsible for a large proportion of the claims, but relief was also afforded to surgical, medical, and convalescent patients by admitting them to the hospital at Brighton. Ministry of Pensions patients are received on payment; others contribute towards their maintenance, while some who are destitute are admitted free of charge. Help has also been given to ex-officers who, while able to trace their illness to war service, cannot produce a continuous medical history which would establish their claim on the Ministry of Pensions. The cases now dealt with are usually in more advanced stages than has been usual hitherto, by reason of the prevalence of ill-health, failing employment, and insufficient food. Another department, the central bureau of hospital information, has been very active. Eleven memorandums have appeared relating to such subjects as accommodation for paying or private patients, financial arrangements for orthopaedic patients, the medical staffs of small general hospitals, particulars of consumption and cost of water supplies, and the provision of hospitals with milk. The 1933 edition of the now well-known *Hospitals Year Book* won general approval as a compendium of useful information about the various sides of hospital administration. The committee in charge of comforts, ward industries, and stores made 275 grants in response to applications from Ministry of Pensions hospitals and other institutions; about 450 men were enabled thus to receive training in handicrafts. Conveyance to entertainments was arranged for over 9,000 patients; since 1920 well over a quarter of a million have had transport without a single accident. The Emergency Help Committee has assisted 12,725 cases. Refunds of loans amounted to £4,440; the total repayments since

the inception of this scheme total £137,895—a sum sufficient to maintain this work on its present basis for more than two years. The home service ambulance committee reports that 120,343 patients were carried in the twelve months, some being invalids requiring treatment and others accident cases. There are now in the country 153 ambulances equipped by the committee, and 169 other ambulances affiliated to the service. Last year gifts were made of 157,000 books, 82,000 magazines, and 250,000 newspapers. Yet the demand by institution libraries grows greater still, and further gifts of this kind will be welcome.

THE GUTTADIAPHOT

Tests involving the examination of the blood in tuberculous patients are increasing in number, if not always in usefulness. The somewhat barbaric-sounding term of "*guttadiaphot*," signifying "the picture of a drop in transmitted light," cloaks a method of capillary analysis first introduced in Germany by Meyer, Bierast, and Schilling, and consists in placing drops of the patient's blood on specially prepared strips of blotting paper (divided into red, green, and blue squares), and examining the stains so obtained some hours later by direct and transmitted light. Certain features of colouring, outline, and consistency are found to be associated with abnormalities of the blood in systemic diseases. Piechaud, Dutrénil, and Guibert¹ give a very extensive account of the history, theoretical basis, technique, and applications of this method, with special reference to tuberculosis. If certain precautions in the carrying out of the test are taken, the interpretation of the pictures obtained offers no difficulty with a little practice. The test is considered particularly useful in anaemic conditions, and is stated to be more sensitive than the Wassermann reaction, especially in treated cases. In pulmonary tuberculosis the results do not appear to be clear-cut or very helpful, but the authors found a direct relation between the results of the test and the temperature curve, and an even more striking one with the sedimentation rate. The positive results obtained are not entirely accounted for by the anaemia often found in consumptives. The test is recommended as a simple and ready means of detecting that "something is wrong" for the practitioner "in the country" to whom more complicated methods of examination are not easily available. A bibliography consisting of some fifty-five references is added.

At a medical meeting at Frankfurt a/M, held from September 2nd to 9th, under the presidency of Professor W. Kolle, the Paul Ehrlich gold medal was awarded to Dr. Walter Kikuth. At the age of 38 Dr. Kikuth has succeeded in performing an enormous amount of useful work culminating in chemotherapeutic discoveries of great importance. Atebrin and its specific action upon the malaria parasites, especially the subtertian form, was worked out by him by comparative studies on the malaria-like parasites of the canary and the Java sparrow. Dr. Kikuth is now the head of the chemotherapeutic department of the I. G. Farbenindustrie at Elberfeld in succession to the late Dr. Roehl. He is also attached in an honorary position to the Medical Academy at Düsseldorf. Dr. Kikuth was born in Russian territory at Riga and, after commencing his studies at Dorpat, he was able to complete them in Germany after the Russian revolution.

¹ *Journ. de Méd. de Bordeaux*, June 30th, 1934, p. 485.

THE BRITISH ASSOCIATION

ANNUAL MEETING IN ABERDEEN

The 103rd annual meeting of the British Association for the Advancement of Science was held in Aberdeen from September 5th to 12th under the presidency of Sir James Jeans, who had been elected to the post left vacant by the death of Sir William Hardy. The Association had previously met in Aberdeen in 1859, when the late Prince Consort presided, and in 1885 under the presidency of Sir Lyon Playfair. A message from the King expressed his confidence that the investigation of the manifold problems confronting present-day scientists would continue to be productive of results which would benefit mankind. Professor W. W. Watts was elected to preside over the Norwich meeting next year.

PRESIDENTIAL ADDRESS

Sir James Jeans commented on the amazing changes in outlook which had occurred in the full half-century that had elapsed since the presidential chair had last been occupied by a theoretical physicist in the person of the late Lord Rayleigh, and compared the department of theoretical physics to a building brought down in ruins by a series of earthquakes. New facts of observation had wrecked previous conceptions, which were founded not upon the solid rock of ascertained fact but upon the shifting sands of conjecture and speculation. The fundamental mistake of the old-time physicist was that he had failed to distinguish between the half-truths of parables and the exact truth. Physical science obtained its knowledge of the external world by a series of exact measurements, or, more precisely, by comparisons of measurements. Knowledge of the external world must thus always consist of numbers and the synthesis of this knowledge be mathematical in form. The modern physicist accepted this implication, and distinguished between observable facts and pictorial parables. Space and time could no longer be classified as realities of Nature, and the generalized theory of relativity showed that the same was true of their product—the space-time continuum. This had destroyed the Newtonian conception of a rigid universe and the derived doctrine of mechanistic determinism. Modern theoretical physics set before itself the modest task of reducing to law and order the impressions which the universe made on the human senses. It was concerned with appearances rather than with reality, and the task of the physicist resembled that of the map-maker rather than that of the geologist or mining engineer. Theoretical physics had produced two maps—the particle-picture and the wave-picture. The first was a materialistic picture, catering for those who liked to see their universe mapped out as matter existing in space and time. The wave-picture had a determinist character, catering for those who asked the question: "What is going to happen next?"

After elaborating this point, Sir James Jeans came to what he termed the central and most surprising fact of the whole situation, which he thought would lead to most surprising changes in the views held of the universe as well as of the human race. The modern conception that a system of waves best depicted in a graphic form the knowledge gained of the constituents of the universe had revealed the central fact that this wave-parable had shown these waves to be Nature itself. The Nature studied was not objective, consisting of something perceived, but was rather the perceptions themselves. There was no clear-cut distinction between subject and object: they formed an indivisible whole which now became Nature. In the old physics the perceiving mind was a spectator merely; in the new physics it was an actor: the perceiver and perceived were interacting parts of a single system. The old physics seemed to indicate that freedom was an illusion; the new physics implied that this might not be so, and that it was possible to mould events to human desires and to live lives of emotion, intellect, and endeavour. Both materialism and matter needed to be re-defined in the light of the new knowledge.

The full-blooded matter and the forbidding materialism of the Victorian scientist had given place to a movement in the direction of philosophic idealism. Mind and matter, if not proved to be of similar nature, had at least been found to be ingredients of one single system. There was no longer room for the kind of dualism which had haunted philosophy since the days of Descartes. Photons were no longer to be regarded as single individuals, each going its own way, but as members of a single organization or whole—a beam of light. Biologists were beginning to state, though not very unanimously, that the same might be true of the cells of the body. It was conceivable also that the same might be true of the perceiving minds, and so human individuals might form ingredients of a continuous stream of life, even though regarding themselves as obviously distinct persons when viewed in space and time.

Defending scientific progress against the charge of causing unemployment in industry and wars, Sir James Jeans said that it was obvious that a country which fell behind in such advance would soon also fall behind in its industries, its economic position, its naval and military defences, and its culture. Labour-saving devices and what was termed pure science might ultimately lead to new trades and new popular demands, providing employment for vast armies of labour. A balance must be maintained, however; for a steady flow of labour-saving devices, with no accompanying flow of new industries to absorb the labour thus displaced, could only lead to unemployment and chaos in the field of labour. At present the want of balance tended towards unemployment, and the great need of the moment was for industry-making devices. Employment for millions of men had been provided by Faraday's electro-magnetic induction, Maxwell's Hertzian waves, and the Otto cycle, while the economic value of one scientist alone, Edison, had been estimated at three thousand million pounds. Unhappily, no amount of planning could arrange a perfect balance, but the throttling down of science would only crystallize the community in its present state with nothing to do but to watch its population increase, and shiver as it waited for the famine, pestilence, or war which must inevitably come to restore the balance between food and mouths, and land and population. Was it not, therefore, better to press on efforts to secure more wealth, leisure, and dignity of life for our own and for future generations, even though risking glorious failure, than to accept inglorious failure by perpetuating the present conditions in which these advantages were the exception rather than the rule?

HARDY MEMORIAL LECTURE

Sir Frank Smith, Secretary of the Department of Scientific and Industrial Research, paid a warm tribute to the work performed on behalf of the Department by Sir William Hardy in the last seventeen years of his life with special respect to the research into the transport and storage of foodstuffs. He described the way in which the Department's Torry Research Station at Aberdeen, founded by Sir William, was likely to help the fishing industry to regain its prosperity. The recent report of the Sea Fish Commission had stressed the highly perishable nature of the herring. Those caught more than twenty-four hours before landing were known in the trade as "overdays," and were inferior in quality—a fact which led to the important industry of kippering, and partly explained why the kipper was the most popular form of herring with the public. The fish was smoked nowadays, as heretofore, over smouldering fires of sawdust, a process which was at the mercy of the weather, and depended largely on the craftsmanship of the smoker, the antiseptic substances in the smoke, the range of temperature, and the dampness of the drying atmosphere. Each of these variables had been separately investigated at the Torry Research Station, and a new type of smoking kiln had been designed to control them. With its aid any desired type of cure could be produced with certainty. Home waters were unable to cope with the demands of the market for good white fish, such as cod, halibut, and plaice, though there were now about 1,600 trawlers fishing from British ports and landing each year nearly 1,700,000

tons of fish. Far too large a proportion of the fish landed was stale. Mere chilling in crushed ice was ineffective, but the Research Station had found a possible way out in the form of freezing the fish in cold brine at a temperature of -20°C . The growth of bacteria was thus completely arrested, and if the fish was stored at this temperature it would keep perfectly fresh for three months.

Sir Frank Smith discussed the immense progress made in the science of refrigerating foods during the last fifty years. Thanks largely to the work of Sir William Hardy, it was now recognized that the biologist should formulate the conditions required for the satisfactory storage of various forms of foodstuffs, and that the engineer should then provide these conditions. In the case of meat, for example, deterioration was due to enzymes or organisms naturally present in the meat itself, and secondly to the growth of moulds and external bacteria. The first could be entirely prevented by cold, but the second depended on the initial contamination to which the meat had been exposed, unsaleability resulting when the bacterial population reached a density of over 30 million organisms in each square centimetre. The importance of cleanliness was therefore manifest, for freezing produced changes which were likely to damage the meat. This risk was negligible in the case of mutton, lamb, and pork, but rendered freezing as distinct from chilling unsatisfactory for beef. The work at the Department's Low Temperature Research Station had shown that at temperatures near freezing point a concentration of 10 to 20 per cent. of carbon dioxide so delayed the growth of micro-organisms as to double the life of the beef. Hardy and his colleagues had found that different kinds of fruit exhibited idiosyncrasies as regards preservation. It was largely the intolerance for cold shown by the British apple which accounted for the fact that for about nine months of the year the table apples in this country came from over-seas, although some of these were gathered at the same time as the home-grown apples. Sir William Hardy had solved this problem by storing the fruit in a definite percentage of carbon dioxide, while the temperature of the store was kept well above freezing point. This discovery had opened a new era in the storage of English apples, and there were to-day thirty-two such gas stores in this country with a total capacity of 7,000 tons. The rate at which these were being erected was rapidly increasing. The brilliant work which Hardy had inaugurated and directed had been of enormous advantage already, and it was still extending.

COLOUR VISION

Professor H. E. Roaf, president of the Section of Physiology, in an address on normal and abnormal colour vision, discussed the validity of the trichromatic hypothesis, the nature of the departures from colour vision in those with colour-blindness, and the nature of the colour-perceiving mechanism. He said that if it was to be taken as true that three types of sensory mechanism were sufficient to account for colour vision one of the four colours red, yellow, green, and blue must be due to stimulation of at least two of the other ones. For several reasons yellow had been chosen as the heterogeneous one. Experimental evidence was forthcoming that a red stimulus to one eye and a green to the other gave a sensation of yellow, this result being obtained even with lights from the spectrum. Since the unitary sensations yellow, white, and black could be built up from stimuli associated with other sensations, it was possible to reduce the number of data for colour perception to three, and there was no real objection to the trichromatic explanation of colour vision proposed by Thomas Young. Abnormal colour vision might be congenital or acquired; the usual form was congenital, and did not alter through life. The defect seemed to consist in a decrease in the ability to distinguish red from green, and the patients (hypochromats) distinguished fewer colours than the normal (euchromats). They were often described as having blue-yellow vision, or of distinguishing in the spectrum blue from not blue, whereas the normal person subdivided the not blue into red and green. Since yellow occupied the region between red and green,

the defect was most noticeable in the yellow region of the spectrum, especially in the milder degrees of the defect. The hypochromat seemed to have only two types of colour receptor organs, whereas the normal person had three. The threshold for light was not necessarily altered, and it was possible for hypochromats to see clearly through a filter which only permitted the passage of the red end of the spectrum. In fact, a hypochromat who could not see red geraniums among green leaves could distinguish the flowers as light objects against a dark background when looking through a red glass filter.

Professor Roaf thought that the trichromatic hypothesis implied, as stated by Young, the presence of three types of receptors linked with three groups of nerve fibres in the optic nerves. It did not seem likely that there were three photo-active substances which were acted on by the long, medium, and short wave-lengths of the visible spectrum; only one photo-active substance, rhodopsin or visual purple, had as yet been found. Professor Roaf added that his own work had led him to believe that the types of receptors which were stimulated by visible radiation were as follows: (1) one which was stimulated by all parts of the visible spectrum, and gave rise to a sensation of violet when stimulated strongly by itself; (2) one concerned with the not-blue aspect of vision of the hypochromat; and (3) one which functioned in normal vision, distinguishing red from not red. In some persons the activity of one of these types was reduced or absent, giving rise to varying degrees of defective colour vision.

NUTRITION AND DISEASE

In the Section of Physiology Professor L. S. P. Davidson read a paper on nutrition in relation to anaemia, and a joint symposium was also held with the Section of Agriculture on nutrition in relation to disease generally. Professor Davidson pointed out that in the last ten years there had been an unparalleled advance in knowledge regarding the relation of diet to blood formation. This had been the means of eliminating certain forms of anaemia completely, of bringing under therapeutic control others which were incurable, and of directing attention to others which had previously escaped notice. Before 1926 every patient with pernicious anaemia had died. To-day it was known that the essential cause lay in a failure of gastric secretion which prevented the patient obtaining from his food a principle which was essential for normal blood formation. Successful liver therapy had ensued. Of greater economic importance, owing to its great frequency, was the group of nutritional anaemias due to iron deficiency. Approximately 50 per cent. of infants and adult women of the poorest classes were anaemic. The principal factors were: (1) pregnancy, and loss of blood at the menstrual periods, leading to increased demands for iron; and (2) an iron-poor diet which failed to maintain adequate reserves to meet such eventualities. Dietetic therapy and the administration of iron salts rapidly and cheaply brought about a remarkable improvement in health, with a corresponding gain in economic efficiency and resistance to disease.

In the symposium Dr. J. B. Orr said that recent investigations had indicated that nutrition as determined by diet was now probably the most important factor affecting the health of the community. He suggested that the present generally accepted standards of health were too low. If the necessary measures could be taken to ensure that every member of the community had a diet which was fully adequate for health, the next generation would be endowed with a better physique, and be freed from much of the disease and indefinite ill-health which afflicted the present generation.

Professor J. J. R. Macleod said that the discovery of deficiency diseases had made great strides, but the most important problem awaiting elucidation was to determine to what extent more general diseases in man might be similarly related to nutrition. There was evidence that diabetes, anaemia, and goitre were nutritional diseases, and probably other maladies were attributable to faulty dietetic habits.

Dr. May Mellanby remarked that, as regards dental caries, which was almost universal in civilized countries,

at least an
in the 1970s
of in-patients in
out-patients 5,367,369.
and more than
at hospitals

schools. As yet there seems to be no definite movement one way or the other to show the effect of the recent consideration that has been given to the true function of the out-patient department. Reference is made to the movement for more pay-bed accommodation, and a short list is included of about a score of contributory schemes for paying or private wards, of which that of the British Provident Association is the most important, aiming to provide, by means of insurance, cover sufficient to meet hospital charges, with proper remuneration for the doctor. Other useful information concerns the manner in which about one hundred small general hospitals—no doubt representative—appoint their medical staffs. So far as their general wards are concerned, seventy-three of these have a restricted honorary medical staff, in which appointments are limited in number and candidates have to submit themselves for election; in eighteen others any practitioner in the area is eligible for membership of the staff; in five the senior posts are filled by visiting specialists (not local practitioners), but any practitioner in the area is eligible for membership of the staff, and in seven there is partial restriction—that is to say, residence within a defined area, but no restriction in number of staff appointed. Information as to their private wards is afforded by fifty-two of these hospitals. In twenty-four,

although there may be restrictions in the general wards, any practitioner in the area served is at liberty to treat his own patients in the private wards, and in the other twenty-eight the same conditions apply in the private as in the general wards.

GENERAL INFORMATION

A word should be said about the encyclopaedic character of this publication. If it is desired to know how many hospitals possess their own laundries, what the experience is with regard to the efficiency of synchronized clocks, how much hospitals pay for their milk, what methods are favoured for the disinfection of wards, how food is commonly conveyed from kitchens, the number of times the lighting of operating theatres failed at certain hospitals, the steps taken to prevent cripples from slipping on hospital floors, the conditions governing the use of the premises of hospital supplies of radium, the bill for replacements of broken crockery, the weekly wage of hospital porters, the incidence of tuberculosis among nurses, the dates of foundation of the various hospitals, or particulars of the fourteen British hospitals on the Continent—these and a thousand other details are readily obtainable.

India

Pasteur Institutes

In the absence of any compendium of reports on the Pasteur Institutes of India it is excusable, though regrettable, that recognition of the excellent work therein accomplished year by year is not more widespread. The annual reports of some reach England from time to time, but mention of the activities of others is only to be found in the reports of Government medical officers, which are often very belated. The report has recently been received for 1932-3 of the Institute at Kasauli, which, with its various subsidiary centres, dealt with 15,118 patients in the twelve months, an increase of nearly 3,000 on the previous year. The period under review is regarded as being especially important, since it was the first in which the results accruing from researches covering several years could be given a practical therapeutical trial. It had been shown that large doses of antirabic vaccine were superior to small ones in preventing rabies, and that, as found elsewhere, the Paris strain of rabies-fixed virus had better antigenic value than the Indian strain. Consequently during 1932 the Paris virus alone was used in manufacturing vaccine, and a scale of dosage was devised which ensured a much higher average dose of vaccine for each patient than had previously been in use. The result was that the total number of deaths from hydrophobia was over 27 per cent. less than in any previous year since comparative statistics were available, and this in spite of the fact that the number of patients coming for treatment was much greater, indicating a distinct advance in the method of treatment. There were no cases of post-treatment paralysis. The annual report for 1932 of the director of the Pasteur Institute of Southern India at Coonoor is published with the twenty-sixth annual report of the Central Committee of the Association. Here also there has been a profitable decentralization of treatment throughout the Madras Presidency, the States of Mysore, Travancore, Cochin, and Pudukottah, and the Nizam's dominions. The daily attendance at the Central Institute has fallen, therefore, the figure for the year being 566. Three of these patients died from hydrophobia after a complete course of treatment and one during it, the mortality rate being 0.7 per cent. The Paris-fixed virus was in use throughout the year. Antirabic virus

was issued for 10,350 patients in the various centres; there were thirty-four deaths, and a mortality rate of 0.38 per cent., the lowest mortality rate on record at this institute, the decline being tentatively attributed to the use of the Paris virus, with the proviso that definite conclusions cannot certainly be drawn yet. During the twenty-eight years of existence of the Coonoor Institute 34,827 patients have been treated there, with a total mortality rate of 1.11 per cent. The success of the antirabic treatment is indicated by the steady increase in the demand for supplies. The Coonoor Institute serves 107 centres in charge of medical officers specially trained in this therapy, and courses of instruction, lasting seven consecutive days, are held from time to time. Particular stress is laid in these courses upon the practical side of the work, with the result that the difficulties in looking after so many out-centres, and especially in securing accurate statistics, have been greatly minimized. Reference to the work of the Pasteur Institute at Patna and the antirabic centre at Cuttack appears in the annual return for 1932 of the civil hospitals and dispensaries in Bihar and Orissa, which has been prepared by Colonel L. Cook, I.M.S., inspector-general of these hospitals. An arrangement has been effected with the Patna city municipality to provide suitable accommodation near the Institute for patients and their relatives coming for antirabic treatment. The vaccine can also be supplied by civil surgeons on requisition for patients not attending the Institute. During the year under review 4,112 patients attended at the Patna Institute, as compared with 3,626 in the previous year. The corresponding figures for the Cuttack centre were 366 and 287.

Medical Training of Women in the Punjab

In the annual report for 1932 on the working of hospitals and dispensaries in the Punjab, Colonel D. P. Goll, Inspector-General of Civil Hospitals, states that the number of girls seeking admission to medical colleges and schools is rapidly increasing. The accommodation in the existing institutions is very limited, and many candidates have to be rejected. It has for some time been proposed to establish a separate medical school for women at Lahore, but so far no steps have been taken. The Punjab Medical School for Women, with which is incorporated the Women's Christian Medical College for Women at Ludhiana, was hitherto the only institution on which

the Province depended for its supply of women doctors required for the charge of hospitals and dispensaries for women. To meet the growing demand among women for medical education of the degree standard, the system of co-education was introduced by the King Edward Medical College in Lahore in 1929, and extended to the Amritsar medical school in 1932. Up to ten places are reserved annually for women students in the former, and at the latter school the number has now been raised from ten to fifteen. The co-education system is reported to be working well. A large number of Punjab students are being trained in the Lady Hardinge Medical College at Delhi. In the year under review a noteworthy feature was the provincializing of the Lady Aitchison Hospital at Lahore. In Attock the Anant Ram Zenana Hospital was opened at Tallagang; the women's section of the Campbellpur civil hospital was placed in charge of a woman sub-assistant surgeon, and a travelling woman assistant surgeon was appointed for the district. In the Province there are now forty-four separate hospitals for women, and twenty-one sections for women in other hospitals, with women doctors attached to them. It is regretted, however, that the scheme for the provision of a women's hospital under a woman assistant surgeon at every district headquarters, and of a section for women at most of the tahsil headquarters hospitals, under a woman sub-assistant surgeon, is unlikely to be realized for a very long time, owing to the financial situation. Special efforts are being made to increase the number of Indian hospital nurses and of trained midwives, particularly in rural areas. In 1932, moreover, an Act was passed to provide for the registration and training of nurses, health visitors, midwives, and dais, and incorporating a Nurses Registration Council. The Punjab Central Midwives Board continued to supervise the training and examination of midwives, whose number is steadily growing.

Bombay Plague Epidemics

In 1932 there was a sharp increase in the plague mortality rate in the Presidency of Bombay, and this circumstance has caused Major A. Y. Dabholkar, I.M.S., Officiating Director of Public Health, to discuss recent epidemics of this disease in the course of his report on that year, which was otherwise a very healthy one, apart from a rise in small-pox. Since 1917, the year in which the highest mortality (162,874) was registered, plague has been decreasing in the Presidency, progressively on the whole, but showing well-marked exacerbations in certain years. In 1923 the deaths were 33,741, but in 1930 they had fallen to 5,026, and in 1931 to 3,506, so that the rise in 1932 to 14,446 was hardly expected, although it was generally thought that there might be some increase. The worst affected district was Belgaum, with a death rate of 4.38 per 1,000 of population, and followed by Satara, with a corresponding rate of 3.09. Sind escaped entirely, and Gujarat, with the exception of Surat and Kaira, was almost free. In the southern registration district, where the heaviest mortality occurred, the epidemic curve began to rise in August, 1931; steadily increased until January, 1932, with an uninterrupted fall in the ensuing four months; rose from June onwards; and reached a peak in December. The curve followed the usual course, the off season for plague in this district generally covering April, May, and June. Rat destruction campaigns were actively conducted. A significant indication of their value came from Bulsar in the northern registration district, where rat destruction was continued into 1933. At the time of reporting in that year there had been no outbreak of plague in that town, hitherto much affected, or in any of the neighbouring villages, although the time for its expected recrudescence was then

coming to an end. To combat the epidemic eleven medical officers were appointed on plague inoculation duty in the Presidency. The total number of persons inoculated in 1932 was 417,657, as compared with 112,025 in the previous year. Medical officers in charge of hospitals and dispensaries as well as private practitioners co-operated actively in the campaign. A statistical table of the number of deaths from plague since 1911 is given in the report. In the first year the figure exceeded 100,000, and it is apparent that this disease is gradually being brought under control, despite the occurrence of occasional epidemics, the mortality in which is definitely diminishing. Figures are also given showing the immunity conferred by inoculation, the popularity of which is increasing with the spread of knowledge. The destruction of rats is being energetically pursued. Of sixteen examined in Bulsar eight were found to be infected, whereas in Bombay City only 691 were infected out of 272,230 examined.

England and Wales

Queen's Institute of District Nursing

A statistical report has been compiled of the midwifery cases undertaken by Queen's nurses and village nurse-midwives working in connexion with the Queen's Institute of District Nursing during 1933. The former numbered 1,000, an increase of fifty-one, and the latter 2,855, an increase of forty-one. A total of 64,144 cases were attended; this represents a decrease on last year's total, but it is partly accounted for by the fact that particulars of cases in Cumberland are not yet available; these were about 900 last year. Medical aid for the mother was sent for in 31.5 per cent. of the cases and in 5.4 for the infant. There were 4,553 forceps cases, a percentage of 7.1. The number of maternal deaths was 145, of which thirty-eight, or 26.2 per cent., were primiparae, and thirty-eight had had five or more previous pregnancies. This mortality rate is 2.26 per 1,000, as compared with 2.1 in 1932 and 1.7 in 1931. The rate is 2.3 per 1,000 in urban districts and 2.2 in rural districts. These figures represent 58,946 cases in England, with a maternal mortality of 2.3 per 1,000, and 5,198 cases in Wales, with a maternal mortality of 1.9. The following table shows the causes of these deaths for the years 1933 and 1932.

	No. of Cases	1933	1932
		Per cent.	Per cent.
Sepsis	49	33.8	28.5
Accidents of labour...	37	25.5	29.2
Eclampsia	4	2.8	11.2
Embolism	20	13.8	6.3
Complications	35	24.1	24.3

Sepsis occurred in eighteen primiparae and in nine multiparae of five or more pregnancies, while accidents of labour numbered six in the former and fifteen in the latter. The percentage of primiparae in the series as a whole was 23.3. It is reported that ante-natal supervision continues to improve, although in many cases too few visits have been made during the last two months of pregnancy. Of the forty-nine deaths due to sepsis, seven occurred in forceps deliveries, in ten there was ruptured perineum, in six abortion had almost certainly been attempted, and four cases were infected by midwives. The thirty-seven accidents of labour comprised twenty-six of haemorrhage (including five cases of placenta

prævia, and seven of placental difficulty with manual removal in two instances), two cases of ruptured uterus, and nine of shock and cardiac failure. Cases of eclampsia declined from sixteen in 1932 to four in 1933, but there was a rise as regards embolism from nine to twenty. Of the embolism cases six had been delivered by forceps, five had histories of circulatory or cardiac troubles, and one patient was an alcoholic primipara. From several sources reports have been received of deaths caused by lowered vitality and lack of resistance to complications. The patients were not able to obtain sufficient nourishment during pregnancy, and some were living in overcrowded or otherwise unsatisfactory homes. In thirty-eight instances poverty-stricken homes were specifically mentioned. In one area it was stated to be difficult to obtain additional nourishment for expectant mothers on any but medical grounds, and it is submitted in the report that this should be available whenever the family income is insufficient to meet the added requirement of the mother during pregnancy. The number of maternity nursing cases (doctor engaged, midwife acting as maternity nurse) was 28,015, a decrease of 1,557 on the figure for 1932. There were 133 maternal deaths (4.7 per 1,000).

Health Work in Warwickshire

In a comparison of the more important statistical results for the year 1933 with those for the previous thirty years, Dr. Hamilton Wood, county medical officer of health for Warwickshire, points out that the birth rate for the year under review (13.71) is the lowest ever recorded in the county. He adds that if this fall continues, as it has done progressively since the high post-war rate of 1920, the time will soon be reached when the death rate, with its tendency to rise, will surpass it. The birth rate for England and Wales in 1933 was 14.4. There are nine ante-natal clinics at work in the county, but it is calculated that this service reaches only one out of every five expectant mothers who engage midwives for their confinement. Clinic provision would have to be doubled, therefore, to allow a substantial number of midwives' cases to have the advantage of medical ante-natal supervision. Since, however, there would still remain many expectant mothers in rural areas who would be unable to take advantage of this provision, Dr. Hamilton Wood considers that the question of introducing a domiciliary medical ante-natal scheme (as recommended in Memo. 156 of the Ministry of Health, 1930) might well be brought up. He remarks that a scheme of this kind is already operating in a number of county areas, and would appear to be the only practicable means of reaching the majority of expectant mothers engaging midwives for their confinements. Any such general practitioner service should not be in substitution for but in addition to the clinic facilities already provided in the more populous parts of the county. The county council has now in operation a scheme for compensating midwives in necessitous cases where the person engaging a midwife is unable to pay her fee, or where a midwife loses the whole or part of her fee in consequence of the patient's removal to hospital. It also provides compensation in cases where a midwife suffers financial loss as a result of suspension from practice owing to her being a possible source of infection. As regards rural water supplies, Dr. Hamilton Wood urges the importance of rural district councils discarding the parochial outlook and utilizing the resources of the district as a whole to fulfil a duty which in some cases has been sadly neglected for very many years. He adds that the financial side of the question should not be allowed to weigh too heavily against the advantages of a pure water supply, nor should the fact that a parish has a low rate of produce prejudice the rural district council in the fulfilment of its obligations.

The death rate from infectious diseases in 1933 was the lowest ever recorded, and no person died from typhoid fever. The pulmonary tuberculosis death rate rose slightly to 0.52, but the hope is expressed that this figure will fall in the next few years with improved housing conditions and better employment.

Ireland

Anthrax in a Slaughtered Cow

The medical superintendent officer of health, Dr. C. S. Thomson, in a report to the Public Health Committee, Belfast, illustrated the value of having only one abattoir in a city, and that one entirely under the municipality, with a fully qualified veterinary surgeon and staff in charge, supervised by the superintendent M.O.H. An animal was killed at Hillsborough, County Down, some twelve miles from Belfast, and was brought into the city to be sold to butchers for ordinary meat. The Belfast County Borough Council by-laws require that any meat brought into the city for that purpose must first be examined at the abattoir by the city veterinarian. On examination of this carcass the spleen was found to be somewhat enlarged. A smear was made, and the city veterinarian found that anthrax was present, although the carcass did not have the usual pathological signs of this condition. The carcass was burned, the meat inspectors were disinfected at the municipal disinfecting station, and all other necessary precautions were taken. Meanwhile, the city medical officer was informed that a man had been admitted from Hillsborough to the Royal Victoria Hospital with a malignant pustule, and investigation revealed that the patient was the man who had slaughtered the animal. The patient received prompt treatment and recovered. It is unnecessary to dwell upon the value of a system such as Dr. Thomson suggests.

Health of County Galway

In his annual report Dr. B. O'Beirne, county medical officer of health, states that 185 cases of diphtheria were notified in 1933, a decrease of six on last year's figures, the number of deaths being thirty-three, as against forty in the previous year. Fifty-nine cases are debited to the Galway urban area, although only eleven actually occurred there. The remaining cases were returned from the Galway Central Hospital, where the disease was endemic during the year, twenty-one being reported as "carriers." Efforts have been made to locate the source of the infection in this institution, and it now appears to be under control. The number of cases from the Galway rural district is high. This may be attributed to an outbreak in the Moycullen area, which became epidemic. As a result of investigation five "carriers" were discovered and isolated, and the outbreak was consequently checked. Tuam rural district has also a large number of cases, many of which occurred in the Abbey dispensary district; there are frequent occurrences of the disease in the Tuam districts. There have been no cases of typhus since 1930. Seventeen cases of enteric (or typhoid) fever were notified during the year—a reduction of four on last year's figures—with four deaths. There was no epidemic, the disease was sporadic, and in nearly all cases the source was attributed to the water supply. Ninety cases of scarlet fever were notified for 1933, as against 178 for 1932, and five deaths. Included in the sixteen cases debited to Galway urban area are two which were transferred from the general wards of the Central Hospital. Another case was that of a patient

from County Mayo, transferred from Bray, County Wicklow, where the disease was apparently contracted. Twelve cases of puerperal fever were reported in 1933, and twelve deaths. The six cases assigned to Galway urban area occurred in the maternity wards attached to the Central Hospital. Three cases of encephalitis lethargica were reported for the year under review, two being from the Galway urban area, and eighteen cases of erysipelas, four of which were transferred from the general wards of the Central Hospital. There is a disinfecting station, the property of the Board of Health, attached to the fever hospital, and a cleansing and disinfecting station, the property of the Galway Urban Council, at the docks. The latter is open to the general public, where baths, etc., are to be had for a small fee. There is a port sanitary authority and a port medical officer. In the case of the graver infectious diseases the ambulance takes the clothes to the fever hospital. A sack disinfectant was purchased by the Board of Health with a view to having disinfection and disinfection carried out on a large scale in outlying districts where there are epidemics of infectious diseases. The scheme, started in 1931, for active immunization against diphtheria is being continued in this county. In 1931 a total of 2,102 children received the full course of three injections, 1,206 in 1932, 1,607 in 1933, giving a gross total of 4,915. The reports from the various areas in which the scheme has been carried out have been most favourable.

County M.O.H. for Kilkenny

Commissioner P. J. Meghan, who is administering the business of the Kilkenny County Council, stated at a recent meeting that he had received a communication from the Local Government Department in reference to the appointment of a county medical officer of health. He said it was apparent, in view of the water supply and sewerage schemes in the different towns and villages in the county, and the housing surveys the Minister had requested, that a county medical officer was required. The question of school medical services was also of great importance. He proposed, therefore, to advertise for a temporary medical officer of health, at a remuneration of ten guineas a week with travelling expenses, to undertake the duties until such times as the Appointments Commissioners filled the permanent position. He had already made an order at the Board of Health regarding the new county school medical officer, so that 50 per cent. of the remuneration would be recouped from the grant for school medical services. With regard to the terms of the appointment, the Irish Medical Secretary wrote to the Commissioner pointing out that the temporary remuneration was altogether inadequate; he expressed the opinion that no candidate with adequate experience of public health administration would apply for the post at the remuneration offered, and, in the circumstances, it would be better if the Commissioner did not proceed with the temporary appointment. The temporary remuneration offered was £546 per annum with travelling expenses, as compared with £800 and travelling expenses for the permanent post. The Commissioner has now decided not to proceed with the temporary appointment.

"Gas in Housing and Slum Clearance," an illustrated pamphlet produced by the British Commercial Gas Association, serves as a reminder that town planning and slum clearance must be allied with the provision of an efficient and economical fuel if they are to succeed in bringing a better standard of comfort into the life of the working-class family. The pamphlet (No. 244 of "A Thousand and One Uses for Gas") can be obtained free from the office of the association, 28, Grosvenor Gardens, S.W.1.

CORRESPONDENCE

Pregnancy Diagnosis Station

SIR,—From a letter sent out as from the Pregnancy Diagnosis Station here to those medical practitioners whom it has served in the past it would appear that the station is closing down in Edinburgh and is reopening in London.

Actually this is not so. It is the case that, to my great regret, Dr. Wiesner, to whom is due all the credit for the inception and successful development of the station, is leaving this Institute and is moving to London, where he intends to continue his diagnostic and advisory work. But during the past five years the station has come to represent much more than the personal activities of one man; it has become a necessity to many practitioners, and though the man goes the service must continue. The laboratory here will not close down. At least it must continue to serve Edinburgh and the East of Scotland, and to do this it must serve a much wider area, for its efficiency must be largely determined by its size, and this must depend upon the number of clients. In efficient running, prompt reliable service, and low charges, several thousands of tests must be made annually. Its income must be sufficient to provide skilled medical supervision, an efficient technical staff, smooth routine, and, above all, sufficient data, for only then can the records possess any considerable scientific value. I have to hope, therefore, that this laboratory will be used by practitioners from all parts of Great Britain.

If the facts were better understood there would of course be room for more diagnostic laboratories than at present exist. It is irritating to recognize that even yet so very many practitioners either do not know that such a service exists in most of the larger cities, or, knowing, take no advantage of its existence. It should not be necessary to keep repeating that the tests now used yield an accuracy of not less than 97 per cent.; that pregnancy can be recognized as early as ten to fourteen days after conception; that the report on any given specimen can be dispatched after twenty-four hours, forty-eight hours, or five days, according to the particular test made; and that all that is required as test material is 50 c.cm. of morning urine.

The interest of this work is not commercial; it is to be found in the unusual and the exceptional; for in these cases is the seed of knowledge which, being disclosed, will contribute largely to the endocrine therapy of the immediate future.—I am, etc.,

Institute of Animal Genetics,
Edinburgh, Sept. 5th.

F. A. E. CREW.

Alkali Reserve in Asthma

SIR,—In his article in the *Journal* of August 18th (p. 299) Dr. Moll inclines to the opinion that in asthma there is a tendency to alkalosis. In support he repeats the well-known arguments about the rarity of asthma in certain diseased states known to be accompanied by acidosis. These are indirect and not convincing. More direct are McDowall's experiments on animals, in which bronchospasm was produced by alkalis, and Tiefensee's similar experiments. Tiefensee also claims, in support of an alkalosis, clinical proof based on biochemical findings. So far as I know these have not been confirmed.

Since the publication of his paper I have tried to find evidence of alkalosis mainly by the van Slyke method of determining the CO_2 combining power of blood plasma.

If this method, as carried out for me on seventy-two patients by Miss Jean Small, B.Sc., at Stobhill Hospital, is to be relied on, then the indication is quite frankly for an acidotic tendency. *There never has been the slightest evidence of alkalosis.* The normal range of figures for adults is given by Hawk as 53 to 80. Forty-nine patients gave a reading under 53—that is, nearly 70 per cent. gave a distinct indication of acidotic tendency. The readings may be summarized thus:

Under					
45	50	55	60	60 or over	
8	13	40	10	4	

Not only do these values speak for themselves but usually the more prolonged and severe the asthma the lower was the figure: as the asthmatic improves his alkali reserve rises and his eosinophilia usually falls. The four values of 60 and over were 61, 61.3, 60, 61, and their respective eosinophilia percentages were only 5, 4, 2, and 8: in all the asthma was slight and at infrequent intervals (weeks). On the other hand, a man with severe asthma and a 12 per cent. eosinophilia had the low reading of 40 for his alkali reserve, and died in status asthmaticus.

Further evidence in favour of acidosis is (1) the increase of ammonia-combined acid in the urine, as recorded by Oriel and myself, and (2) the effectual treatment of her asthmatic patients by Dr. Flora Innes of Vellore, India, who gives drachm doses of sodium bicarbonate in large draughts of water with fruit juice every two or three hours; the dyspnoea quickly disappears, as also, she claims, does the achlorhydria, which is such a frequent feature in chronic asthmatics. Oriel also recommends sp. ammon. aromat., a volatile alkali. Benefit from HCl is likely to be due not to meeting an alkalosis but to meeting the gastric subacidity. My findings in this respect agree with Bray's—48 per cent. hypochlorhydria, and 26 per cent. achlorhydria, a total of 74 per cent. with gastric subacidity.

It will be interesting to know the findings of other observers as regards the alkali reserve; and, if these confirm mine, to learn how those who champion alkalosis explain the low figures for severe asthma and the rise of the alkali reserve with clinical improvement.—I am, etc.,

Glasgow, Aug. 31st.

JAMES ADAM.

Is High Blood Pressure a Risk?

SIR.—In your issue of September 8th Dr. Thomas Robertson states that "anyone who has followed the trend of medicine for the last twenty years knows that . . . insurance companies are asinine." The ground for this statement, so far as I can gather, appears to be that they are chary of accepting, at ordinary rates, proposers with high blood pressure, in spite of the fact that some such cases live to a good old age.

Dr. Robertson agrees that "statistical investigations doubtless prove high blood pressures to be dangerous, but when it comes to a given patient there is no criterion whereby to judge the prognosis." If this is correct, surely the companies are justified in their attitude? Suppose they were offered a group of men aged 50, each with a systolic pressure of 200, but otherwise apparently healthy. They have every reason to suppose that the mortality experience in this group would be greatly in excess of the normal. Should they accept them at ordinary rates because some of them are likely to live long? Take a comparable example. If there were another great war, and 1,000 young soldiers wished to insure at ordinary peace rates, should they be accepted because some of them were almost certain to survive its dangers?

Until Dr. Robertson, from his observations on the trend of modern medicine, can teach the companies to differ-

entiate the good from the bad in a group of hyperpetics, they are likely to continue the "asinine" practice he seems to deplore.—I am, etc.,

London, E.C.1, Sept. 8th.

OTTO MAY.

SIR.—An *Epitome* paragraph entitled "The Prognosis for High Blood Pressure," which appeared in the *British Medical Journal* of February 6th, 1926 (para. 142), may interest your correspondent of August 25th, and seems worth quoting. It runs as follows:

R. Shiström (*Ugeskrift for Laeger*, November 19th, 1925, p. 1038), as the result of a study of over 300 cases of high blood pressure, finds that the average age at which this condition begins to make itself felt by the patient is 52 years, but that before this age the high blood pressure has existed for about ten years unobserved by the patient. The average age at death of this class of patient is about 62 years; thus from the beginning to the end of this condition there is apparently about two decades of life. Life may, however, last as long as twenty-five to forty years, and in twenty of the author's cases in which he kept in touch with the patient for ten to sixteen years the blood pressure was seldom or never below 200 mm. of mercury, although most of the patients were well and fit for work during the greater part of this time. The author insists that the patient whose high blood pressure begins at the age of 50 and lasts for twenty years or more can hardly complain that this condition has shortened his life, seeing that at the age of 70 he has already exceeded the average expectation of life. Factors affecting the prognosis unfavourably are an early onset of the high blood pressure, the coexistence of syphilis, and disease of the kidneys. In most cases it is impossible to decide whether the disease is progressive or not, and the physician is therefore not justified in giving a grave prognosis.

—I am, etc.,

London, S.W.11, Sept. 7th.

M.B., Ch.B.Ed.

Is the Taking of Blood Pressure a Risk?

SIR.—With reference to the letter by "M.S., F.R.C.S." in the *Journal* of August 25th, the answer, as I shall show, is in the affirmative when the blood pressure is being taken in elderly persons with signs of cardiac weakness. Here are two cases which occurred in my practice two years ago.

The first was a patient aged 74. He was a retired tradesman who had led a decent life except that he had for a time drunk too much whisky. He had gradually been getting weaker. He had no definite disease, although his heart showed signs of degenerative changes. I got one of our leading consultants to see him. After a careful and exhaustive examination he proceeded to take his blood pressure. We had only left the bedside one or two minutes when we were urgently recalled. We found the patient quite unconscious, his face blue, and after one or two gasps he was dead.

The second case was more appalling. He was an artist about the same age, who had led a perfectly good life. His condition was similar to the first case. I got the same consultant to see him. When we entered the bedroom he was sitting up in bed, and on seeing us he smiled and remarked, "I do feel a fraud, two doctors coming to see me and I feeling so well." These were his last words. While the consultant was taking his blood pressure I chanced to look at the patient. On calling the consultant's attention to the patient's discoloured face he released the instrument, but it was too late—he was dead.

In the first case the blood pressure reading was: systolic, 170 mm. Hg.; diastolic, 105 mm. Hg. In the second case, systolic, 140; diastolic, 120.

In both these cases death was certified as due to coronary thrombosis. As far as I know this danger has not been pointed out before.—I am, etc.,

West Bromford, Nottingham.
Sept 3rd.

W. HUNTER, M.D.

Haemorrhage from Peritonsillar Abscess

SIR.—Surely Mr. T. G. Wilson (September 8th, p. 491) misreads his "Cunningham" when he says that the tonsil is partly supplied by the descending palatine branch of the internal [sic] carotid artery. The internal carotid artery has no such branch, and the vessel named arises from the external carotid in the sphenomaxillary fossa.

In any case the contribution of the descending palatine artery to the tonsil is negligible when compared with that of the ascending pharyngeal artery, the facial artery by its ascending palatine and tonsillar branches, and the lingual artery by its dorsalis linguae branch.

Mr. Wilson's reason for ligaturing the common carotid artery would hardly appear valid unless associated adenitis made exposure of the external carotid too difficult, which does not appear to have been the case. The external carotid should be chosen for ligature, due regard being paid to the partly concealed and often very low origin of the ascending pharyngeal branch.—I am, etc.,

Canterbury, Sept. 10th.

THOMAS A. CLARKE.

SIR.—During recent renovations at my house, where Dr. J. H. Watson once had consulting rooms, the enclosed fragment was discovered among the deeper strata of *Fishery Gazette*s accumulated in the waiting-room. Apart from the intrinsic interest, it appears to have a bearing on a recent correspondence in your pages upon Haemorrhage from Peritonsillar Abscess.

"... a small monograph on *Inductive Reasoning as Applied to Anatomy*. The section upon the tonsil, for instance, points out that it is very like a lymph gland in structure; and, like a lymph gland, bleeds very little when cut. We should therefore expect to find a similar scanty blood supply from a single artery entering at a similar hilum where the veins emerge. It is exposed to the force of gravity and the tug of swallowing, both acting in the same direction.

There should therefore be, as elsewhere in the body, both a muscular suspension and a fibrous ligament to counter these forces. Abscesses are apt to form round its upper half, so that on the analogy of perineal and orbital suppurations there should be an areolar space surrounding it. The absence of these abscesses round its lower half would presumably show that it is there that our hypothetical muscular suspension is attached to the capsule. Dangerous bleeding may occur on one side and not on the other after the removal of identical tonsils by identical methods. Therefore this bleeding comes not from a vessel that supplies the organ, but from an independent one that may or may not be wounded, as the common facial vein may or may not escape injury in the removal of the glands of the neck. The bleeding is slow and persistent; such bleeding comes only from a vein. The narrow calibre and contractility of small arteries prevent any great loss of blood from them, just as their thick walls render them less liable than veins to perforation in surrounding sepsis."

"But, Holmes," I broke in, "bleeding after tonsillectomy is spoken of by all the authorities in terms of arteries, not of veins." Without even a glance in reply he continued, "We therefore have cause to suspect the common occurrence of a medium-sized vein, unaccompanied by an artery, running close to the capsule of the tonsil, in the areolar tissue between its upper half and the palate muscles. This vein would cause the persistent bleeding noted either after tonsillectomy or the bursting of a peritonsillar abscess, and controlled by ligature of the external carotid. It would also account for the disproportionate number of deaths under local anaesthesia for tonsillectomy; the unwary surgeon being liable to inject his drug almost directly into the heart."

At this point I began to wonder whether Holmes's mixing of cocaine with his morphia, against which I had more than once warned him, had at last affected his once brilliant brain. And his next remark, as to confute his wild ramblings I reached down the revered and well-thumbed volume of Cunningham from my shelves, only served to confirm this

sad suspicion. "If one were to describe exactly what one finds in the human body, uncaring whether or not it agrees with the books..."

Here the fragment ends.—I am, etc.,

London, W.1, Sept. 8th.

DENIS BROWNE.

Orthopaedic Treatment of Infantile Paralysis

SIR.—In these observations I particularly desire to draw attention to those developed cases of extensive muscle weakness in the lower limbs which six months after the onset of this disease show few clinical signs of recovery.

For example, a child of 6 years of age is found at the original examination to have apparently no power of movement in the left leg, and in the right leg movement of toes only. After six months of complete rest (recumbency on a satisfactory splint), competent trained nursing, and orthopaedic supervision the following condition is found: there are still no signs of recovery of voluntary power in the left leg, but in the right are found early evidences in all the muscle groups. At this stage a complete return of normal muscle function in the right leg is unlikely, while the prognosis as to any improvement in the left leg has to be most guarded. Due consideration having been given to this difficult subject of prognosis the time has arrived for anxious thought regarding the future of a patient who is obviously going to be grossly handicapped in the struggle for existence. It has become necessary to plan the life and the treatment of the individual for ten or twenty years in advance. The earlier this problem is faced in all its aspects—medical, financial, and educational—the better for everyone concerned.

It has been my privilege to supervise personally the orthopaedic treatment of cases of this description from early childhood up to adult life, and I strongly advocate that "the long view" must be taken with every patient. During this extended treatment the essential aims to be kept in view are the following. First, the prevention of any deformity, especially one of a crippling nature; secondly, the ultimate attainment of the power of walking in a manner approaching as closely as possible to normal; and, thirdly, education in a manner best suited to ensure the capacity for earning a living.

The crux of the problem is contained in the following statement. All the essentials enumerated above are obtainable for the majority of these cases of lower limb paralysis if weight bearing is deferred until it is reasonably certain that no further gain in muscle power is possible, and that no gross muscle fatigue is likely to result. The time limit for recumbency will be a variable factor in each individual case and with individual professional experience, but I have no hesitation in advocating a minimum period of two years in every case of lower limb paralysis. In severe cases, as in the example quoted above, this period may be extended to three, four, or even five years. The only standard must be the capacity of the injured limbs to support the weight of the body. No other problem in the whole course of treatment approaches this in importance, and an error of judgement in this particular may mar the whole future life.

Too early weight bearing will cause fatigue, produce muscle weakness and deterioration, and possibly precipitate a state of crippledom which no after-treatment can wholly remedy. It is a very hard struggle to convince parents and others of the necessity "to hasten slowly" before taking this vital step. They see considerable improvement in the child's condition while strict recumbency is being maintained, and constantly desire to know when the child will be allowed to stand.

This dangerous importunity must be resisted and the plan previously mapped out stubbornly adhered to. A constant propaganda explaining the evils of too early weight bearing has to be carried on. Lest my proposition should appear fantastic, I may point out that in the case of tuberculosis of the hip-joint it has been brilliantly successful. All concerned with the treatment of tuberculosis of this joint have been educated to appreciate that there is no time limit for treatment. The moment for weight bearing in this disease is left absolutely to the judgement of the surgeon. Muscle and bones, which are grossly weakened following upon an attack of infantile paralysis, are at least equally as important as

infected joints and worthy of the same careful treatment. Looking ahead and visualizing the adult life of the individual, what is the loss of these early years in childhood compared with the certainty that the maximum amount of recovery possible has been obtained. These weak lower limbs, with or without the assistance of steel splints, crutches, etc., will ultimately be required to support the weight of a body, often proportionately well developed, throughout the remainder of the patient's existence.

Recumbency on a splint of the type of the late Sir Robert Jones's abduction frame, modified to suit individual cases, is the ideal position of rest. During this extended period of rest the problem of obtaining movement without weight bearing and with gradually increasing power and range must be tackled with confidence. This is the method of treatment known as muscle re-education, with its principles of the zero position of muscle, the stress laid on the action of gravity as a factor in all muscle work, and the conception that by very gradually increasing the load a muscle has to bear it is possible to blow into flame any tiny spark of movement. Originally described by Sir Colin Mackenzie more than twenty years ago, and since then constantly advocated and demonstrated by both of us, these methods are now widely known and practised wherever the treatment of paralysis has been modernized.

An attempt has been made in this review to show the life of a sufferer from the effects of infantile paralysis in perspective. No considerations of a financial character have been allowed to interfere with what is held to be the only method of treatment which will prevent the distressing crippledom, still all too prevalent as an aftermath of this disease. A comparison with treatment of tuberculosis of the hip-joint has been instituted to show that this ideal treatment advocated is not possible of achievement. In conclusion, I wish to emphasize that at no stage in the treatment of the extensive muscle weakness caused by this disease can we say that treatment is finished. These patients must be seen at frequent regular intervals after weight bearing has been permitted, and must be carefully overhauled to prevent the development of insidious muscle maladjustments. Considering its overwhelming importance in the plan of treatment, a plea for "the long view" cannot be made too strongly.

—I am, etc.,

CHARLES MACKAY, M.D. Melb.

Malaga, Spain, Aug. 29th.

Sodium Evipan

SIR,—We have used sodium evipan with complete satisfaction in a number of cases of Arabs and Jews, and as the results merely confirm the observations of others there is no need to detail them, except perhaps to note in passing that the oral administration of morphine grain 1/4 a few minutes before the operation seems greatly to lessen the "drunken" effects experienced by some nervous subjects on emerging from evipan anaesthesia. Two cases are, however, worth noting briefly.

1. A male Arab, aged 45, believed to be slightly mentally defective, reached us in a very toxic state by reason of a tropical ulcer which had eroded the tibia shaft and the whole of the postero-lateral aspect of the left leg. As inhalation anaesthesia seemed to be contraindicated sodium evipan was chosen, since amputation was imperative. The patient died of cardiac collapse before the operation was started, although the usual precautions had been observed. It is not possible to exclude the idea that he would have died within a matter of hours even without any anaesthetic, but the case must be recorded as a death under this anaesthetic.

2. A male Arab, aged 28, arrived in a state of constant spasm due to tetanus. His symptoms were seven days old at the time of admission. He was rigid from occiput to heels, the jaw being fixed and the arms flexed at the elbows, so that the clenched hands were above his head, and both in spasm. Treatment consisted in intramuscular magnesium sulphate (5 c.cm. of a 25 per cent. solution) every five hours, 3,000 units of antitetanic serum daily (this serum is limited

in supply in Aden), morphine grain 1/4 at first twice a day, and 10 c.cm. of sodium evipan solution each evening. The continuous spasm gave place to spasm every three minutes, and thereafter the patient made an uneventful recovery. We believe sodium evipan to be of definite value in tetanus.

—We are, etc.,

ROBERT NAMER.

Ion Keith Falconer Hospital, Sheikh
Othman, Aden, Aug. 22nd.

P. W. R. PETRIE.

Control of Prophylactic X-Ray Treatment in Breast Cancer by Serum Tests

SIR,—In your report of the proceedings of the Radiological Section at the British Medical Association Annual Meeting (*Journal*, August 11th, p. 275) I note that Dr. H. Guy Dain said that he doubted the value of repeated x-ray treatment after radical mastectomy for carcinoma of the breast. It must be admitted that prophylactic post-operative treatment by x rays has in the past been of an empirical nature. While the failures have been evident it has always been open to opponents to claim that those patients who have survived a long time would in any case have done so. Workers who believed that resistance to metastases could be increased by small doses of x rays had no means of putting their views to the test of laboratory findings. Statistics, as usual, have been quoted by upholders, and destructively criticized by opponents. The time has now come, however, when advances in biochemistry make it not only possible but incumbent upon us to take note of the constitutional effects of x-ray treatment, so that we may decide in any given case what is to be aimed at—that is to say, whether we are to use radiation in concentrated form over a strictly limited area in order to maintain a local reaction; or over a wide field, employing low intensity, to alter the metabolism of the body.

The study of x-ray effects on the blood in certain diseases can now be carried out by means of a modification of the Bendien tests. These tests have been described in detail in the *British Medical Journal* (1933, i, 407, 536) by Dr. Cronin Lowe. It was, I believe, Dr. Lowe who first suggested that the vanadic acid test might be used not only as a means of telling when a breast cancer patient was in danger of a metastatic outbreak, but also as a means of gauging the patient's response to x rays or other therapeutic measures. The precise value of the tests in differential diagnosis need not be discussed here, because we are dealing with cases in which the nature of the disease is known. In order that it should be valuable as a control for x-ray therapy it is necessary: (a) that the test should be positive in nearly all cases with active lesions, either primary or metastatic; (b) that it should become negative in a certain proportion of cases of operative removal or local disappearance under radium or x rays; and (c) that where it remains, or again becomes, positive, local or metastatic recurrence should usually take place in the course of a few months. Drs. Cronin Lowe, Harry Coke, and others who have experience of the tests state that these criteria are fulfilled: if radiologists wish to try out the tests as a therapeutic control they must assume, as a working hypothesis, that the statement is correct.

During the past six months every case of cancer of the breast which has come under my care, whether in hospital or in private practice, has been subjected to the vanadic acid test at the hands of Dr. Harry Coke. As a result of over forty blood examinations I am prepared to make certain statements with regard to the test.

1. It has been positive in all cases which showed clinical activity. Here x-ray treatment has improved the blood picture, but not made it fully normal.

2. The test has also been positive in some post-operative cases which showed no clinical evidence of disease. In some of these cases a satisfactory blood picture has been restored by x rays; in others there has been improvement only. So far none in this group has developed macroscopic metastases.

3. The favourable response is due to some generalized action, and is brought about by small repeated doses over a wide field. It is extremely easy in susceptible patients to make the blood picture worse, though if this is detected in time no harm is done, as it improves on cessation of the treatment. The lesson taught is that x-ray dosage for constitutional purposes requires individual control.

In breast cancer the control of metastases is the ultimate problem. If the vanadic acid test really gives us an indication of metastatic activity in its microscopic stages, there is a chance of doing something in time. We do not yet know if obvious secondaries can at times develop in the face of a normal blood picture, nor do we know for how long we can maintain a normal blood picture in cases where x-ray treatment has brought it back from an abnormal state. But it would seem just as rational to make repeated blood tests in the case of carcinoma mammae, and act accordingly, as it is to do Wassermann tests in the case of a patient who has been "cured" of syphilis. The vanadic acid test may help to abate the controversy between those who say "let well alone" and those who retort that one can never be sure that all is well. Unless and until the test can be proved valueless as an indication of latent secondary mischief, he would be a bold man who would refuse to take some action in the case of a patient apparently in good health but showing an unfavourable blood picture.

In conclusion, I should like to point out that the above remarks have no bearing upon the question of localized dosage in other forms of cancer, or even upon the dosage requisite for the primary growth in cancer of the breast itself when that is dealt with by radiation.—I am, etc.,

London, W.1, Aug. 26th.

F. HERNAMAN-JOHNSON.

The Swab in Diphtheria Diagnosis

SIR,—Your kind reference to my method in last week's *Journal* (p. 476) has suggested to me that it might be advantageous if I were to offer to supply to bacteriologists who have not used it some of the stain, together with notes on its application. I write to say, therefore, that I shall be delighted to do so to anyone who cares to write to me direct. I believe samples of toluidin-blue vary in their suitability for this method of staining, and it is therefore important to have a reliable brand. Your article brought out one important point which I had omitted from my letter—namely, its value for immediate diagnosis of Vincent's angina.—I am, etc.,

CONSTANT PONDER.

Sessions House, Maidstone, Sept. 10th.

SIR,—It appears that my letter on this subject has been misunderstood to some extent. I did not wish to convey the idea that the taking of swabs should be abolished; my intention was to infer that, while a swab should be taken, the greatest care should be exercised in the event of a negative report before the case is definitely classified as not being diphtheria, and that in making a diagnosis the bacteriologist's report must be considered in conjunction with the clinical aspects of the case.—I am, etc.,

Brighton, Sept. 8th.

J. C. T. SANCTUARY.

Obituary

CARL OLAF JENSEN, M.D.

Director of the Serological Laboratory, Danish Veterinary and Agricultural College

The announcement of the sudden death of Professor C. Olaf Jensen in Copenhagen on September 3rd must have awakened feelings of intense regret in the minds of thousands, and especially among medical men and veterinary surgeons.

Professor Jensen achieved world-wide fame by his researches regarding the experimental transmission of cancer, but these occupied only a small part of his active life, which was mainly devoted to the study of the contagious diseases of the domesticated animals. In a lecture delivered in Copenhagen in 1901, and more fully in a paper published in 1903, he showed that a malignant tumour occurring in mice could be readily transmitted to healthy animals of the same species by inserting a small particle of the tumour under the skin—a process he named "transplantation" to distinguish it from inoculation. The tumour in question was a carcinoma or adenocarcinoma, and the new growths which developed from the transplanted particle were found to be of the same nature as the naturally occurring tumours in mice. It was furthermore proved that by this process of transplanting or grafting the tumour could be transmitted in series through many generations, if not indefinitely. The cells of the experimentally produced tumours showed the capacity for uncontrolled multiplication which is now recognized to be the property that distinguishes the cells of malignant new growths from those of the normal body.

Jensen's success, where others had failed, was due to the fact (1) that the attempts to transmit the tumours were made with animals of the same species, and (2) that the method of transmission adopted was that of transplanting or grafting of the living tumour cells. It would scarcely be possible to exaggerate the practical importance of Jensen's great discovery. Its value lay not in what the experiments proved in regard to malignant tumours in mice, but in the fact that it pointed the new way in which researches regarding malignant tumours in animals might profitably be pursued. In fact, a large part of the new knowledge regarding malignant neoplasms since 1901 has been obtained by investigations on the lines suggested by the pioneer work of Jensen. It was he who discovered that the cancer cells of the mouse tumours possessed a remarkable viability compared with the ordinary cells of the body, and remained alive at ordinary temperatures for many days after removal of the tumour. This made it possible to transmit what may be called the seeds of Jensen's mouse tumours from Copenhagen to laboratories in other parts of the world, including those of the Imperial Cancer Research Fund in London. In this way there began a period of intense experimental study of cancer problems in which the method initiated by Jensen played a prominent part.

His other contributions to animal pathology included valuable papers on braxy (1896), diarrhoea in young calves (1891, 1892, and 1911), necrobacillosis (1897), and contagious bovine abortion (1933). All of these papers embodied results of the author's original investigations, and he was the first to prepare specific antisera for use against the first two diseases. The paper on contagious abortion was his latest contribution to veterinary literature; in it he reported the results of experiments in the use of vaccines for the prevention of contagious abortion, and drew conclusions very adverse to the method that has been extensively practised in this and other countries.

THE LATE DR. R. A. GIBBONS

The obituary notice published last week (p. 493) should have mentioned Dr. R. A. Gibbons's long and valued association with the Medical Insurance Agency. He was elected to the Committee of Management on November 21st, 1918, and thenceforward continued to attend its meetings with great regularity. A few further biographical details of Dr. Gibbons's career have been sent to us by a member of the family. His father was Commissary General David Gibbons in the English Army, and his mother was Elizabeth Frances, daughter of Captain James Ireland-Wilkinson, R.N. It was merely owing to the accident of his father being stationed in Canada for a few years, in a military capacity, that he was born there; he was brought to England while a baby in arms. His parentage was of Scottish origin, and he was brought up in Edinburgh.

On August 12th, at his home at Snainton, Yorks, the death took place of Dr. GEORGE HARDWICKE, aged 58 years, after a long and tedious illness. Dr. Hardwicke completed his medical education at the General Infirmary at Leeds, taking the diplomas of M.R.C.S. and L.R.C.P. in 1897. During the same year he won the prizes in medicine, surgery, and midwifery. After qualification he held the following appointments: house-physician, General Infirmary at Leeds; resident surgical officer, Ida Convalescent Home; senior house-physician, Leeds Public Dispensary; and assistant resident medical officer, Leeds City Fever Hospitals. In 1917 he received a commission in the R.A.M.C. and held the rank of captain, served with the 83rd Field Ambulance, 21st Division, Salonika, and was mentioned in Sir G. F. Milne's dispatches. While on active service he contracted the illness from which he eventually died. Dr. Hardwicke went to Snainton thirty years ago, and during that time played a prominent part in the life of the countryside. He was keenly interested in sport, and was a recognized authority on the Yorkshire dialect, and had addressed the Society of Yorkshiremen in London and Lincoln on this subject, in addition to writing several short stories and sketches in dialect. Several years before the outbreak of war he became interested in Red Cross work, for which cause he did a great deal, and before joining the Army had charge of Wydale Auxiliary Hospital and Wykeham Red Cross Hospital. He had been a member of the Scarborough Division of the British Medical Association since 1899. During his life in Snainton he greatly endeared himself to all who came in contact with him. His understanding and ready sympathy with those in trouble will ever be remembered, and the loss is a great one to the whole countryside.

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The thirteenth reunion dinner of the British Serbian Units Branch of the British Legion will be held on Thursday, September 27th, at the Lysbeth Hall, Soho Square, London, at 7.30 p.m. Lieut.-Colonel A. E. Kidd will preside, and a large party of ex-servicemen from Yugoslavia are expected to be present. Tickets may be obtained from Miss Marx (24, Melcombe Court, Dorset Square, N.W.1). All friends of Serbia are welcome.

The next extra-metropolitan dinner of the University of London Medical Graduates' Society will be held on Friday, September 28th, at 7.30 p.m., in Queen's College, Cambridge. Members should apply for tickets, enclosing the sum of 8s. 6d., to the honorary secretaries not later than September 24th, at 11, Chandos Street, Cavendish Square, W.

The annual address at the Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W.C.) will be given by Mr. Douglas Harmer on Friday, October 12th, at 4 p.m. His subject is "Treatment of Malignant Disease in the Upper Jaw."

The fifteenth Norman Kerr Memorial Lecture will be delivered before the Society for the Study of Inebriety by Sir Malcolm Delevingne, lately British Representative on the Opium Advisory Committee of the League of

Nations, on Tuesday, October 2nd, at 4 p.m., in Friends House, Euston Road, N.W. His subject is "Some International Aspects of the Problem of Drug Addiction." Each member and associate is at liberty to introduce visitors.

The London County Council announces that a three-months' course of lectures and demonstrations in connexion with instruction in hospital administration for the D.P.H. will be given at the North-Western Hospital, N.W.3, and at the Brook Hospital, S.E.18, from October 1st, on Mondays and Wednesdays at 9.30 a.m., and alternate Saturdays at a time to be arranged. These courses comply with the requirements of the revised regulations of the General Medical Council, which came into operation in 1931, and the fee for each is £3 13s. 6d. A course may, however, be taken under the previous regulations at a fee of £4 4s. Medical men desiring to take either course must pay beforehand the requisite fee to the Medical Officer of Health, London County Council, Public Health Department (Special Hospitals), County Hall, S.E.1, giving full name and address.

The following international medical post-graduate courses have been arranged for October by the Berlin Academy for Medical Post-Graduate Training, under the auspices of the Lord Mayor of Berlin, and in succession to the Society of Lecturers for Medical Post-Graduate Training in Berlin: Internal medicine, with special regard to tuberculosis, from the 1st to 13th—fee, RM. 60; course in tuberculosis in the tuberculosis hospital of Berlin, Waldhaus Charlottenburg, in Sommerfeld, from the 15th to 20th—fee, RM. 50 (accommodation and board can be obtained for RM. 2.7 per day); obstetric-gynaecological post-graduate training week, from the 15th to 20th—fee, RM. 50; course in diseases of the ear, nose, and throat, from the 1st to 13th—fee, RM. 120; course in paediatrics, from the 22nd to 27th—fee, RM. 50; surgical intrathoracic diseases, with special regard to pulmonary tuberculosis, from October 29th to November 2nd—fee, RM. 80. Individual courses in all branches of medicine with bedside and laboratory practice are held every month. The fee is RM. 50 to RM. 80 for eight lessons of two hours each, special attention being paid to practical work. Programmes and further particulars are obtainable from the Academy, Berlin, N.W.7, Robert-Koch-Platz 7 (Kaiserin Friedrich-Haus). German as well as foreign doctors can attend the courses, and foreign students obtain a reduction of 60 per cent. in fares from the German railways.

The Fellowship of Medicine and Post-Graduate Medical Association announces that lecture-demonstrations will be given at 11, Chandos Street, Cavendish Square, at 2.30 p.m. on Tuesdays as follows: "Hemiplegia" on September 18th and "Paraplegia" on September 25th. Forthcoming courses include chest diseases at the Brompton Hospital, September 24th to 29th; proctology at the Gordon Hospital during the same period; disease of children at the Queen's Hospital, October 1st to 13th; dermatology at St. John's Hospital from October 1st to 27th; and an evening series of lectures on physical medicine at the St. John Clinic and Institute of Physical Medicine during the same period. A course in medicine and surgery will be held at the Metropolitan Hospital from October 8th to 20th, and a week-end course in diseases of the heart and lungs at the Royal Chest Hospital on October 13th and 14th.

Post-graduate lectures and demonstrations will be given by members of the honorary staff of the Manchester Royal Infirmary on medical, surgical, and special subjects each week on Tuesdays and Fridays, from September 25th to December 18th. All lectures begin at 4.15 p.m. and are free. Details may be obtained from the secretary for the post-graduate lectures.

The thirty-fourth congress of the French Association of Urology will be held at the Paris Faculty of Medicine on October 8th under the presidency of Dr. Heitz-Boyer, when the subject for discussion will be orchio-epididymitis apart from syphilis and tuberculosis, introduced by Dr. Chauvin of Marseilles. Further information can be obtained from Dr. O. Pasteau, 13, Avenue de Villars, Paris, 7c.

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The Westminster Hospital Medical School annual dinner will be held at the Trocadero Restaurant on Saturday, September 29th. A special post-graduate course for old students has been arranged for Saturday, September 29th, and Sunday, September 30th. The inaugural address will be given by Sir John Simon in the Central Hall on Monday, October 1st, at 3.30 p.m.

The annual dinner of past and present students of King's College Hospital Medical School will be held on Saturday, September 29th, at 8 p.m., at the Connaught Rooms, with Dr. Wilfrid Attenborough in the chair. An intensive post-graduate course will be held on Saturday, September 29th, 12 to 6 p.m., and on Sunday morning, September 30th, to which members of the school and other practitioners are invited. A series of post-graduate lectures, free to all practitioners, will be delivered in the lecture theatre on Thursdays, at 9 p.m., from October 11th, 1934, to April 4th, 1935. The opening lecture will be given by Mr. Cecil Wakeley. Subsequent lectures will be announced weekly in our medical diary.

The thirteenth reunion dinner of the British Serbian Units Branch of the British Legion will be held on Thursday, September 27th, at the Lysbeth Hall, Soho Square, London, at 7.30 p.m. Lieut.-Colonel A. E. Kidd will preside, and a large party of ex-servicemen from Yugoslavia are expected to be present. Tickets may be obtained from Miss Marx (24, Melcombe Court, Dorset Square, N.W.1). All friends of Serbia are welcome.

The next extra-metropolitan dinner of the University of London Medical Graduates' Society will be held on Friday, September 28th, at 7.30 p.m., in Queen's College, Cambridge. Members should apply for tickets, enclosing the sum of 8s. 6d., to the honorary secretaries not later than September 24th, at 11, Chandos Street, Cavendish Square, W.

The annual address at the Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W.C.) will be given by Mr. Douglas Harmer on Friday, October 12th, at 4 p.m. His subject is "Treatment of Malignant Disease in the Upper Jaw."

The fifteenth Norman Kerr Memorial Lecture will be delivered before the Society for the Study of Inebriety by Sir Malcolm Delevingne, lately British Representative on the Opium Advisory Committee of the League of

Nations, on Tuesday, October 2nd, at 4 p.m., in Friends House, Euston Road, N.W. His subject is "Some International Aspects of the Problem of Drug Addiction." Each member and associate is at liberty to introduce visitors.

The London County Council announces that a three-months' course of lectures and demonstrations in connexion with instruction in hospital administration for the D.P.H. will be given at the North-Western Hospital, N.W.3, and at the Brook Hospital, S.E.18, from October 1st, on Mondays and Wednesdays at 9.30 a.m., and alternate Saturdays at a time to be arranged. These courses comply with the requirements of the revised regulations of the General Medical Council, which came into operation in 1931, and the fee for each is £3 13s. 6d. A course may, however, be taken under the previous regulations at a fee of £4 4s. Medical men desiring to take either course must pay beforehand the requisite fee to the Medical Officer of Health, London County Council, Public Health Department (Special Hospitals), County Hall, S.E.1, giving full name and address.

The following international medical post-graduate courses have been arranged for October by the Berlin Academy for Medical Post-Graduate Training, under the auspices of the Lord Mayor of Berlin, and in succession to the Society of Lecturers for Medical Post-Graduate Training in Berlin: Internal medicine, with special regard to tuberculosis, from the 1st to 13th—fee, RM. 60; course in tuberculosis in the tuberculosis hospital of Berlin, Waldhaus Charlottenburg, in Sommerfeld, from the 15th to 20th—fee, RM. 50 (accommodation and board can be obtained for RM. 2.7 per day); obstetric-gynaecological post-graduate training week, from the 15th to 20th—fee, RM. 50; course in diseases of the ear, nose, and throat, from the 1st to 13th—fee, RM. 120; course in paediatrics, from the 22nd to 27th—fee, RM. 50; surgical intrathoracic diseases, with special regard to pulmonary tuberculosis, from October 29th to November 2nd—fee, RM. 80. Individual courses in all branches of medicine with bedside and laboratory practice are held every month. The fee is RM. 50 to RM. 80 for eight lessons of two hours each, special attention being paid to practical work. Programmes and further particulars are obtainable from the Academy, Berlin, N.W.7, Robert-Koch-Platz 7 (Kaiserin Friedrich-Haus). German as well as foreign doctors can attend the courses, and foreign students obtain a reduction of 60 per cent. in fares from the German railways.

The Fellowship of Medicine and Post-Graduate Medical Association announces that lecture-demonstrations will be given at 11, Chandos Street, Cavendish Square, at 2.30 p.m. on Tuesdays as follows: "Hemiplegia" on September 18th and "Paraplegia" on September 25th. Forthcoming courses include chest diseases at the Brompton Hospital, September 24th to 29th; proctology at the Gordon Hospital during the same period; disease of children at the Queen's Hospital, October 1st to 13th; dermatology at St. John's Hospital from October 1st to 27th; and an evening series of lectures on physical medicine at the St. John Clinic and Institute of Physical Medicine during the same period. A course in medicine and surgery will be held at the Metropolitan Hospital from October 8th to 20th, and a week-end course in diseases of the heart and lungs at the Royal Chest Hospital on October 13th and 14th.

Post-graduate lectures and demonstrations will be given by members of the honorary staff of the Manchester Royal Infirmary on medical, surgical, and special subjects each week on Tuesdays and Fridays, from September 25th to December 18th. All lectures begin at 4.15 p.m. and are free. Details may be obtained from the secretary for the post-graduate lectures.

The thirty-fourth congress of the French Association of Urology will be held at the Paris Faculty of Medicine on October 8th under the presidency of Dr. Heitz-Boyer, when the subject for discussion will be orchitis-epididymitis apart from syphilis and tuberculosis, introduced by Dr. Chauvin of Marseilles. Further information can be obtained from Dr. O. Pasteau, 13, Avenue de Villars, Paris, 7e.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumshuegh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Cholecystectomy and Recurrent Duodenal Ulceration

Dr. G. BRENNER SCOTT (London, S.W.16) writes: I have lately been a victim of the latest fashionable complaint—namely, cholecystitis with gall-stones. This necessitated the removal of my gall-bladder. Picturing in my mind the fact that now, instead of intermittent gushes of bile, I have a persistent seepage of bile bathing my duodenum, leads me to the rather alarming suggestion that cholecystectomy of a normal gall-bladder might be the best treatment for recurrent duodenal ulceration with its attendant and dangerous haemorrhages. May I ask your readers: (1) Do you know of any cases of duodenal ulceration following a cholecystectomy? If so, this would be fatal to my suggestion? (2) Do you know of any cases of duodenal ulceration associated with cholecystitis and cured after cholecystectomy had been performed? If so, may after cholecystectomy as a cure for recurrent duodenal ulcer be a feasible one?

After-effects of Continued Doses of Adrenaline

"L. H." asks: Can any of your readers who have observed the results of repeated injections of therapeutic doses of adrenaline over long periods, in cases of asthma and other conditions, state whether any permanent effects on the conditions, state whether any permanent effects on the health—for example, due to rise of blood pressure or any other condition—are produced? It is known that rabbits are liable to develop degenerative changes in the aorta as the result of repeated intravenous injections of adrenaline, but these animals are also prone to arterial changes from many other experimental procedures.

"Nail-biting"

Dr. RICHARD EAGER (The Mental Hospital, Exminster) writes: With due respect to the psychological aspect of this vice and the old idea that it was an indication of "bad temper," I must heartily support the advice given by Major H. Williamson of Dorchester *Journal*, August 18th as to the suggested treatment of this condition. I have for long been convinced that the intolerable irritation caused by too long nails, split nails, or "hang-nails" starts the habit of biting or tearing as the only form of relief in certain children. A pair of pocket scissors or even a file (but preferably both) which can be carried about easily will, I am sure, do much to stop the formation of this habit if appropriate instructions be given to children in whom nail-biting has commenced. It is at all events more rational than the old-fashioned application of bitter aloes and the threats of punishment previously used.

LETTERS, NOTES, ETC.

Transport of Invalids by Air

Dr. A. LANDALE CLARK (London, W.1) writes: I was recently faced with the problem of transporting a patient, aged 20 years, from London to Zurich. The patient was in a very weak condition, having had one thigh amputated for extensive osteomyelitis. It was decided that the only way in which the journey could be accomplished was by air. In co-operation with their parents I approached Imperial Airways regarding the journey. It was finally decided to reserve the forward cabin in one of their newest type of four-engined aircraft. This cabin ordinarily accommodates ten passengers. By removing the backs of four seats it was possible to erect a wooden bed, complete with special mattress. The bed was six feet long and about three feet wide, and was fitted in such a position that the patient, in a reclining attitude, had a perfect view through the windows. In addition to the patient, there were in the cabin his mother, a male nurse, and myself, and we could with comfort have had two other passengers as well. The journey started at 7 a.m., from a nursing home in the West End of London, by motor ambulance to Croydon, where the patient was lifted direct from the ambulance bed to that in the aeroplane, it being perfectly easy to run the ambulance alongside. The actual air journey started at 8.5 a.m. and we reached Zurich at 2.15 p.m., having had half an hour's stop at Paris and a quarter of an hour at Basle. The weather was, on the whole, good. At Zurich an ambulance was waiting, and again it was possible to bring it alongside the aeroplane. The patient was in bed in the clinic there at 3.15 p.m. precisely. The whole journey did not cause any unpleasant symptoms whatsoever, the only drug administered during the whole period of transit being 1/4 grain of morphine, given half an hour before arrival at Zurich. The patient ate quite a good lunch on-board, and his temperature that evening was only one degree higher than on several previous evenings in London. The next day the temperature was practically normal, and there were neither signs nor symptoms to show that he had been subjected to any undue strain or fatigue. The total expense of the journey was, I understand, between £70 and £80. Its ease and comfort were mainly due to the interest and trouble taken by members of the staff of Imperial Airways, in particular the Special Charter Department. I was shown a smaller machine, fitted nevertheless with three engines, which contained a full-length bed, besides accommodation for two other people; it can be hired as an aerial ambulance at the rate of 1s. 6d. a mile. I hope that this letter may be of service to some of my colleagues who may be faced with a similar problem.

Transport of Invalids by Railway

Dr. W. THOMSON WESTWOOD (Stretford, Manchester) writes: Dr. Maurice Campbell's experience (September 8th, p. 498) has been more fortunate than mine. I had recently occasion to have a patient moved from Manchester to Glasgow, where she was to undergo an operation immediately on arrival on account of acute cholecystitis. In spite of making every inquiry the railway company were only able to suggest taking two first-class tickets so that the invalid could ensure having one side of the compartment to herself, and as the train was expected to be busy they were unable to reserve a compartment. I should be glad to learn for future reference how these invalid coaches Dr. Campbell mentions are obtained.

Rectal Prolapse Complicated by Procidencia

Dr. D. J. CANNON (Kildare) wishes to correct a sentence in his letter under this title which appeared last week (p. 488). In paragraph 5 the fourth sentence should run: "In the female, then, if the lateral supports of the rectum are loose, complete prolapse of that organ will not occur provided the anal sphincter is intact. A high rectocele may occur instead."

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 40, 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 168.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, SEPTEMBER 22nd, 1934

ACUTE OSTEOMYELITIS*

BY

JOHN FRASER, M.D., CH.M., F.R.C.S.ED.

HONORARY SURGEON TO THE KING IN SCOTLAND; REGIUS PROFESSOR OF CLINICAL SURGERY,
UNIVERSITY OF EDINBURGH

I confess I have found it difficult to decide as to the best method of introducing the discussion of acute osteomyelitis. If I called it an "old friend" I would not be exaggerating, for certainly there is nothing of the parvenu about it, and yet its very familiarity is the subject of disconcerting thoughts, for we must confess that there are many problems relating to this condition which are still unsolved. We may therefore regard this choice of subject as suitable and appropriate.

I feel that it would not serve any purpose to present an outline of the subject on the basis of aetiology, pathology, etc.—these are already fully accepted and established—and I therefore prefer to treat the subject from what I might call a personal point of view, and to recall in what I am afraid may be a haphazard fashion certain of the more problematical, and therefore more interesting features of the disease. I do so in the hope that the discussion (which is, after all, the most fruitful source of enlightenment in a meeting of this kind) may throw some light upon points which to me are brimful of difficulty. Perhaps it is well that I should indicate that what I have to say applies to the acute staphylococcal infection of growing bone.

Incidence of Staphylococcal Osteomyelitis

In recent years it has been said that staphylococcal osteomyelitis is a disappearing disease—a statement with which most of us are in agreement. A statistical survey by Cecil Wakeley, based upon the analysis of hospital cases recorded in the decades 1900-10 and 1920-30, appears to bear out the truth of this statement, and it is held that the lessened incidence is explained by improvement in the general health conditions of the people, and by beneficial changes in the housing and sanitary arrangements. It has been our experience that, while this appreciation is in general correct, there has been, during the past year, a curious increase in the occurrence of the disease. This is borne out by a presentation of the numbers of osteomyelitis cases admitted year by year to one surgical charge in the Edinburgh Royal Infirmary. Over the decade May, 1924, to May, 1934, the figures are as follows:

3, 4, 2, 3, 3, 4, 5, 7, 5, 12 (48 cases).

I agree that it may be merely a coincidence, but I suspect that it may have a more stable explanation. Are the more susceptible individuals of the population entering on a phase of lessened immunity, or is the increase of staphylococcal infection a single example of a state of increased, and it may be increasing, coccal infection? I understand there has been, for example, in the autumn and early

winter a definite increase in the incidence of streptococcal infections, particularly of the haemolytic type, ascribable, in the opinion of some, to the unusually dry character of last summer. I wonder if the increase of staphylococcal incidence which we have experienced is attributable to the same influence.

Pathology

The conception of the pathology which is universally accepted is an infection of the marrow area of the bone metaphysis conveyed by the blood stream. No valid reason has ever been advanced in dispute of this view, and all experimental evidence supports its reasoning, but there is one aspect of the pathology which is not so frequently alluded to, and yet I believe that it may hold features of great significance. The haemic theory of staphylococcal osteomyelitis infection adumbrates of necessity a pre-existing staphylococcal septicaemia. I agree that the general infection may be difficult to demonstrate; I appreciate that attempts to exhibit the existence of the organism by blood culture are in the majority of cases without result; but none the less a haemic infection of a bone presupposes that staphylococcal organisms are already circulating in the blood stream, and that their localization in the bone is but a local manifestation of the general disturbance.

To the surgeon the local infection has been the important item in the clinical picture—it is upon this that he has concentrated his ingenuity and his skill; but is it right that we should regard the local focus as a most deplorable and regrettable manifestation? There is such a thing as a fixation abscess; when it appears it is regarded as a providential occurrence, for it is Nature's method of producing a defensive area from which the factors of immunity are organized and developed. From what I have seen of acute osteomyelitis the impression is growing that the focus in the bone, while it creates a difficult and regrettable situation so far as local infection and suppuration are concerned, has certain aspects which can only be regarded as defensive in their action and salutary in their effects. It is obvious that if this conception is accepted the decision will logically follow that we must reorient our attitude towards the treatment and, in fact, towards the clinical progress of the disease.

The degree of severity of the general disturbance in cases of acute osteomyelitis shows considerable variation. In a certain percentage of cases the general infection is so acute that the individual is overwhelmed in the early stages of the disease with the signs and symptoms of an intense general infection, and, as a rule, succumbs before the local evidences are manifest or confirmed. In others the general disturbance is less intense, while the picture is that of a pronounced local inflammatory reaction which quickly passes on to suppuration. If we express this

* Read in opening a discussion in the Section of Paediatrics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

variation in terms of pathology we may argue, that in the first instance the intensity of the general infection has been in large measure dependent upon a deficient local reaction, while in the second instance the antibacterial influences released from the local focus have been efficient in counteracting the more general sepsis. If I may put the matter in a more personal way, I feel infinitely less anxious about the future of the osteomyelitis case when there is a pronounced local bone focus with early suppuration than I am when the local reaction is indefinite and suppuration absent or delayed.

Localization of the Infection

I wonder how many of us have asked ourselves why it should be that the infection of acute osteomyelitis is localized with such a remarkable degree of constancy to the metaphyseal areas of long bones? When the question is raised we are told that the localizing influences are a profuse but rather stagnant blood supply, the tissue activities of rapid growth, and the possibilities of trauma. I do not know that there is much to support any of these arguments, and in regard to the last the bulk of clinical and experimental evidence appears to negative its importance.

I venture to suggest another possible reason. The marrow of all bones, and of long bones in particular, contains a large amount of reticulo-endothelial tissue. During the period of growth, and more especially in those years when the epiphyses are being ossified and the epiphyseal plates are putting forth their greatest effort, there is an immense concentration of reticulo-endothelial cells in the metaphyseal area, where, under the demands of health, they are concerned with various phagocytic functions and the requirements of calcium metabolism. Now there is a growing volume of evidence that in the presence of general body infection the reticulo-endothelial arrangements form one of the most important defensive mechanisms of the body. We find indications of its response in septicaemia, and there are those who believe that when local suppuration appears in relation to the general infection its localization in joints or in the pleurae is an evidence of the reactive activities of reticulo-endothelial tissues.

I know that the argument is difficult to prove, but for myself I have a suspicion that in acute osteomyelitis the bone disturbance is but a local evidence of a general infection, and that the reason why the local infection is so constantly localized to the metaphysis is conceivably because we there encounter a concentration of reticulo-endothelial tissue, and that the local suppuration which results from the defensive activities of the area is in some measure protective against the general disturbance. I anticipate that this thesis will give rise to criticism, and I hope it may stimulate discussion. If space and time allowed, I would elaborate the argument to a fuller degree, but for the present it is sufficient to say that as time goes on I feel that there may be a considerable measure of truth in the theory.

Operative Treatment

It is obvious that, if one believes what I have attempted to define, one's plans of treatment must be considerably influenced by one's views, and so it has been with me. I confess that I am conservative in the matter of operation, and by that I mean that I am an advocate of what has come to be known as the Starr technique in a form which is perhaps even less extensive than that recommended by the one whose name is associated with the method. I confess I am disappointed with the results of the gutter operation, and I regard any attempt at diaphysectomy as utterly wrong in principle and ideal.

Let me describe the procedure as it is actually practised. When the diagnosis is established the infected area is exposed through a suitable incision, and, if the situation permits it, a tourniquet is used. Having exposed the affected metaphysis, the periosteum is separated, and any pus which lies in the subperiosteal area is mopped away. By means of a drill one-eighth of an inch in diameter the cortex of the metaphysis is perforated in a number of places, beginning at a point central to the epiphyseal cartilage and extending along the shaft until healthy marrow is reached. In order to lessen the risk of infecting healthy marrow, a series of drills should be available, and each should be sterilized before each successive use. The ideal is to render the cortex as porous as possible without inflicting undue disturbance upon the parts, and to attain the ideal it may be necessary to drill the cortex at intervals of a quarter of an inch over the entire area related to the infection. Through the puncture points pus and blood exude as the tension of the underlying infection is released.

The wound in the periosteum and the soft tissues is left entirely open, the part being lightly packed with sterile gauze soaked in a solution of liquid paraffin, acraflavine, and potassium citrate.* Each of these substances is understood to fulfil a special purpose—the citrate keeps the discharge in solution and so prevents the bone punctures from becoming blocked, the flavine is of course an antiseptic, which lessens the likelihood of infection spreading into the soft tissues, while the liquid paraffin facilitates subsequent removal of the gauze. Over the packing a copious gauze and wool dressing is applied, and complete immobilization is thereafter secured by encasing the limb in plaster so as to include the related joints above and below the site of the lesion.

The original dressing is kept in place for a fortnight, at the end of which time it becomes uncomfortable, and so it is our practice to remove it under light anaesthesia, to examine the wound, remove any obvious sepsis, and pack the wound afresh. A new plaster casing is applied, and in this instance it may remain *in situ* for a period of a month or six weeks. At the end of that time the wound is again examined, any sequestration which may have occurred is removed, and an attempt is made to close a section of the wound by secondary suture.

Treatment of General Condition

In a favourable case the temperature begins to fall about forty-eight hours after the operation. If on the third day it does not show signs of improvement an antistaphylococcal immuno-blood-transfusion is given, the donor having been prepared by a vaccine injection estimated on a basis of 500 million to 750 million organisms. It is my experience that an ordinary blood transfusion is of virtually no value in correcting the general sepsis, although in late cases when anaemia exists it may be of value. We have given sera what we regard as a very fair trial, using a staphylococcal serum of a polyvalent type, but we have never been satisfied that this had a beneficial effect upon the disease, and, when put to what must be regarded as the acid test—its employment in the most severe cases—it had no appreciable influence upon the progress of the disease. In so far, therefore, as the treatment of the general condition is concerned we rely upon such principles as an abundant supply of fluid, a high vitamin intake in the form of orange juice, and the use of immuno-transfusion in a certain number of cases.

Acute staphylococcal osteomyelitis must always be a serious disease, because it implies a general blood infection and the development of local sepsis in a tissue which

* The solution is acraflavine emulsion 1 in 1,000 with potassium citrate 2 per cent.

for many reasons is intolerant of such disturbance, but we have found that, if we employ a local interference which ensures relief of tension without unduly disturbing the local reaction, the results are often surprisingly good. I have therefore gone upon the principle of regarding acute osteomyelitis as a local infection which is a reaction to a septicaemia. I have viewed the local error as having a certain potential value by increasing resistance to the general infection, and on this assumption we have been satisfied with an operative procedure which ensures relief of tension and as free drainage as is possible without unduly disturbing the local tissue reactions.

Other Operative Procedures

I have abandoned the gutter operation because it did not appear to afford any more efficient drainage than that provided by the method of multiple punctures, while the trauma necessitated by the operation lessened the degree of reaction and encouraged sequestrum formation. In the same way any attempt at curetting the infected marrow encourages an embolic spread of the disease and removes the tissue segments upon which an efficient reaction depends. It has been suggested that, instead of gutting the bone, more efficient drainage might be obtained by removing $3/4$ in. of the bone circumference.

As a matter of fact this was attempted in one case, but the result was a sequestration of the remaining segment, with a state of affairs which amounted to an extensive pathological fracture.

The suggestion which has been mooted and in some cases practised, that a metaphysectomy or partial diaphysectomy should be carried out, is to my mind a wrong procedure, and the high mortality which is associated with the operation is probably due to the fact that by this means we remove the actual segment of tissue upon which the patient's resistance to the general infection may well depend. This procedure, if considered at all, should be restricted to late cases in which the entire diaphysis has become necrotic and is lying in a large subperiosteal abscess. In this event the dead shaft is already detached at each metaphyseal extremity, and the operation amounts to nothing more or less than a sequestrectomy.

Results of Operation

I conclude this somewhat disjointed discussion of the disease with a summary of the operation results. In a total of fifty-six cases observed over the last twelve years there have been thirteen deaths, a mortality of 23.2 per cent. In those who succumbed, death was due to a progressive septicaemia which ultimately passed into a pyaemia with secondary abscesses in such varied situations as voluntary muscle and subcutaneous tissue, the heart muscle, the lungs, and the brain.

S. Bueno (*Thèse de Paris*, 1934, No. 606) states that two bodies were responsible for the prophylaxis of malaria in Cuba—the State, which supervises the towns and suburbs, and the sugar companies, which are concerned with the regions in which the sugar cane is cultivated. The areas occupied by small proprietors have hardly any prophylaxis. The campaign undertaken in the towns has caused a complete disappearance of yellow fever and the almost complete eradication of malaria, especially in Havana. Considerable improvement has taken place in the country districts as the result of the measures undertaken by the American sugar companies. The apparent increase in the incidence of malaria during the season in which the sugar is produced is due to the movements of the workmen, a large proportion of whom are infected. The selection of workmen therefore appears to be desirable, only those being taken on who are free from malaria.

FUNGUS INFECTION OF THE FEET: PROPHYLAXIS AND TREATMENT*

BY

A. M. H. GRAY, C.B.E., M.D., F.R.C.P.

PHYSICIAN IN CHARGE OF SKIN DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL

Fungus infection of the feet has loomed large in the practice of dermatologists during the last twenty years or so, and in no subject in this branch of medicine has investigation been more insistently pursued and more fruitful results obtained. At the same time there are many lines of investigation which remain to be followed, and, until certain further problems are solved, many difficulties as to prophylaxis and treatment will continue.

It is not necessary for me to enter into a description of the fungi which attack the skin of the feet: suffice it to say that a considerable number of different fungi of the hyphomycetes group have been found present in these cases, and also that yeast-like organisms, generally classed under the name "*monilia*," including the organism of thrush *Monilia albicans*, have also been incriminated. Inflammations of the skin by fungi can take place in two ways: first, by the growth of the fungus in the horny layer and on the horny appendages (the hair and nails), the fungus having been implanted from without on the affected area; or secondly, by transmission of the fungus or its toxins from a local site of infection by way of the blood stream to a distant site. In this latter case some sensitization of the epidermal cells appears to be a necessary preliminary to the production of the inflammatory reactions. Reactions of this type are spoken of as "dermatophytids."

Clinical Types

Clinically, fungus disease of the feet may occur in several forms. For the sake of convenience they may be divided into three types, though some dermatologists prefer a more elaborate classification: C. J. White (*Arch. Derm. and Syph.*, April, 1927, xv, 387), for example, describes eleven types.

The types most commonly seen are: (1) the intertriginous, (2) the vesicular, and (3) the hyperkeratotic. It may be noted, however, that various combinations of these types may occur.

Intertriginous Type.—This is by far the most common, and is found between the toes, often only in the fourth interdigital space, and nearly always bilaterally. In more advanced cases other interdigital spaces are involved, as is also the fold beneath the toes. In the mildest cases perhaps only slight scaling is visible in the fourth interdigital spaces; in more chronic cases the skin of the sides of the toes becomes much thickened, appearing as a dirty white layer, owing to a great thickening of the horny layer. This thickening may occasionally become much more marked at one spot, and a so-called "soft corn" may develop. Generally the skin in the web between the toes cracks, and this crack may extend beneath the toes. In the more active cases an eczematous eruption, of either a dry or a moist character, may spread over the dorsum of the toes and anterior part of the foot, and on to the anterior part of the sole. In the most acute cases the lesions may be vesicular or bullous from the start; in fact, Whitfield states that most cases commence in this way, though on this point I am not in entire agreement with him. In this type of case secondary pyogenic infection is liable to occur, and lymphangitis may be an occasional complication. In the intertriginous

* Read in opening a discussion in the Section of Dermatology, at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

cases there is frequently involvement of the toe-nails; this is not always obvious clinically, though in many cases thickening, opacity, and brittleness of the nails may be present, but the fungus can often be found in nails which show little variation from the normal.

Vesicular Type.—In its most typical form this variety is seen as a collection of deep-seated vesicles, from pinhead to a lentil in size, usually occurring in fairly circumscribed groups on the soles of the feet, most commonly on the instep or ball of the foot. There is usually some diffuse redness surrounding the vesicles, and the patch may be sharply circumscribed and may spread by peripheral extension, or the patch may be less well defined. The vesicles vary from quite a few up to a large number. They usually appear slowly, but sometimes the whole skin of both soles may become covered with vesicles in a few hours. Although in some cases fungus can readily be demonstrated in the scales, in others repeated examinations fail to reveal its presence, and the same applies to similar lesions on the hands. It has been shown without much doubt that some of the cases belong to the group of dermatophytids, and are not direct infections. Many cases which in the old days were called cheiropompholyx or dyshidrosis are now known to be fungus infections. It is not possible here to enter into a discussion on the differential diagnosis of other vesicular and pustular eruptions of the feet.

Hyperkeratotic Type.—This form also occurs on the soles as a chronic eczematous condition, associated with much thickening of the horny layer, which is imperfectly formed and therefore liable to fissuring and exfoliation. It is most marked over points of pressure—the ball of the foot and heel. Luckily it is not such a common type as the two preceding ones.

This is a very cursory survey of the great variations which may be seen in fungus infections of the feet, but it will be noted that they are all types of an eczematous reaction, and although some of them are sufficiently typical to enable a clinical diagnosis to be made readily, others require a careful hunt for fungus before a definite diagnosis can be arrived at.

Treatment

I will now turn to consider the main subject of this paper, prophylaxis and treatment, and as the former depends to a great extent on the eradication of the disease from the infected persons I will first deal with the latter.

In order to treat the disease we must realize as completely as possible the conditions with which we are dealing. In the vast majority of cases the fungus lives entirely in the horny layer of the skin and the nails (the hairs do not require consideration in this connexion). It is true that, as I mentioned above, fungus may get into the blood stream and be conveyed to distant sites, but in these cases, for various reasons I need not discuss now, the fungus does not develop at these distant sites, and if the local supply is stopped the distant effect ceases. When fungus attacks thin skin—such as, for example, the thighs, as in *tinea cruris* (dhotie itch)—the fungus can be killed off in the horny layer with comparative ease by the use of appropriate fungicides, and can be killed off permanently. Recurrence, apart from reinfection, is rare when smooth, thin skin is involved.

It is the experience of everyone, however, that fungus affection of the feet is often difficult to cure and is prone to recur. The difficulty of cure is largely due to the great tendency that the fungus has to produce marked hyperkeratosis, which prevents the active agents from reaching it. Further, it is only in very severe cases that it is possible to prevent the patient walking about; sweating, pressure, and movement cause the disturbance of any applications in use, and also militate against the

resolution of inflammatory products. The tendency to reinfection, in my opinion, is due to the frequent involvement of the nails. It is still an open question whether it is possible to cure infected nails, except by their removal, and it would be very difficult to persuade a patient to undergo this form of treatment for what appears to him an extremely trivial condition, one which he may never even have noticed himself.

Application of Antiseptics

The difficulties which have arisen in clearing up some cases have caused dermatologists to try a very large number of different antiseptics in the treatment of these infections, but I think it is more important to lay stress on the method of applying a few known antiseptics, rather than to ring the changes on a number of different substances. My personal experience has been confined to the use of relatively few antiseptics, and I propose to confine myself to these, rather than give a list of the various remedies recommended by different observers. One must first note that one is dealing with an eczematous condition, and where the inflammation is very acute strong antiseptics and greasy preparations are not well tolerated. This applies equally to eczematous conditions caused by other micro-organisms.

In the acute bullous and vesicular types I have found the most satisfactory results are obtained by baths of 1 in 4,000 potassium permanganate and moist dressings of the same solution. It is well to prick the larger blebs before treating in this way; it is important to keep such patients off their feet, and the permanganate dressings are applied in the same way as lead lotion is applied to acute eczematous conditions—namely, without oil-silk—the lotion being applied frequently, say every hour or half-hour, and free evaporation being permitted. When the acute phase has quieted down the baths should be continued night and morning, but linimentum calaminae, with 2 per cent. ichthylol added, may be substituted for the permanganate dressings. This is applied on lint, each toe being tied up separately, and the dressings changed only twice daily. When the redness has subsided and a dry scaly condition remains then Whitfield's ointment—which is made up as follows: ac. salicyl. grains 15; ac. benzoic., grains 25; paraff. moll. 32; ol. lavand. m4; coco-nut oil ad 31 (in summer white wax may be substituted for the soft paraffin)—should be cautiously applied. It is rubbed in gently once daily, and the permanganate baths continued once daily. If any irritation is produced a return to the ichthylol should be made, and after an interval Whitfield's ointment should be tried again and continued until all scaling has ceased.

This treatment should suffice to cure a case, provided the nails are not affected. In all acute cases the horny layer exfoliates, so the difficulty of penetration of the antiseptic does not arise. Two objections have been raised to reliance on Whitfield's ointment in the treatment of fungus affections of the feet; the first is that it is not a sufficiently good fungicide. This, I think, is disproved by those who have had much experience of it clinically, but it has also been found experimentally by Gould and Carter (*Archives of Dermatology and Syphilology*, August, 1930, p. 325, and February, 1932, p. 348) to be strongly fungistatic for three of the common fungi found on the feet. The second objection is to the use of an ointment. In the chronic cases localized to the interdigital spaces there may be some force in the argument, though from clinical experience I do not think there is much in it, but for diffuse subsiding eczematoid ringworms of the feet I am convinced that an ointment is superior to any lotion, as the latter produces uncomfortable cracking of the skin, which may delay recovery, and I doubt if penetration is so good. For dry eczematous cases affecting the feet the

treatment is the same as above, but the first stage—namely, permanganate dressings—can usually be omitted. When there is much diffuse hyperkeratosis of the soles associated with a good deal of underlying inflammation again the same line of treatment is adopted, but at a suitable stage small doses of x rays (one-quarter to one-third B given weekly for three or four doses) can be added. In some cases the use of salicylic plaster is indicated.

Localized Infections

I have referred above chiefly to the more diffuse types of eruption affecting extensive areas of the feet. We will now consider the more localized types. For superficial intertriginous cases, those with only slight scaling limited to the interdigital spaces and the groove beneath the toes, Whitfield's ointment again appears to me quite a suitable remedy. Here, however, it is well to continue the treatment for some months, even though no trace of the disease is visible. I usually also order a daily foot-bath of permanganate. Whitfield's ointment, owing to the salicylic acid which it contains, and to the keratolytic properties of which it partly owes its efficacy, tends to keep up the sodden appearance of the skin. I have therefore been in the habit of ordering a bland powder, usually one part of boric acid to seven parts of talc, and have told the patient to use this alternately with the ointment—usually alternate fortnights—but this depends rather on the condition when first seen. The treatment must be carried on for two to three months after the disappearance of all scaling. When there is much horny thickening it is first necessary to deal with this. I have found daily painting with salicylic acid spirit (1 drachm to 1 ounce), followed by friction with lint, or even pumice stone, effective.

Each day before the next application the foot is soaked in permanganate and as much of the thickened horny layer as possible is rubbed or scraped away. Sabouraud has recommended the use of a barium sulphide depilatory for the same purpose, and this is probably a quicker method. After the skin thickening has been reduced, Whitfield's ointment, either in normal or double strength, is applied as above. I have tried various other preparations—tinct. iodi, chrysarobin, mercurochrome-220 soluble, Castellani's fuchsine paint, and other preparations, but on the whole I am satisfied that Whitfield's ointment, if used conscientiously, is effective and less liable to cause complications than the other drugs. Whatever preparation is used, patience and systematic treatment is necessary to effect a cure. In those cases where a small crop of vesicles develop on the foot I have found painting with Castellani's paint gives good results. The small vesicles should be punctured and the paint applied night and morning. When the lesions are well I recommend three or four weeks' inunction with Whitfield's ointment.

It is important to remember that treatment must not be confined merely to the affected skin, but must be extended to the areas surrounding it. A. Strickler and W. H. McKeever (*Arch. Derm. and Syph.*, April, 1934, p. 526) have shown fungus in the skin from one to two inches beyond the affected areas.

The Nail's

The nails furnish us with a further problem. If these show clinical or microscopical evidence of involvement they should be dealt with. So great an authority as R. Sabouraud (*Med. Press and Circ.*, August 30th, 1933, p. 206) maintains that the only cure, when the whole nail is involved, is avulsion, followed by painting the nail-bed with 1 per cent. iodine in alcohol. Softening the nail with liquor potassae and scraping it away, afterwards applying antiseptics to the bed, can be used, but is more troublesome and less effective.

Recurrence

Having cured the clinical condition we still have to face the problem of recurrence. This may be due either to reinfection or to failure to kill the fungus in the skin in the first instance. Unfortunately, it is usually impossible to decide which it is; even the most careful microscopical investigations are not infallible. Knowing, however, how extensive the infection may be, and having carried out as complete a treatment as is possible, it only remains for us to try to prevent reinfection from the patient's footwear. While the patient is under treatment boilable socks should be worn next to the skin, and should be boiled frequently. When the disease is apparently cured it is best to destroy all old socks, and even then a boilable slip should be worn under the sock while any treatment is going on. Boots and shoes present a greater difficulty: if they can also be scrapped so much the better, but economic considerations cannot be entirely ignored. Short of destruction, swabbing out the boots or shoes with 2 per cent. formalin appears to be the most useful method of dealing with them.

By these methods we endeavour to prevent fungus from again becoming lodged on the feet. Can we further strengthen our defence by the use of substances which hinder the growth of fungus on the skin? O. C. Levin and G. H. Silvers (*Arch. Derm. and Syph.*, September, 1932, p. 466) find that the sweat in the fourth interdigital spaces of the feet is less acid than normal, and they believe that this encourages the growth of fungus in this region, admittedly the most common site of infection by fungi on the feet. They find that by dusting between the toes talc powder containing 1 to 2 per cent. salicylic acid the normal acidity of the sweat can be restored. It is no trouble to anyone to dust some powder between the toes each morning, and this appears to be a very useful method of diminishing the liability to reinfection. It should be continued indefinitely.

Prophylaxis

We now turn to consider the question of prophylaxis as applied to the population as a whole. Prophylaxis of foot ringworm presents very great difficulties for several reasons. It is a very common affection. It is difficult to say how common it is, because a large number of sufferers from it are unaware that they have anything wrong. Even those who notice some scaling or cracking between the toes consider it a normal event. It is certainly very common in private practice, and by no means so uncommon in hospital work as one is sometimes led to suppose. Further, even when one has pointed out to patients that they have this infection in a mild form it is exceedingly difficult to induce them to carry out a prolonged treatment for a condition which causes them no inconvenience. It is also a difficult matter, for those of us who treat these cases habitually, to say with any certainty that we have effected a cure with the methods at present available, and so long as any uncertainty on this score exists in the minds of the profession it diminishes its power in demanding protracted treatment from the patient.

Our first object in prophylaxis should be to remove all sources of infection. I have said that we have to face two difficulties: the failure of the public to recognize mild cases, and the difficulty of obtaining a certain cure. As regards the first of these difficulties, I can see no hope of slight cases coming for treatment in our present state of society. It would necessitate compulsory medical examination of the whole population and the education of the medical profession to recognize the condition, a stage which it has not yet reached. Before such a state of affairs has arrived, however, we may hope that dermatologists can offer a more successful and rapid cure of the

condition. Though it may take some time for the millennium to arrive, a great deal might be done, and in some places is being done, to diminish the dissemination of the disease by systematic inspection and treatment. It is well known that the disease is specially liable to spread in communities such as public schools, universities, sanatoria, etc. In these places systematic examination of the feet and treatment might be much more completely carried out than it is at present.

Assuming, therefore, as we must, that there are always a number of infected persons amongst us, we now have to consider how infection of the non-infected can be prevented. It is probable that most fungus infection is picked up by the toes from the floors of bathrooms, swimming baths, changing rooms, etc.—in fact, any place where infected persons may stand with bare feet and so leave scales about. There are two main methods of prophylaxis available: first, by preventing the naked foot from coming into contact with the floor, either by wearing rubber shoes or by having separate bath mats for each person; and, secondly, by using some antiseptic after contact with a possibly infected floor. For hotels and private houses the use of separate towels and bath mats would probably go a long way towards preventing infection, while the employment of rubber shoes in swimming baths might well be made compulsory. In America this question has been studied very carefully by a number of observers.

To quote only one published paper: R. T. Legge, L. Bonar, and H. J. Templeton (*Journal of the American Medical Association*, July 20th, 1929, p. 170), examining the feet of 3,100 entrants to the University of California in one session, found 53.3 per cent. of the men and 15.3 per cent. of the women had foot ringworm. At the end of a year they again examined 1,000 of these men and 997 of the women who had access to the showers, swimming pools, and gymnasiums. Of these, 78.6 per cent. of the men and 17.3 per cent. of the women were found infected. The increase in the case of the men is striking. The authors point out that the women students occupied a gymnasium with every known sanitary device. The women students and attendants were obliged to wear rubber shoes, and in no circumstances were they permitted to walk with bare feet on the floors or runways leading to the swimming pools or gymnasiums. On the other hand, the men occupied an antiquated gymnasium, where, on account of the lack or non-use of bathing shoes, and inferior sanitary facilities, the students constantly walked on their bare feet and became infected.

With regard to the use of antiseptics in public bathing establishments, these have been tried with considerable success in America. W. L. Gould (*Journal of the American Medical Association*, October 18th, 1931, p. 1300) recommends baths of 10 to 15 per cent. sodium thiosulphate solution to be placed in such a way that all users of the baths must walk through them on their way to their dressing rooms. E. D. Osborne and B. S. Hitchcock (*ibid.*, August 13th, 1931, p. 453) and E. D. Osborne, E. D. Putman, and R. J. Rickloff (*ibid.*, November 1st, 1933) in the same way use 1 per cent. sodium hypochlorite. Both claim to have prevented any spread of the disease by these methods. Needless to add, the proper flooring, and cleaning of dormitory floors, bathrooms, swimming baths, etc., adds materially to a reduction in the risks of spreading infection.

Conclusion

To sum up, we are dealing with a very common affection which, though it does not terminate fatally, and therefore appear in the Registrar-General's returns, may cause a good deal of suffering and loss of work. Owing to its insidious onset a great number of cases escape detection, and, even when detected and treated, for various

reasons do not get completely cured. We have to face the fact, therefore, that for the present there will be a large number of individuals infecting the floors of our private bathrooms, public bathing places, etc. I have pointed out that a good deal could be done to limit the spread of infection in such places, but in order to get such measures adopted on a large scale the public would have to be educated, and this can only be done through the medical profession, and the profession as a whole is still barely aware that the problem exists. Possibly the solution of the problem really rests with the dermatologist. I find myself very much in agreement with Weidman, who, in a discussion on the subject in America, made the following remarks:

"The hygiene of the problem is so complicated that I doubt whether the difficulty can be met by that route. It is impossible to sterilize all the wearing apparel of the patient; even so, there would still remain the floor coverings in our homes, hotels, shower baths, etc. It seems to me that the real approach to the millennium in the way of treatment is to establish conditions in the intertriginous locations in which the fungi work and mobilize, which will make these locations undesirable to the fungus."

May it not be that in this direction lies the solution of our problem?

MUCO-PURULENT TUBO-TYMPANIC INFECTIONS*

BY

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When the president suggested for this discussion the subject of tubo-tympanic infections I understand he had in mind its limitation to the class of ear case in which we have reason to believe that the anterior part of the tympanum is mainly involved—cases in which the perforation, if any, is present, is demonstrable, is anteriorly placed, and the discharge, if any, is predominantly mucoid or muco-purulent. We have to include also, of course, cases of low-grade infection in which perforation of the membrane does not occur, although from the appearances, the impairment of function, and the auscultatory signs on inflation we are able to presume the presence of secretion in this part of the middle ear. Further, the president suggested that we might include in the category those unsatisfactory cases exhibiting a continued or recurring muco-purulent discharge from the anterior part of the cavity after the radical mastoid operation.

We are not directly concerned on this occasion with the acute otitis media arising in the course of common colds, influenza, and the exanthemata, nor with chronic otitis media showing more or less destruction of the posterior part of the membrane with perhaps granulations or polypus. The differentiation cannot be very rigid, however, as many cases properly included may have begun as conditions indistinguishable from the cases we are excluding, and may be looked upon as residuals from the latter.

Why should a middle-ear infection spend its energies on the anterior part of the cavity in preference to the posterior, or (as may be the more correct form of the question for some cases) why should the infection of the anterior part of the cavity continue when it has subsided in the posterior part?

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Infection by Direct Spread or by Blood Stream

We are probably all agreed that in the great majority of cases infection reaches the tympanum by direct spread along the Eustachian tube, whose mucous membrane is continuous with that of the nasopharynx on the one hand and the middle ear on the other. The fact that otitis media most commonly arises as a complication of influenza or a common cold, or of those of the exanthemata which in their early stages attack the upper respiratory tract, seems to make such a conclusion incontrovertible. It is comparatively seldom that we do not get a history of sore throat or nasal catarrh antedating the onset of the middle-ear signs. In a large group of cases the Eustachian tube serves merely as an avenue of approach, its inflammatory condition passing off as quickly and completely as the nasopharyngitis which was its precursor. The distinguishing point of the group we are considering to-day is that the Eustachian tube remains prominently in the picture.

On the other hand, there seems to be some basis for the view that sometimes the infection in otitis media, and particularly in mastoiditis, may be blood-borne and quite independent of the Eustachian tube. Killian held that infection of the paranasal sinuses in scarlet fever is blood-borne, and if so why not the mastoiditis which is much more common in this disease? The middle-ear complications of typhoid fever, said to occur in 7 per cent. of cases, are likely to be blood-borne, as nasopharyngitis is not a feature of this disease.

Some observers from experimental work on animals have concluded that pneumonia may be a blood-borne infection, and not an extension down the mucosa of the bronchial tree. They found the pneumococci in the blood during the incubation period, but when consolidation had occurred in the lung the organisms were found to have migrated there and the blood stream was free of them. The hypothesis is that when the pneumococcus gains entrance, usually by the pharynx, the alveolar tissue of the lung, for which the toxins of this organism have an affinity, becomes sensitized. At the end of the incubation period the pneumococci migrate to the tissue thus prepared for them. Possibly the same may occur in influenza and the exanthemata, in which diseases we have abundant reason to suppose that the causative organisms have a special predilection for the mucosa of the middle-ear cleft.

A few months ago I had an opportunity of observing more closely than is usually possible the onset of the ear symptoms in an extremely severe epidemic of measles in a preparatory school, and some of the cases were very suggestive of a blood-borne infection. The inflammatory signs appeared first in the posterior-superior part of the membrane, while the lower part retained its lustre, even as far as not to have lost the light reflex. When, after a few hours or, at most, a day or two, the redness extended over the whole membrane, and myringotomy was performed, only a thin serous fluid escaped. The mastoid operation was necessary in most of the cases in which myringotomy was done, and although it was never delayed beyond two or three days, the advanced stage of the mastoid disintegration suggested that the mastoid infection had antedated rather than post-dated that of the middle ear. The medical officer of the school, indeed, suggested a blood stream infection of another kind. He went very carefully into the history of all the boys affected, and found that most of those who developed mastoiditis had been contacts of another boy whom he suspected of being a scarlet fever carrier. This boy actually had, during the measles epidemic, a recurrence of suppuration in a mastoid operated upon after scarlet fever eighteen months previously. The theory, in which the medical officer is supported by a distinguished bacteriologist to whom he presented the data, is that these boys contracted a streptococcal mastoiditis from a latent scarlet fever infection when their resistance was lowered by measles.

However, while recording the opinion that in some cases an acute middle-ear or mastoid infection may be blood-borne, I am not suggesting that in this fact we have the distinction between tubo-tympanic infections and those involving the posterior part of the cavity. Probably only a comparatively small number of cases of otitis media can be even suspected of being blood stream infections. The Eustachian tube must be looked upon as the usual pathway of infection.

Why, then, should the infection sometimes confine its energies to the anterior part of the cavity and at other times skip this, or pass lightly over it, and produce a more severe condition, often with bone involvement, in the posterior part?

Variation of Mucosa in the Middle Ear

The variations in the mucous membrane distributed over the walls of the tympanum may provide part of the explanation. In the anterior part of the floor of the cavity and on its anterior wall where the Eustachian tube enters, the lining is of ciliated cylindrical epithelium. Over the promontory it is cuboidal-celled, and over the attic squamous-celled, this type being continued through the aditus into the mastoid antrum and further cells.

We know that particular organismal types show a predilection for one type of epithelium over another, so that the question whether an ear infection is to become a posterior and mastoid infection rather than one confined to the anterior part of the tympanum may depend on the particular organism involved. I have not been able to trace any bacteriological research into the types of organism predominantly found associated with anterior perforations—obviously the flora is likely to be very mixed by the time a case comes under observation—but it is well known that in the acute cases affecting the posterior part of the cavity and going on to mastoid operation, one or other of the many types of streptococcus is most commonly involved. We also know from clinical experience that the streptococcus is much more liable to attack the squamous epithelium of the pharynx than the ciliated epithelium of the nose. We are not surprised, therefore, to find it selecting for attack that part of the middle-ear cleft which is lined by squamous epithelium.

Degree of Virulence of Organism

There is also the question whether the degree of virulence of the organism, whatever its type, may determine the site of its action, or its maximum action, in the middle ear. Influenza varies enormously in its virulence in different epidemics, although presumably the same organism is always involved. In the milder epidemics just as we have fewer sinus suppurations complicating the nasal symptoms, so also in the ear we have the milder anterior type of otitis media predominating over the posterior more severe type. During the winter of 1925-6 we had, in my area, two distinct visitations of this disease, one in December and the other in March. The former was mild, and of the myringotomies I personally performed only 1 in 10 required the mastoid operation. In the later epidemic, which was a severe one in all respects, one-third of the myringotomies were followed by mastoidectomy.

We have the same variations in the virulence of other epidemic diseases. I looked up my old copy of Osler and Macrae's *System of Medicine* of twenty-five years ago and found the ear complications of measles thus described:

"An acute catarrh of the middle ear is not infrequent from extension of the inflammation in the nasopharynx along the Eustachian tube. It may cause earache, slight deafness, or tinnitus. Occasionally the inflammation becomes purulent and the ear drums rupture. Mastoid abscess rarely complicates the middle-ear disease."

If this represents the incidence of ear symptoms in measles in America at that period, the disease in this country at the same time must have been more fruitful of such complications, as a large proportion of the chronic otitis media cases we see among young adults and people of early middle age are stated to date from measles in childhood. Then in still greater contrast we have the recent very severe epidemic which occurred in several parts of this country with an unusually high incidence of mastoid complications. In the small school epidemic I have already referred to the ears were affected in nearly 50 per cent. of cases, and of the affected ears nearly 50 per cent. required the mastoid operation.

There seems, therefore, to be some ground for thinking that the degree of virulence of an infection may determine the question whether one part or another of the tympanum is more likely to be affected.

Changes in the Floor of Middle Ear

There is also the question whether, owing to the dependent position of the floor of the middle ear, changes ulcerative or otherwise may occur in the mucosa, tending to chronicity. An analogy is to be found in the anterior inner angle of the maxillary antrum, where the mucosa is so frequently polypoid and unhealthy to a degree greatly in excess of any changes present in other parts of the cavity.

Professor Nager holds the view that the anterior perforation with mucoid discharge frequently indicates a tuberculous ulceration of the mucosa, and that this is often proved by the history, by von Pirquet's reaction, and by the presence of the scars of broken-down glands.

The Eustachian Tube

Then we have to reckon with the possibility of pathological changes in the Eustachian tube itself, keeping up an infective discharge from it into the middle ear—the so-called tuborrhoea. The Eustachian tube consists of three parts—a short upper end enclosed in a bony canal, a longer lower end in a cartilaginous funnel, and, between, a short isthmus, supported only by fibrous tissue. In this middle part the walls of the tube are in contact except when, by the act of swallowing, air is forced up the tube into the tympanum. Theoretically, after an acute inflammation of the tube, ulceration and consequent adhesions in this area might produce a condition analogous to stricture of the urethra and gleet, and it is possible that some of the rare cases in which inflation of the ear through the tube cannot be achieved may be so explained. What is still more likely to occur is that after an inflammatory condition in the tube has been established for some time the epithelium loses its cilia, as happens in similar circumstances in the nose and nasal sinuses, and this is probably the explanation of the persistence of tuborrhoea in those disappointing cases which resist treatment in every form.

The Nasopharynx

I am strongly of the opinion, however, that most frequently the determining cause of tubo-tympanic infections is not to be found in the particular organism concerned, nor in its degree of virulence, nor yet in any chronic or permanent change in the mucosa of the floor of the middle ear or of the tube, but in some pathological condition beyond the lower limit of the tube. The original cause and, in most cases, the continuing cause of an unhealthy Eustachian tube is to be looked for in its adnexa—the nasopharynx, the nose, or the paranasal sinuses—and it is mainly there we have to direct our attention with a view to the cure and the prevention of the condition we are discussing to-day.

The Question of Adenoids

As far as children are concerned—and the bulk of our cases of tubo-tympanic infections occur in children—sepsis and hypertrophy of the adenoid tissue of the nasopharynx take first place. It might almost be called the Golden Rule of Otology that in every case of ear discharge or catarrhal deafness in children the question of adenoids must be investigated, and yet one is constantly seeing cases in which the rule has been forgotten over a long period of local treatment.

I have described, in a communication read elsewhere, how when I started an aural clinic in connexion with a school medical service eight years ago I had at first to deal with scores of cases which had attended for local treatment of the ears for long periods, sometimes for years, and which cleared up in two weeks or less after removal of adenoids. No doubt everyone present has had a similar experience, and is finding it still repeated, although, happily, in diminishing degree.

The question of the presence or absence of adenoids should be settled in every case—without qualification. It is not sufficient to accept the mother's statement that there is no snoring or mouth breathing. Nor must we be satisfied with an assurance that the tonsils and adenoids have been removed—not even if we have done the operation ourselves. Even if inspection of the pharynx shows that the tonsils have been completely enucleated we have no right to assume, without an adequate view in the mirror, or, failing that, palpation with the finger, that the nasopharynx is equally free from excess of lymphoid tissue. Many operators seem to be more careful about the efficiency of the tonsil part of the operation than about the complete removal of the adenoids, and do not trouble to finish up with the finger after the curette, to make sure that everything has been removed, especially in the region of the Eustachian orifices and the choanal entrances. Apart from this, no one can guarantee that adenoids will not recur even after efficient removal. In the case of the tonsils, if we remove the capsules completely we can promise that they will not grow again, but we can give no such guarantee as regards adenoids, of which we merely scrape away the excrescence. It is true that recurrence after complete removal does not often take place, and that when any considerable mass of adenoids is found after a previous operation, examination of it generally proves it to be virgin tissue which has obviously escaped the curette before. It is not uncommon, however, to find an overgrowth of unhealthy granulations in the adenoid area—and the child with a chronic or recurring ear discharge cannot afford to harbour anything unhealthy in the vicinity of the Eustachian tube.

With a view to the prevention of a chronic tubo-tympanic infection it is equally necessary to keep this question of adenoids prominently before us in every case of acute otitis media. To embark on the local treatment of an acute ear which has spontaneously ruptured, or to do a myringotomy or mastoid operation where such is indicated, without making sure whether or not the nasopharynx is free from the sepsis or obstruction of adenoid tissue, is not giving our work the best conditions for success.

I have made it a rule for some years that every case of acute mastoiditis admitted to the children's ward must have adenoids removed a week or so after the emergency operation if any adenoids at all are present. If on examination before the mastoid operation the tonsils are found to be healthy or to have been removed, it is a good plan to palpate the nasopharynx at the close of the mastoid operation. If adenoids are present they can be scraped away there and then without adding

appreciably to the patient's discomfort. If, however, the tonsils also require removal, the combined tonsil and adenoid operation should be done within a week, so that the length of stay in hospital is scarcely prolonged. The same applies to cases admitted for myringotomy—adenoids alone may be removed when the myringotomy is done, or the complete tonsil and adenoid operation is done a week later if the tonsils also require removal. I believe that by this procedure cases of prolonged discharge after the mastoid operation or after myringotomy are reduced to a minimum.

Before leaving the question of adenoids perhaps a word should be said about the part the tonsils may play in keeping up a Eustachian tube catarrh. It is admittedly a very minor role compared with that of adenoid growths, but it is obvious that the proximity is close enough to demand consideration. Unhealthy tonsils must predispose to a nasopharyngitis, and so to the enlargement of adenoids or the growth of granulations where adenoids have already been removed. One generally finds in young people that with imperfectly removed tonsils adenoids or granulations are also present. This may, of course, only mean that the adenoid removal has been as badly done as the tonsillectomy, but it may also mean that recurring inflammation in the tonsil stumps leads to hypertrophy in the upper part of Waldeyer's ring. On the whole, I think on these grounds it is better to remove unhealthy tonsils in tubo-tympanic infections.

Relevant Intranasal Conditions

Let us now consider conditions in the nose itself which may cause or predispose to Eustachian tube infections.

1. *Foreign bodies* may cause a persistent rhinitis. Some time ago I saw a boy of 9 years with a history of recurring otorrhoea since babyhood. Conservative measures seemed to be successful for short periods, and particularly encouraging for a time after the removal of tonsils and adenoids, but recurrence always took place. I found a bead in the middle meatus of one side of the nose, and after its removal the ear quickly dried up. As a boy of 9 is not likely to put a bead in his nose, we presumed that the foreign body had been there as long as the ear discharge had lasted.

2. *Nasal obstruction* interferes with the efficient ventilation of the Eustachian tubes, and so predisposes to tubal catarrh. The most common cause of such obstruction in adults is a deviation or spur of the septum. In addition to blocking the airway, indeed sometimes without much blocking at all, this gives rise to a post-nasal phlegm, which trickles back over the spur and collects in the nasopharynx. The spur or knuckle causes contact of surfaces which should not be in contact, and produces a kind of nasal intertrigo with irritation of the mucous glands. In a case of tubo-tympanic infection the examination of the nose should be conducted with thoroughness. Cocaine and adrenaline should be applied in every case, as the spur is frequently situated far back and not visible to a casual examination without shrinking of the mucosa. We shall, in any case, probably want to test the patency of the Eustachian tube with the catheter, and the preparation with cocaine will not come amiss for that procedure. A septal deformity is so easily corrected that if we conclude that it has a bearing on the case there can be no excuse in most cases for leaving it untreated. Palliative measures are unsatisfactory. The operation can be done with local anaesthesia, with or without a previous medication sufficient to put the patient to sleep. A mucilage of cocaine with adrenaline added is painted carefully over every part of the septum on both sides, and the sphenopalatine ganglion is blocked by the application of a single drop of 99 per cent. cocaine held against the ganglion for one minute on a cotton-wool

mop. This should be done just before commencing the operation, when the localizing effect of the adrenaline already applied prevents absorption of the strong solution of cocaine. The operation is then practically bloodless, and if we discard post-operative plugs and merely paint the wound and the septal mucosa with Whitehead's varnish, discomfort is reduced to a minimum.

3. *Nasal polypi*, besides being a frequent cause of nasal obstruction and interfering with the due ventilation of the Eustachian tube in the same way as do septal spurs, have an added danger in so far as they are always associated with some degree of sepsis in the ethmoid or other paranasal cells. The discharge bathing the nasopharynx is therefore more pathogenic than the phlegm associated with septal deformity. In the kind of ear case we are considering nasal polypi should always be removed, and an attempt made to eradicate the sepsis from which they arise.

Sinusitis

Apart from the obstruction caused by polypi, any of the paranasal sinuses may by its being the seat of suppuration—that is, without polypus-formation—cause or keep up an infective condition in the Eustachian tube. I have recently given more attention than I had previously done to this relationship, and have found so many cases in which the antrum of Highmore especially was infected, not only in cases of recurring ear discharge, but in acute cases demanding myringotomy, that I have come to the conclusion that no examination of an inflammatory ear, either acute or chronic, is complete unless it includes the most thorough investigation of the nasal sinuses. Transillumination is admittedly unreliable and should be depended upon only if it yields on both sides an equally bright infra-orbital crescent and pupil illumination, and if there is no suggestion of pus or boggiess in the middle meatus. If there is the slightest doubt x-ray examination or exploration should be resorted to. I have several times in recent months when called to do a myringotomy on an acute ear found an antrum opaque on transillumination, and have washed out pus from it under general anaesthesia after doing the myringotomy. If, after inserting the trocar, the patient is placed so that the face is turned three-quarters downwards over the edge of the table there is no danger of fluid passing into the trachea. Such acute cases do not properly come into our discussion to-day, but are admissible from the point of view of prevention, as it is extremely likely that a large proportion of them would not clear up after myringotomy, but would drift into the class of tubo-tympanic catarrh if the nasal sinus were left untreated.

Further Points In Treatment

I quite expect that some will disagree with me over this question of treating an infected antrum in an adult or removing adenoids in a child at the same time as the operation for myringotomy. I make no point of it, but I find it works. The essential point is not to miss anything in the nose or nasopharynx which may be either an exciting or a predisposing cause of the ear condition, and to make sure that it is effectively treated in good time so as not to prejudice our direct treatment of the ear. Septal deflections, polypi, and ethmoid or frontal sinus conditions should be treated as soon as the acute condition in the ear has been relieved.

We must not allow ourselves to be hesitant at doing less than restoring the environs of the Eustachian tube to a condition as near to the ideal as surgical measures or other treatment will achieve. We may have prejudices to overcome, as the patient—and sometimes the practitioner—may not appreciate the connexion, but it is our business to educate them. It has taken almost a genera-

tion to teach the public the relation between adenoids and ear suppurations. It may take as long to convince people that anything at all interfering with the proper ventilation or assepsis of the Eustachian orifices is of scarcely less importance.

Special mention should now be made of the less frequent case in which the middle-ear infection is so mild that rupture of the tympanic membrane does not occur and the changes visible in it are not such as seem, judging by the ordinary standards, to demand myringotomy. The subjective signs may be a feeling of fullness or wooliness in the ear with a greater or less degree of deafness, and perhaps crackling noises. Pain is not severe and may be absent altogether. On objective examination the tympanic membrane may be a dull red or only lustreless. Bone conduction may be greater than air conduction, but only if the deafness is of considerable degree. Diagnostic inflation, by the catheter with the aid of the otoscopic tube, is our most reliable guide, and may reveal some blocking of the Eustachian tube and some whistling rales suggestive of moisture in the tube, or finer bubbling rales indicative of fluid in the tympanum, or both kinds of rales may be heard. There is nothing in the condition at first to distinguish it from a mild catarrhal otitis media, such as might pass off in a few days without treatment, but in spite of inhalations and repeated inflation it persists. Probably most of us have occasionally watched these cases for weeks. I think we should intervene earlier—doing a myringotomy under strict aseptic precautions and inflating by the catheter immediately afterwards to expel through the incision the thick mucoid discharge. The patient will, in most cases, be able to continue the expulsion by Valsalva's method. I shall quote only two cases as examples.

H. W., a male aged 57, had had ticking and singing noises in the right ear for one month; the membrane was injected and lustreless, bone conduction was increased, and a whisper was not heard close up. Bubbling noises were heard on inflation, using the otoscope. Inhalations and catheterization were employed for five weeks without appreciable improvement. Myringotomy was then performed, and while he was still under the anaesthetic the Eustachian tube was catheterized. Sticky muco-pus was ejected, and on mopping appeared like a glistening bead on the cotton-wool. The ear was kept clean by boric acid in spirit and the opening remained patent for twelve days, the blow-through sounding dry for a few days before closure. By that time a whisper was heard at 12 inches, but it took two months for complete restoration of hearing. I am of the opinion that had myringotomy been done two or three weeks earlier recovery of hearing would have been more rapid. In this case a marked deflection of the septum was the probable predisposing cause, but in view of his age I did not suggest operation. In this class of case, however, as in the frankly suppurative cases, any abnormal condition in the nose or nasopharynx should be attended to.

The second patient was a female, aged 60. The right ear had been completely deaf for many years, the tuning-fork tests indicating a nerve deafness. Recently the left ear had also become quite deaf, following on a complete blocking of the nose, from what her medical adviser took to be an allergic condition. The membrane was lustreless but not bulging, bone conduction was increased, and a whisper was not heard close up. Both antra were dim on transillumination and yielded copious pus on lavage. Inflation of the left Eustachian tube revealed bubbling after initial blocking was overcome, and the hearing was greatly improved. After lavage had been repeated five times the nasal airways were good and the hearing restored to normal, but the antra still yielded some pus. There could be no question in this case about the connexion between the antral suppuration and the tubo-tympanic catarrh.

It remains to me to refer to the question of otorrhoea after the radical mastoid operation. Even in the hands of the best operators a certain proportion of operations

fail to achieve complete cessation of the discharge, and it is generally the anterior end of the cavity that is at fault. As a rule, on inflation by Valsalva's method, muco-pus appears at the Eustachian tube end, indicating that, despite all our care in curetting or cauterizing, nature has not favoured us with complete atresia of the upper end of the tube. The operation is not a failure, but it may appear to the patient as such. We are satisfied that we have excavated the cells of the danger area and put the patient in a position of safety, but he was probably more concerned about the annoying discharge, and this continues.

In these cases also, may it not sometimes be the other end of the Eustachian tube we have neglected? Every case of chronic otorrhoea should be carefully studied from every point of view before the mastoid operation is undertaken, and if there is anything in the nose or nasopharynx which might interfere with the health of the Eustachian tube correction of this should be included in the scheme of treatment. If the case is not urgent, I begin with the minor conditions while instituting careful intensive local treatment of the ear, and one is quite frequently surprised to find that the mastoid operation is not required although long periods of local treatment have hitherto been unsuccessful, the case thus proving to be mainly a tubo-tympanic infection when it had all the appearances of a chronic mastoiditis. If the discharge does not dry up we go on to the mastoid operation with confidence that everything is in as good train as may be for a satisfactory outcome. In the numerous cases in which pain, pyrexia, or other signs indicate the need for an immediate mastoid operation, the unhealthy condition in the nose or nasopharynx should be rectified as soon as the patient is fit. Here again, as in the cases referred to earlier, the length of stay in hospital is not prolonged if the minor operations are timed to take place about a week after the mastoidectomy.

Concluding Remarks

In conclusion, I do not wish to seem to minimize the importance of the local treatment of the ear—this must be assiduous as long as may be necessary. I favour the dry treatment as a rule, doing intratympanic irrigation or meatal syringing only as often as is required for removal of debris. After each irrigation the middle ear and meatus should be completely dried by successive mops, aided by catheterization or Valsalva's method. The meatus is then filled with dry boric powder or with the powder suspended in spirit. Nor do I belittle the help that some claim to get from intratubal treatment, but I think the centre of gravity lies at the other end of the Eustachian tube, and that the nasopharynx, with its adjacent cavities, should be explored in every case of tubo-tympanic infection.

In its latest publication, *Standard Code of Industrial Hygiene*, the International Labour Office turns its attention to the lot of workers employed in factories, workshops, etc., who, without incurring specific risks, are nevertheless exposed to the dangers resulting from unhygienic working conditions. There are forty-six clauses in the *Code* covering all matters affecting the health of workers in premises at and above ground level, workrooms below ground level, work under shelters, pent-houses, etc., and unhealthy or offensive trades. It is not intended that the *Code* should serve as a standard system of regulations for general adoption, but rather as a guide for those concerned with the health of the industrial worker. The pamphlet may be obtained from the publishers, P. S. King and Son, Ltd., Orchard House, Westminster, S.W.1, price 1s. 6d.

ELECTRO-COAGULATION OF THE PROSTATE

IMMEDIATE AND LATE RESULTS

BY

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Perurethral methods of treating prostatic obstruction, though still in their period of trial, are undoubtedly finding a place in the field of surgical therapeutics. I feel, therefore, that a report on a short series of cases, most of which were operated on over five years ago, is of interest, and particularly so from the point of view of later results. The method of operating used in this series is one that I evolved as a result of experimental work in 1926, and first put into use in February, 1927.

The technique is described in the *British Medical Journal* of December 8th, 1928, and what I am writing now is supplementary to what I then wrote.

Technique

Briefly, the technique entails the use of two instruments (Fig. 1):

1. *The Diathermy Catheter*, with a coude bend and a small metal tip, which can be activated from a diathermy machine. It is used for filling and emptying the bladder and for coagulating the tissue that is causing obstruction of the vesical orifice. The manipulation of this instrument is controlled by vision through:

2. *The Suprapubic Cystoscope or Prostatoscope*.—This latter instrument is introduced into the bladder by suprapubic puncture. Through it a clear view is obtained in one field and from above of the whole vesical orifice and its surrounding abnormalities (Figs. 2 to 5).

By the combined use of these instruments any obstruction that may be encroaching on the vesical orifice can be clearly visualized and coagulated with selective precision. Since the technique was first introduced I have made two modifications:

1. The original diathermy catheter was insulated with a cover of boilable lacquer. This insulation was found to be inadequate. The minutest crack in the lacquer allowed the current to leak and cause a burn of the urethra. I have had two cases of papilloma of the bladder in which the technique described above was being used, where the urethra was burnt in this way—one slight, and the other extensive and serious. The risk of this occurring has now been eliminated by covering the lacquer with a thin metal sheath. This serves the double purpose of protecting the lacquer, and, should a leak occur, the whole length of the

instrument becomes warmed, and no damage is caused to the urethra.

2. Before withdrawing the sheath of the suprapubic cystoscope a piece of rubber tubing is passed through it into the bladder for drainage. This is a valuable modification of the technique, for it acts as a safety valve should the catheter become blocked; it lessens the risk of pre-vesical cellulitis; it provides an effective way of irrigating the bladder for as long as is necessary after the operation, and helps very materially to combat the effect of sepsis. The fistula will close in two to four days after the removal of the tube.

Choice of Cases

All cases with undoubted and persistent symptoms of prostatic obstruction, in which on rectal examination the prostate was large, smooth, and movable, and in which the clinical condition and renal functions were satisfactory, have been submitted to suprapubic prostatectomy. The remainder, provided they were not obviously moribund, were treated by electro-coagulation.

It will thus be realized that the technique has been put to a severe test, and this should be taken into account in assessing its value as judged by results. The ages of the patients have varied from 50 to 84 years, and the duration of symptoms from two months to ten years. Frequency was present in all the cases, and eighteen had varying degrees of incontinence. No fewer than twenty-five cases had retention of urine on admission to hospital.

This high figure is accounted for by the fact that many of the cases were admitted as emergencies into a Poor Law hospital, where the proportion of such cases is high as compared with those with less acute symptoms.

Physical Examination

The usual general survey of the patient was made. In the selection of suitable cases for electro-coagulation rectal examination is of the utmost importance. Those cases with marked enlargement and prominent bulging into the rectum are best treated by prostatectomy. Cases suitable for electro-coagulation are those where the prostate is only slightly enlarged, those where the enlargement is chiefly in an upward direction, and those in which the prostate is smaller than normal.

In this series twenty-one were noted as being larger than normal, eleven as being smaller than normal, and the remainder normal. Residual urine varied from two ounces to complete retention. Pyuria was present in nineteen cases. The blood urea was estimated in all the cases except seven.

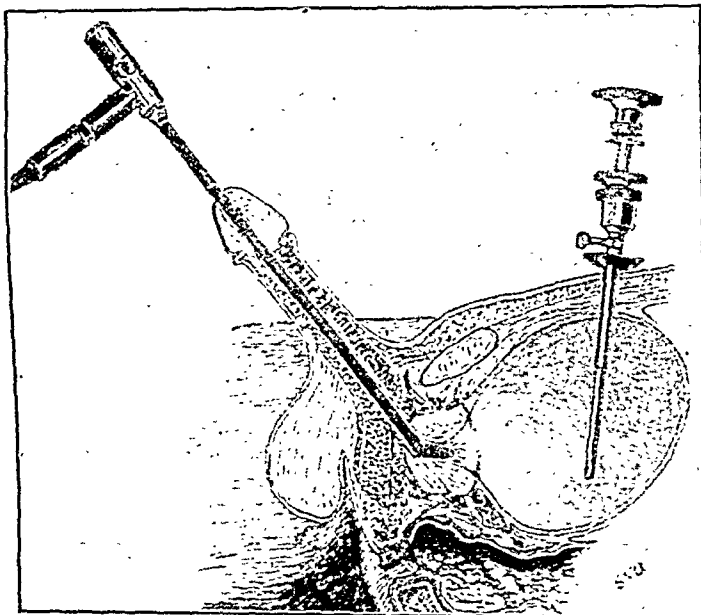


FIG. 1.—The cystoscope should have been shown as entering the bladder nearer the pubic symphysis and in a vertical direction.

The results are shown in the following table:

Blood urea in mg. per 100 c cm.	30-39	40-49	50-59	60-69	70-79	80-89	90-99	Over 100
No. of cases	8	5	11	3	2	2	3	1

Perurethral Cystoscopy

Wherever the diagnosis of prostatic obstruction was reasonably clear cystoscopy was not carried out. In the main the cases that did not require this examination were those with definite enlargements and those that had been admitted with retention and had been relieved by

were noted. These observations were of considerable value in the small or slightly enlarged prostate, and gave definite evidence as to the portion of the vesical rim that was causing the obstruction and required coagulating. I found it impossible to estimate with any degree of accuracy the size of the prostate by perurethral methods, and much more dependable information on this point was obtained by rectal examination and by using the suprapubic cystoscopy.

In brief, the value of perurethral cystoscopy and urethroscopy, where this technique is used, is to show that there is no obstruction in the urethra other than in

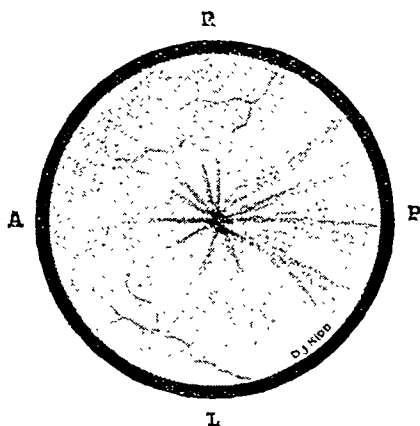


FIG. 2.—The normal vesical orifice.

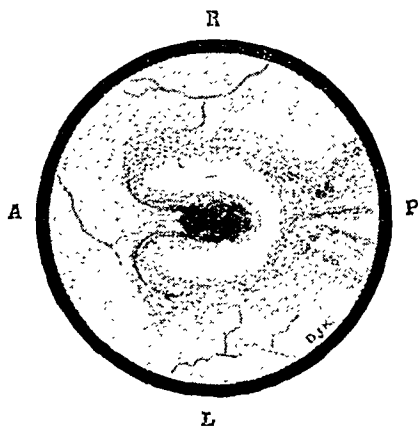


FIG. 4.—Case 31. Bilateral and commissural enlargement. Electro-coagulation. Normal relief.

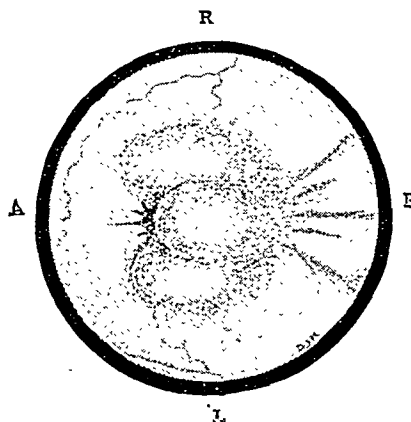


FIG. 3.—Case 5. Bilateral and middle lobe enlargement of the prostate. Treated by electro-coagulation. Normal relief.

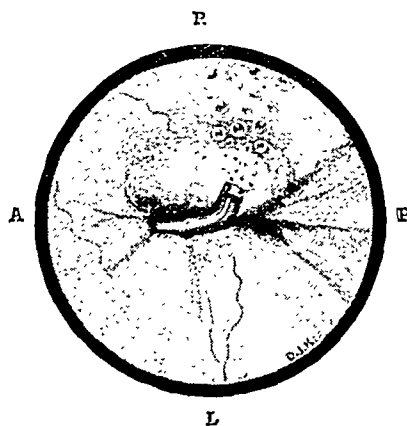


FIG. 5.—Case 40. An enlargement of the right lateral lobe being coagulated. Normal relief.

catheter. In cases where the symptoms had some atypical features, and where the prostate, on rectal examination, was small, cystoscopy was as a rule carried out. The type of cystoscope used was one allowing of prismatic and direct vision.

A general survey of the bladder and trigone was made. Trabeculation was particularly looked for, and calculus and tumour were excluded. Attention was now directed to the prostate itself, and any gross finding noted. The experimental practice of plotting out a series of cystoscopic fields, and from these making a composite picture, was given up early in the series, for it was found that the information obtained was not worth the trouble it entailed and the extra intraurethral manipulation that the investigation involved. Before withdrawing the sheath of the cystoscope a direct-vision telescope was inserted, and as the instrument was withdrawn the contour of the vesical orifice and the encroachments on the prostatic urethra

the prostatic portion and at the vesical orifice, to exclude other conditions of the bladder that might account for the symptoms, and to ascertain if there is trabeculation of the bladder as indicating obstruction of the urinary outflow. It may be taken as an axiom that if there is trabeculation of the bladder and no stricture of the urethra, there is obstruction at the vesical orifice, however unconvincing the signs may be from perurethral cystoscopy and examination of the prostate itself.

Immediate Results

The convalescence of these cases has in the main been uneventful and free from anxiety. While the suprapubic drainage tube and the catheter drained the bladder the patients were comparatively comfortable. After these had been removed, and up to the end of the third week after operation, they complained of varying degrees of bladder irritability—frequency, precipitant micturition,

and dysuria. During this period the sloughs are separating, and as a rule they come away in small fragments and are passed per urethram without any difficulty. There has been a remarkable absence of haemorrhage, which is a striking contrast to what occurs in the resection and punch operations. In no case has there been primary haemorrhage. Trivial secondary haemorrhage occurred in three cases; in none of these did it last more than forty-eight hours, and it ceased entirely after the passage of fragments of slough.

Incontinence occurred in six cases. In all of them it was temporary. In one case the cessation of the incontinence coincided with the passage of a medium-sized slough. Inflammation round the vesical orifice and consequent dysuria is to be expected after treatment by perurethral methods. In ten cases it was more marked than usual, and lasted for varying periods up to three months. Epididymitis occurred four times—bilateral in one and unilateral in three instances. The inflammation cleared up in all cases with expectant treatment. In seven cases large sloughs formed, giving rise either to difficulty in micturition or to temporary retention. In five of these the slough was passed naturally, with great relief to the patient. In one case it was evacuated by means of a Bigelow's evacuator, and in the remaining case it was removed in the jaws of a small litholite after being crushed, the procedure being controlled by means of the suprapubic cystoscope.

Prevesical suppuration occurred in two cases. The first was the tenth of the series. The suppuration was extensive, and a suprapubic incision had to be made to evacuate a large quantity of pus. All cases after this one have had a tube inserted into the bladder, and only one case of this complication in a mild form has occurred since.

Remote Results

All the cases that are here reported were operated on during the five years 1927-31. In twenty-nine cases it is more than five years since the operation, and in the remaining thirteen from two to five years. The following table gives an analysis of the results.

Normal relief	...	...	50	per cent.
Partial or temporary relief	...	...	22.2	" "
No relief	...	...	11.1	" "
Died...	...	...	16.6	" "

Not traced: 6 cases.

For the purpose of this classification "normal relief" means that the patient passes his urine in a good stream, has no frequency and no dribbling, and does not get up to micturate more than once in the night. This is a very high standard of relief, and were it lowered a little the number in this category would be considerably higher.

Partial Relief

In this group six cases derived very considerable relief from the operation, but could not be classified under "normal relief" because frequency, though diminished, was still present. The following two had marked relief for a period, and then the symptoms returned.

Case 32.—Kept well for two years, when symptoms began to return. X-ray investigations showed stone in the lower end of the left ureter and a medium-sized stone in the bladder. Three months after return of symptoms the patient was operated on elsewhere. The left ureter was opened and the stone pushed into the bladder, which was then opened, the stones being removed and the prostate enucleated piecemeal with difficulty; the patient died on the fourth day after the operation.

Case 35.—Had marked relief for three years; then his symptoms began to return. Three and a half years after the electro-coagulation a suprapubic prostatectomy was carried out elsewhere. There was no difficulty in enucleating the prostate. The patient died the sixth day after the operation.

Unrelieved Cases

Three examples of this group are given below.

Case 14 was 84 years of age, and in a very feeble condition. Electro-coagulation gave him slight relief, but he returned in fifteen months with retention of urine. No further operation was done, but he improved after being catheterized for a few days. Twelve months later he "died of old age."

Case 16.—Had had frequency and incontinence for ten years before admission. The incontinence continued in spite of two electro-coagulation operations, one eleven months after the other.

Case 34.—Had two friable stones removed by litholapaxy at the same time as the electro-coagulation. He was readmitted twelve months later with a recurrence of symptoms, when prostatectomy was carried out and another stone in the bladder removed. He died three months later.

Causes of Death

There were six deaths in the series.

Case 6.—Was admitted with clinical signs of uraemia. He had a large prostate with bilateral and commissural enlargement. Blood urea, 75 mg. per 100 c.cm. During the fourth week after the operation his blood urea was up to 180 mg. per 100 c.cm., and he died of uraemia. (This was an early case in the series, and my enthusiasm rather warped my judgement. This patient should not have been operated on, as his trouble was too far advanced.)

Case 19.—Ten days after operation this patient passed urine freely and had no residual; could hold urine for five hours. Nine weeks after operation he had repeated attacks of epistaxis, from which he died a week later.

Case 21.—This patient was 80 years of age, and had suffered from diabetes for several years and haematuria for three months. His blood sugar was 333 mg. per 100 c.cm., and his blood urea 52 mg. per 100 c.cm. The blood urea went up to 85 mg. per 100 c.cm. on the seventh day after the operation, and on the eighth day he became comatose and died.

Case 26.—Had marked cystitis at the time of diathermy and twelve small vesical calculi, none of which was larger than a small pea. He died on the third day after operation, and the post-mortem examination showed an ascending pyelonephritis.

Case 28.—Admitted with retention of urine and a history of having had incontinence for six months. A small adenoma growing from the right side and filling the vesical orifice was destroyed. His convalescence was normal. On the eleventh day he was emptying the bladder completely without any difficulty. During the fifth week after the operation he became insane, and had to be transferred to a mental ward, where he subsequently died.

Case 29.—Admitted with chronic myocarditis, cystitis, and incontinence of urine. Electro-coagulation of left lobe was done. He had marked cystitis, which began to improve after the eighth day. It never completely cleared up. His cardiac condition became worse, and he died on the thirty-seventh day after the operation.

These cases illustrate in a striking manner what bad risks many of the patients in this series were. Case 26 was the only death that was directly attributable to the operation. In the light of subsequent experience I do not think this patient was suitable for treatment by this technique. A cystotomy was the only procedure that was feasible in his case. It seems unreasonable to blame the technique for the death of Case 21.

Untraced Cases

The untraced cases call for no comment. The immediate results were no better or no worse than the average, and there is no reason to think that had it been possible to trace them they would have materially affected the statistics.

Summary

1. By means of the technique described above the whole of the vesical orifice and its immediate surroundings can be seen in our field, and any tissue obstructing the orifice can be destroyed with selective precision.

2. The method has been put to a very severe test, inasmuch as all cases that were not suitable, or were in too bad a condition, for suprapubic prostatectomy were, provided they were not moribund, treated by it.

3. The immediate and remote complications and results are described.

4. Normal relief was obtained in 50 per cent. of the cases, and this standard of relief has been maintained for over five years. By using a little discrimination in the selection of cases, and with increasing experience, the proportion of cases enjoying normal relief would probably exceed 80 per cent.

5. The death rate directly attributable to operation by this technique is very low, even when the worst possible risks are dealt with. By eliminating the very bad risks it can probably be reduced to less than 1 per cent.

RESIDUAL INFECTION OF THE JAWS

BY

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"Residual infection" is a term employed in dental surgery to describe an obscure and indefinite condition occasionally met with in edentulous mouths, or in areas from which teeth have been removed. The condition has recently aroused much interest, but as yet the bone pathology has received little attention. It is proposed in this paper to review the pathology, aetiology, and treatment of residual infection with reference to cases which have come under the writer's personal observation.

The Condition Described

Clinically, a case of residual infection presents certain definite features. The patient is unwell himself, and has the appearance of a mild toxæmia; he is easily tired, and finds difficulty in concentrating his attention on any one subject for a prolonged period. When the upper jaw is affected antral disease is frequently present, and rheumatic pains and digestive disturbances are common. On examination the mucous membrane covering the affected ridges is found to be red and inflamed, and a number of pin-point ulcers, white in colour, are sometimes noted. The area is tender and the underlying bone may be rough, especially in the lower incisor region. The x-ray appearance is difficult to describe. In the lower incisor region the appearance may be that of an excrescence, while in the upper jaw the usual appearance is one of ill definition of the bony trabeculations.

The final diagnosis is made by culturing organisms taken from the affected region by means of a small round-headed dental burr, which is dropped into a broth tube. Cultures from positive cases are generally pure, and the infection is most frequently streptococcal in nature.

These patients have usually had very badly infected teeth, which have been removed by forceps. The infected bone has not been removed, and, because of poor resistance on the part of the patient, or as a result of some other factor, resolution of the alveolar bone does not take place, and the condition of chronic infection becomes established.

Treatment

The condition requires treatment not only of the local symptoms, but also of the general debility. Medical diathermy has been recommended, but in the writer's experience it does not produce a permanent cure. Operative treatment can be very satisfactory if it is thorough, but the mere removal of any bony excrescence is not sufficient. This may relieve dental discomfort, but will not benefit the patient's general health. It is essential to

remove as much as possible of the septic bone, while maintaining the shape of the alveolar ridge to assist in the subsequent fitting of dentures. When there is widespread infection of bone the operation may be done in several stages, using a local anaesthetic. It may, however, be more satisfactory to give an intratracheal anaesthetic.

A horizontal incision is made in the muco-periosteum on the outer side of the ridge, approximately midway between the crest and the sulcus, and the muco-periosteum is reflected from the ridge and held aside. With a sharp chisel the outer compact layer of bone is pierced, giving access to the cancellous portion. The soft bone lying between the outer and inner alveolar plate is curetted away and the resulting cavity swabbed out with acriflavine in normal saline (1 in 1,000). The area is then packed with acriflavine in glycerin for a period of five minutes. This produces a hyperaemia, and, in consequence, the tissues are thoroughly flushed out. All sharp edges of bone are trimmed off and the soft tissues carefully sutured in place.

Post-operative treatment consists of rest for several days after the operation. A mildly antiseptic mouth-wash is used every four hours, and pain can be controlled by the use of aspirin. A plaster of hot antiphlogistine, applied externally to the face, is very soothing. The sutures are removed on the fourth day, and pain and swelling have usually gone by the seventh. Dentures may be fitted in approximately four weeks after the operation.

Case Records

The following are four selected cases which illustrate the results obtained.

Case 1.—The patient had suffered from ill-health for many years, the chief trouble being arthritis of the hip-joint. He had had antrum, appendix, and teeth operated upon. For two years after the removal of the teeth his dentures were troublesome. X-ray examination showed the bone in the lower premolar, lower central incisor, and upper molar regions to be abnormal. A spear-point culture from the lower incisor region gave a growth of *Streptococcus haemolyticus*. At operation soft bone was removed from the affected regions. Three months after the operation dentures were fitted. These proved comfortable, and the general health was better.

Case 2.—The patient was suffering from bilateral antral empyema of fifteen years' duration. The radical operation had been performed and all the teeth extracted ten years previously. When the antral cavities were washed out pain was felt in the molar regions. X-rays showed dark areas in the upper molar and premolar regions. Spear-point cultures gave growth of *Streptococcus haemolyticus* and *Staphylococcus aureus*. The infected areas were curetted, and within two months the discharge had ceased and dentures were fitted.

Case 3.—The patient had bilateral antral disease, and the ridges of the upper jaw were tender to pressure. X-ray examination showed abnormal bone in the upper premolar and molar regions. The outline of the tooth sockets could be seen in the incisor region. Spear-point culture gave growth of *Streptococcus haemolyticus*, non-haemolytic streptococcus, and *Staphylococcus aureus*. A quantity of diseased bone was removed and the antral disease cleared up.

Case 4.—The patient had suffered from sciatica for more than a year, and manipulative treatment had given no result. X-ray examination revealed areas of bony rarefaction in the upper right first premolar region, this tooth being absent. Spear-point culture gave *Staphylococcus aureus* in pure culture. The affected area was curetted and a vaccine was prepared from the culture. Three months later the sciatica was gone, and the patient was enjoying normal health.

I wish to acknowledge indebtedness to Dr. Hanschell and Mr. Walters for facilities for laboratory work, and to Captain W. A. D. Drummond for assistance on the clinical side.

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Clinical Memoranda

CYST OF THE THYMUS IN A NEWBORN BABY

According to the literature tumours of the thymus gland appear to be of extreme rarity. Osler quotes that not more than a hundred cases have been recorded. The commonest types of tumours seem to be sarcomatous in nature, while cysts have been regarded as being syphilitic in origin.

I recently encountered a case of cyst of the thymus gland which is sufficiently interesting to warrant publication.

On June 21st, at 9 p.m., I delivered a patient of an apparently healthy full-time female child, after a labour of about six hours. The confinement was a perfectly normal one and no instruments were used. From the moment the baby was born it cried incessantly. Having examined the infant, which seemed physically quite sound, I left the house at about 9.45 p.m. I was called out at 8 o'clock the following morning by the father, who informed me that the baby had been crying all night, and now appeared to be dying. On arrival at the house I found the child was dead.

On June 24th I performed a post-mortem examination. The baby weighed about 6½ lb. There was no evidence of external violence to be seen. When the thorax was opened the most outstanding feature was the presence of a large globular swelling on the antero-lateral aspect of the right side of the thymus gland. On further examination this swelling proved to be a cyst about as large as a walnut, which appeared to be growing downwards and backwards. Immediately behind the inferior extremity of the cyst lay the ascending aorta. A thick, glairy fluid was expelled from the tumour. The thymus gland itself was greatly enlarged, and seemed to occupy a good deal of the upper portion of the thorax. No other abnormality was discovered at the examination except for a small cyst on the upper pole of the left kidney.

As a result of these findings I concluded that death was due to syncope caused by pressure of the enlarged thymus and cyst on the aorta.

Kingston-on-Thames.

M. H. FRIDJOHN, M.B., B.Sc.

A CASE OF INTESTINAL OBSTRUCTION

The following example of intestinal obstruction of rare origin seems to merit record.

A married woman, aged 28, was admitted to the Royal Infirmary, Huddersfield, with the following history. She was quite well until two days before admission, when she commenced to have pain across the lower abdomen. This pain was continual, and, on admission to hospital, was felt more on the right side of the lower abdomen. She had no vomiting, and there was no history of bowel trouble. Micturition had been scalding for the last two weeks, but there was no frequency. Her last period was seven days before admission, and for about a year she had suffered from leucorrhoea, which was yellow and irritating.

Examination.—The abdomen was moving fairly well. Tenderness was marked in the right lower abdominal quadrant, and there was some rigidity. A tender, but not movable, mass was felt in this area. There was no abdominal distension, and nothing of importance was revealed per vaginam. It was thought that the most likely diagnosis was an appendix mass. Temperature 100°, pulse 96, respirations 22.

Operation.—A Battle incision was made, and the following were the findings. The last eight inches of the small intestine and the caecum were very enlarged and hard. The small intestine above this was only slightly distended. Under the impression that the condition was some unusual form of tuberculous caecum, because of the small bowel involvement, or perhaps one of neoplasm, an ileo-transverse colostomy was performed, and as the small intestine above the mass was not much distended and the patient's condition good, a

resection of the affected ileum with the caecum and ascending colon was performed, it being necessary to enlarge the original Battle incision to permit this (the nerves being preserved). The specimen was opened, and was found to be packed with small particles that looked like pieces of wood, about 3 by 1½ mm. The mucous membrane of the affected ileum and the caecum was extensively ulcerated, there being little normal mucous membrane left. The thickening of the wall of the bowel constituted a kind of solid oedema.

Progress.—On further questioning the patient it was discovered that she was very fond of coco-nut macaroons. It appears that she had made some of these cakes three days before admission to hospital, and had eaten the material which was left in the pot. The substance in her bowel was coco-nut. The presumption is that it had formed into a mass in her stomach and had passed to the ileo-caecal region, where it had become impacted. The patient made an uneventful recovery, leaving hospital quite fit. I am indebted to Mr. Pye-Smith for permission to publish this case.

ARTHUR H. RICHARDSON, M.B., F.R.C.S.,

Resident Surgical Officer, Huddersfield
Royal Infirmary.

LIGATURE OF EXTERNAL ILIAC ARTERY AND VEIN IN A MAN AGED 67

A man, aged 67, who had been a labourer in a gas-works and had frequently been in contact with tar, presented himself with a raised ulcerated area on the left side of the scrotum of many years' duration. Removal of the growth, with both testicles and clearance of some slightly enlarged inguinal glands, was carried out; section of the growth showed it to be an epithelioma, and section of the lymph glands showed chronic inflammatory change only.

The patient was seen eight months later. He had a swelling in the left Scarpa triangle at its upper part, there being a transmitted pulsation from the underlying femoral vessels; the lump was the size of a hen's egg, and was fairly well fixed to the deep structures. It was thought hazardous to remove the malignant gland—for such it proved to be—at once for fear of being forced to tie off the vessels *in situ* as a necessary part of the operation, and it was decided to tie off the external iliac artery and vein as a preliminary operation and remove the gland when a collateral circulation had been established.

The classical incision parallel to and above the outer part of Poupart's ligament was made and the vessels reached by stripping up the peritoneum; the vessels were tied off separately by means of a double thickness of No. 4 catgut and a lymph gland of the external iliac chain removed; this on section showed chronic inflammatory changes only. The leg was kept warm in cotton-wool, and an electric lamp put inside the protecting cradle; during the first nine days after operation there was no cause for anxiety, and it was noticed that the tumour in Scarpa's triangle was decreasing in size. On the tenth day his left leg swelled and became painful; then it was feared that gangrene might set in: it was concluded that during the nine days after operation the amount of blood delivered by the collateral arteries was exactly balanced by the amount of blood drained away by the collateral veins, and that on the tenth day there was a sudden full opening out of the collateral arteries without a corresponding dilatation of the draining veins, and the obvious remedy was raising the foot of the bed as high as possible to invoke gravity. The swelling subsided during the next twenty-four hours. The gland was removed without event a few days later, and it was found possible to dissect it from the vessels with the sole sacrifice of the internal saphenous vein; the patient made an uninterrupted recovery.

A section of the gland showed the cells to be similar in type to those of the parent growth.

Longtown, Cumberland. ROBERT RUTHERFORD, F.R.C.S.

Reviews

PREVENTIVE ASPECTS OF MEDICINE

A series of lectures conducted at King's College Hospital Medical School in 1933-4 has now been published by the *Lancet* under the above title.¹ The General Medical Council has recorded its view that throughout the whole period of medical study the attention of students should be directed to the preventive aspects of medicine, and the Committee on Medical Education of the British Medical Association says in its recently published report that "from the beginning of the curriculum, and throughout, attention should be directed primarily to health, its preservation, perfection, or restoration, and not to disease." But there is advantage also in bringing together and summing up, for the benefit of both the student and the practitioner, the present volume of knowledge about the prevention of disease and the applications of this knowledge which fall within the range of day-to-day medical practice. This is what the book under review sets out to achieve. Altogether twenty-five lecturers, each a recognized authority on a branch of medicine, contribute articles which are, in most cases, models of concision, clearness, and accuracy. Names like those of Newman, Leonard Hill, Still, Glover, Greenwood, O'Brien, Poynton, Briscoe, and Topley convey a guarantee that the facts given are reliable and the views expressed are abreast of the times. There is, of course, no attempt to cover the whole field of public health: environmental hygiene is dealt with only in so far as it touches upon the work of the general practitioner. Otherwise the book covers the range of preventive medicine as applied, from the modern point of view, to the individual's mode of living. It is well printed, light to the hand, and contains a full index.

FILTERABLE VIRUSES

It is five years now since Dr. P. HAUDUROY produced his first book on filterable viruses. It was not confined solely to filterable viruses, but considered also the question of filterable forms of bacteria; in fact, quite a considerable space was devoted to the latter subject. The rapid advance made in our knowledge of filterable viruses since 1929 convinced Dr. Hauduroy that to bring his book up to date meant rewriting it. This he has done, and the result is an entirely new book entitled *Les Ultravirus Pathogenes et Saprophytes*,² concerning itself solely with the filterable viruses. The author has done wisely to exclude the filterable forms of bacteria, for, as he rightly says, these differ obviously from the filterable viruses and require separate treatment. This is not the only improvement; the whole book strikes one as better done, better balanced. The first portion, some sixty pages in extent, is devoted to technique—a valuable addition. It is perhaps inevitable that a national or even individual outlook should pertain where technique is concerned, but there is little excuse for passing over Elford's work when dealing with ultrafiltration. The sole reference to him here concerns the sterilization of collodion filters with ultra-violet light! And the section on staining viruses is inadequate: no mention is made of the use of Giemsa's or Castaneda's stains. Still there is much sound and valuable advice in these technical chapters.

The main portion of the book is devoted to a description of the different viruses pathogenic for plants, bacteria

(bacteriophage), insects, birds, and mammals. The plant virus section is very sketchy—half a dozen pages in all. This is insufficient for a consideration of the many interesting facts which have been discovered in connexion with these plant diseases, particularly those concerning transmission. The section on bird viruses is quite comprehensive, but one is tempted to question the use of the term "parapsittacosis" for the virus of Pacheco. Apart from the fact that both this virus and psittacosis virus produce an illness in the parrot there is no resemblance, and, after all, the appearance of a sick parrot has little that is distinctive whatever the cause. The description of the mammalian viruses takes up about half the book. It is a little uneven, some sections being well done and quite adequate, others sketchy and inadequate. Trachoma, for instance, is dismissed in a dozen lines and warts in five, yet trachoma has been the subject of much interesting research, and Shope's work on papillomatosis of rabbits had given added interest to the question of warts. And the description of influenza finds no mention of the Hampstead work. Surely there was time to include this in view of its importance.

The closing chapters are of a general nature, such as the physical characters of viruses, their physiology, immunity to virus infections, their nature and origin, and the existence of saprophytic examples of this group of micro-organisms. Dr. Hauduroy is convinced that viruses are living things, and in the main his views conform closely to those held by the majority of virus workers in this country. The remarks on false invisibility strike the right note, but one is astonished to find vaccinia and herpes placed in the same size category as foot-and-mouth disease and the bacteriophage. Elford's work is completely overlooked, and Barnard's, too, for that matter, which is surprising since the author has obviously read widely in the virus literature. It is a pity, also, that the book has no index.

Although the modern textbooks of bacteriology devote a considerable space to a consideration of the filterable viruses, there is still room for a small book giving a reliable account of these agents which will serve as an introduction to the subject. Dr. R. W. FAIRBROTHER'S *Handbook of Filterable Viruses*³ is just such a book. The author has a first-hand acquaintance with his subject. What is more, he has kept an open mind on the various controversial points inevitable in a rapidly developing study such as this one, and so is well fitted to the task he has set himself. The book is confined to those filterable viruses which cause disease in man. It opens with a brief historical outline, and then passes to a consideration of the nature of these viruses. The statement in this chapter (p. 11) that "there is every indication that the viruses . . . form a very heterogeneous group" is rather sweeping, and in the section on centrifugalization it seems rather misleading to cite some of the earlier experiments on psittacosis as an example of the errors inherent in this type of experiment. It was by means of the centrifuge and with this virus that it was first shown that the virulence and other specific properties resided in the elementary bodies. Following this are chapters on cultivation and microscopy and on epidemiology and immunity, both quite good, though we do not understand why the author should still have doubts about the test-tube immunity reactions. Classification has been wisely left alone, the viruses being merely grouped under the headings accepted, probable and possible. It is under these headings in the second half of the book that the viruses known to infect man are described. No one could expect to write a book

¹ *The Preventive Aspects of Medicine. A Series of Lectures delivered at King's College Hospital Medical School. London: The Lancet Ltd. 1934. (Pp. 376. 10s. 6d. net.)*

² *Les Ultravirus Pathogenes et Saprophytes. Par Dr. Paul Hauduroy. Paris: Masson et Cie. 1934. (Pp. 462. 60 fr.)*

³ *Handbook of Filterable Viruses. By R. W. Fairbrother, M.D., M.R.C.P. London: William Heinemann, Ltd. 1934. (Pp. 193. 7s. 6d. net.)*

on this subject which would meet with general and unqualified approval, but Dr. Fairbrother has steered a very satisfactory middle course. It is the best book of its kind which has been produced, and can be strongly recommended to students of medicine who wish to know something of this important group of disease agents.

BASSINI'S OPERATION

It is just fifty years since Bassini of Padua published his method for the radical cure of an inguinal hernia, and in the next five years he operated upon 216 cases, in 200 of which the operation was a complete success. When we consider that this was a new operation of a complicated nature carried out before the days of aseptic technique, we must admit that such an achievement marked an epoch in the history of surgery. The original description of the operation was, however, lacking in detail, and its tradition is therefore far from exact. Professor CATERINA of Genoa, a pupil and assistant of Bassini, has now rectified this in a manner fully worthy of the great teacher to whom the book¹ is intended as a tribute.

The volume consists of a very clear and exact description of the operation, which is in itself of value, but its chief glory, and one which places it on an entirely new plane in surgical literature, is a series of sixteen plates illustrating in colour on their natural scale the full details of the operation. The plates have been executed by Dr. Orazio Gaigher from dissections prepared by Professor Catterina, and they entirely eclipse any productions of the kind which we have ever seen. Only a combination of high technical knowledge with supreme artistry in water-colour drawing could have produced such exquisite work. As a precise description of a particular operation the book is of real value, but as an artistic production it will be the envy of every surgeon who has ever attempted to describe his work.

An English translation has been published almost simultaneously by Messrs. H. K. Lewis at 30s.

SPINAL ANAESTHESIA

Dr. G. R. VEURS begins the preface to his volume on *Spinal Anaesthesia*² with the following sentence: "This book constitutes a survey of the experimental and clinical records in the field of spinal anaesthesia for the past forty-nine years." This statement is definitely misleading, and the reader who turns the pages for details in the administration of stovaine or percaine will receive a rude shock. Practically no mention is made of these two drugs, which are still serving a useful purpose both in this country and on the Continent. Stovaine held the field for many years, and it is surprising that no mention, except in a list of references, is made of Barker's work with heavy solutions of this drug. As a practical handbook in the use of novocain for spinal anaesthesia, however, this book has much to commend it. The author has evidently taken considerable pains to perfect his technique, and it would appear that, in his hands, spinal anaesthesia with novocain is perfectly controllable.

The opening chapters deal with the anatomy and physiology of the central nervous system, and with the characters of the cerebro-spinal fluid. Although the chemistry and physics of the fluid are dealt with no mention is made of its specific gravity—a curious omission in a work of this sort. It is also a little startling to see that one of

¹ *L'Opération de Bassini pour la Guérison Radicale de la Hernie Inguinale*. Par Docteur Attilio Catterina. Paris: Félix Alcan. 1934. (Pp. 57; 16 plates.)

² *Spinal Anaesthesia: Its Technique and Clinical Application*. By George Reuben Veurs, M.D. London: H. Kimpton. 1934. (Pp. 229; 84 figures, 21s. net.)

the functions of the cerebro-spinal fluid is to permit anaesthesia. The same might be said of the respiratory tract or the rectum. Chapters are devoted to circulation and respiration, and the effect that a spinal anaesthetic has on these two systems. The author discusses fully the action of novocain on the spinal nerves, and explains why the motor block produced is usually less in extent than the sensory block. In his own practice he claims to produce the required amount of anaesthesia, and for the requisite time, by varying the dose of novocain injected and by varying the posture of the patient after injection.

In spite of its omissions this book should provide much of interest to those who frequently employ spinal anaesthesia. It is well produced, and there are numerous illustrations and diagrams. There are also good lists of references at the end of many of the chapters.

AN IRISH MEDICAL MANUSCRIPT

The fifth fasciculus of *Irish Texts*³ is a handbook of gynaecology and midwifery translated or adapted from the *Rosa Anglica* of John of Gaddesden and from the *Trotula* of the school of Salernum. It is preceded by a treatise on the treatment of wounds, by some good counsel to the physician himself, and by a discussion on the treatment of scabies. The transcription has been made by WINIFRED WULFF, Ph.D., who has already edited an Irish translation of a part of the *Rosa Anglica*, and the fasciculus is dedicated to Dr. Singer and to Dr. Kirkpatrick. The manuscript is described as being written on vellum, richly illuminated, "and the age of the Lord when this book was made was one thousand years and three hundred years and twice twenty years and twelve years more; this book was finished in the year in which Shane Og Mac an Aithne was killed; and it was in the house of Dermot O'Meagher's son it was written." The names of the scribe and of the translator are not known. We are grateful to Dr. Wulff for the transcription, but there is still much work to be done in connexion with the manuscript, apart from the desire to know who Shane was, why he was killed, and where Dermot lived. Dr. Wulff has supplied parallel passages from the printed editions issued two hundred years after the manuscript was written, but this is not enough. A literal translation into Latin or English should be made for the convenience of those who are ignorant of the Irish language. It would then be possible to determine how far this early manuscript differs from the printed versions of the *Trotula* and *Rosa*.

DISEASES OF THE TONSIL

In *Modern Advances in Diseases of the Throat*,⁴ by Mr. ARTHUR MILLER, a compilation has been made of some literature mostly published during the last four or five years and relating almost entirely to diseases of the faucial tonsils. The author has relied mainly for his material on *Tonsil Surgery*, by Dr. Robert H. Fowler, and *Children's Tonsils In or Out*, by Dr. Kaiser, both of which excellent books were reviewed in these columns at the time of publication. He also makes use of the Semon Lecture delivered by Professor Kahler in 1932 and some articles and abstracts in the *Journal of Laryngology*.

The book might be useful to a reader quite unacquainted with recent literature, but as no attempt has been made to review recent work in the whole field of laryngology the title produces a feeling of disappointment. The last

³ *Irish Texts*. Fasciculus v. Edited by J. Frawley, P. Grosjean, and S. J. and J. G. O'Keefe. London: Street and Ward. 1934. (Pp. 101; 5s. net.)

⁴ *Modern Advances in Diseases of the Throat*. By Arthur Miller, F.R.C.S., D.L.O. London: H. K. Lewis and Co. Ltd. 1934. (Pp. xii + 129; 49 figures, 1 coloured plate. 16s. 6d. net.)

chapter, in which the author dismisses malignant disease of the tonsils and soft palate in three pages with an unconvincing advocacy of the advantages of diathermy, completes the impression of the superficial and ephemeral character of the book. The admirable way in which the publishers have produced the letterpress and reproduced the illustrations is worthy of a more serious contribution to the literature of the subject chosen.

Notes on Books

Dr. C. F. WHITE's *Aids to Sanitary Science** has reached its second edition. Much useful information is contained within its modest limits, but compression has sometimes resulted in sheer obscurity, as in the section on vital statistics. Further, the logarithmic method, so called, should be used only for the recalculation of erroneous inter-census population estimates. The article on meteorology does not refer to the Kew pattern barometer or to the millibar of pressure, though both these are now official at the Meteorological Office. It should be noted also that yellow fever is by no means eradicated from West Africa, and that *Leptospira icteroides* never was its causative organism. Such defects as the foregoing mar a book which, on the whole, is pleasantly written and quite frequently displays exemplary conciseness.

A new reference book, *The Author's and Writer's Who's Who*,⁹ has been launched by the Shaw Publishing Company, under the editorship of Mr. EDWARD MARTELL, with the assistance of an advisory committee. It is mainly intended as a guide-book for authors, editors, journalists, and publishers in all matters relating to their work. Its chief feature is a biographical directory of more than 600 pages, arranged in double columns on the plan of *Who's Who*. There is also a register of writers on specialized subjects, an index of works of reference and sources of information, and a directory of British and over-seas publications, together with much other classified information of interest and value to persons concerned with the art of writing or the business of literary production.

At a meeting of the Medical Association of South Africa, held at Johannesburg in November, 1932, Dr. A. S. BOYD read a paper on the "Treatment of Cancer by Modified Methods in Serum Therapy, with Record of Recovery in a Case of Secondary Sarcoma." This has now been published in pamphlet form, with illustrations, by Messrs. Oliver and Boyd, of Tweeddale Court, Edinburgh.

The second and final part of the *Handbook of Chemotherapy*,¹⁰ by Dr. V. FISCHL and Professor H. SCHLOSSBERGER, is concerned with metallic compounds, the first part (reviewed in these columns on August 20th, 1932) with the non-metallic compounds. The chief metals discussed in the part under review are arsenic (207 pages), mercury (75 pages), gold (51 pages), antimony (42 pages). Other metals are dealt with in less than twenty pages each. Iodine compounds are included in this volume (58 pages). In the first place the authors are to be congratulated on having provided an encyclopaedia of the science of chemotherapy in a volume of under 1,000 pages. This has been achieved by a liberal use of tables. For example, the article on arsenical derivatives occupies 204 pages, which are divided into 143 pages of print, 27 pages of tabular matter, and 34 pages of references. These figures indicate the general character of the book, which is essentially that of a work of reference. The need for such a work is best indicated by the fact that the references to the literature on organic arsenicals number nearly 3,000. It will certainly be found invaluable by

all who are interested in the subject of chemotherapy. Perusal of its pages impresses the reader forcibly with the vast amount of work that has been carried out in recent years in chemotherapy. The tables give data concerning the activity of thousands of different compounds, and it must be remembered that the published results do not indicate the total work performed, for in this subject a large proportion of negative findings are never published. The authors have provided a satisfactory guide to a mass of literature which is almost inaccessible owing to its bulk.

Preparations and Appliances

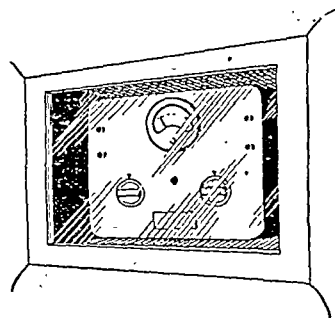
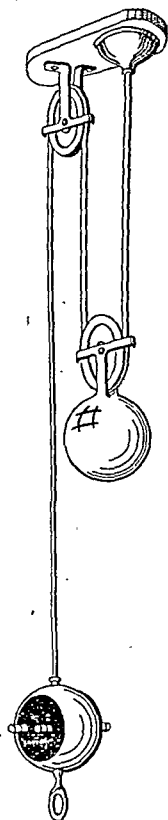
CAUTERY AND LIGHT APPARATUS IN THE OPERATING THEATRE

Dr. R. E. JOWETT (Sunderland) writes:

The apparatus described below comprises a control unit arranged for mounting on the wall. In my operating theatre this has been set in a suitable recess behind a glass panel.

The control provides a transformer, having two secondary windings for cautery and surgical light circuits respectively, each being provided with rotatory rheostats. The secondary circuits render the apparatus practically shock-proof. A voltmeter, having a scale reading from 0 to 10, is connected across the light circuit—a handy safeguard in preventing the burning out of small illuminating lamps. The considerable range necessary for bronchoscope lamps and the larger bulbs used in headlights is nevertheless available.

Leading from this control unit, cables are provided in the building to a point above the operating



NEWTON & WRIGHT LTD

table, from which point a rubber-covered multiple cable is suspended. This cable is of relatively large proportions, in order to reduce its electrical resistance to a minimum, having regard to the low voltage used in cautery work. This cable, dropping from the ceiling, is adjustable by means of a simple counterweight and pulley system, and terminates in a chromium-plated sphere fitted with two pairs of terminals for connexion of the cautery and light instruments. Cautery burners requiring current up to 30 amperes may be used.

The figure gives a good idea of the apparatus, and it will be observed that the design eliminates the use of trailing cables and "extras" near the operating table. It can be washed down, and there are no projecting parts to collect dust. The sphere is easily pushed away to give head room when working, whilst the surgeon's mobility is but little interfered with. The fitting is neat, and has proved extremely satisfactory in use.

It was made for me by Messrs. Newton and Wright Ltd., 471-3, Hornsey Road, N.19.

* *Aids to Sanitary Science and Law*. By C. F. White, M.B., Ch.B., D.P.H., D.T.M. Revised by Hugh Willoughby, M.R.C.S., L.R.C.P., D.P.H., D.T.M. and H. Second edition. London: Baillière, Tindall and Cox. 1934. (Pp. vii + 521. 4s. 6d.)

⁹ *The Author's and Writer's Who's Who, 1934*. Edited by Edward Martell. London: Shaw Publishing Company, Ltd. 1934. (Pp. 894. 15s. net.)

¹⁰ *Handbuch der Chemotherapie*. By Dr. Viktor Fischl and Professor Dr. Hans Schlossberger. Part II. Leipzig: Fischers Medizinische Buchhandlung. 1934. (Pp. 898. M. 55.)

THE BRITISH ASSOCIATION*

PHYSIOLOGY OF VISION

Two papers in the Section of Physiology dealt with theories relating to visual sensation. Dr. F. W. Edridge-Green said that it had been proved that the cones of the retina were the percipient elements for vision, but the hypothesis that their direct stimulation by light was the essential factor had been assumed in the absence of evidence to this effect. Indeed, the assumption that the colourless and transparent cones could be so stimulated was contrary to all photo-chemical laws, since no effect could be produced by light without its being absorbed. The speaker held that stimulation of the cones was effected as the result of the photo-chemical decomposition of the liquid surrounding them, sensitized by the visual purple. The rods were not percipient elements, but controlled this visual purple. He contended that this theory explained satisfactorily every known fact of vision, including numerous ones which were inexplicable from any other standpoint.

Dr. Ivy Mackenzie pointed out that the function of the anatomical substratum of human vision might be considered from the point of view of physics and biology, as well as of physiology. Physical considerations predominated in the analysis of events in front of the retina. Psychological interpretation played a large part in the events behind the *areae striatae*, while the processes between the retinae and *areae striatae* lent themselves to anatomical and physiological observation. The visual pathways between the retinae and *areae striatae* comprised the basis of visual sensation, as distinct from perception. This neural compendium was of bilaterally symmetrical conformation, and a knowledge of its constituent parts provided the main standard of reference in the localization of brain disease. In the lower vertebrates the bilateral symmetry of this neural compendium was related to the symmetrical character of somatic movement. The tendency to right-handedness in the human subject revealed a difference between the right and left sides of the brain in respect of participation in visual reaction, but only when vision was concerned with perceptual reactions.

PSYCHOLOGY OF SOCIAL PROBLEMS

The presidential address of Dr. Shepherd Dawson in the Section of Psychology contained a strong appeal for the further investigation of the mental aspects of social welfare, which, he said, had been relatively neglected in comparison with the attention paid to the material aspects. The solution of problems such as those of supply and demand, labour and capital, law and order, hygiene, housing, and local and international rivalries, were to be found ultimately in the forces which moved men to action, in their inherited tendencies and acquired habits, in the mentalities of the groups to which they belonged, and in their relations to these groups. If opinions were to yield place to knowledge, the scientific method was just as necessary here as it was in chemistry, physics, or biology. There was a real distinction between ability and capacity; the first was actual, the second potential. Ability was measurable by what could be done here and now; capacity could usually be estimated by what could be done after a course of training. All examinations were tests of ability. Innate qualities only existed with reference to certain external conditions, and must be diagnosed and measured in relation to those conditions. Where the essential training and environmental conditions varied, inferences regarding capacity could only be made with little certainty. Psychologists had hitherto been more concerned to distinguish and measure different kinds of ability which seemed to be dependent on native capacity than to prove their innate basis. It might be possible in the future to evaluate mental characters with some approximation to the accuracy with which physical characters could be assessed. What was needed was more extensive and more operative work. The fact that on

the whole the least efficient members of the community had the largest families had caused some concern, for it suggested a dilution of the national stock-in-trade. There was, however, very little exact information about the intellect of parents, the number of children who survived to establish families of their own, and their mental status. What little there was pointed to the need of further investigation, for it suggested that the casualties were higher among dull children; but that the losses were more than made good by the greater number of births. The problem was not so serious as some had maintained, but it was sufficiently serious to make this and other problems of mental inheritance worthy of investigation. There seemed to be evidence that there was a correlation between the intelligence of parent and of child; bright parents had a higher percentage of bright children, and defective parents of defective children, but defective parents sometimes had bright children. It seemed possible that the mental deficiency of either defective or bright parents might be due either to external causes or to defective inheritance. The theories of genetic inheritance which had proved to be true in the case of plants, the lower animals, and human anatomical and physiological characters, might apply also to mental characters. If this were so, it was important that these characters should be distinguished, and the manner of their inheritance traced. This would demand the co-operation on a big scale of medical practitioners, biologists, statisticians, and teachers.

SLEEP AND HYPNOSIS

Dr. William Brown, Wilde Reader in Mental Philosophy, Oxford, delivered an address in which he compared the hypnotic state with natural sleep, citing experimental and clinical evidence. Deep-going differences had been thus revealed, as well as superficial resemblances. For example, the muscles were relaxed in sleep, but rigid in hypnosis; tendon reflexes diminished with the onset of sleep, and eventually disappeared, but were retained in all stages of hypnosis. Voluntary reactions to a prearranged stimulus or signal could be elicited in hypnosis, but not in sleep. Yet sleep could pass into hypnosis, and vice versa; there was therefore reason to recognize the existence of some close relationship between them. Moreover, mental dissociation with amnesia could occur in both conditions. Both states might be therapeutically recuperative, and both involved susceptibility to suggestion. Mediumistic trance and cataleptic stupor showed close similarities with the hypnotic state. Sleep was linked up with other manifestations of these states in the phenomenon of dreaming. Measurement of the psycho-galvanic reactions in these various states had thrown further light on their psychophysiological resemblances and differences. On the neurological side the relation of sleep to hypnosis was probably best expressed in terms of Pavlov's theory, according to which both states involved an internal inhibition in the cerebral cortex; this spread to the subcortical centres in sleep, but remained limited to the cortex in hypnosis. From the therapeutic standpoint hypnosis had proved useful in some cases of war neurosis, in the recall of forgotten emotional upsets which were giving rise to such phenomena as somnambulism, and in the adjusting of disturbances referable to the deeper levels of nerve function.

Mr. W. Whately Carington described an investigation in which word association tests had been applied to three mediums in their normal states and to five trance personalities associated with them. In one case a clear-cut difference between the normal and trance personalities had been thus disclosed. In the second an equally unmistakable similarity had been found. In the third, where four personalities were involved, a complex system of relationships had been discovered. The classical view of secondary personalities, he pointed out, would anticipate significantly similar sets of reactions (determined by the common subconscious) in cases where the trance was genuine, so that no wilting misdirection occurred, and suggested that even the latter would not escape detection by the psycho-galvanic reflex. It was accordingly rather difficult to reconcile the results thus obtained with current theory.

* Continued from page 527.

VOCATIONAL GUIDANCE

The methods and results of vocational guidance were discussed by various readers of papers in the Section of Psychology. Miss J. A. Wales, who described the current methods in Berlin, outlined the arrangement for the giving of trade talks by the Ministry of Labour's vocational advisers to children who were about to leave school. She explained the organization of the juvenile departments of the employment of labour exchanges, where individual advice was given. Cases of difficulty were referred to the special medical officer if the difficulty was one of health, or to the psychological department if there was any doubt as to vocational aptitude. The results of a vocational guidance experiment in Fife were also reported. A group of 472 children attending urban and rural schools had been examined; their ages were between 11 and 12, and psychological re-examinations had followed at approximately yearly periods during the subsequent school attendance. The town children proved to be on the whole superior to the country children in abstract tests, but inferior in practical tests. The verbal tests were found to have the highest consistency in the age period under review. The follow-up studies yielded tentative estimates of the minimal qualifications necessary for various kinds of work. Mr. C. A. Oakley described a recent survey made of all the vocations which school children were likely to take up, from accountancy to wholesale selling, with a view to assisting vocational advisers in schools in dealing with normal cases. He announced that an occupational survey had been prepared, which included information about the necessary abilities and other qualities. Another survey had been made with the intention of determining what psychological tests for children over the age of 11 were at present being used in Great Britain. Mr. A. Rodger described the results of an examination by the National Institute of Industrial Psychology of 400 new Borsal boys. Of those who were subsequently put into work-parties judged suitable for them by the institute, 69.5 per cent. had proved successful. Of the control group in which the Borsal house-masters had been the sole judges, 45.6 per cent. had proved successful. He regarded this difference as statistically significant. He added that a survey of the "failures" of the National Institute showed clearly the importance of the part which should be played in vocational guidance by the study of temperament. Dr. D. B. Cattell maintained that the psychologist ought to be an integral member of the local education service. His main value was as a psychotherapist, treating difficult, neurotic, and delinquent children, who were far more numerous and much more neglected than was generally supposed. He was also needed to grade normal children, and to select defective children and those with special educational disabilities. He should design schemes of guidance, and advise on matters relating to the curriculum and school organization. A nucleus of teachers should be trained in routine mental testing.

VITAMIN C

A discussion was held in the Section of Chemistry on ascorbic acid (vitamin C). The history of the subject was narrated by Professor A. Harden, who traced the steps by which the strongly reducing hexuronic acid found in the suprarenal glands and in many vegetable juices had been shown to have powerful antiscorbutic properties. The easy preparation of this substance in quantity from paprika had provided material for the determination of its constitution, its synthesis, and the demonstration of its full antiscorbutic potency. Professor A. Szent-Györgyi said that this acid had become available for medicine too recently to permit full appreciation of its medical applications, but the preliminary clinical investigation had revealed some very striking and unexpected effects. It seemed to be able to cure several diseases against which medicine had hitherto striven in vain, such as purpura haemorrhagica, Werlhoff's disease, certain forms of haemorrhagic nephritis, haemophilia, and

pyorrhoea. Such curative effects suggested that humanity was suffering much more gravely from lack of vitamin C than had been realized previously. The major part of pathological pigmentations could be made to disappear by its exhibition. In the short space of time of two years the mysterious vitamin C had been identified, its chemical structure determined, and its synthesis effected. This unparalleled advance had been entirely due to the closest and most friendly international co-operation.

Cows' MILK

The Sections of Chemistry and Agriculture held a joint discussion on the chemistry of milk. Dr. J. F. Tocher stated that the proportions of the constituents of milk varied widely from sample to sample even in the case of bulked milk. In respect of fat and solids-not-fat percentages it had been shown that many cases occurred where the values fell below the prescribed limits under the regulations; these had been made at a time when no accurate knowledge existed of the observed minimum limits in the case of herds. The speaker remarked that this was an illustration of the importance of legal enactments following scientific knowledge, and not preceding it. One of the difficulties encountered was the method of detecting watering, and many cases had occurred when genuine milk had been erroneously condemned as having been watered. An equation had now been found by the speaker from which it was possible to detect watering within certain limits; this could be used in conjunction with the observation of the freezing point. The equation gave the relationship of the four chief constituents to the total solids other than butter fat. The predicted solids had been found to approximate closely to the actual solids in samples from individual cows. When, however, a sample was watered, the predicted values differed significantly from the actual values. Dr. Tocher considered that milk should not be condemned on the results of freezing-point determinations alone. There was as yet no standard for the freezing point of milk, and analysts were not agreed as to the nearest approach to the freezing point of water which occurred in genuine samples of milk. Dr. W. L. Davies produced a table showing the expected levels of composition of normal cows' milk and of milk which must be considered abnormal. There was evidence that abnormality was due to inefficiency in the secretory process in the elaboration of casein from the nitrogenous compounds of the blood and in secreting glucose. Abnormality in the buffer value in the acid range, in the balance of acidic and basic constituents, in the distribution of ionic and non-ionic metallic radicals (calcium), in the amounts of the various forms of casein present, and in the amount of heat-coagulable protein, was reflected by abnormality in rennet action, in "curd tension," and in heat stability at temperatures above 100° C. Dr. S. K. Kon said that biological tests had demonstrated marked seasonal variations in the total vitamin A activity and the vitamin D content of milk. Physical measurements had shown a similar fluctuation in the carotene content. The contents of the three forms of vitamin B appeared to be constant throughout the year, not being affected by the seasons. Vitamin C in milk was either rapidly destroyed by visible light or else it underwent reversible oxidation, the product reacting no more with the vitamin C reagent. The loss in activity of vitamin D was more marked in autumn and winter butters.

The association of members of the Chartered Society of Massage and Medical Gymnastics in private practice has issued a revised edition, dated August, 1934, of its *Directory*. Every person mentioned therein is qualified in massage and is registered with the society. Many hold additional qualifications, which are indicated by abbreviations. All the members have adopted an ethical code which pledges them to work only under the direction of registered medical practitioners. A copy of the *Directory* will be sent, post free, to any doctor on application to the honorary secretary, P.P.A., "Hygeia," Falmouth, Cornwall.

British Medical Journal

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INSURANCE AND PUBLIC HEALTH

One of the most cogent and important criticisms of national health insurance systems is to be found in the *Canadian Public Health Journal* for July of this year. The article is not by a member of the medical profession, but comes from an eminent consulting actuary, Mr. Hugh H. Wolfenden of Toronto. It embodies an address given in that city in May, 1934, at a conference of the Canadian Public Health Association, the Ontario Health Officers' Association, and the Ontario Medical Association. The subject is admirably presented and the article very well written. It does not deal with any detailed features of national health insurance schemes or even with the actuarial problems which arise in connexion with them, but proceeds, after a brief review of the early history of insurance data and the relations between actuaries and medical officers of health, to re-examine briefly the whole problem which such schemes are designed to meet, without preconceived notions of what the best solution may ultimately prove to be.

In the course of his remarkably clear and ordered discussion the author brings out two points of fundamental importance which have been almost universally ignored or slurred over in conferences and writings on this subject. One of these is the way in which existing national health insurance schemes depart from strict conformity with the principle of insurance; the other is the appropriate position of health insurance in any comprehensive public health programme. Neither of these matters has, of course, been entirely outside the vision of some of those who in this country were responsible for initiating national health insurance, or of some of those whose business it has been to administer it; but they have not previously been enunciated so succinctly and definitely as in Mr. Wolfenden's article. In the space at his disposal the author is unable to consider them fully or to discuss whatever justification may be alleged for the unusual features to which attention is drawn. It may be wise, therefore, to emphasize that further elucidation and elaboration of these points would be valuable.

"A true insurance plan implies simply the co-operative association of a large number of individuals, who agree to share amongst themselves the burdens arising from the occurrence of a particular contingency (in this case sickness) by payment of the necessary contributions into a common fund; and it is fundamental that the group of persons must be reasonably homogeneous, that the risks must be predictable within certain obviously narrow limits, and that the claims must be absolutely provable."

With voluntary insurance funds the ultimate responsibility is the concern always of the members themselves.

and cannot be shifted on to other persons or the State. With compulsory national health insurance schemes as so far established, though the real insurance principle of shifting the burden from the individual to a homogeneous group of his own fellow members is not ignored, it is vitiated and overborne by the fact that this is not done without external aid. Indeed, the main feature of the schemes is a transference of a large part of the burden from those of the limited class included within the scheme on to other shoulders—those of the employers and the tax-payers. This feature being so prominent there comes into force the inevitable tendency to exploit the other man's ability to pay, and sometimes to prolong sickness through the continuance of which benefits may be obtained. All this is obviously true, and should be clearly envisaged. Yet it may still be worth while for the State—that is, the community in general—to establish and support such a system, and knowingly to carry some of the load and to compel employers to take their share, even while recognizing its drawbacks and imposing conditions and regulations with a view to minimizing these as far as may be. Whether this is worth while, and, if so, in what proportions the burdens should be distributed, is not in the least a medical question, but must be determined by each State in the light of its own economic, social, and political conditions. At present, however, some such system appears to be an almost essential feature of the social economy of Western civilization on its existing basis.

Further, unless illness is to be regarded as being either a mysterious dispensation of providence or a quite unavoidable accident, it is contended that the establishment of any national health insurance system which removes the main financial obligations of illness from one section of the community to the rest should logically be preceded, or at least accompanied, by extensive health propaganda, by the enforcement of public health measures by penalties for their breach, and by the requirement of compulsory periodic health examinations of every individual, as well as the comprehensive registration of sickness. These are looked upon as essential measures of control, without which the insurance scheme must be inequitable to the insured and unjust to the uninsured portion of the community. "We are permitting people to become ill individually through misfortune or ignorance or carelessness, but when they have succeeded in becoming ill it is then said to be the responsibility of the whole community to cure them." It may be true that in a comprehensive review of preventive health measures *de novo* it would be "much more logical to consider the establishment of health insurance to alleviate the economic burdens of the residual sickness which the public health programme would be unable to prevent"; and that "health insurance in such circumstances would cost far less than under present conditions and would be far easier to control." It must be remembered, however, that, after all, in a very large number of cases illness is a sheer misfortune and that very few sufferers

really enjoy it ; that in a further proportion it is the community rather than the individual who is at fault ; and that, as a matter of practice, it would almost always be impossible to prove that a particular illness had been brought about exclusively by the patient's own wilfulness or carelessness.

The place of the English insurance scheme among preventive health measures was not ignored by its promoters, although, apart from a small amount of health propaganda undertaken by some insurance committees and the much more important preventive work done by insurance medical practitioners in their daily consultations, full advantage has never been taken of the opportunities afforded. More measures of control may be needed, and the relative advantages and disadvantages of compulsory periodic health examinations and of the systematic and confidential registration of illness, or of some particular forms of illness, might well be further considered. Towards the conclusion of his article Mr. Wolfenden points out that, whatever form of insurance is adopted or whatever are the conditions in which it is established, the fullest co-operation between the public health officers, the medical and dental professions, and the actuary would still be required.

PROBLEMS OF SOCIAL PSYCHOLOGY

The presidential address by Dr. Shepherd Dawson to the Section of Psychology at the recent meeting of the British Association was mainly concerned with the assessment of natural capacity, particularly with the problems of differentiating its biological determinants from those which depended on external conditions. The President made a useful distinction between ability and capacity. The former is the resultant of innate processes and the totality of post-natal experiences summed up in the term "environment" or "nurture" ; the latter, a kind of Kantian noumenon, is a quality or complex of qualities the reality of which can only be inferred from the knowledge or skill through which it finds its expression. Mental tests, however scrupulously devised, are primarily measures of ability ; it is only when the innate qualities determining ability are unaffected or hardly affected by training that such tests also gauge capacity. To the psychologist the distinction is important in so far as it safeguards him from the error of considering the individual in a social vacuum—that is, without reference to the kind of society he lives in and the influences and incentives to which he is subjected. It does not, of course, follow that in a society which enjoyed (according to the adherents of one political philosophy) or endured (according to those who hold the opposite views) a condition of economic equality the differences between one man and the next would only be those which were genetically determined and thus a measure of relative biological worth. Even within the same family, as Dr. Dawson pointed out, there occur environmental vicissitudes which may affect the

ultimate qualities of its members. Parents, for instance, "become more experienced, or more indulgent, in the management of their children ; school-fellows vary ; and the children themselves vary in their relationships to one another and to the rest of the world."

The problems of the social psychologist are immensely complicated by our living in communities of which all the members do not start at scratch, and there could be no dissent from Dr. Dawson's view that the most humane method of overcoming this difficulty would be "to improve the conditions of life so as to give all a chance." Even then there would remain the difficulty of isolating and defining mental characteristics. As an instance of this problem, Dr. Dawson cited the confusion that has been created by the manifold definitions of mental defectiveness. According to the law, the feeble-minded are "persons in whose case there exists from birth or from an early age mental defectiveness so pronounced that they require care, supervision, and control" ; but this description merely relates an undefined psychological state to equally undefined external circumstances. Ability to look after oneself and one's affairs without supervision obviously depends in large measure upon the nature of those affairs, and thus upon the social and physical environment—a proposition which leads to the curious conclusion that a man may be feeble-minded in one environment and not in another. Dr. Dawson makes the ingenious suggestion that the increase in the incidence of defectiveness which has been attributed to a disadvantageous differential birth rate may in fact be due to the increasing complexities of civilized life, which make excessive demands on intellects that could have coped satisfactorily with the simpler conditions of, say, fifty years ago. The psychological definition of mental deficiency is hardly more satisfactory. It is based on a statistical convention that places the borderline of normality between the mental ratios of 60 and 80. But this apparent exactitude may be misleading, first, because none of the mental tests in regular use can differentiate ability from capacity with complete certainty, and, secondly, because, as Dr. Dawson pointed out, feeble-mindedness may be due to a variety of genetic factors, and among its forms there may be some which are not distinguishable at all by means of intelligence ratios.

Genetical studies on the inheritance of ability and defectiveness have occasionally yielded useful information, but in many of them too much reliance "has been placed on rough-and-ready estimates based largely on social and professional success." One of the most carefully controlled studies in this class—*An Investigation into the Relation between Intelligence and Inheritance*,¹ by Dr. Evelyn M. Lawrence—supported the opinion that intelligence is hereditary and more abundant in the higher than in the lower social levels, but only with very material qualifications. In the first place, the difference between the classes, in circum-

¹ Cambridge University Press, 1931.

stances of equal environmental opportunity, did not appear to be very great, and in the second, the large number of low intelligences in the investigator's highest class, and the even more striking list of brilliant children in the two lowest classes, showed the hazardousness of generalizations about social classes as such. Dr. Dawson sums up the matter in the statement that the best-founded studies into the inheritance of intellect have shown "that bright parents have a higher proportion of bright children and that defective parents have a bigger proportion of defective children than do normal parents, but they have also shown that normal, even brilliant parents sometimes have defective children, that defective parents sometimes have normal children, and they suggest that the mental deficiency of children of either bright or dull parents may be due either to external causes or to defective inheritance. The main facts have probably been made out, but the details are lacking, and will not be available until exact measurements have been made of the mental traits of parents and their children under conditions in which social opportunities and encouragements are equal for all." His final conclusion, that the search for unitary mental traits "will demand the co-operation on a big scale, not only of psychologists, but also of biologists, statisticians, teachers, medical men, and others," gives a just indication of the immensity of the difficulties that must be overcome before the genetics of intellect are placed on a sound scientific footing.

THE CORONARY ARTERIES IN RHEUMATIC FEVER

Acute inflammatory changes have in the past been described as occurring in the coronary arteries, and involving all their coats, in a variety of general infections, including typhoid fever, diphtheria, influenza, scarlet fever, and septic and pyaemic diseases. Similarly, these diseases may produce degenerative changes in the vessels, but their connexion with arteriosclerosis or atheroma is not clear. Rheumatic fever is another infectious disease capable of producing arterial lesions, and the manner and frequency of these changes has been investigated recently by H. T. Karsner and F. Bayless.¹ They summarize the findings of other workers on the histological changes in the coronaries in rheumatic fever, and briefly consider the relation of these changes to myocardial damage, arteriosclerosis, and cardiac pain and arrhythmias, and then give the results of their examination of fifty-six hearts that showed typical rheumatic inflammation. Of the fifty-six cases investigated there was a history of rheumatic fever in forty-seven and of chorea in one—probably a higher proportion than one might get in this country from any large series of patients with rheumatic heart disease. The ages of the patients ranged from 2½ to 67 years, and sections of the coronaries revealed in all cases oedema and fibrinoid (an intensely acidophilic substance arranged in fibrillar fashion and found most often in the media), while in the majority there were chromotropic change and alterations in the elastica; necrosis was found with a

frequency which increased as age advanced. Fibrinoid is said to be present in only a few other conditions, all of which may be of allergic origin. Infiltration of mononuclear cells and Aschoff bodies was a common finding in the adventitia, as was fibrosis in all coats of the vessels. Most of these changes were also observed in the controls, but these differed in certain respects: chromotropic change was not found, fibrinoid was inconstant, and there were differences in the elastic tissue changes and the cell infiltrations. It was concluded that thrombosis in the coronaries is not more frequent in acute rheumatism than in other severe infections. Intimal fibrosis, especially affecting the smaller arteries, was much commoner in the young rheumatic patients than in controls of the same age groups, and the authors consider that this change is responsible for the muscle damage of rheumatic heart disease rather than a primary injury to the muscle itself; in other words, it is better considered as the result of ischaemia than as a myocarditis. They believe that these arterial lesions undergo a sequence of inflammatory reactions analogous to those of the valves, and that these changes result in correspondingly severe effects upon the muscle. On the clinical side the authors consider that these pathological changes may explain the precordial pain which is sometimes a symptom in rheumatic carditis. Pain of anginal type is, however, very rare, apart from aortic incompetence; but on a few occasions thrombosis of a large coronary has been reported as occurring in young subjects with rheumatic hearts. The salient point which emerges from this investigation is, from the clinician's point of view, the suggestion that the muscle failure which ultimately supervenes in most cases of rheumatic carditis is due essentially to lesions in the coronary arteries. Formerly, increased mechanical load imposed by valve lesions, and less often by adherent pericardium, was thought to be the important factor in leading to failure in rheumatic heart disease, but it is now generally believed that a healthy heart muscle will stand up to an abnormally heavy burden—for example, in coarctation of the aorta—for very long periods of time. On this view the rheumatic heart with valve disease fails chiefly because of impaired muscle, and only a secondary part is played by the valvular lesion; but according to the conception of Karsner and Bayless this muscle impairment is not a direct one, and results chiefly from an ischaemia.

UNDERNOURISHMENT AND UNEMPLOYMENT

The Children's Minimum Campaign Committee is publishing this week a further statement, *Evidence on Malnutrition*, by way of supplement to the memorandum on *The Scale of Needs*, which was submitted to the Unemployment Assistance Board on behalf of the committee by its chairman, Miss Eleanor Rathbone, M.P., in July last.² The earlier memorandum urged that the scales on which unemployment allowances are to be granted should be based on scientifically determined estimates of the expenditure needed to satisfy the requirements of healthy living. The present statement gives expression to "a widespread feeling, especially among those whose work brings them into direct contact with the children of the working classes

¹ *Amer. Heart Journ.*, June, 1934, p. 557.

² *British Medical Journal*, August 18th, 1934, p. 311.

in their homes or in the schools, that there exists to-day far more undernourishment than the official reports suggest." A number of considerations are put forward, each of which, in the committee's belief, contributes to the apparent discrepancy between the official figures of malnutrition among elementary school children and the "acknowledged fact that large numbers of these children come from homes where, after rent is paid, the income cannot possibly admit an expenditure on food and clothing which is adequate according to any authoritative scale." The general trend of the pamphlet may be gathered from the first four side-headings: "Absence of a satisfactory standard"; "The standards adopted may be too low"; "Effects of underfeeding may be delayed"; "The condition of the unemployed masked by improved general conditions." The great importance of adequate and proper food in the first five years of a child's life is discussed in relation to the general problem, followed by reference to two mitigating factors—the self-sacrifice of parents and the provision of school meals and milk by local education authorities. A point stressed is the difficulty of determining the early signs of malnutrition. "The inadequate provision made by many local authorities and the limitations of the medical test, which may only discover damage when it is too late to repair it, make it impossible to regard school meals as a reliable corrective for an inadequate income in the home." Lastly, the committee gives its reasons for believing that unwise expenditure by poor mothers as a cause of undernourishment is much exaggerated. The pamphlet ends with extracts from medical officers' reports which give some support to the committee's arguments. Copies (price 4d.) may be had from Miss Marjorie E. Green at Room 116, Thames House, Millbank, S.W.1.

THE QUINTUPLETS

In an age when records are being broken in almost every sphere of human activity it is pleasing to find that not even feats of reproduction escape public notice. In the early hours of May 28th this year Mrs. Elzire Dionne, a young French Canadian living in a settlement two hundred miles north of Lake Ontario, gave birth to five living girls, who at the time of writing are believed to be alive and well, and for whom an English newspaper has already coined the term "The Quins." The *Journal of the American Medical Association* devotes more than three pages in its issue of September 1st to a first-hand account of this astonishing event, contributed by Dr. A. R. Dafoe, who, though he arrived after the birth of two of the infants, was present during the delivery of the remaining three. Dr. Dafoe's narrative reads like a fairy tale. With simplicity, humour, vividness, a charming modesty, and a directness of style which many might envy, he describes the acute confusion into which he was plunged on arrival at the Dionne home, the extremely efficient way in which he met the situation, and the epic struggles that were made to keep the infants alive—on May 29th their total weight was but 13 lb. 6 oz. He found the sole preparations for the confinement consisted of a tea-kettle boiling on the stove; "the father had disappeared" (later on in his account there occurs the phrase "the husband was still missing"); he was

still sleepy from a previous obstetric case that night; and the whole situation struck him as "unreal and dream-like." The delivery over, the story continues with the separate baptism of the five children; the collapse of the mother, which resulted in his having to leave the midwife with her hand on the fundus while he hurried off on a five-mile journey to get the priest; the mother's recovery; the relays of heated blankets to wrap round the babies; the scientifically tragic loss of the placenta; and the gradual restoration of order out of chaos. Later he describes how they overcame the problems of feeding and the subsequent organization required for the six patients. Dr. Dafoe's article gives a graphic picture of the rugged and virile French-Canadian settlers in his district of 400 square miles, with their sturdy, simple, and law-abiding attitude to life, their hard working days lumbering in the winter, farming, road-mending, and working in saw-mills in the summer, and he also conveys a good idea of some of the difficulties in a practice where at certain times of the year the outlying areas are reached only with difficulty by sleigh. In a comment with which he concludes his notes occurs the artless statement:

"The publicity in connexion with this case has been a serious problem, and has caused me considerable trouble and worry. There has been no let-up from the moment of the uncle's naïve inquiry to the North Bay paper as to how much it would cost to insert a birth notice for five babies born at one time. At first I resented what I felt was an intrusion into my private and professional affairs. Then I came to realize that I had no right to object to what had become a matter of Continent-wide interest."

So ends a vivid and intensely interesting account of this incredible affair. It is perhaps not an improbable prediction that somewhere about 1950 an immense fortune awaits the "Quins" when they make their *début* in cabaret or music-hall. One can, in fact, without difficulty imagine that the more enterprising showmen are at this very moment falling over each other in an attempt to secure a life-contract for what—to borrow Dr. Dafoe's epithet—may prove to be a Continent-wide "draw." But whatever their future careers may show, we can join in his wish that the babies "will continue to thrive and will be a credit to their family and to their country."

THE DENTAL SURGEON'S PLACE IN A GENERAL HOSPITAL

Recent correspondence, a paper by Mr. Harold Round, and an editorial in the *British Dental Journal* indicate considerable dissatisfaction by the dental profession with the status of the dentist on the staff of the general hospitals. Writing from Birmingham Mr. Round tells how, after an interval of thirty years, he was appointed dentist to the Queen's Hospital, and how, step by step, he attained his ideal of a self-contained unit with beds and a resident dental house-surgeon. But he had to prove his worth, and the *British Dental Journal* calls him "the happy warrior," and reviews the position held by the dentist in the large general hospitals of this country. In some the dental department is an important element in the hospital economy; in others the dental surgeon, while in theory on a level with the

honorary staff, does in fact occupy a subordinate place. Other specialisms, our contemporary remarks, have had the same fight—and have won handsomely. Dentistry lags behind, and in seeking to account for this the journal suggests that lack of a full medical education and the reluctance of other members of the staff to give up beds are not inconsiderable factors. As regards the first point the suggestion is made that candidates holding the higher dental diplomas may answer it—though it may be legitimately asked whether these higher diplomas provide very much more of a medical education than the ordinary L.D.S.—while the second can only be answered when the general staff and the managing committee appreciate the full value and needs of a dental department. At present, say Mr. Round and the *British Dental Journal*, the dentist must prove his worth before status or accommodation is accorded him. This, we think, is quite wrong. Exactly the opposite should obtain. Status and accommodation should be there, ready for the suitable man. The value of dentistry to medicine brooks no denial; in many cases it is the only cure. Probably, in the medical mind, there will always be a swing of the pendulum between the point where every tooth is regarded as providing an "overload" of infection and the other extreme where dental sepsis is of no account; but in the ordinary practice of a general hospital there must always be a large number of cases in which the value of dental treatment is beyond doubt, and those who provide this treatment should be given the same status and facilities as other members of the staff. It should further be remembered that in addition to very considerable medical knowledge the dentist must possess mechanical skill of no mean order to deal with cases such as fracture, replacement of lost parts, radium applicators, etc. That the dentist should still be doubtful of his status seems to us to indicate that many medical men pay but lip service to the much-talked-of co-operation between dentist and doctor. We hesitate to suggest that they are ignorant of the pathology of dental diseases, but we strongly urge that only in a well-found dental department can the medical student hope to acquire the knowledge that will enable him to diagnose and assess at their disease value the dental conditions which he is bound to encounter in vast numbers in his life's work. And those from whom he gets his instruction should be under no stigma of inferiority.

CAUSATION OF SKELETAL MUSCLE PAIN

It is now generally accepted that ischaemia is the cause of muscular pain, such as occurs in angina pectoris and intermittent claudication, but the immediately responsible factors remain obscure. S. Perlow, P. Markle, and L. N. Katz¹ have conducted experiments on human subjects with a view to determining the underlying factors. They found that the immediate cause of continuous muscular pain, such as occurred when an ischaemic muscle was exercised, was not produced by a single mechanism, but that muscular activity, anoxaemia, circulatory stasis, and possibly other processes contributed to its production. Various degrees of generalized anoxaemias were induced in these subjects by letting the subject breathe from a spirometer containing various mixtures of gases

at different times. Arm-clenching and leg-moving exercises were performed, complete ischaemia being brought about by inflating a sphygmomanometer cuff to a pressure considerably above the systolic. Circulatory stasis without complete ischaemia was produced by maintaining a pressure of 80 mm. of mercury in the cuff. The obstruction to the venous outflow led to the accumulation of blood in the limb. The observations consisted primarily in determining the time and circumstances in which continuous pain, as described by Lewis, Pickering, and Rothschild, developed, and the time and conditions under which it disappeared. It was found that exercise with circulatory stasis, but without anoxaemia, failed to produce pain in ten minutes in exercising leg muscles. Pain caused by exercise of both the arm and the leg during complete ischaemia disappeared after a short lag whenever the complete ischaemia was relieved, even if the exercise was continued and circulatory stasis was maintained. It seemed, therefore, that anoxaemia must be severe to become an important element in the production of pain in an exercising muscle during ischaemia. In the experiments, however, general anoxaemia failed to produce pain in ten minutes in the exercising muscles of the leg unless associated with circulatory stasis, extension of the foot being the exercise used. Stasis and anoxaemia were also found to be important in delaying the abatement of pain, even after the exercise had ceased. The authors hold that the pain-producing factor is a chemical substance which is formed during muscular metabolism and continues even while the muscle is at rest, though slowly. It was clearly possible to define a pre-pain stage, when the pain-producing substance was above normal but below the pain-producing threshold. Absence of pain, it is added, does not imply restoration of the muscle to normal.

NATIONAL INSTITUTE FOR THE DEAF

The development of the National Institute for the Deaf, since its reconstitution ten years ago, has been so rapid that the committee has been compelled to provide more commodious premises for its still expanding work. A fine freehold house, 105, Gower Street, London, W.1, has been secured, and the work of the institute will shortly be transferred thereto from the present offices, 2, Bloomsbury Street, W.C.1. The new premises and the necessary alterations and furnishing will cost approximately £12,000, and for this sum Lord Charnwood and other influential friends are now appealing to those of the public who sympathize with deafness and who desire sufferers from it to be suitably advised and helped. The committee has received some £2,500 of the amount required. A permanent centre of information and advice on deafness and the deaf is a national necessity, and, great as have been the achievements of the Institute in the past, there is no doubt that when it has the advantage of adequate and permanent accommodation its work will be of greater assistance to that large section of humanity whose ears are more or less closed to sound.

We regret to announce the death, at Stockholm, of Mr. W. H. Trethowan, F.R.C.S., orthopaedic surgeon to Guy's Hospital and surgeon to the Royal National Orthopaedic Hospital.

¹ *Arch. Int. Med.*, June, 1934, p. 814.

Globa et Vetera

THE HAMPSHIRE BOUNDARY IN THE VICINITY OF BOURNEMOUTH

Whilst those members of the British Medical Association who attended the Annual Meeting this year still have vividly in mind the geography of Bournemouth and the exceedingly interesting *Book of Bournemouth*, edited by the President and presented to us all by the generosity of the Borough Council, it may be useful to amplify slightly the references in Mr. Riddle's admirable historical sketch of the development of the town in early days. Refuting a common notion that the name Bournemouth is a modern innovation, he quotes a State Paper of 1574 which alludes to "Bournemouth, within the Hundred of Westover, adwynyng to Dorsetshire." If "adwynyng" means "adjoining," it would seem that Bournemouth was regarded as in Hampshire; if it means "adhering," then Dorsetshire claimed the honour. Or again, if someone could explain for us what the Hundred of Westover was, the problem might be solved; but the various ancient maps which I possess do not show the Hundred of Westover at all—they all concur in extending the Hundred of Christchurch right up to the county boundary on the Hampshire side, and the Hundred of Cogdeans on the Dorsetshire side; Camden gives a list of the Hundreds of Hampshire in which Westover is not mentioned. However, Westover Road is very much in evidence in the Bournemouth of to-day, so presumably Westover had a definite existence, whether or not it was recognized as a Hundred.

Mr. Riddle goes on to explain that "Burnemouthe" is shown on a MS. map of Dorset, now in the British Museum, as belonging to that county (in 1575), and says that Tresswell's map of 1586 and the map published with the 1610 edition of Camden's *Britannia* both place the Bourne stream wholly within the county of Dorset. I have not seen Tresswell's map, but I possess the map (by Kip) from the 1610 *Britannia*, and I interpret the cartographer as meaning that the Bourne is, near the sea, the actual boundary between the two counties, not that it is wholly in Dorsetshire. Saxton's map of Hampshire (1575) rather neglects this corner of the county, but it does show an unnamed stream (presumably the Bourne) definitely in Dorsetshire. According to Overton (1600) and Morden (1690), says Mr. Riddle, the stream was taken as the intercounty frontier.

Saxton's surveys were the earliest attempts at the large-scale cartography of England, and for some generations after his time publishers copied him freely; but they did extend his researches on their own account to some degree, and it is interesting to compare the various early delineations of the triangle of land enclosed between the sea front, the county boundary, and the River Stour. John Speed, for instance, in 1610 shows "Bascomb Copperas House" about two-fifths of the distance from "Allom House" (which is placed just on the Hampshire side of the boundary) to Hengistbury Head: copperas, if I remember rightly, is sulphate of iron, and allom is no doubt sulphate of aluminium. Due north of Allom House, and likewise just in Hampshire, a hamlet named Heath is shown; Iforde is duly, and fairly correctly, sited, and so is Holmhurst (now Holdenhurst). Longham is placed on the Dorsetshire side of the line and is thus spelt: in the Camden map of 1610 (itself a reprint of the original of 1607) it is also on the Dorset side, spelt Langham. Both show Perley well inside Hampshire, spelt Parlieu in Speed and Palieu in Camden; but oddly enough both authorities in their Dorsetshire maps place it in the identical situation but spell it in the modern way. Another anomaly shared by both these atlases is that they correctly place Preston in Dorsetshire in their maps of that county, but incorrectly include it in Hampshire when mapping the latter. These strange and identical blunders probably imply that they both copied some earlier authority (not Saxton, by the way); yet in some particulars they vary from each other noticeably. Thus Camden's mapmaker (John Norden in the

case of Hampshire) gives Allom Copperas House, compared with Allom House in Speed, and he spells Boscombe "Boscambe," which is nearer to the modern spelling than Speed's version. He shows Burne mouth as two separate words (on the Dorset map in this case); between that place and Parkston he places "The mynes," presumably the iron deposits, or else the alum workings, which Speed also shows.

The great Amsterdam firm of the Blaeus evidently trusted to the English cartographers for this corner of Hampshire. They copy Speed with exactness, spelling Perley "Parlieu" as he does; placing Allom House just on the Hants side of the border, with Heath due north of it; and Preston also on the wrong side of the county line. Whether the Blaeus sited Preston properly on their Dorsetshire map—as Speed and Norden did—I am unable to say, as I have only their Hampshire map before me. It is, however, clear that they copied Speed, not Norden. Thus, they follow Speed in regard to Iford, which Norden calls Iverbridge—Iver being, no doubt, a phonetic spelling of Iford. They also place Heath in the exact position that Speed does, whereas Saxton and Norden omit it altogether. Is this hamlet, I wonder, the district now called Highmoor?

I ought to add that, as those who have read the *Book of Bournemouth* know, the whole town is nowadays in Hampshire; but at what date the boundary was redrawn I am unable to say, and Mr. Riddle does not tell us, though I feel quite sure that he knows. H. R.

England and Wales

Bequest to Oxford University

A large sum of money—£30,000—has been left by Mrs. Mary Jane Williams of Witley, Surrey, to the Chancellor, masters, and scholars of the University of Oxford, to be expended in the promotion of Oxford medical education. The benefactress, who was the widow of Charles Theodore Williams, M.D., F.R.C.P., consulting physician to the Brompton Hospital, died on July 24th. Her husband died in 1912. A further £5,000 is left to the Royal College of Physicians of London, to be devoted to the exercise of hospitality and to the maintenance of the dignity of the College. Other legatees are the Master and Fellows of Pembroke College, Oxford, "in token of my husband's great affection for and desire to assist the college, of which he was an honorary fellow, to found fellowships and scholarships, or for building or endowments, or in other ways to promote the prosperity of the college which was dear to him." Sums of £100 each are bequeathed to the London Society for Women's Service, to the Medical Society of London, and to the Royal Meteorological Society. An Oxford correspondent writes: Pembroke College—originally Broadgates Hall—was founded in 1624 by James I. Dr. Thomas Clayton, Regius Professor of Medicine, was the last Principal of Broadgates Hall and became Pembroke's first Master. The college still preserves some relics of Samuel Johnson, who entered it in 1728.

Institute of Medical Psychology

Post-graduate courses in psychotherapeutic theory and method for members of the medical profession will begin on October 1st at the Institute of Medical Psychology (the Tavistock Clinic). During the first five weeks there will be ten introductory lectures, after which the main course, covering a year's work, will be arranged to suit alternate groups of those aiming at specialization and those able to devote only a more limited amount of time to the subject. Fees range from two guineas for the introductory course to £60 for the "specialist" course. Full particulars can be obtained from the honorary lecture secretary, Institute of Medical Psychology, Malet Place, W.C.1.

Lectures on sectional or more popular lines have also been arranged for doctors, nurses, educational and social workers, the clergy, and the general public. One series will deal with "Psychology and Modern Problems," the lecturers including the new Dean of St. Paul's (Dr. W. R. Matthews), Professor C. G. Seligman, Professor Morris Ginsberg, Professor J. C. Flugel, and Dr. H. Crichton-Miller.

Scotland

Health and Housing

The sixtieth annual Congress of the Royal Sanitary Association of Scotland was held last week in the Albert Halls, Stirling. Mr. A. W. Ritchie, chief sanitary inspector, Edinburgh, in his presidential address, said that the housing conditions existing at the middle of last century were part of the unhappy consequences of the industrial revolution, which caused great numbers of people to flock into larger centres to find employment in the mills. These old buildings were erected with no regard for arrangement or for the most elementary sanitary requirements. As a consequence the death rate in 1876 was 20.9 per 1,000 of the population, as contrasted with 13.2 in 1933. The modern tendency in housing was towards simplification and economy without loss of security. Concerning sewage disposal, he said that remarkable developments had taken place in purification works, but it was regrettable that so many rivers still remained grossly polluted. Inquiries in this connexion, however, were being conducted by the Department of Health. The results following the transfer of slum dwellers to clearance areas had demonstrated beyond a doubt that improved environment was a very important factor in the furtherance of health and happiness. It was a mistake to suppose that these persons reduced their new dwellings to a level with the old; the proportion who failed to respond to the new surroundings was not more than 4 or 5 per cent.

Campaign against Tuberculosis

At the meeting on September 13th a resolution was unanimously adopted calling upon the Government to introduce legislation in the forthcoming Housing Bill for the rehousing of families in which tuberculosis was present. In the long discussion which followed on the campaign against tuberculosis, Councillor Mrs. Mann said medical opinion agreed that too much money was being spent on the treatment of tuberculosis and the development of sanatoria, and too little on housing with the same objective. In Glasgow, where £500,000 had been spent on the prevention and cure of tuberculosis, patients were brought back from sanatoria to sleep in one-apartment houses with six, seven, or eight other persons. It was an anomaly that thousands of slum dwellers might be removed and qualify for the grant of £2 10s. per head, but not even two tuberculous patients from an overcrowded area could be removed to obtain this grant, because there was no Act under which this could be effected. Dr. R. J. Peters, senior assistant medical officer of health in Glasgow, said that tuberculosis of bovine origin was a serious matter, but the type of infection which took origin in the human subject was more serious still. Science had put into their hands knowledge of the means of prevention of bovine tuberculosis, and it seemed strange that the lives of children were still being menaced by this disease. During the past twenty years much had been expended upon the control of tuberculosis. In England over £3,000,000 of public money was spent annually in this cause. In

Glasgow the amount spent was relatively higher; on an average each case of tuberculosis cost the ratepayers of that city about £100 for treatment and supervision. Newer methods of treatment of pulmonary tuberculosis had altered the views of clinical officers on the question of admission to hospital, and the improvement in social conditions had rendered the need for extensive isolation less urgent than before. The sanatorium and the local authority hospital had had one drawback in an unfortunate measure of divorcement between tuberculosis and general medicine. Those who were occupied with tuberculosis work did not come into contact with workers in other fields of medicine as freely as they should, but this could to some extent be remedied by allowing a few cases to pass through the voluntary general hospitals. Dr. J. P. Dunn, medical officer of health for Dumfries, pointed out that although the incidence of tuberculosis was declining, it was still killing 30,000 people every year, and costing the nation over £2,000,000 in residential treatment alone. In Britain every year 2,000 children died from infection with bovine tuberculosis, and some 4,000 suffered permanent crippling. Major J. G. McGregor, county veterinary officer, Stirlingshire, said that the incidence of bovine tuberculosis among milk cows was very high, for at least 40 per cent. of all the dairy cows in the area of the Scottish Milk Marketing Board would react to the tuberculin test. The number, however, that excreted tubercle bacilli in their milk was small; it was estimated that only about 0.5 per cent. of cows yielded tuberculous milk. The incidence of tuberculous infection in raw milk had been found to be in the neighbourhood of 10 per cent. of samples, but Certified and Grade A (T.T.) milk had been shown, in an investigation by the Department of Health, to be practically safe. Pasteurization of all other milk had been suggested as a solution of the problem, and the Medical Research Council had come to the conclusion that if this was properly carried out it had no seriously damaging effect upon the nutritive qualities of the milk. Mr. W. Y. Park, sanitary inspector, Rutherglen, speaking of the conditions which favoured the onset of tuberculosis, mentioned, in addition to poor housing conditions and infected milk supply, the atmospheric pollution of towns. There was no law against domestic smoke, and yet three-fourths of the total atmospheric pollution was due to the house chimney. In the opinion of Dr. McMichael, Paisley, there was a clear necessity for a definite policy on the question of housing tuberculous families in industrial areas. Investigation during the last five years into the sleeping accommodation of 754 tuberculous persons showed that 63 per cent. shared a bed, 21 per cent. occupied a bed alone but shared a room, and only 15 per cent. were the sole occupants of a room. In the light of such conditions the local authority of Paisley had some years ago decided to make a special effort, and had rehoused 182 tuberculous families, or 20.9 per cent. of all the cases on its register.

Mental Health Services

On September 14th a discussion was introduced by Professor D. K. Henderson, physician-superintendent of the Royal Edinburgh Mental Hospital, upon a modern mental health service. He said that the maintenance of mental health in the community was one of the greatest outstanding problems. This problem was concerned with several well-defined groups, including: (1) the mentally disordered, who spent part of their lives in mental hospitals; (2) the mentally defective, of whom many remained in institutions throughout life; (3) the delinquent and criminal, of whom a number suffered from mental disorder, while others required investigation to fit them for social life; (4) the border-line psychoneurotics who might be

dissatisfied, hysterical, neurotic, or anxious, and were in need of help and treatment; (5) unsatisfactory individuals who were social misfits, including drug addicts, alcoholics, prostitutes, and many of the unemployable. In England and Wales there were about 150,000 mentally disordered persons, with 20,000 more in Scotland, while mental defectives approximated to 8.56 per 1,000 of the population. In London about one person out of 200 was mentally deranged, and one person out of 274 was a mental defective. In Scotland, according to the General Board of Control, since 1858 the number of insane persons had increased by 235 per cent., while the population had increased by only 62 per cent. These figures were bad enough, but they would be still more appalling if they included all those seriously disordered persons who were maintained outside institutions, but who would benefit by greater supervision. Yet great advances in control had been made, and in Great Britain the mental hospitals caring for both rate-aided and private patients were second to none. Alarmists raised a cry for some all-embracing destructive policy which would solve the problem at one swoop. Such a policy was unthinkable and contrary to humanitarian instincts, and was dominated by fear. The continued policy of building more and larger institutions was also something which should be obviated. There must be a limit to segregation combined with training and employment, and the matter must be met on a wider and more constructive basis. While sterilization might be adopted in individual cases, its usefulness was more individual than racial, and there were so many pitfalls and complexities associated with it and so many cogent arguments against it that its use would be extremely limited. A positive eugenic policy, on the other hand, was an attempt to increase the number of children above medium intelligence by encouraging the growth and development of healthy families. To obviate the economic aspects of this, a scheme of family allowances had been suggested whereby parents should receive financial support for healthy children. To-day provision was made for the unemployed and unemployable, while little or nothing was done for the people on whom the welfare of the nation depended. In the meantime they must apply themselves to the study and treatment of those who were unable to adjust themselves to the artificial standards of society. Most of the trouble started in the cradle and the nursery long before school age. If the difficulties of nervous, highly strung, sensitive, and wayward children, who were socially unable to form satisfactory adaptations, were not corrected in childhood, they would never be corrected at all. Efforts should be made at this formative period to pluck out the roots of budding trouble by the co-operation of parents, teachers, ministers, social workers, school medical officers, and specialists. Many clinics for this purpose were in existence, and the speaker would like to see these co-ordinated and extended; at present there were too many working independently and covering much the same ground. The clinics dealing with the nervous and mental health of the child might well be grouped at the children's hospitals. Every mental hospital in the country ought to organize in its county town or other centre an out-patient clinic to which patients could have easy access. Further, a psychiatrist should be attached to juvenile courts; he might be helpful to many early offenders. Psychiatric clinics should be established, which would provide indoor and outdoor treatment for patients who needed careful observation and treatment, but who were not yet so seriously involved as to require the aid of a mental hospital. Dr. W. McAlister, medical superintendent of Bangour Village Asylum, referred to the fact that this was the first occasion on which the Sanitary Congress had had a discussion on mental health. He congratulated the association on lifting its eyes from the dismal subject of drains to the more salubrious subject

of brains, for in doing so it was coming into line with the great mass of the public whose conscience had been roused in this matter. In the last twenty-five years there had been a partial revolution against the ravages of mental disease. Local authorities, however, had not sufficiently taken advantage of existing legislation, for the Mental Deficiency Act of 1913 called upon them to ascertain the mental defectives within their own area, to arrange for special schooling for those who could profit by it, to provide institutional care for those who required it, and to assume control over defectives who were at large in the community. In Scotland in some counties the number of mental defectives had not yet been ascertained, and therefore the other three demands could not be fulfilled. He believed also that the medical profession was to blame, for they had allowed themselves to continue working under old traditions instead of stepping in at the early nervous stage and dealing with matters during formative years. Much research was required in mental disease which ought to be organized on a national scale. The key to the whole situation lay in the child, and all schools of psychology were now agreed on the supreme importance of early years. Dr. William Boyd, medical superintendent of Fife District Asylum, stated that the present fast pace of life was leading to a greater development of mental troubles. The Lunacy Act required to be altered in the direction of making asylums more of the nature of hospitals, and of removing the difference between pauper patients and others. Dr. Macgregor, medical officer of health for Glasgow, said that in regard to eugenics they must have more facts and more information. In Glasgow special wards were being created in the general hospitals which really amounted to psychiatric units, where, in addition to a study of early cases of mental disorder, all the medical and surgical skill in the institution was available. He believed this was the proper line on which such psychiatric units should develop.

Reports of Societies

ACUTE STREPTOCOCCAL THROAT INFECTIONS

On September 15th, in connexion with the two-day jubilee celebration of the Medical Officers of Schools Association held at Eastbourne, by invitation of the Mayor and Corporation and the Local Head Masters' Association, and under the presidency of Dr. J. A. H. BRINCKER, a paper (contributed conjointly by himself and Dr. FRED GRIFFITH) was read at the Town Hall by Dr. J. ALISON GLOVER, Senior Medical Officer, Board of Education, on "Acute Streptococcal Throat Infections."

Dr. Glover said that this subject was of perennial importance to both head master and school medical officer, as these infections of the throat constituted a continual source of anxiety. The most prevalent streptococcal disorder met with in schools was acute tonsillitis: it was both endemic and epidemic, and had an incubation period of two to four days. Its main incidence occurred at puberty, and while it was sometimes conveyed either by drinking milk or by the common use of tableware, handkerchiefs, or pencils, droplet infection was the usual method of transmission in schools. With the exception of the Klebs-Loeffler bacillus, the almost invariable causal organism in sore throat was the haemolytic streptococcus (*S. pyogenes*). The attack rate varied. It was 2.7 per cent. annually (1932) in the Royal Navy; at Guy's Hospital, taken over a series of years, 6.7 per cent. of those attending the casualty department for the first time came on account of it; while Captain Dudley found an attack rate of 4.8 per cent. per term at the Royal Hospital School, Greenwich. Its seriousness was largely derived from the various complications which might ensue, such as otitis media, mastoiditis, meningitis, septicaemia, and pneumonia, and, more rarely, acute rheumatism and

nephritis. It was also liable to be coincident with measles outbreaks. It had long been recognized that cases of tonsillitis without rash occurred during epidemics of scarlatina side by side with cases which exhibited the rash fully developed. Mantle, in 1887, pointed out the close alliance of the conditions found in sore throat epidemics and those present in cases of scarlatina, and this was confirmed by the serological work of Dr. F. Griffith, the collaborator in this paper.

Haemolytic streptococci in the throat produced varying clinical pictures in different persons, and these differences might be seen in boys in the same dormitory. In one boy there might be a feverish pharyngitis, in another tonsillitis, in a third scarlet fever, while another would be a healthy carrier. *S. pyogenes* had been found in varying proportions in all communities examined, the percentage varying with season and hygienic surroundings. During school epidemics the "healthy" carrier rate might be very high. Certain serological types of this *pyogenes* group seemed specially equipped to produce the complete scarlatinal syndrome. Dr. Glover said that members of the profession as well as the laity were still inclined to view an epidemic of scarlet fever as no more than a number of cases of a well-defined clinical type, devoting their energies to tracing the spread from case to case, in the belief that the isolation of all suspected cases would stay the progress of the epidemic. Sometimes results seemed to justify this attitude, but often the matter proved to be much more complex, particularly in cases in which the toxigenicity of the infecting strain was low and when part of the school population was Dick-immune. In such outbreaks as these the epidemic could be called a carrier epidemic. By diagrams Dr. Glover explained the epidemiology of streptococcal epidemics in nine schools, correlating the clinical and epidemiological features with Dr. Griffith's serological findings of the infecting types of streptococcus.

Otitis media caused school doctors much anxiety; mostly it was a sequel following tonsillitis, influenza, scarlet fever, or measles. It was probable that at least three-fifths of the cases of otitis media occurring in schools were due to haemolytic streptococci.

Dr. Glover proceeded to consider the importance of the dormitory as a factor in the spread of these epidemics. While the incidence of tonsillitis, measles, and influenza during the four years 1930-33 inclusive was substantially the same for boys and for girls in well-to-do public boarding schools—that is, in the cases investigated during the inquiry by the Medical Research Council into epidemics in schools—the incidence of serious complications due to streptococci and pneumococci was found to be significantly lower in the case of girls. Among the causes suggested to account for this difference were: the greater care given to girls, their superior discretion when ill and greater watchfulness over their health, and their better nutrition. Dr. Glover considered, however, that the main cause for the better figures in regard to girls was that the latter slept in large and well-ventilated cubicles, whilst most boys, on the other hand, slept in dormitories, many of them of somewhat antique design. The speaker, though a strong advocate of pure water for baths, did not attribute great importance to swimming as a factor in the production of otitis media in schools, as by far the highest incidence of ear trouble occurred in the Lent term, when there was but little swimming. In the well-nurtured children in public schools acute rheumatism was a less common complication of tonsillitis than was otitis media. For the production of acute rheumatism some further, at present unknown, factor seemed to be needed in addition to infection by haemolytic streptococci; it was possible that this factor was some kind of vitamin deficiency.

Dealing finally with the question of prevention, Dr. Glover said that the occurrence of epidemics of tonsillitis in schools generally indicated the existence of unsatisfactory conditions in regard to hygiene, either in the school itself or in the sick-room or sanatorium. When these epidemics occurred there was usually a high carrier rate of haemolytic streptococci, and there was usually also some reason to suspect that the environmental con-

ditions were such as to facilitate the transmission of the infection. In most of these epidemics the infection was wafted in droplet form from one nasopharynx to another, in either dormitory, classroom, common room, changing-room, dining-room, tuck-shop, or chapel. Of these, the dormitory seemed to be the most important, for here the proximity of boy to boy was uninterrupted for several hours continuously, aided by closed doors and, in bad weather, many closed windows. During the last twenty years the Board of Education had laid down for observance in schools certain excellent minima. It required that for dormitories there should be a space of at least three feet between beds, a floor area per bed of not less than 65 square feet, and a cubic space of not less than 700 cubic feet per bed. Ventilation must be adequate and "through," by arranging windows on the opposite sides of a room. In the case of cubicles, if partitions were not carried to the ceiling there should be an allowance of 65 square feet and 700 cubic feet. When partitions were carried to the ceiling the figure should be 100 square feet and 1,000 cubic feet respectively. He said it was especially important to avoid overcrowding the sanatorium when an epidemic occurred; patients in such an event should have their beds separated by certainly not less than six feet.

Dr. Glover's reference to prophylactic immunization was omitted owing to pressure of time.

DISCUSSION

The PRESIDENT said there were a number of aspects of this question apart from the bacteriological. The school medical officer had to deal with these cases from the beginning; his was the anxiety, and he had to satisfy parents that everything possible was being done for their boys. The point of view of the general practitioner also had to be considered.

Dr. L. R. LEMPRIERE (Haileybury) emphasized the point that at the time of epidemic outbreaks it became for the school medical officer a matter of personal activity on the right lines. These septic sore throats had always been a cause of anxiety, and his observation gave him the view that these school visitations were recently on the increase. How to prevent these cases did not yet seem clear, especially as there appeared to be different types of causal organism. There had been a great improvement in the general hygiene of school premises; especially was that so in county council schools in the last forty years. He regretted there did not seem to be much improvement in the personal hygiene of the average public school boy; what had happened in regard to the school girl he was not in a position to say. The nose of the usual boy was a "cesspool." In comparison with tonsillitis there had been a small development of scarlet fever. He had long thought that the worst throat epidemics were in schools which were built on a clay soil.

Mr. THORNTON (Mayor of Eastbourne) said he was particularly interested in the question of possible harm from bathing, especially as a cause of ear disease. Dr. Willoughby had been instrumental in placing the Eastbourne bathing establishments on a satisfactory basis. His own view, as a schoolmaster, was that bathing had something to do with the causation of otitis media, especially sea bathing. It was probably largely due to boys jumping into the water feet foremost; accordingly he always urged boys to pinch their nose to keep out the water, and this was found to be a valuable deterrent. Gargling every morning was also a great advantage. Dr. LILIAS JEFFRIES was of opinion that bathing was responsible for some cases of otitis media. She was an advocate of the cubicle system for sleeping, though she had no figures to show a greater freedom from nasopharyngeal disease under that system as compared with dormitories. She was sure many school dormitories were imperfectly ventilated. She also strongly felt that sufficient stress was not always laid on having all milk consumed in schools pasteurized.

Dr. W. G. WILLOUGHBY (Eastbourne) said his view agreed with that of Dr. Lempriere that these streptococcal throat epidemics were on the increase in schools, especially since the war. On the other hand, the scarlet

fever now seen was certainly less severe than formerly. He stressed the need in dormitories and classrooms of having the air frequently renewed; the window space should be, in his view, one-tenth of the total floor space, and it should be possible to open half of every window. While agreeing with a daily throat gargle, he did not favour nasal syringing as a routine, owing to the delicacy of the nasal mucous membranes. In Eastbourne the policy of isolation of every suspected case of scarlet fever had been most successful. It would be a great boon to have for use a preventive serum for inoculation against the haemolytic streptococcus.

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In regard to the question of physical education for women there was remarkable unanimity of opinion as to its value. The alleged risks and dangers were shown to have little or no foundation in fact, and the favourable influence of exercise on menstruation was generally accepted. A resolution was passed by the whole association to the effect that the International Medical Women's Association regarded the scientific research and control of physical education for women, carried out in collaboration with teachers of physical education and the various organizations for sport and physical education, as one of its most important duties.

As to birth control there was of necessity considerable difference of opinion. In the Roman Catholic countries of Europe birth control, except for strictly medical reasons, is not permitted, whereas in certain other countries it is recognized and even encouraged by the State for eugenic and even economic and social reasons. Other countries, again, stand in an intermediate position. The discussion ranged from questions of principle to the details of contraceptive measures, and in spite of the inevitable differences in point of view it was extremely friendly, and pursued in the true spirit of scientific inquiry. It was decided that at this juncture it would be inadvisable to formulate any general resolution, but the council wished it to be put on record that it was satisfied that the discussion had been of international value from a scientific point of view.

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The report dealing with the last Remembrance Day appeal for Earl Haig's Fund shows that £511,853 was contributed on Poppy Day, 1933—an increase of nearly £30,000 over the figure for the previous year. Many committees throughout the country have already started their work of local organization for the 1934 Remembrance Day appeal, which this year will be made on Saturday, November 10th.

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SIR.—The dangers of x-ray work were brought home vividly to the medical world by the death of several of our pioneer radiologists. In 1921 a letter to the *Times* announced the formation of a special committee to advise on these dangers. In this action the late Dr. Stanley Melville played a very prominent part. This X-Ray and Radium Protection Committee was the first in the world to draw up recommendations for safeguarding those who work with these agents. Their value may be gauged by the fact that they formed the basis of the recommendations adopted at the Stockholm International Radiological Congress in 1928.

Dr. Stanley Melville took a most important but unobtrusive part in all that concerned medical radiology. He was one of those who worked for the establishment of the Diploma in Medical Radiology and Electrology (D.M.R.E.) at Cambridge in 1919, and subsequently the teaching and examinations connected with it were his constant care. The bilingual congress of 1922 and the First International Congress of Radiology in London in 1925 were largely due to his initiative, as was also the formation of the British Institute of Radiology, with which the Röntgen Society was eventually incorporated. He did much for the welfare of the lay worker, and took a prominent part in founding the Society of Radiographers. Sadly handicapped physically, and often suffering as the result of dermatitis incurred in the early days, Melville never spared himself when any work for medical radiology had to be done; that he should be ever ready to step into the breach seemed to be the natural course of events.

Some of your readers may feel that his services should be recognized and perpetuated by a suitable memorial, such as a travelling fellowship in radiology. Donations, however small, for the purpose will be gratefully acknowledged. At a later date a meeting of those subscribing to the fund will be called in order to decide what form the memorial shall take and how the funds subscribed shall be administered.—We are, etc.,

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32, Welbeck Street, W.1, Sept. 14th.

Preliminary Ligation in Toxic Goitre

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It will be agreed that the best means to ensure a low mortality is to leave so little thyroid tissue that severe post-operative reactions cannot occur, and this involves removal of about seven-eighths of the gland in the majority of cases. In the very toxic patients, although it may be unwise to carry out this operation in the one

stage, I think, nevertheless, that at least a large portion of one lobe should be removed under these circumstances, and the post-operative reaction will depend, to a great extent, on how much thyroid is left behind. I believe that the ligation operation cannot be relied upon to reduce to any great extent the amount of active gland, and for this reason the first stage of the operation in a very toxic case should include more than simple ligation of the vessels.

That these views are not without support is evident from a study of the literature on the subject. H. M. Richter, in *Surgery, Gynecology and Obstetrics* (vol. xlix, p. 67), reports a series of 500 consecutive cases of toxic goitre subjected to operation with one death only. He is of the opinion that preliminary ligation should not be done, and aims at carrying out the operation in one stage only. A series of cases so successfully dealt with cannot be ignored. Again, Greene and Mora (*ibid.*, 1931, vol. liii) report 1,025 consecutive thyroidectomies for toxic goitre in one-stage operations with a mortality of 0.29 per cent., and also a series of twenty-six cases in children in which a one-stage operation was performed with no deaths. The preliminary ligation method is not practised by them. F. H. Lahey, in the *New England Journal of Medicine* (1929, p. 909), basing his views on over 4,000 cases of toxic goitre, makes the following statement:

"Due to the preliminary use of iodine, multiple stage operations which we have previously advocated have markedly diminished in number, and when done are now limited at the most to a two-stage procedure, the partial removal of one lobe, the patient returning to hospital at the end of six weeks for the partial removal of the remaining lobe."

In 1924 fifty-seven operations for preliminary ligation were carried out in the Lahey clinic, but since then the operation is no longer regarded with favour, and in 1928, although there were 618 operations for toxic goitre, in no case was preliminary ligation considered advisable, and yet there was only one death in this group. In this country W. H. C. Romanis (*British Medical Journal*, January 21st, 1933, p. 87), reporting on 900 cases with a mortality of 2.5 per cent., recommends a two-stage operation, if the patient is exceedingly ill, in which one lobe is removed on the first occasion and part of the remaining lobe later. He does not support the operation of preliminary ligation.

Mr. Cecil A. Joll very rightly points out that:

"It must not be forgotten that, minor operation as it is, preliminary ligation has an appreciable mortality, and there is by no means a negligible minority in which the operation either aggravates the progress of the disease, or at any rate entirely fails to check it."

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of the thyroid, followed later by removal of part of the remaining lobe. Thus of Mr. Keynes's eight cases, five were benefited by the operation, one died, and two received no benefit whatever, but nevertheless were later very successfully dealt with by excision of part of the gland.

In conclusion, I think there is good evidence to show that the more direct method of dealing with these cases by removal of at least a portion of the thyroid gland, should a two-stage operation be necessary, can be carried out with an extremely low mortality, and that preliminary ligation is a procedure which is associated with a grave risk in return for an uncertain result. I regret that Dr. Cunningham and I did not make it clear in our letter in the *Journal* of June 30th that in adult patients permission for operation is obtained during the early stages of the preliminary medical treatment, but that, once obtained, the subject is not discussed with the patient again, so as to avoid, as far as possible, unnecessary worry on his part. We are, of course, in agreement with Dr. Harold Cookson when he points out that it is illegal to operate without permission on a patient under 21 years of age unless certified insane. In Taylor's *Principles of Medical Jurisprudence* (eighth edition, vol. i, p. 109) it is stated that "no surgeon has a right to perform any operation against the will of the patient as long as the patient preserves consciousness and will." Possibly in some cases of very toxic goitre the terms "consciousness and will" might reasonably be interpreted to allow of an operation being performed without the patient's consent if the relatives are willing, but so far we have always obtained the patient's consent.—I am, etc.,

Liverpool, Sept. 13th. PHILIP HAWES, Ch.M., F.R.C.S.

Medical Education

Training for the Specialties

SIR,—Many thinking practitioners will find themselves heartily in agreement with the views expressed by Mr. Keith Monsarrat in your issue of September 8th (p. 488) and hope that further consideration may induce the powers that be to adopt his scheme rather than that which found favour with the majority of the Committee on Medical Education.

But if it is desirable that the medical graduate should have the benefit of a period of responsible clinical experience before taking up the duties of public practice I submit that it is almost equally important that no graduate should be permitted to embark on specialist and consultant practice without previous experience in general practice. My own observation and experience lead me to think that there are far too many so-called specialists for the health of the specialties and, it may be, also for the health of the public generally. Most men of experience will agree that it is impossible to deal adequately with any pathological condition of specific organs without consideration of the general health of the patient, and that the object of treatment should be directed to the patient suffering from the disease and not the morbid condition of one organ as though it were the only or even the chief consideration. The necessary experience can only be obtained in general practice, and it would, I believe, be greatly to the advantage of both our profession and our patients if some regulation could be devised to prevent anyone taking up a specialty until he had spent three years at least in an ordinary family practice. It might perhaps be made a condition for the M.R.C.P. or the F.R.C.S.

At present it seems as though any bright lad who has won a prize or two in his student career thinks himself too good for general practice either through his own

vanity or the flattery of foolish relatives or friends. One parent told me that he would not let his son become a doctor unless he could be a specialist. Such an outlook indicates that the object in view is to make money and secure a good social position, which is perhaps not infrequently the incentive rather than to "scorn delights, and live laborious days." Of course, I do not for a moment suggest that there are not examples of the latter outlook, and brilliant ones too, among the ranks of specialists, but the holders of the former point of view will never achieve the highest satisfaction that the practice of medicine can give.

It would be possible to adduce many more forcible arguments in support of my thesis, but they are more suitable for discussion *in camera* than in the Press. Many of the problems which faced the Central Ethical Committee in drawing up rules for consultation would not arise if some such regulation of specialism as I have indicated could be put into practice.—I am, etc.,

Derbyshire, Sept. 16th.

AN OLD GRADUATE.

B. coli Infections

SIR,—Professor Murray Lyon in his address (*British Medical Journal*, September 8th, p. 455) has dealt in a masterly way with this subject of everyday importance. His references to modern thought on this matter are very stimulating, but at the same time the views he has described would appear to be conflicting.

1. "The bile, though alkaline, is an excellent culture medium for the colon bacillus and similar organisms."

Why should the colon bacillus flourish in this alkaline medium when the best measures for eradicating it are massive doses of alkalis?

2. "Hurst has pointed out that where achlorhydria is present the contents of the duodenum are more alkaline—a condition favouring the growth of organisms."

And yet we give large doses of alkali to inhibit this growth! It would appear that the colon bacillus flourishes in an alkaline state of the bowel, but prefers a highly acid state of the urine.

3. "Excess fat in the diet favours penetration of the bowel wall by organisms; butter and eggs are therefore usually restricted."

Wherein, then, lies the value of a ketogenic diet, which contains large quantities of fat? That this diet has proved useful in clearing up many cases of chronic *B. coli* infection of the urinary tract (the primary focus being, as always, the bowel) there can be no doubt.

4. "Calomel in non-purgative doses is probably as useful a drug as any."

And yet its action is to increase the flow of bile, which, as has been said, is an excellent culture medium for the colon bacillus.—I am, etc.,

C. GORDON STRACHAN, M.B., F.R.C.P.Ed.

Cheam, Surrey, Sept. 12th

Increased Mortality from Diabetes

SIR,—With regard to the recent increased mortality from diabetes it has been suggested that it may not be a real increase, but may be due to the misleading character of the mortality statistics for this disease. It is well known that since the advent of insulin, owing to the greater activity in the routine examination for sugar in the urine and blood, many more diabetics have been discovered; but it does not necessarily follow that that means an increased mortality.

James Raglan Miller refutes this, as far as the U.S.A. statistics are concerned, in an article in the *New England Journal of Medicine* (ccviii, 490). He makes the statement that

"... the modern treatment of diabetes has reduced the number of deaths to such an extent that diabetes can now be considered as scarcely more than a serious handicap." And continues: "It is common knowledge that patients who have diabetes do not at present die because of their diabetes: diabetes, perhaps more than any other condition, seldom appears alone on the death certificate. Before the use of insulin it was in truth a frequent primary cause; in other words, it was diabetes which killed the patient. To-day it is frequently merely a condition which the patient is known to have had—a handicap, which even to the point of death is under perfect control."

Referring to death certification, Dr. Miller tells us that the "Manual of Joint Causes" is peculiar to the United States, being issued by the Central Bureau to regulate in a uniform manner the tabulation of deaths according to a definite scheme. He states:

"It will surprise most physicians to learn the extent to which diabetes takes precedence over other causes of death which appear on the death certificate. If diabetes is mentioned even as a secondary cause, together with any of the diagnoses in the following list, it will get the credit of causing the death."

He refers to a list of 113 diseases, including the following: erysipelas, encephalitis lethargica, acute rheumatic fever, epilepsy, lobar pneumonia, appendicitis, acute nephritis, pericarditis, and other diseases of the heart. He further claims that there is ever present in vital statistics, and from the beginning always has been, an attempt to make the incidence of mortality a measure or index of the incidence of morbidity.

Is it not possible that in recent years, in our own country, owing to the great attention that has been focused on diabetes and glycosuria, once the condition has been diagnosed in a patient, especially one of mature years, the fact is not forgotten: should the patient die from a condition wholly unrelated to diabetes, the glycosuric condition nevertheless finds mention on the death certificate, and thus a condition of morbidity becomes a cause of mortality?—I am, etc.,

Bramhall, Cheshire, Sept. 17th.

ALEX. FRASER.

Treatment of Fractures in the Newborn

SIR,—The annotation in your issue of August 25th (p. 363) discussing Drs. Eric Pritchard and Jean Smith's views on the treatment of fracture of the femur in the newly born, states that "the traditional method of dealing with neo-natal fracture of the femur is to bandage the thigh against the abdomen in the 'foetal' position. Nursing becomes very complicated in these circumstances." In July, 1908, after reading an account of twenty fractures of the thigh in the newly born, related by the late Sir Robert Jones, in all of which mal-union had taken place, I explained the treatment which Drs. Pritchard and Jean Smith describe as in the "foetal position." My article distinctly stated that the fractured leg comes to lie on the opposite side of the body; this is not in the foetal position. In my two cases related, the nursing, instead of being complicated, was so simple that one child, when the treatment had been applied, was placed on a pillow and two loose bandages applied round the pillow and child. The broken leg was out of the way, and the mother, raising the pillow on which the child lay, gave the child the breast. Another case subsequently was attended by a friend of mine in Belgium. He reported that the result was perfect and the

nursing easy. In all these cases the treatment was the essence of simplicity and the results all perfect.—I am, etc.,

Bolton-le-Sands, Sept. 12th.

JOHN EDMONDSON.

Peribronchial Tuberculosis

SIR,—In the *Journal* for September 8th (p. 461) Dr. Douglas Webster mentions—as an instance of diagnostic error—the fact that hundreds of recruits for the armies of Great Britain and America were wrongly rejected because of the confident radiological diagnosis of "peribronchial phthisis." This was twenty years ago: more recently (in May, 1927) a writer in the *American Journal of Roentgenology* was so incensed at the continuous stream of "well" patients sent into his sanatorium that he would hear of nothing less than the total abolition of the term "peribronchial tuberculosis."

Since I was the originator of this term (*Practitioner*, February, 1912, and *British Medical Journal*, August 31st, 1912), I hope you will be good enough to allow me a word of explanation. My thesis was a clear one, and, I think, expressed a rational and common-sense view. Finding (as I did) that pulmonary tuberculosis did not begin, as previously held, at the apices of the lungs but in the middle portions of the chest, opposite the roots—in a region where no physical signs could be made out in the early stages—I published my conclusions that pulmonary tuberculosis originated ordinarily as a catarrhal bronchitis and bronchiolitis. This earliest stage gives no x-ray signs, but it prepares the way for the all-important second stage. The walls of the small air tubes, having shed some of their lining epithelium, are no longer impervious to microbes, some of which (tubercle bacilli among them) pass through the weakened places into the peribronchial tissues, where leucocytes begin to assemble in groups for the purpose of dealing with them. These constitute the "fine mottling" which is the earliest x-ray sign of active disease. After this, one of three events may follow: (1) complete resolution and disappearance of the x-ray mottling; (2) healing by fibrous tissue formation, shown by widening and darkening of the linear shadows that radiate from the roots; (3) advancing disease—the "mottles" coalesce into blotches, then follow the advanced stages of caseation, ulceration, excavation, etc. While disease is advancing in the peribronchial tissues the glands at the root are gradually enlarging, as would be expected, seeing that the microbe-infected region is increasing in extent.

All this seems simple and rational and hardly open to controversy; but strangely enough the idea went abroad that pulmonary tuberculosis had been proved to start in the bronchial glands and spread from them along the air tubes—as soon would I have asserted that a "poisoned" finger started in the axillary glands and spread thence to the finger! Several writers invented theories to explain the remarkable phenomenon. The late Dr. R. Murray Leslie, for instance, invented the term "retropulsion of lymph" to explain it! Worse was to follow: for radiologists throughout the world began diagnosing peribronchial tuberculosis whenever they found dark blotches at the roots and "fibrous" bands radiating from the roots along the air tubes. I protest my innocence of blame for this. In my papers I drew special attention to these appearances in "healthy" chests, and explained them to be Nature's way of overcoming chronic microbic infection of the lungs. Further, I insisted that mottling was the only positive sign of active disease of the lungs.

Is mottling always tuberculous? Twenty years ago the answer was an unqualified "Yes"; to-day the reply is,

"Not always at first." The microbic invasion of the peribronchial tissues and the influx of leucocytes that follows (giving rise to mottling) is, I am convinced, nearly always micrococcal. Whether, and how soon, tubercle bacilli arrive there and begin to multiply depends on individual susceptibility to tuberculosis, and this may be inborn or acquired, or both—a fatal combination! Acquired susceptibility to tuberculosis, again, may be local or general. By "local" I mean that a chronic micrococcal infection of some portion of the lung impairs the resistance of that portion and renders it unnaturally susceptible to tuberculosis. By "general" I mean that a general toxæmia renders *all* tissues of the body prone to attack, since the toxæmia depreciates their natural resisting powers, and wherever tubercle bacilli lodge they are able to multiply and gain a firm foothold.—I am, etc.,

ALFRED C. JORDAN, M.D.,
M.R.C.P., D.M.R.E.

London, W.1, Sept. 10th.

Pineapple Juice in Oedema

SIR,—I was much interested in the letter on the above subject in the *Journal* of September 8th (p. 492). During an outbreak of beri-beri in the gaol at Kuala Lumpur, Federated Malay States, in the years 1896 to 1898, the Chinese patients with dropsy invariably asked for pineapple. They said it was good for reducing the swelling. Their request was granted as a placebo, although I thought at the time it might act as a diuretic. The dropsy subsided, but, as they were given other diuretics, I could not attribute its disappearance entirely to the pineapple. I may state that Chinese patients suffering from dropsical beri-beri in other State hospitals also always asked for pineapple.—I am, etc.,

London, W.13, Sept. 17th.

A. J. McCLOSKEY, M.D.
Retired Senior Medical Officer, Selangor,
Federated Malay States.

"Port Sanitation and Common Sense"

SIR,—“Port Medical Officer” (September 8th, p. 491) has not perceived that my criticism of port authorities is almost entirely directed against *foreign* ones. He cannot have had much experience of these individuals, especially the Mediterranean and South American varieties, each of whom sees himself as a petty Cerberus in charge of the national safety, and to whom the mention of any kind of illness (even accidents!) arouses visions of dread epidemics, the ship being regarded as a sort of dung-heap which must forthwith be “disinfected” at a heavy charge to the owners.

In British ports a standard health questionnaire now at long last prevails in which the question, “Have you had any cases of illness on board whether of an infectious nature or not?” does not occur. “Port Medical Officer” does not see that I was referring here to cases which have occurred during the early part of a voyage and have since completely recovered. Why should the ship surgeon almost always be regarded as ignorant or inexperienced in regard to such cases of minor illness? Or, if he must be so regarded, why is no supervision exercised over the general practitioner ashore? Surely he is just as likely to miss ambulatory cases of small-pox, gonorrhoeal sequelae, and typhoid fever as the ship surgeon. What of the port medical officer himself? Is he entitled to claim medical omniscience?

Speaking from over ten years' sea-going experience in all parts of the world, I would say that the vast majority of these minor maladies are found to be mares' nests in regard to their danger to the community. In regard to the remainder, it is sad to relate that British law, being

the ass that it is, is sometimes woefully lacking. Witness the *Tuscania* affair. This ship landed a case of small-pox at Marseilles homewards. On arrival at Liverpool, though obviously contacts were on board, the ship could not be quarantined in the absence of actual cases. The result was a small epidemic ashore. Surely this requires amendment.

I trust that “Port Medical Officer” will not consider my remarks as directed against himself or other officers in British ports, whom I have almost invariably found sensible and friendly. It is the crass futilities and absurdities of foreign port sanitation procedures that I am up against. Surely the time has come when all such procedures should be made internationally uniform, and some system of checking a ship from point to point of its voyage be established in place of the present one of treating it as an “unknown quantity” at every port.—I am, etc.,

September 9th.

SHIP SURGEON.

Injuries of the Knee-Joint

SIR,—I have just read Dr. Stewart's letter (July 7th, (p. 40)). I am as unwilling as he is to perpetuate old heresies, but I am equally unwilling to subscribe to new ones. I hasten to assure him that I have never seen a joint “locked” in extension, but I read his letter to mean that he had. Absence of full extension presupposes some degree of flexion, and I suggest to him that in his cases the injury occurred during an attempt to re-extend the joint after a temporary flexion—that is, a rebracing under strain.

I welcome his suggestion of a slow-motion picture—if he is fortunate enough to obtain one I feel he will change his views. In the meantime perhaps he will describe the mechanism by which injury to a cartilage occurs in a fully extended knee-joint without severe damage to other joint structures.

I regret it was not clear that the last paragraph of my letter (June 23rd, p. 1142) referred to another part of Mr. McMurray's paper—that on crucial ligament injuries.—I am, etc.,

Newcastle-on-Tyne, Sept. 11th.

G. STEWART WOODMAN.

The Swab in Diphtheria Diagnosis

SIR,—I have read with considerable interest correspondence on this subject. As a medical officer of health and superintendent of a fever hospital I have seen a considerable number of cases of this disease during the past fifteen years, and I would like to make the following observations:

1. The diagnosis of diphtheria is by no means as simple as some of your correspondents would maintain; in the early stages of the disease I would defy any expert to diagnose many of the cases.

2. If a practitioner is in any doubt that a case is clinically diphtheria he should not only take a swab, planting the swab exactly upon the suspected area on the tonsil or elsewhere, but should also remember that in quite a number of cases a nasal swab will give a positive result where a throat swab will not. But if there is clinical evidence which renders the practitioner doubtful, as to the case being diphtheria it should at once be given at least 8,000 units of concentrated antitoxin, and if the history is longer than twenty-four hours such a dose should be doubled or trebled. Many a child's life would be saved if only this procedure were adopted.

3. It is my sad experience that in all cases of faucial diphtheria, if no antitoxin has been given prior to the fourth day of the disease, if they are true clinical

diphtheria, most will prove fatal: in fact, I always regard it in the nature of a miracle if such a case can be saved, no matter how much antitoxin is given or how it is given, whether intravenously or intramuscularly. The diphtheria toxin has got such an anchorage into the cardiac system that nothing will remove it; the throat may have cleared completely, but still the child will die.

4. There is no doubt whatever that certain cases of faucial diphtheria may give negative swabs—at any rate, throat swabs—although possibly the nasal swab, if taken, might have proved positive. Such patients, unless treated as diphtheria, will certainly die, and clinical evidence of the disease in these instances should certainly justify specific treatment. One such case I can recollect did not give a positive swab until the child had been ill for a fortnight and was on the point of death.—I am, etc.,

F. A. BELAM, M.D.,
Medical Officer of Health.

Guildford, Sept. 15th.

Obituary

THE LATE DR. C. W. HUTT

Dr. J. S. MANSON, Warrington, writes:

As an old personal friend of Hutt I would like to add a few words to the admirable obituary notice in your issue of September 8th (p. 493). Our friendship commenced during his stay in Warrington, and was maintained with the warmest affection for nearly twenty-five years. His Warrington friends rejoiced at the richly deserved success which he attained in the public health world, and it has been a great solace to me that we stayed together during the meeting of the Scientific Sections at Bournemouth in July. Although in poor health he came down from London to give his valuable contribution to the Public Health Section on immunization against diphtheria, and he was pleased that the Representative Body had authorized the setting up of a special committee on immunization.

He was secretary of the Public Health Section at the Edinburgh meeting in 1927, and although a loyal member of the Royal Institute of Public Health he had a great respect for the 'Public Health Section' of the British Medical Association, and thought that there might be closer co-operation between the two bodies. He often used to speak of his Continental visits, and his broadmindedness and facility of contact with foreigners made one regard him as a good European. He has been cut off when it seemed that further success and honour awaited him; and while all those who knew him deeply regret his loss, their sympathy goes out to his widow and family.

Dr. THACKER KING of Sandfield House, West Kirby, died on July 25th, aged 75. He studied medicine at Dublin, taking the L.R.C.P.I. and L.M. in 1883, and later the Durham M.D. Dr. King worked in West Kirby as a general practitioner for over forty-five years. He had three sons, two of whom he lost in the war, and one, Dr. George King, shortly after he had taken him as a partner. The loss of his sons was a great sorrow to him and Mrs. King, and one from which they never wholly recovered. Dr. Thacker King's success in practice was phenomenal, for he was endowed with the "physician's instinct," and this, coupled with a vast experience and knowledge derived from attending the sick and from extensive reading, rendered him invaluable to his numerous patients. He was a man of fine presence and strong personality, always ready and willing to visit and help anyone at any time, day or night. In addition, his courteous manners, sympathy, and honesty endeared him to friends and patients alike. His loss will be felt acutely by generations of people whom he treated and befriended, and the example he set of clean living, fairmindedness, and friendliness will live for many years. He had been a member of the Birkenhead Division of the British Medical Association for fifty years.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel Edward Pettingall Youngerman, Madras Medical Service (ret.), died on July 11th, aged 76. He was born on February 4th, 1858, and was educated at Edinburgh, where he graduated M.B., C.M. in 1879. Entering the I.M.S. as surgeon on October 1st, 1881, he became lieutenant-colonel after twenty years' service, and retired on March 2nd, 1907. He served in the Burma campaigns in 1885-6, receiving the frontier medal with a clasp. His whole service was passed in military employ in Madras regiments.

Colonel Claude Kyd Morgan, C.B., C.M.G., late R.A.M.C., died at London, Ontario, on August 10th, aged 62. He was the son of the late David Morgan, J.P., of Douglasleigh, Carnoustie, was born at Inverkeillor, Montrose, on December 2nd, 1871, and was educated at Aberdeen, where he graduated M.B., C.M. in 1893. Entering the R.A.M.C. as surgeon lieutenant on July 28th, 1894, he was promoted to lieutenant-colonel in the long war promotion list of March 1st, 1915, became colonel on December 26th, 1917, and retired on September 22nd, 1920. He was on special plague duty in Bombay in 1899-1921, when he received the thanks of the Government for his work. He served in the war of 1914-18 as A.D.M.S., and was mentioned in dispatches in the *London Gazette* of February 17th and June 22nd, 1915, January 1st, 1916, and May 29th, 1917. He received the C.M.G. in 1916, the C.B. on June 3rd, 1919, and the Legion of Honour. In 1918 he was a member of a British mission to Washington. Two years ago he was appointed honorary lieutenant-colonel of the Canadian Fusiliers and City of London Regiment. In 1905 he married Eleanor (O.B.E., 1919), daughter of the late T. H. Smallman of London, Ontario. By a curious mistake—a confusion with another officer of the same name and initials—his name was entered as dead in the casualty list in the War Office Army List for May, 1930.

Universities and Colleges

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-ON-TYNE

Centenary Celebrations

The one hundredth anniversary of the foundation of the University of Durham College of Medicine, Newcastle-on-Tyne, will be celebrated on Thursday and Friday, October 4th and 5th. During the afternoon of the first day the College will be open for inspection, and at 8.30 p.m. there will be an official reception of visitors by the President, Sir Thomas Oliver, in the Great Hall, followed by a conversation and dance. On Friday morning visits will be paid to view the clinical facilities of the College, the Department of Dentistry, and the Bacteriological Department and Public Health Laboratory.

In the afternoon there will be a luncheon party in the Great Hall of Durham Castle, and a special convocation in the Chapter House of Durham Cathedral, presided over by the Marquess of Londonderry, Chancellor of the University. Honorary degrees will be conferred as follows: Doctor of Civil Law, Sir E. Hilton Young, Minister of Health, and Sir Holburt Waring, President of the Royal College of Surgeons of England; Doctor of Hygiene, Sir Francis Dyke Acland, Chairman of the Dental Board of the United Kingdom, and Dame Janet Campbell, M.D.; Doctor of Surgery, Major-General J. A. Hartigan, D.G. Army Medical Services, Dr. J. W. Leech, M.P., and Dr. William Robinson; Master of Arts, Dr. W. D. Arnison. The closing event will be a commemorative service at 3 p.m. in Durham Cathedral, at which the Bishop of Durham, Visitor of the University, will give an address. *A Centenary History of the Medical School*, published by Andrew Reid and Co. Ltd. at 10s., has been prepared for the occasion by Professor G. Grey Turner and Dr. Arnison.

UNIVERSITY OF LONDON

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

The following entrance scholarships have been awarded at King's College Hospital Medical School: *Raymond Gooch Scholarships*, D. I. Williams (King's College, London), S. C. Truelove (Trinity College, Hartford, Conn.), J. W. Yeo (Trinity College, Hartford, Conn.), C. I. Murphy (Queen's College, Oxford), R. B. Niven (Magdalen College, Oxford), *Epsom College Scholarship*, E. L. James (Jesus College, Oxford), *Seaman Scholarship*, J. Smallpeice (King's College, London).

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

DISSOLUTION OF PARTNERSHIP. II

QUARRELS BETWEEN PARTNERS

The court will dissolve a partnership in which so intense an ill-feeling has arisen between the partners as to destroy all their confidence in one another, or where there has been an irreparable breach, so that they can no longer carry on business together. A Master of the Rolls (Wray v. Hutchinson, 1834) once said that although the partnership would be dissolved if the defendant had substantially failed to perform his part of the agreement, yet it was not the duty of the court to consider mere partnership squabbles. Far too many cases are brought before the courts in which the disputing partners launch the most damaging charges against one another and seriously injure their own good names and that of their profession, besides ruining themselves financially. The court suppresses as much of this mutual abuse as it can, but has to hear such accusations as seem relevant to the applicant's case. The medical defence societies, the heads of the British Medical Association, the editors of medical journals, and all other men of authority in the profession are constantly advising medical partners to keep their quarrels out of the law courts, and I make no apology for emphatically repeating this advice.

Nothing does more harm to the profession or to a pair of practitioners than to have the evening papers full of their mutual and detailed accusations of fraud, sloth, chicanery, petty malice, drunkenness, and immorality. The files of this *Journal* and of the *Lancet* contain a number of instances of this disastrous form of litigation. The charges are nearly all much exaggerated by dislike and irritation, and even if they are true, why on earth have them published? It is the easiest thing in the world for two partners, however bitter their private quarrel may be, to take it to the secretary of one of the defence societies or of the British Medical Association, or to a solicitor with a large medico-legal practice, and have a legal agreement made to dissolve the partnership. If they cannot agree about the disposal of the goodwill and the partnership assets, any of these advisers can easily find them an able and experienced arbitrator of high standing whom they can both trust. They gain nothing by going to law, because when the dispute clearly arises from personal antagonism the judge will nearly always press the partners to settle their dispute out of court instead of wasting public time, and they will then find themselves constrained to appoint an arbitrator after all, having spent a large sum on legal advice and representation and gained nothing in return.

It is possible to multiply examples of this kind of litigation, but I will select one as typical of the general run of partnership squabbles.

Two medical men entered into partnership in London, one agreeing to pay £2,500 for a share in the other's practice. He paid up £2,000, but would not pay any more, and the other sued him for the balance. The purchaser counter-claimed for damages on the ground of fraud and misrepresentation, mainly as to the value of the practice; he also claimed the return of his £2,000 and the rescission of the partnership agreement. The seller thereupon accused the purchaser of chronic recurrent alcoholism, which made him incapable of constantly and regularly performing his part of the partnership agreement. After both doctors had wasted a great deal of time and money fighting the case, they yielded to the pressure of the judge and made a whole-hearted retraction of their statements.

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), and the fourth on July 21st (p. 141).

¹ *Lancet*, '926, ii, 37.

The partnership relation (remarks our contemporary) was evidently intolerable to both. Why could they not save themselves friction, cost, and publicity by a simple mutual agreement to dissolve? The purchase money was the stumbling-block, but if they could have referred the point to some umpire in whom both had confidence, he could have settled the dispute and they would not have needed to waste money in litigation.

If a partner finds himself in the unpleasant position of suspecting his fellow of serious misconduct, and decides that he must have recourse to a third party, he must take care that he does not expose himself to an action for libel or slander by his fellow. Even if he makes a statement to another person which he honestly considers necessary to protect his own and the partnership interests, he must be prepared to prove to the satisfaction of a jury: (1) that the third party to whom he resorted was one to whom he might rightly and reasonably have turned in the circumstances; and (2) that he acted in absolute good faith, with no ulterior motive. For instance, he may safely consult a solicitor, or ask in confidence the advice of another medical man of good standing whose wisdom and experience may help him and who has no personal prejudice, or approach a person with authority to take action. If, for instance, he considers it necessary to take the extreme step of having his partner certified as of unsound mind, he may furnish the necessary information to the medical man whom he is asking to give the certificate.

RIGHTS OF PARTNERS IN DISSOLUTION

When the court orders dissolution, the partnership will usually be dissolved from the date of the judgement. If, however, there has been any actual misconduct, or a breach of duty under the articles, or bad faith, the court may order the dissolution as from an earlier date, so that the guilty partner may not draw profits for the time during which the business was being damaged by his misconduct.

When a partnership is dissolved or a partner retires, any other partner may publicly notify the fact and require the other partners to concur in all necessary steps which he could not take without their consent, such as signing their names to an advertisement in the *London Gazette*—one of the means laid down by the Partnership Act of giving notice to all whom it may concern. The legal position of the partners, both with regard to each other and to outsiders, remains the same until the affairs of the partnership have been wound up and transactions which were commenced before the dissolution have been completed. Each partner, except a bankrupt, still has authority to bind the firm, and his rights and obligations are not altered. Each partner is entitled to have the property of the firm applied to pay off its debts and then to claim his share of the remainder, less anything he may owe the firm. For this purpose any partner or his representatives may after dissolution apply to the court to wind up the firm's business. A medical partner, however, cannot have the goodwill and connexion of the partnership sold, because its value is largely potential and depends on the future exertions of the several ex-partners.

In *Farr v. Pearce* (1818) A paid B a large premium for a share of his practice. A died and B sold the practice for a considerable sum. The representatives of A were held not to be entitled to any share of the money for which the goodwill was sold. Sir J. Leach, Vice-Chancellor, said in his judgement: "It would be difficult to maintain that where a partnership is formed between professional persons, as surgeons, and one dies, the other is obliged to give up his business and sell the connexion for the joint benefit of himself and the estate of his deceased partner. When such partnerships determine, unless there be stipulations to the contrary, each must be at liberty to continue his own exertions, and where the determination is by the death of one, the right of the survivor cannot be affected. Such partnerships are very different from commercial partnerships."

The goodwill therefore belongs to no one and is available to anyone who is willing and able to make use of it. When, however, goodwill has already been sold by some one in a position of trust, or under an arrangement made to defraud creditors, the court will order the proceeds to be paid to any person who has in conscience a right to them. For instance, a medical partner runs heavily into debt, and knows that in a month or two his largest creditor will make him bankrupt. He therefore assigns his interest in the practice in exchange for an annuity payable to his wife till her death and afterwards to him. The court would declare this transaction void as a fraud against the creditors.

RETURN OF PREMIUM

When one partner, on entering into partnership for a fixed term, has paid another partner a premium, and the partnership is dissolved—otherwise than by the death of a partner—before the expiration of the term, the court may order the recipient to repay as much of the premium as it thinks just, considering the terms of the contract and the length of time during which the partnership has continued. The court will, however, not order repayment if the partnership is dissolved largely because of the misconduct of the partner who paid the premium; or if it is dissolved by an agreement which contains no stipulation that any part of the premium should be repaid. The fraction to be repaid has always been determined by purely arithmetical means: dividing the whole amount of the premium by the number of years in the term and awarding the sum corresponding to the number of years that have elapsed. Death is excepted because it is a contingency that must be contemplated by everyone, and possibly lunacy may also be excepted. If an affluent partner pays a premium to a doctor whom he knows to be in financial difficulties, he may not be able to recover any of it if his partner goes bankrupt, but if he did not know that the recipient was embarrassed he may have the problematical satisfaction of proving his claim in bankruptcy. When a partner is seeking to recover some of his premium, counsel should ask for an order for its return at the trial of the application for dissolution. If this is not done, the partner will probably lose his money, for the court will only in special circumstances make an order after it has given judgement for dissolution.

The following cases illustrate the principles on which the courts order premium to be returned.

In *Freeland v. Stansfeld* (1854) two medical men, F and L, agreed to become partners for seven years. F paid L a premium of £900, and was to take one-third of the profits. In a year and a half L became bankrupt, and F sued S, the trustee in bankruptcy, asking for dissolution and the repayment out of the partnership assets of a proportion of the premium. S contended that F had had full value for his £900 in being introduced to L's patients and given the opportunity of forming a valuable connexion; he said also that if F had a claim he ought to make it as an ordinary creditor in bankruptcy. Stuart, Vice-Chancellor, declared in his judgement, however, that the premium was paid not for the introduction alone, but also in order that L should carry out his part of the agreement, which included the division of the profits. The partnership was ended prematurely by L's default, and as F could no longer obtain a considerable proportion of what he had paid for, it was not unnatural that he should claim that a corresponding proportion of his premium should be given back to him. It is a settled principle in equity that if, under a contract, a sum of money is paid for a consideration which afterwards fails, the recipient of the money must pay back that part of it which corresponds to the part of the consideration which has failed. The Vice-Chancellor awarded F £700 out of the partnership assets.

In *Astle v. Wright* (1856) the partnership was dissolved after a few months on account of personal friction. W, the newcomer, complained that A, the recipient of the premium, had failed to introduce him to the patients and had misrepresented the value of the practice. A, in his turn, charged W with neglecting to attend to the surgery, make up the medicines, or keep the books. Half the premium had been handed over; A claimed the remainder with interest and W claimed the return of what he had paid. The Master of the Rolls found that there had been no misrepresentation,

as W had spent a considerable time in A's house and had ample opportunity of judging the value of the business. He ordered A to return that part of the premium which corresponded to the unexpired term.

In *Atwood v. Maude* (1868) M, the recipient, alleged that A was so incompetent that the business could no longer be carried on, but the Court of Appeal considered that M had had ample opportunity to judge of A's capacity before he entered into the contract. As there had been no fraudulent or wilful misconduct, they ordered M to return an appropriate part of the premium.

In *Wilson v. Johnstone* (1873) Wickens, Vice-Chancellor, suggested that the court would only refuse to order the return of premium in a case where the payer had committed such deliberate and serious breach of the partnership contract as might be considered equivalent to a repudiation of it altogether. Mere conduct entitling the recipient to a decree for dissolution would not, he thought, be sufficient. The Act, on the other hand, lays down that there need be no return of premium when the dissolution is chiefly due to the misconduct of the payer, and return may perhaps be refused nowadays on grounds which would not have been sufficient before the Act.

It has been held more than once that, when the partnership articles contain a general clause providing a reference to arbitration of any difference between the partners as to anything relating to the partnership, the arbitrator can award dissolution and a return of premium (*Belfield v. Bourne*, 1894). It is, of course, always open to partners to agree to refer a dispute or conditions of dissolution to a named arbitrator and to abide by his finding.

FRAUD: CONTINUATION OF BUSINESS

If a partner is induced, by the fraud of another partner, to enter into a partnership and pay a premium, he has a choice of two remedies. He may either repudiate the contract altogether and sue for rescission, or he may affirm the contract and sue the offending partner for damages. If the other partner has misrepresented the value of the share or the nature of the practice, but not in such a way as actually to commit fraud, the aggrieved partner may successfully claim rescission and repayment.

When a partner proves that another has been guilty of fraud or misrepresentation and succeeds in obtaining an order of the court for the rescission of the partnership on those grounds, he is given several important rights in addition to his ordinary rights as a member of a dissolved partnership. He has a lien on, or a right to retain, the surplus of the partnership assets which is left over after the liabilities are settled, to satisfy him for any sum he has paid for a share in the partnership and for any capital he has contributed to it. If he has paid off any partnership debts, he may stand in the place of the creditors whom he has paid, and the partner who has committed the fraud or misrepresentation must indemnify him against all the debts and liabilities of the firm. He is treated, in fact, as though the partnership had never existed, and the law endeavours to place him, as far as it can, in the position which he occupied before he entered into the partnership agreement.

If a partner dies or otherwise ceases to be a partner, the partnership is, of course, dissolved. Nevertheless, it sometimes happens that the remaining partners carry on the business of the firm with its capital or assets. If they do this without settling a final account with the outgoing partner or his representative, then he or his representative is entitled either to that proportion of the profits made since the dissolution which the court may attribute to the use of his share of the partnership assets, or to interest at 5 per cent. on the amount of his share. When the partnership agreement contains a clause giving the continuing partners the option of buying the share of a partner who dies or goes out, and they exercise that option, then the outgoing partner or his representatives cannot claim any further profits. They must, however, comply in all material respects with the terms of the option, or they may have to account to him for his share of the profits since dissolution. The goodwill or connexion of the partnership is not an asset in this sense, but an appointment is.

Medical News

The annual dinner of past and present students of Charing Cross Hospital Medical School will take place on September 29th at the Café Royal, Regent Street, at 7.30 for 8 p.m., with Dr. J. Bright Banister in the chair; cost of tickets 10s. each. The autumn post-graduate course will be held on Saturday and Sunday, September 29th and 30th, from 10 a.m. to 5 p.m.

The new session of the London (Royal Free Hospital) School of Medicine for Women will open on Monday, October 1st, at 3 p.m., when an address on "The Institutes of Medicine" will be given by Dr. M. H. MacKeith, dean of the British Post-Graduate Medical School.

A post-graduate course, open to all medical practitioners without fee, will be held in the library of the new medical school, and in the lecture theatre of the Pathological Institute, at St. Mary's Hospital, on Friday, Saturday, and Sunday, September 28th, 29th, and 30th, commencing at 10.15 a.m. daily.

As already announced the annual old students' dinner of Westminster Hospital will be held on Saturday, September 29th, at the Trocadero Restaurant, at 7.15 for 7.45 p.m. The chairman on this occasion will be Mr. William Turner, senior surgeon, who retires from the active staff on October 1st, after thirty-seven years' association with the hospital.

A "refresher" course will be held at Middlesex Hospital Medical School from September 28th to October 1st inclusive at 10.15 a.m. daily. The course is open only to past students of the Middlesex Hospital. The opening ceremony of the new session will be held on Monday, October 1st, at 3 p.m., at the Queen's Hall, and the annual dinner at the Savoy Hotel at 7.30.

Two courses of lecture-demonstrations will be held at the Medical School, National Hospital, Queen Square, W.C., from October to December, 1934, and from January to March, 1935. These will include demonstrations on anatomy, physiology, and pathology, and demonstrations on post-mortem material, at 12 noon; lectures on the principles of neurology and on nervous diseases, at 3.30 p.m.; demonstrations of clinical methods of examination in nervous diseases, at 5 p.m. The autumn course of lectures from October 8th to December 7th, 1934, includes thirty-six lectures on the principles of neurology, and the winter course of lectures and demonstrations from January 28th to March 29th, 1935, includes thirty-six lectures on nervous diseases. The fee for each course is £10 10s., and special arrangements will be made for those unable to take the whole course.

The Fellowship of Medicine (1, Wimpole Street, W.1) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on Tuesdays at 2.30 p.m., as follows: September 25th, paraplegia; October 2nd, tremor. Forthcoming arrangements include a week-end course in diseases of the heart and lungs at the Royal Chest Hospital, occupying the whole of October 13th and 14th; diseases of children at the Queen's Hospital, October 1st to 13th, all day; dermatology at St. John's Hospital, October 1st to 27th, afternoons and evening; physical medicine at St. John Clinic and Institute of Physical Medicine, October 1st to 27th, evenings; medicine and surgery at the Metropolitan Hospital, October 8th to 20th, all day; ophthalmology at the Royal Westminster Ophthalmic Hospital, October 15th to November 3rd, afternoons. Courses of instruction are open only to members and associates of the Fellowship.

The twenty-second annual conference of the Scottish Association of Insurance Committees will be held at Stranraer on September 28th and 29th in the Town Hall. The programme includes an address by Professor Charles McNeil, M.D., of Edinburgh.

The Royal Sanitary Institute has arranged a sessional meeting at Finchley on Friday, October 5th. At 3 p.m.

the members will inspect the Finchley open-air swimming pools in the Great North Road. The mayor will receive the members at 4 p.m. and entertain them to tea, and at 5 p.m., in the dance hall, papers will be read on "The Finchley Swimming Pools" by Mr. P. T. Harrison, and on "The Purification of Swimming Bath Water" by Dr. A. A. Turner.

The Minister of Health has had under consideration, in consultation with the Commissioners of Customs and Excise, what further steps can be adopted for avoiding conflicting decisions on the question of blindness for the purposes of (a) blind old age pensions under Section 1 of the Blind Persons Act, 1920, and (b) the registration of blind persons under schemes made by local authorities in pursuance of Section 2 of that Act. It has been decided that from October 1st next the pension officer, before reporting on a claim for a blind pension in England and Wales, shall send a form of inquiry (Form O.A.P. 87) to the appropriate registration authority asking the following questions: (1) Has the claimant applied for registration as a blind person? (2) Has the claimant been registered or refused registration? (3) In either case, was the claimant examined and certified by a medical practitioner with special experience in ophthalmology? (4) If the answer to (3) is in the negative, on what evidence was the claimant registered or refused registration? Where the Minister gives a decision on a pension appeal which is contrary to that previously given by the registration authority on the question of registration, he will on the request of the authority send it a copy of the medical certificate obtained by him.

The issue of *Paris Médical* for September 1st is devoted to ophthalmology and oto-rhino-laryngology.

Queen Marie of Yugoslavia will open the new Anglo-Yugoslav Children's Hospital at Kamenica this month. The hospital will specialize in the treatment of tuberculosis. According to Dr. Katherine Macphail, who founded the Anglo-Yugoslav Children's Hospital at Belgrade, where 170,000 patients have been treated, tuberculosis accounts for the death of 50,000 persons annually, and at any given time there are estimated to be more than half a million people suffering from the disease out of a population of rather more than thirteen millions. The Belgrade Hospital, which was for some years the only children's hospital in the country, has received support from the Save the Children Fund from its earliest years.

The King's Fund miniature hospital, built for King Edward's Hospital Fund for London at a cost to the contributing firms of nearly £3,500, has recently completed a year's successful tour of the provinces. The model is now to be exhibited at various leading stores in the London suburbs during the next few months.

Sir Grafton Elliott Smith of London and Professor Charles Nicolle of Tunis have been elected honorary foreign members of the Royal Academy of Medicine of Belgium.

Medical stamp collectors will be interested to know that the Hungarian Government has recently introduced stamps bearing the likeness of Philip Ignaz Semmelweis after the model of the French stamps with the head of Pasteur.

The Berne University Foundation for the Advancement of Researches on Encephalitis has offered a prize of 1,000 Swiss francs for the best work on the diagnosis and treatment of encephalitis. Competitors should communicate with the dean of the Faculty of Medicine of Berne.

The following appointments to professorial chairs have recently been made in the American faculties of medicine. Boston: Dr. W. Overholser, psychiatry; Dr. L. C. Howard, orthopaedic surgery and traumatology; Dr. D. Jacoby, dermatology; and Dr. L. W. Colburn, otology. Columbia University, New York: Dr. D. Symmers, general pathology; Dr. M. D. Rosenbluth, clinical medicine; Dr. C. Gordon Heyd, clinical surgery. Chicago: Dr. Amburger, clinical medicine. Harvard: Dr. S. H. Waite, ophthalmology.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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QUERIES AND ANSWERS

Burning Sensation in Diabetes

"J. S. M." writes: I have a case of diabetes on insulin. This patient complains of an intense feeling of burning and heat over the lumbar regions. There is no sign of local irritation, and general treatment has failed to relieve. I would be grateful for suggestions as to cause and prevention. Can it be a specific effect of the insulin?

John Knight: Serjeant Surgeon

"E. M. C." asks for information about Dr. John Knight, Serjeant Surgeon in the time of Charles II.

* Sir D'Arcy Power wrote an article on "The Serjeant Surgeons of England and their Office." It appeared in *Janus* (1900, p. 174), and was reprinted in the *St. Bartholomew's Hospital Journal*, 1900-1, vol. viii, p. 81). Speaking of John Knight, who was appointed Serjeant Surgeon in 1661, he says: "He was one of those who attended Charles II on his voyage from the Hague to Dover at the time of his restoration. He was constantly occupied with matters concerning the sick and wounded seamen during the Dutch War." He was therefore mainly a naval surgeon, but as the two services were not then separate he also acted from time to time as surgeon general to the Army. Mr. Pepys dined with him, and reports him as being merry and very good company. Professor G. E. Gask has also written an account of the earliest surgeons attached to the Court in the *Proceedings of the Royal Society of Medicine* (vol. xix). Two further references to Serjeant Surgeons will be found in the *British Medical Journal* (1900, i, 583, and 1925, i, 224).

Head and Foot Presentation

Dr. PAUL GOLDSCHMIDT-FÜRSTNER (Cologne) writes in reply to Dr. Alastair C. Thomson's inquiry regarding the frequency or otherwise of simultaneous head and foot presentations (*Journal*, August 25th, p. 380): I found the following relevant passage in Jaschke-Pankow's *Lehrbuch der Geburtshilfe*, 1923—"Protrusion of a foot beyond or beside the head occurs practically only with an immature or macerated foetus, or it may occur in the case of twins, where both one replaces the foot, or if it has descended too far one changes the position into a true foot presentation through traction on the foot and replacing the head from without." Protrusion of both feet alongside the head is not noted. I myself have seen at least two cases in which one foot presented alongside the head, and in which reposition of the head with traction on the foot proved successful.

Income Tax

Employment Abroad

"J. A. F." entered into an agreement with a person residing in Canada to act as his medical attendant, and served him in that capacity abroad from September, 1931, to January, 1934. He had no residence in the United Kingdom, but paid short vacation visits here. Is the income liable to assessment?

* In our opinion, seeing that the services were rendered wholly abroad to a foreign principal, "J. A. F." is not liable. The contrary would, however, have been the case if he had maintained a residence here.

Division of Partnership Assessment

"E. C."—As for 1933, "A's" share was reduced from two-thirds and "B's" increased from one-third to one-half each. At the same time the profits of the practice fell from £4x to £3x. Consequently "B" is now assessed at one-half of £4x, whereas he did not receive more than one-half of £3x. Has he any remedy?

* No. There has been no change in the personnel of the firm, and consequently a fresh start cannot be claimed for the operation of the basis of assessment of the previous year. It is a result of the principle of dealing for income tax purposes with a firm as a distinct entity, and a fluctuation (up or down) of profits necessarily disturbs the equity as between the two partners.

Payment of Subscriptions

"J. C." refers to an issue of this *Journal* in which it was stated that subscriptions to the British Medical Association, medical defence societies, etc., were deductible, and explains that in his income tax return, made as an assistant M.O.H., he claimed to make such deductions, and his claim was refused.

* The reply to which our correspondent refers related to an assessment under Schedule D in respect of profits, whereas his personal liability falls under Schedule E as being in respect of the emoluments of an employment. There is an unfortunate difference, the statute being stricter in the case of Schedule E. The point was decided against the taxpayer in 1925 in the case of *Simpson v. Tate*.

LETTERS, NOTES, ETC.

Asthma in Children

Dr. ALEXANDER FRANCIS (London, W.) writes: The letters by Sir James Dundas-Grant in the *Journal* of August 4th and by Dr. James Adam in the issue of August 18th on asthma in children are valuable in drawing attention to the importance of nasal examination, and to the necessity of putting some check upon the present craze of considering allergy as the root of all ills. It is really amusing to note how apt we are to run any new idea to death. Allergy, sinusitis, septic tonsils, adenoids, intestinal sepsis, etc., are active sources of irritation, but they are only the exciting causes of asthma. Certainly it is important to remove such irritations, but we must not allow them to mask the fact that the fundamental cause of asthma is vasomotor instability. I could quote case after case in which vaccines and immunizing injections against allergic irritants have proved useless, and in which such irritants have lost their harmful effects when the vasomotor system has been made stable. In one case a boy of 12½ had had twenty-five months of weekly injections, in addition to having had his tonsils, adenoids, and appendix removed, and to undergoing two years of glucose treatment, without deriving any apparent benefit. As soon as his vasomotor system had been made stable and he was fitted with proper glasses his asthma left him. Another boy of 14, who had suffered from asthma from the age of 3, had had five years of injections in the vain hope of immunizing him against the supposed allergic causes of his trouble. He obtained almost immediate relief after I saw him in 1932, and has remained free from asthma, except for occasional attacks as the result of some undue excitement. Owing to the fact that the nervous system in children is more impressionable than in adults, it takes a rather longer time as a rule to make their vasomotor systems stable, but as a class they give a higher percentage of good results.

Prognosis in Hypertension

Dr. H. O. GUNewardene (Colombo, Ceylon) writes: It is very interesting to read Dr. Platt's observations upon hypertension and albuminuria in the *Journal* of July 21st (p. 138). For many years I have found that a persistent diastolic pressure of 130 or over, and a urine showing what I have chosen to describe as a "cigarette-puff density" of albuminuria to the heat test, is reliable ground on which to base a very bad prognosis, even in the absence of serious changes in the retina. I have used this expression as regards the albuminuria in order to indicate in a simple way that the quantity of albumin need not be much. It may be anything above this quantity. Here is an illustrative case:

M. R. C., aged 39, married, seen by a doctor, sought advice as he was rejected by an insurance company, being a case with high blood pressure. Condition on examination: Apex beat, quarter of an inch external to nipple line; pulse 72; blood pressure 200/140; lungs normal; spleen ++ (malarial); liver normal; urine, specific gravity 1005, albumin +, no sugar. Micturition was twice nightly and four to five times a day. There were no arterial changes in the fundi. Treatment was by (1) lacto-vegetarian diet, with weekly fasts; (2) elixir sodium sulphocyanate (P. D. and Co.), as directed; and (3) potassium iodide, potassium bromide, and magnesium sulphates. This patient died within nine months from cerebral haemorrhage.

These two observations seem to be quite enough in most cases, whatever the pathology of the kidney. When a patient comes with a single specimen to the general practitioner's consulting room, or even to a specialist, one is often obliged to give a prognosis if possible without the help of so many renal function tests—at least when the patients cannot afford to pay the biochemist or are unwilling to attend hospital.

Treatment of Dysmenorrhoea in Virgins

Dr. NUTTING FRASER (St. John's, Newfoundland) writes: In the *Journal* of August 11th (p. 257) you review Dr. James Young's *Text-book of Gynaecology* in a very favourable way, expressing views which those of us who have read the book will heartily endorse. You do not agree with him that "an infected cervix is a common cause of pain in women," and I would like to state that my experience quite coincides with the opinion expressed in Dr. Young's book. I find that many of the cases of severe dysmenorrhoea in young girls are caused by an infected cervix, and medicine is powerless to relieve the distress. Of course, we all hesitate to examine a virgin, and such examination calls for a general anaesthetic. But if the small rectal speculum, commonly used for injecting haemorrhoids, is used, an examination can be satisfactorily made without any injury to the hymen. The cervix can be exposed, drawn down, and cauterized. Five years ago a lady asked me to treat her maid for dysmenorrhoea, the pain being so severe that she lost a couple of days each month. Medicine proved ineffectual, but the patient was desperate, and would submit to anything that might give relief. An examination was thus decided upon and was made under an anaesthetic. The cervix was badly eroded and exuded pus. Both lips were deeply cauterized, and up to the present time the result has been a complete relief of the pain. Menstruation is regular and painless. Following this case I have treated many others in the same way, and always successfully, and I would like to draw attention to the fact that the rectal speculum can be used like the old Ferguson speculum, and need not damage the hymen.

Adrenaline and Cerebral Haemorrhage

Dr. A. J. DUNLEVY (Ogmore Vale, Glamorgan) writes: The history of this case may prove of sufficient interest for publication. I must state that the treatment was accidental, but I think the case worth recording as an observation. Whilst acting as locumtenent I was called to see a woman who was supposed to have swallowed some liniment in mistake for brandy. She certainly may have tasted the liniment, but she had not swallowed any. I gave the usual milk and albumin treatment, and satisfied myself that she was all right before I left her. I was called to the same patient that afternoon and found her unconscious, with stertorous breathing. I had been told by her own doctor that this patient had a bad heart. Without waiting to do any examination I gave 1/100 grain adrenaline and 1/30 strychnine. After I had given the injections I discovered that there was a hemiplegia of the left side, and that the case was really one of cerebral haemorrhage. I felt that I had made a grave error in treatment. I saw the patient later that night and found her a little better. Next morning she was conscious, and felt quite well; in fact, it was with difficulty that she was persuaded to stay in bed, as she felt so fit. I think the original "poison" fright probably caused the cerebral haemorrhage. We know that

adrenaline constricts the vaso-constrictor nerves, but I think that it is generally understood that the cerebral vessels are not supplied with vaso-constrictor nerves. Hitherto, I thought that adrenaline would have been contraindicated owing to the danger of the raised blood pressure driving more blood into the ruptured lenticular striate branch of the middle cerebral artery. In this case I used adrenaline accidentally, and I wonder if the raised blood pressure retarded the haemorrhage by slowing the rate of extravasation (Marie's law); the constriction of the aorta and large blood vessels serving also to reduce the haemorrhage. The case may interest your readers, as, personally, I am convinced that adrenaline is well worth trying in these cases, which are so often left to nature to cure.

Labour and Heart Disease

Dr. CHARLES J. HILL AITKEN (Kilnhurst, near Rotherham) writes: In connexion with two *Epitome* paragraphs dealing with the above subject (No. 131, August 18th, and No. 150, August 25th) I read in the late D. Berry Hart's *Midwifery* the following statement: "I early advocated the view, which has also been brought forward by Dr. Angus MacDonald and others, that the serious results in the third stage were due to an embarrassment of the right side of the heart . . . and that thus the best thing for the patient was not to hinder loss of blood in the third stage, but rather to see that the patient lost blood to a fair amount, and that if there were any doubt of this she should be bled from the arm" (p. 337). This was written in 1912, and Dr. Angus MacDonald died a great many years ago.

Medical Work in Basutoland

Dr. N. M. MACFARLANE, late principal medical officer in Basutoland, has compiled a record of medical work in this Territory. It is of special interest at the present time when there is a general movement to develop health services for native populations, for it shows how one small native State proceeded. The Territory of 11,000 square miles is populated by over half a million natives. Dr. Macfarlane describes the early work of the missionaries, who were solely responsible for scientific medicine until the appointment of the first Government medical officer in 1875. Details are given of the energetic pioneer work of the early officers, Drs. E. B. Hartley, H. S. Taylor, L. C. Daumas, and S. C. Reed. Small hospitals and free dispensaries came into being, and in the last decade of last century the medical work was growing apace. The South African War brought further expansion; the existing small hospital at Maseru was enlarged and modernized, and new ones were opened elsewhere. One achievement of this period was the almost complete eradication of small-pox, which had previously been endemic for many years. More than half a million vaccinations had been performed, and it had been made compulsory for all natives leaving the Territory to carry a vaccination certificate signed by a medical officer. The first leprosy asylum was established by one of the enlightened native chiefs, and this led the way to the opening of the Basutoland asylum in 1913. The usual difficulties followed its being conducted more as a house of detention than as a hospital. Despite the difficulty of financing a rapidly growing medical service, progress continued; sanitary areas were defined, and more medical officers of districts were appointed by the Government. Active work against leprosy continued, and paved the way for the complete survey some four or five years ago. The leprosy organization was inevitably planned on a rather expensive basis, its inception having preceded the more recent discoveries which have led to great economies.

A Schedule to the "National Formulary"

The Paddington Medical Society has issued a revised edition of their *Schedule to the National Formulary*, which shows the approximate and the relative cost of the formulac and of the dispensing fees in the *National Formulary* (1933). Copies can be obtained (price 1s.) on application to the honorary secretary, Paddington Medical Society, 81, Elgin Avenue, London, W.9.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 35, 36, 37, 38, 39, 40, 41, and 44 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 172.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, SEPTEMBER 29th, 1934

THE VALUE OF ANTISEPTICS IN THE CONTROL OF BACTERIAL INFECTIONS*

BY

C. H. BROWNING, M.D., F.R.S.

GARDINER PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF GLASGOW

The question, How far can infections by pathogenic organisms be influenced for the benefit of the host by means of antiseptics? incidentally involves inquiry into the properties of antiseptics which suit them for such purposes, and also into the methods of their application. By "antiseptic" is understood a substance of ascertained chemical constitution harmful to the activities of micro-organisms. The problem, then, is one of chemotherapy in the sense defined by Ehrlich. Restricting consideration to the ordinary bacteria, we shall see that success has been chiefly obtained where the drug can be brought into close contact with the site of a localized infection in a wound or natural cavity. Therefore the chemotherapy of bacterial infections is at present most intimately associated with surgery. Generalized bacterial infections are still practically beyond the reach of antiseptics. This admission must not be interpreted as the confession of failure: the antiseptics now available have very great therapeutic potentialities, and the advances already made open up still wider prospects. It must be remembered, too, that until recently little has been done to correlate biological and chemical work on the problems. In order to clarify the present position the scientific origin of antiseptic treatment will be traced, and the limitations of the older antiseptics will be noted.

Lister and Antiseptic Therapy

Lister was without doubt the first to employ antiseptics on a scientific basis. Fortunately, his guiding principles are authoritatively summarized by the late Sir Hector Cameron in the Dr. James Watson Memorial Lectures (1907), which had been submitted for revision to Lister himself.

"It was hard, perhaps, to appreciate the fact that carbolic acid was not used by Lister (as it undoubtedly had been previously used by others) as 'a local dressing of wounds' with the view of acting directly, and with a specific healing influence, on the wounded tissues, but rather that it was employed to destroy germs which, if they reached the wound in the living state, had the power of preventing the natural processes of repair. . . . His constant aim was to place wounds, as far as possible, in conditions resembling those of subcutaneous injuries, free from the access of external morbid agencies, as well as from direct irritation by foreign substances."

Lister, it is true, applied carbolic acid to the soiled tissues exposed in a compound fracture for the express purpose of destroying pathogenic bacteria which had

obtained access to the living body. He must therefore be considered the scientific pioneer in this form of therapy. It should be borne in mind, however, that his attitude was obviously that of one who unwillingly employed an extreme measure to meet a desperate situation. In addition, he was aware of the uncertain efficacy of carbolic acid when used for this purpose, since he observes: "while we endeavour to purify the wound with strong carbolic lotion we cannot be certain of entire success."† The harmful action of carbolic acid on living tissues appears to have been well known to Lister; he did not contemplate its introduction into the abdominal cavity because "it must be in itself a very desirable thing to avoid the direct application to the peritoneum of strong and irritating antiseptic solutions." Further, as Sir Hector Cameron says:

"When dealing with abscess, no antiseptic was ever introduced into the cavity at all. It was far otherwise with many of those who counted themselves amongst his disciples and imitators. Not perhaps thoroughly appreciating the scientific facts which were the basis of the treatment, they were unable to divest themselves of the old idea, that, whatever was used in the treatment of a wound, was necessarily intended to have some specific effect on its healing. It could not, therefore, be brought too freely or too often into contact with it. They filled kettles with carbolic solutions, and poured them over wounded surfaces or injected these same solutions into all interstices of wounds with syringes, while abscesses, empyemata and the like were freely syringed out in the same manner at the time of operation, as well as at every subsequent dressing."

The other antiseptics contemporaneous with carbolic acid—namely, the perchloride and other salts of mercury, boric acid, iodoform, and iodine, etc.—all suffered from the same disadvantage that if employed in concentrations sufficient to damage bacteria their general effects as "protoplasm poisons" on the tissues of the host tended to become prominent. Now it must be remembered that Lister's condemnation of the application of antiseptics to the tissues referred to those substances of which he himself had experience. I am not aware that he ever denied the possibility of finding antiseptics suitable for this purpose.

Need for Therapeutic Antiseptics

The result of Lister's teaching was that operations of election were regularly performed without the super-vention of wound infections. This safe conduct into the texture of the body was the prerequisite of the miracles

* Read in opening a discussion in the Section of Pathology, Bacteriology, and Biochemistry at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

† In view of this uncertainty, Lister in such cases came to employ in addition iodoform, which he regarded as probably acting not directly on the bacteria, but by inducing chemical changes in their toxic products as suggested by Behring.

of modern operative surgery. No blessing, however, seems altogether unmixed, and the fact that aseptic wounds can be inflicted at will with so great a measure of confidence has led to undesired consequences which in all probability were entirely unforeseen.

First, the occurrence of infection in a wound of election has now commonly come to be regarded as due solely to some fault in the preparations for, or in the performance of, the operation. In order to realize the error of this generalization one need only recall the "cryptogenic" infections with pyogenic bacteria in deep tissues altogether apart from any gross trauma. Even gas gangrene sometimes arises at a site remote from the point of entry of the organisms (see Learmonth, 1924). If bacteria can settle, multiply, and set up a focus of disease at a site without any preceding bruise or other gross local pathological condition, it is clear that they are even more likely to behave in this way where the tissues have been damaged by the surgeon's knife. A wound, even when inflicted under the strictest aseptic conditions, constitutes a site of lowered resistance, and is therefore liable to the lodgement of organisms which may reach it from the blood or lymph streams. Consequently, there is certain to be a proportion of septic accidents following operations of election which are due to infection acquired from within, and which cannot be avoided by a technique which aims merely at hindering access of bacteria from that surface whose continuity is breached by the surgeon. Here there is obvious need for a tissue antiseptic. Omission to guard against such endogenous infections must be due to a mistaken interpretation of Lister's teaching.

Again, where the operator is compelled to approach his objective through a naturally infected surface, such as the conjunctiva or a mucous membrane, strong solutions of the old antiseptics cannot be used, unless, of course, a diffuse caustic effect is desired. It is perhaps on this account that the occasional occurrence of meningitis after operative procedures on the nose and related cavities is sometimes viewed as an inevitable accident. Another undesired consequence has been a failure of interest in improving methods of treating wounds which are already infected before coming under the surgeon's care, probably because a feeling of responsibility for such infections has been wanting. The attitude reflected in many surgical textbooks to-day is that in the treatment of infected tissues it matters little what antiseptic is used, since its function is quite subsidiary to that of appropriate surgical manipulation—in other words, excision, drainage, and the natural defensive powers of the tissues will do all that can be expected.

Thus, after the pioneer work of Lister and Koch, therapeutic investigation of antiseptics did not advance rapidly. Behring, Koch, and Stilling pointed out the powerful antiseptic action of certain basic aniline dyes, and Stilling (1891) recommended methyl-violet for treating infections of the conjunctiva and joints. Also extremely potent new organic antiseptics were described by Bechhold and Ehrlich (1906). But these researches attracted little attention.

Stimulated by Ehrlich's fundamental work on the chemotherapy of protozoal diseases, and by observations made by Churchman and Dreyer, Kriegler and Walker on the properties of methyl (gentian) violet, Browning and Gilmour (1913) studied more thoroughly relations between chemical constitution and antiseptic action among the organic dyes, including several of the acridine series. Two of the latter, proflavine (3:6 diamino-acridine) and trypaflavine (acriflavine) were put at our disposal by Ehrlich; the last was also examined independently by Shiga for antiseptic action on *V. cholerae*. The need for improving the treatment of war wounds led

to renewed activity, and subsequently many substances have come into use; a number of these are a great advance on the older types of antiseptics as therapeutic agents. It is impossible to deal with them all in detail here, but I shall review the experimental evidence of the efficacy of antiseptic treatment and indicate briefly the clinical bearing of the facts.*

Antiseptic Therapy of Recent Infections in Wounds, Serous Cavities, etc.

In order to obtain decisive evidence regarding the curative action of antiseptics it was necessary to make controlled observations on animals. Various organisms and methods of inoculation have been used. As regards imitating pyogenic infections of man, a difficulty is the tendency for the infections in laboratory animals to become quickly generalized.

However, an infection of recent skin wounds in guinea-pigs with a culture of virulent *B. diphtheriae* affords a very suitable test object for therapeutic agents (Feiler). The bacilli do not become generalized, so that in this important respect the condition resembles that usual in human wounds contaminated with pyogenic organisms. At the same time conclusive proof of the effect of treatment is obtained, since in the untreated controls death occurs in forty-eight to seventy-two hours. The following procedure was adopted (Browning and Gulbransen, 1925).

Experimental Technique.—When the animals were under the influence of a general anaesthetic two parallel linear cuts, each about $\frac{3}{4}$ inch long and $\frac{1}{3}$ inch apart, were made in the shaved skin of the abdomen in the long axis of the body. The strip of skin between the cuts was raised from the deeper structures, and also that for about $\frac{2}{5}$ inch on either side of the incisions, so as to form pockets, there being practically no bleeding, and a quarter of a young, well-grown agar culture of virulent *B. diphtheriae* was rubbed into the wounds and the pockets. Periods of $\frac{3}{4}$ to two hours were then allowed to elapse before treatment. This consisted in washing out the wounds with 1 c.cm. of a water solution of the substance under test, and swabbing the pockets with a small pledget of cotton-wool which had been soaked for several minutes beforehand in the same solution. The animal was placed on its back during treatment, and the whole procedure lasted for seventy-five seconds. Finally, any fluid not absorbed by the tissues was allowed to drain away and the surrounding skin swabbed dry. There was no further treatment, and all survivors were kept for at least three weeks.

Results.—The outcome of the above experiments was that out of twenty-two inoculated animals treated with acriflavine (1 in 100 to 1 in 2,500) twenty-one survived, whereas of seven treated with carbolic acid (1 in 20 to 1 in 100) five died, and of fourteen whose wounds were washed out with either 0.85 or 5 per cent. salt solution all died. Iodoform in the form of "bipp," rubbed into the infected wounds, failed to save the life of all three animals so treated. Acriflavine is about fifty times more potent than carbolic acid, as measured by the concentrations of the two substances required to bring about cure. Further, it has been shown that the curative effect of acriflavine is not caused by destruction of diphtheria toxin present in the culture used for inoculation, but is due to action on the bacilli (Braun).

Other Investigations.—Virulent streptococci, either in the form of cultures or of material (blood, etc.) from infected animals, have also been used to inoculate recent skin wounds in mice (Reinhardt, Schiemann and Wreschner, Weise, Collier and Bernhagen). In such experiments failure of the therapeutic agent is shown by the animals dying of septicaemia. Here also a single brief application of one of the new antiseptics half to one hour or later after

* Bennett, Blacklock, and Browning (1922) give a critical discussion of earlier clinical observations.

inoculation has preserved the animals from an otherwise fatal infection. It is noteworthy that Weise found excision of the surface of the wound one-quarter to two hours after inoculation to be without beneficial effect. When the inoculation was made into deep wounds of muscles, treatment was less effective than in more superficial wounds. Reinhardt obtained similar results with recent skin wounds in guinea-pigs inoculated with pneumococci and treated by washing of the wounds with the antiseptic half an hour later. The most effective of a series of substances tested was acriflavine; on the other hand, 1 in 20 carbolic acid and tincture of iodine were without perceptible action, but mercuric chloride 1 in 1,000 prolonged the life of the animals. The controls, whose wounds were washed out with saline, died in two to seven days. Infection of the cornea in rabbits, produced by injecting virulent pneumococci, has been sterilized by optoquine instilled into the conjunctival sac or injected subconjunctivally (Ginsberg and Kaufmann). In guinea-pigs inoculated intramuscularly with soil containing pathogenic anaerobes of the gas gangrene group and *B. tetani*, Brunner, Gonzenbach, and Ritter (1918, 1924) showed that the resulting fatal infection could be prevented by antiseptic treatment, even when begun many hours afterwards. All organisms are not equally susceptible in the tissues, however. Thus, Hata (1932) failed to influence recent wound infections with *B. oedematis*, although this bacillus was not specially resistant to the antiseptic *in vitro*, and the acridine compound which he used was effective against other organisms *in vivo*. The troublesome local septic infections of the skin which tend to occur in scarlet fever patients, owing to contamination with discharges from the nose or ear, have been regularly prevented by treatment of the latter with acriflavine (J. W. Howie, unpublished). It should be noted that in the experiments on wound infections referred to above, the physical conditions were the same in the treated animals and the controls. This is very important, since, as Preobajensky showed, an alteration in the physical conditions of an infected wound may of itself determine the outcome of the infection.

Peritoneal Inoculation.—Where the inoculum is introduced into the peritoneum, from which generalization rapidly occurs, the therapeutic problem is obviously difficult. Nevertheless, very considerable success has been obtained in mice infected with virulent streptococci and treated after an interval, usually one hour, by an intraperitoneal injection of a suitable antiseptic. Untreated controls, or those which received only physiological saline intraperitoneally, died from septicaemia in twenty-four to forty-eight hours. The following results were obtained with the most effective substances tested by Browning, Cohen, Ellingworth, and Gulbransen (1931).

Therapeutic Agent	Cures Treated
2 (p-dimethylamino anil) (2 to 3 of tolerated dose used) ...	34 out of 47
6-methylallyl-acetyl amino-quinoline methochloride	Together 87 cures out of 129 treated
2 (p-dimethylamino anil) (2 to 3 of tolerated dose used) ...	
6-n-propylamino-quinoline methochloride	53 out of 82
Acriflavine ...	13 out of 21
(2 to 3 of tolerated dose used)	

Untreated controls: Of 125 animals inoculated all died in 24 to 48 hours.

Many other substances were without effect, including carbolic acid 1 in 300 (the largest tolerated dose). The general result also of similar experiments by others is that an appropriate antiseptic cures an infection which without it will develop into a fatal septicaemia. The objection may be raised that the interval between inoculation and treatment is short, but in small animals the infection progresses rapidly, so that the period is a considerable fraction of the whole illness.

Treatment of Local Suppurative Processes

Such lesions are not easily produced experimentally in laboratory animals, there being, as a rule, a marked tendency for the infection to spread. Morgenroth and his co-workers tested the effect of the local injection of antiseptic in sterilizing the tissues and preventing the development of a "phlegmon" in mice after subcutaneous inoculation with pyogenic streptococci. But the results tend to be irregular, owing largely to the uncontrollable factor of the individual animal (Browning and Gulbransen, 1928). In experimental empyema in the rabbit, produced by inoculating one pleural sac with streptococci, Gay and Morrison, on injecting acriflavine into one or both pleurae, and in some cases also aspirating the exudate, did not succeed in saving the life of the animals. Although the pleural contents were sometimes nearly sterilized, regrowth and spread of the organisms occurred. Eggerth, employing similarly a mixture of proflavine and sodium oleate with the same object, obtained more promising local results; but here again generalization of the infection vitiated the effects of the treatment.

Observations on treatment of the human subject are seldom adequately controllable, but when in one individual separate lesions, similar in size, severity, and situation, are treated by different methods, differences in the results can justifiably be attributed to the treatment. Graham's (1925) case is convincing in this respect. Three areas on the back of the hand and forearm in which the whole depth of the epithelium had been destroyed by contact with boiling fat, were dressed with acriflavine (1 in 1,000) within an hour after the injury. Two days later granulation tissue was present in the base of all the burns, and there was no suppuration and little discomfort. Then on one of the areas a dressing of wet boric lint was substituted, while the others continued to be treated with acriflavine (1 in 5,000), each dressing being renewed once daily. After six days' application of boric acid the area so treated was actively suppurating and extremely painful, whereas the others were free from sepsis and showed healing in progress. Accordingly, boric acid was replaced by acriflavine, and after three days further this area also was free from pain and suppuration. The results of Turner (1919) in septic and fetid conditions of the gums also have the decisive character of an experiment. In cases where the bad odour was readily detected at several yards' distance from the patient, the breath, twenty-four hours after commencing treatment with acriflavine, was free from smell.

Infections of the urinary tract may be considered here, since local application of the antiseptic can be secured either from beneath by injection, or from above by administering by mouth or intravenously substances which are excreted in the urine. The observations are almost wholly clinical, and, as regards the second method, the substances usually employed are so feeble in their action that doubts regarding their efficacy are not surprising. Infections of the kidney, whether a gross obstruction such as a calculus in the pelvis or ureter be present or not, probably cannot be sterilized by any urinary antiseptic at present available. It is possible, however, in healthy men to procure unfailingly the secretion of urine antiseptic toward both *B. coli* and staphylococcus after the administration of acriflavine combined with alkalization* (Davis and Sharpe). This fact does not appear, however, to have been much utilized—for example, as a measure preparatory to operation on the urinary tract. The value of antiseptics in the therapy of gonorrhoea at an early stage seems not to be doubted, but much more work is required to discover an ideal treatment.

* A difficulty is the tendency towards nausea and catharsis

The secretion of antiseptic bile is still to be achieved. Intrathecal antiseptic medication in meningitis has not been shown definitely to yield favourable results. It appears so far impossible to influence the bacterial flora of the alimentary tract by antiseptics (Garrod, 1926; Graham, 1932; Browning, 1933).

General Infections

Koch originally attempted to treat septicaemia by an antiseptic. Mercuric chloride being highly inimical to *B. anthracis*, he injected guinea-pigs repeatedly with it both before and after inoculation with the bacilli. The animals, however, died like the untreated controls, in spite of having received in proportion to their weight an amount of the mercury salt sufficient to prevent all growth of the organisms in a broth culture. Morgenroth and Levy cured experimental pneumococcus septicaemia in mice by optoquine. With this outstanding exception, all attempts to cure a general bacterial infection by such means have failed under experimental conditions, although the bactericidal powers of the blood or serum may be raised temporarily by the injection of certain antiseptics. In experiments already mentioned recent streptococcal infections of the peritoneum were cured by an intraperitoneal injection of antiseptic when organisms were already present in the blood of a control animal. This, however, may merely mean that a certain degree of bacteraemia does not preclude cure provided that the chief source of infection can be effectively dealt with.

Properties of Therapeutic Antiseptics and their Mode of Action

The new therapeutic antiseptics are mostly dyes. This property is objectionable to many, and doubtless when more is known regarding relations of chemical constitution to antiseptic action colourless substances fitted for the purpose will become available. Further advance depends chiefly on the synthesis of still more suitable compounds. It is important, therefore, to define as far as possible those characters of an antiseptic which indicate its therapeutic value. The essential property, of course, is that the harmful action on bacteria shall exceed that on the tissues.

Effect on Bacteria.—Rapidity of bactericidal action is not essential. Organisms, although continuing to be viable, may nevertheless be profoundly altered in their pathogenic action by contact with the antiseptic, so that the natural defensive mechanisms of the host can come into play effectively. Accordingly, favourable therapeutic results are likely to be due as a rule to co-operation between the drug and the tissues. As an example of this, a concentration of antiseptic sufficient to cure a recent peritoneal infection with streptococci, or to prevent infection when injected as a mixture with the organisms, has been found to take some hours to kill the cocci *in vitro* (Browning, Cohen, Ellingworth, and Gulbransen, 1931).

The following observation illustrates well this problem of reducing virulence (J. W. Howie, unpublished). A strain of streptococci of which a two-thousand-millionth of a cubic centimetre of fluid culture injected intraperitoneally regularly killed a mouse, was treated with acriflavine in gradually increasing concentrations *in vitro*; finally, although the organisms still grew vigorously, the injection of 1/2 c.cm. of the undiluted culture was harmless.

Again, selective action on one species of bacteria as compared with another may have to be reckoned with, so that the nature of the infecting organism may decide what antiseptic is to be used. However, many of the new antiseptics—for example, acriflavine, proflavine, rivanol, quinamil (Armitage and Gordon), and mercurochrome-220, as well as brilliant-green—all act fairly uniformly on

various common pyogenic organisms, although *B. pyocyaneus* tends to be resistant to many. A valuable character of certain of the new antiseptics is that their powerful action on bacteria is not reduced by serum. Substances such as mercury compounds and chlorine derivatives do not merely suffer dilution by serum, but their antibacterial property is enormously weaker in serum than in a watery medium. Among substances not inactivated by serum are acriflavine, proflavine, rivanol, quinamil, and many other analogous compounds prepared by Professor J. B. Cohen and his co-workers. When inactivation by serum occurs frequent renewal of the antiseptic is necessary.

Mutual Effects of Tissues and Antiseptics.—Several effects must be considered. Fixation and consequent inactivation of the antiseptic by tissues and pus occurs to some extent probably with all antiseptics. Graham (1928) measured the absorption of acriflavine, carbolic acid, and mercuric chloride by minced muscle soaked in solutions of these drugs. Mercuric chloride is powerfully fixed, the other two less so; on the other hand, acriflavine alone of the three is fixed by cotton, and this must be allowed for when applying wet dressings, otherwise one may merely treat the wound with dyed cotton instead of antiseptic solution. It is possible that fixation of the antiseptic by the tissues in an infected area may sometimes be advantageous, since in this way a depot may be created from which continuous action on the organisms will be maintained. Morgenroth attributed the greater therapeutic effect of one substance as compared with another on streptococci in the subcutaneous tissue to such differences in fixation, although both were equally antiseptic *in vitro*.

The liability of tissues to injury from an antiseptic may be measured in various ways. Thus, intravenous injection shows the action on the animal as a whole or on any specially susceptible organ. Unless a substance is intended for intravenous administration, however, this test of toxicity may be too exacting, because a substance like brilliant-green, which is very toxic intravenously, is tolerated safely when applied to the open surface of a wound. Subcutaneous or intramuscular injection also indicates general toxicity provided absorption takes place; these methods, further, show the local action on tissues. But here again the effect of introducing the substance into the closed tissues may differ from that in an open wound; for example, brilliant-green solution subcutaneously in the rabbit causes marked persistent local oedema, but when used to dress a wound does not have this effect. Action on delicate surfaces may be ascertained by instilling a solution into the conjunctiva of an animal and retaining it there for some minutes, or by injecting it into the peritoneum.

In all such tests the varying behaviour of different species and even of different individuals must be considered. It is important to avoid irritation of delicate surfaces which harbour bacteria; thus antiseptics applied in a concentration sufficient to irritate the nasal passages in rabbits led to lighting up of latent pasteurella infection. A number of the new antiseptics are distinguished by the relatively high concentrations required to cause marked irritation or damage of the tissues as compared with the low concentrations which harm bacteria. Tests on cells *in vitro* have been proposed; the difficulty is to relate them to conditions *in vivo*. Some observers have concluded from such experiments that the tissues are always more vulnerable than the bacteria, and so antiseptic treatment has been condemned by analogy. In actual fact, as has already been seen, infections which would otherwise be certainly fatal can be cured by antiseptic chemotherapy. The method of tissue culture has also been utilized, whereby bacteria and fragments of embryonic tissue are

incubated together for twenty-four hours in a nutrient fluid containing the antiseptic. In this way the concentration of the drug inhibiting proliferation of the fibroblasts and that preventing growth of the bacteria can be ascertained. Of all substances tested, including carbolic acid and mercuric chloride, the only ones which inhibit streptococci in a concentration lower than that damaging to the tissue are acriflavine and other acridine and quinoline compounds (Mueller, Hata). According to Hata, trypaflavine (acriflavine), rivanol, and certain new acridine compounds permit proliferation of the tissue cells in a concentration several times greater than will prevent growth of streptococci. The significance of these results cannot be disregarded, since conditions *in vitro* are much more favourable for the bacteria than for tissue cells. On the other hand, we do not know the relative vulnerability of the fibroblasts of chicken embryos and the mesoblastic elements of adult human and other mammalian tissues. A highly desirable action of an antiseptic would be to penetrate cells without harming them and to inflict damage on organisms in their interior; probably this does not occur. Failure also to act on bacteria embedded in masses of dead or devitalized tissue was apparently a serious disappointment, which led some surgeons from their experience with severe war wounds to discount the newer antiseptics.

A direct method of investigating action on tissues consists in examining histologically the base and edge of wounds under treatment with the antiseptic, as von Eicken originally did at the early stage. Bennett, Blacklock, and Browning showed that when acriflavine and proflavine are used so as to control sepsis there need be no inhibition of healing. Blacklock, in sections of human material taken during such treatment, found mitoses in various classes of granulation tissue cells and in skin epithelium, as well as active growth of young bone, at depths of 0.018 to 0.2 mm. below the actual free surface. Other properties of antiseptics on tissues may be utilized advantageously—for example, the solvent effect of hypochlorites (eusol) on fibrin and necrotic material.

In the case of fairly resistant tissues, like skin, certain non-irritating antiseptics are available which can be applied in very concentrated form, as for preparation of the skin before operation—for example, mixture of brilliant-green and crystal violet (Bonney and Browning, McLeod and Brown); mercurochrome-220 (Young, White, and Swartz); hexylresorcinol (Leonard and Feirer); and "dettol" (Colebrook and Macted). Some of these are also used in the vagina.

Summary

1. Several types of compounds are now known which, as compared with the old antiseptics, possess a much higher antibacterial power relative to their toxicity for mammalian tissues. A further advantage of certain of these is that serum does not neutralize their antibacterial action.

2. There is conclusive evidence that by their use recent experimental infections with streptococci and other organisms localized in wounds and serous cavities can be cured, whereas saline washings or injections are without effect. Thus a true chemotherapy of local bacterial infections has been realized. Under similar conditions substances such as carbolic acid or mercuric chloride are much less effective, or fail altogether. Curative action on established local suppuration has also been demonstrated under controlled conditions.

3. Antiseptics intended for therapeutic use must not be considered *en bloc* or selected solely on the basis of their ability to kill rapidly some test organism *in vitro*. Each must be examined as regards selective action on various bacteria in protein as well as watery media *in vitro*, and as regards effects on tissues *in vivo*. Such tests give valuable indications, but the chemotherapeutic efficacy of a substance is finally determined by its

influence on the pathogenic action of organisms in an infected host. More extended investigation on these lines is required.

4. The most successful clinical application of antiseptics is likely to be the prevention of infection in tissues liable to contamination, or recently contaminated with bacteria. But limitation of both the extent and duration of established pyogenic infections, and hence of the various consequences, can also be attained. Necrotic or devitalized tissues cannot be sterilized. Accordingly antiseptics must be used as an addition to established physical (operative, etc.) measures and other forms of therapy. Details of procedure cannot be transferred by analogy from one animal species to another, and the surgeon must therefore work out the best methods of utilizing the properties of the new antiseptics in human treatment.

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According to L. Klein (*Thèse de Paris*, No. 121) some authorities are of the opinion that rice beds have little to do with the spread of malaria. Italian writers, particularly Alessandrini, have even suggested the establishment of rice beds as a prophylactic method against the disease. Although rice beds bring about an extraordinary increase in anopheles, these mosquitos, according to Alessandrini, do not give rise to malaria. On the other hand, the recrudescence of malaria in certain regions where it was very rare before the establishment of rice beds shows that the culture of rice is inadvisable as an antimalarial measure. As, however, rice beds cannot be suppressed without causing serious economic loss to the country, other measures must be taken to prevent the spread of malaria, such as periodical drying of the rice bed for four days every fortnight to destroy the larvae, the introduction of fish for the same purpose, and the prohibition of rice beds in a radius of less than 1,000 metres of a village. Unfortunately, as the natives in the colonies are the slaves of tradition, it is very difficult to make them adopt the smallest modifications as regards the culture of rice, so that the problem of malaria and rice fields is still unsolved.

THE USE OF RADIUM IN CARCINOMA OF THE BLADDER*

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The views held by urologists and radiologists as to the efficacy of radium in the treatment of bladder tumours vary widely—so widely that an investigator coming new to the subject could not but be impressed by the very marked divergence of opinion even among eminent men who have presumably given radium a fair trial. There are those, for instance, who champion radiation methods so enthusiastically that they use neither excision nor fulguration. Barringer of the Memorial Hospital, New York, is one of these, and all bladder tumours at his clinic have been treated by radiation methods, chiefly radium, for the past eighteen years. There are many others who say that its intervention has been productive of harm rather than good. Among these are many urologists in this country, and radium is used very much less here or on the Continent than in the United States.

In other branches of medicine where there is doubt as to the wisest choice between entirely different methods of treatment it is often found that none of the methods involved is very satisfactory, and it will be admitted, I think, that this is the case in carcinoma of the bladder. This remains true, despite the advances in bladder surgery during recent years, the reason being that surgery still fails in a large number of cases, and that the majority of bladder cancers are beyond the reach of surgery when first seen. It seems reasonable to suggest, therefore, that radium may have something to offer in the treatment of carcinoma of the bladder as it has in other sites, such as the cervix uteri, where surgery, at any rate, has its limitations.

Although radium has been used in the treatment of bladder tumours for years, it is comparatively recently that radium treatment could be discussed and analysed on the same sort of criteria as apply to older and established methods such as surgery. It is true that a comparison of radium treatment with excision is not easy for many reasons, but enough cases have been treated over a sufficient period to enable us to assess its value and to form some idea of what contribution it can make to the solution of a problem which is admittedly a difficult one, and in which advance, even in recent years, has been slow.

Features that Favour Treatment

There are some features of bladder cancers that should favour any form of treatment which has a chance of eradicating the disease. One is that local glandular involvement is late, and, indeed, is often absent even in quite inoperable cases. Another is the rarity of early metastases, although these are present in a high percentage of cases in which the patients die of the disease. Approach to the bladder is easy, and excision in many cases is not a difficult matter. On the other hand, patients with carcinoma of the bladder are past middle life, and are often reduced to poor condition as a result of haematuria or cystitis, or both. The majority of cancers arise on or near the trigone, so that excision is impossible without transplantation of one ureter, or total cystectomy. In addition, there is a large group of cases, varying from 45 to 60 per cent. with different surgeons, which are inoperable when first seen. Faced with such difficulties, radium, if it is an adequate method of attack, is in a

position of advantage, especially with regard to the situation of many growths. It can be used, for example, in cases where the growth is close to the ureteric orifice without grave risk of subsequent stenosis.

Before proceeding further, it must be stressed that, although comparisons are odious here, as in other things, they are in this sort of discussion necessary. A new form of treatment must be judged on its merits, and these can only be assessed in so far as the method of treatment compares favourably or unfavourably with pre-existing methods. And here a difficulty arises at once. It is said, and the view is held by many, that operable cases should be treated by excision, and that radium should only be used for the rest; it is undeniably impossible to compare the methods, because each is dealing with a different type of case. It is important to remember in this connexion that large numbers of malignant bladder growths are inoperable when first seen, by reason of their extent, their fixation, the glandular involvement, or metastases. With regard to operable cases, it is, I think, possible to come to certain definite conclusions as to the use of radium, and these two groups of cases will be discussed later.

Early Radium Methods Reviewed

Early attempts at treatment consisted in the introduction into the bladder, per urethram, of catheters containing radium tubes in the distal end, and this was often combined with external radiation from applicators placed over the suprapubic region. This method resulted sometimes in temporary cessation of haemorrhage and control of symptoms. Later, use was made of ingenious fixing devices, whereby high-content radium tubes could be placed in contact with the growth by vision through a cystoscope. This method had the disadvantages that the time factor could not be prolonged, and that the maintenance in position of such apparatus was a difficult and often painful business.

The suprapubic approach and interstitial radiation were next tried, and glass radon seeds inserted into the growth. As was inevitable, extensive and intractable radium burns rewarded this method, although in a few cases, after much tribulation, the disease cleared up.

The insertion of radium needles gave better results, and this method is still used. The needles are inserted into the base of the tumour, so as to form a field of radiation in the bladder wall deep to it. They have walls usually of 0.5 to 0.8 mm. of platinum, and are of low linear intensity—0.5 to 1. The radiation time extends over a number of days, usually five to seven. The confined space and the irregular bases of many bladder tumours often make it difficult to place needles accurately, so that homogeneous radiation is obtained. In addition, the fact that threads are attached to them makes it easy for them to be displaced, and they have to be removed at the end of the required period of irradiation.

Use of Radon Seeds

Screened radon seeds have none of these disadvantages, and after their introduction by Failla they began to be used extensively by the suprapubic route. In the United States the insertion of screened radon seeds by means of the cystoscope was first carried out by Young and Keyes, and in this country by the late Frank Kidd, and Ogier Ward. At the present time radon seeds are being used more and more in carcinoma of the bladder. They have many advantages, not least among which is the fact that they can be left permanently in position, and so, when inserted by the suprapubic route, the bladder can be closed. They are easier to manipulate than needles, and can be introduced, if necessary, by means of a curved cannula. They are suitable for use in tumours

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

of irregular outline and base, and, on the whole, are more adaptable than needles. For insertion by the cystoscopic route their advantages are obvious.

The filtration and content of seeds vary, but they are commonly either of platinum or of gold, the thickness being from 0.3 to 0.5 mm. The content ranges from 1 to 2.5 mc. each. The length can, of course, be varied at will, but the standard length is 0.6 cm.

The Suprapubic Route

The bladder is opened in the usual way, care being taken to work in a dry field, and to cover the wound edges to avoid implantation. Many surgeons remove a bulky papillary carcinoma with the diathermy before inserting radium; this avoids haemorrhage during manipulation, and reduces the risk of implantation of cancer cells. If needles are used, these are chosen so that their length is suitable for the growth to be treated; it is wise to have at hand needles of several sizes, because the cystoscopic appearances are often unreliable in giving the exact size of the lesion.

In the case of seeds they are inserted into the tumour base, the area of irradiation being well wide of the tumour limits. In papillary carcinoma with little or no infiltration, the seeds are inserted in the bladder wall in one plane. Judgement as to how deep it is safe to place the seeds is difficult in infiltrating carcinoma, and only comes by experience. The bladder is either sutured without drainage—and it is claimed for this method that a considerable number of such cases heal without leakage, thus avoiding wound infection—or a drainage tube is inserted.

The Cystoscopic Method

The other method commonly used is the cystoscopic, and consists in the introduction of screened radon seeds through a ureteric cystoscope, which must be of the flushing type. The cystoscope was first used in this country by the late Frank Kidd, and certain modifications have been made by Ogier Ward. After inserting the instrument, the flexible introducer is passed into the bladder, having previously been loaded with a seed. The sharp end of the introducer is then plunged into the required place in the bladder wall, and the seed expressed by means of a spring handle of the thumb-press type. At the Radium Institute the seeds for this purpose are made with especially sharp points to render insertion easy.

A minute description of the technique would be out of place here; suffice it to say that seeds are introduced as far as possible beneath the tumour, the point of the introducer being inserted through normal bladder just outside the neoplastic area. The procedure is often a tiresome one, and demands great patience. It is sometimes found that the bladder wall is so tough that it is difficult to make the flexible introducer penetrate the requisite distance. On the other hand, when the instrument has to be inserted into tumour tissue, the latter may prove so friable and soft that the seed drops out as soon as it is introduced.

Bleeding is often a great obstacle to accurate implantation of the total number of seeds. Much of this difficulty can be overcome by the use of the flushing instrument, and in the case of Ogier Ward's introducers, they can be used as electrodes to coagulate the tissue either before or after implantation if the growth bleeds too profusely. If troublesome bleeding occurs and a good view cannot be obtained, it is wiser to insert the remaining seeds at a later date.

At the end of the seeding the base of the bladder should be inspected to make sure that no seeds have dropped out of the growth during the operation. If a seed is found lying on the trigone, it is probably because it has been introduced through a portion of growth, the introducer being, not in the bladder wall beyond the growth, but lying free in the bladder behind it. The delivery of the seed into the wall, however, conveys a distinctive impression to the hand, and this should not happen without the knowledge of the operator.

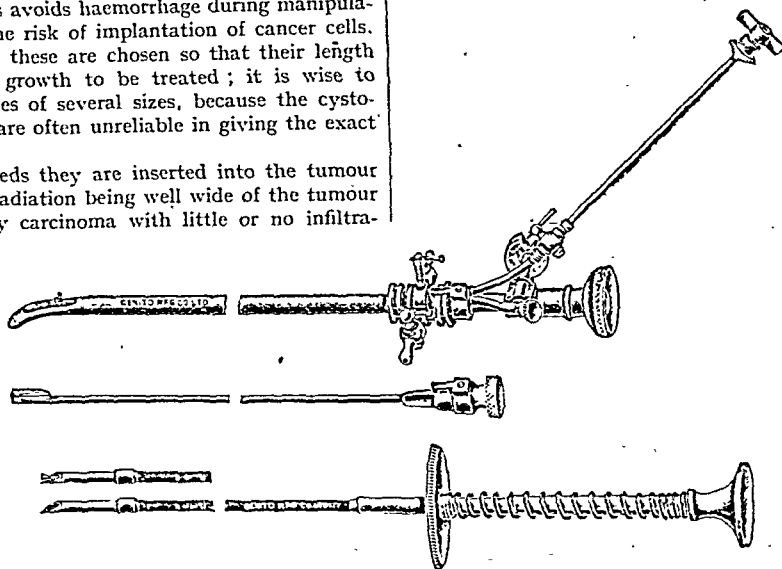
Radiographs should be taken after forty-eight hours and four days, in order to make sure that all the seeds remain in position, and all urine passed by the patient must, of course, be examined to

make sure that seeds are not included. Seeds left lying free in the bladder are passed painlessly at the first urination, as are seeds which drop out subsequently. The patient need not remain in bed more than four to five days, or in hospital more than a week.

Each of these methods, suprapubic and cystoscopic, has advantages. For the suprapubic method it can be claimed that the growth can be inspected more thoroughly and palpated, that biopsy is made easy, and that the introduction of radon seeds is done by direct vision in a good light, and is therefore more accurate. The cystoscopic method has the advantages that the bladder is not opened, that the patient need not be in hospital more than five to seven days, and that in the case of difficulty of introduction or the desirability of splitting the dose, the insertion of the required number of seeds can be done at more than one sitting. The cystoscopic method is not, however, suitable for the treatment of growths in any part of the bladder. Tumours situated in the anterior wall or vault of the bladder cannot be reached satisfactorily, and must be approached by the suprapubic route.

Surgery in Bladder Carcinoma

Before discussing the use of these methods, let us consider for a moment the surgical aspect of the disease. It is generally admitted that operable cases, including those in which transplantation of one ureter is necessary, are in the minority. In a recent series of cases (Macdonald) the inoperable cases amounted to 60 per



Cystoscope of flushing type (Ogier Ward's modification) and seed introducer. The cystoscope has a valvular attachment so that escape of fluid is avoided while inserting the introducer.

cent., and this figure is given by many workers. Total cystectomy is a very severe operation, and although during recent years a few surgeons have improved the technique so that the mortality has been reduced considerably, it is still a procedure limited to very experienced urologists, and is a malignant operation from the patient's point of view. The mortality remains very high, and the subsequent life of the patient is often a miserable one.

The results of surgical procedures—namely, partial cystectomy with transplantation of one ureter if necessary—can only be seen from figures, and these are not easy to interpret and to compare, because of the differing ways in which the authors set them out. The operative mortality has been steadily decreasing, and is now between 10 and 15 per cent.

Macdonald, in a recent series of representative cases, quoted forty-four carcinomata of different types; operative mortality was 13 per cent., and 31 per cent. were alive for three years or more. Although such figures show that treatment by excision leaves much to be desired, the results are such that any other method has to be very carefully considered before it is substituted. These figures apply to 40 per cent., let us say, of the cases. Of the other 60 per cent. it must be admitted that control by diathermy is all that can be offered them, and that cure is out of the question.

Some Results of Radium Treatment

Leaving out for a moment the 40 per cent. operable cases, what has radium to offer the remaining 60 per cent.? At the Radium Institute, London, we have treated 60 cases of carcinoma of the bladder since 1927. The majority of these have been treated by Ogier Ward, and he was responsible for the cystoscopic technique. I quote them here because they were all considered to be inoperable when first seen, either because of the site, extent, or fixation of the growth, or because of the patient's general condition.

Except in those cases in which the growth had recurred after excision, and in those few which were treated by the suprapubic route, no histological data were available, and diagnosis was made on the cystoscopic findings. This is, of course, an important point, and must be taken into consideration when the results are assessed. It may be that a small percentage of these growths were not malignant, and since papilloma of the bladder is sensitive to radium this factor may be reflected in the results.

Many of the cases are too recent to be of value in this discussion, but thirty-eight of them were treated up to 1931, and I shall only consider these. They are divided into two groups: the papillary and the infiltrating types. Twenty-three were of the papillary type; of these, twenty were treated by the cystoscopic method with seeds, needling by the suprapubic route being the method in the other three cases. Four cases were recurrent after partial cystectomy, and two of these were controlled for periods of two and a half and three years respectively. Of the total number (twenty-three), ten have remained well, five for five years, two for four years, and three for three years after treatment. Of the fifteen infiltrating carcinomata, ten were treated by the cystoscopic method and five by the suprapubic route. Of these, three are alive and well, one for five years, one for four years, and one for three years after treatment. (Three cases in each group were untraced.) These figures are meagre, but they give some idea of the results that have been obtained in a group of cases, all of which were in a very advanced condition when first seen. Of the cases of papillary carcinoma, 43 per cent. were free from disease for three years and more, while 20 per cent. of the infiltrating cases were alive and well after the same period.

Table Showing Results in Thirty-eight Cases of Carcinoma of the Bladder

Type	Number Treated	Cystoscopic Method	Suprapubic Route	Alive over—		
				3 yrs.	4 yrs.	5 yrs.
Papillary...	23	20	3	3	2	5
Infiltrating ...	15	10	5	1	1	1
Total ...	38	30	8	4	3	6

In the United States, where radium has been used for bladder carcinoma longer than in this country, Keyes, Neill, Young, and Barringer, among others, began to report results as early as 1928. Neill (Baltimore) reported on a series of cases, 168 of all types, treated by radium. Inoperable cases numbered 111, and of these 8.9 per cent. were free from disease for three years or more. The remaining 57 were operable, and of these 35.5 per cent. survived the three-year period without disease. At the Memorial Hospital, New York, all bladder cancers, whether operable or inoperable, have been treated with radium for eighteen years, excision never being used. In 109 cases Barringer reports 43 per cent. three-year cures in papillary carcinoma, and 27 per cent. in infiltrating carcinoma.

Burman, in 1931, quoted results in 111 cases. In the papillary type 17 per cent. of cures were obtained (of these cases the percentage cure in operable cases was more than twice that in inoperable ones). In the infiltrating type 16 per cent. were cured, and here again the percentage in the operable cases was very much higher. Pfahler, in 1931, reported 19.3 per cent. five-year cures in forty-three inoperable cases of all types by coagulation and radium. Dargatzis, in 1933, reported results in twenty-two cases treated by the insertion of needles by the suprapubic route. Of these, seven were of infiltrating carcinomata, three of which were free from disease eight years, seven years, and four years respectively. The method of treatment is interesting, in that a rubber balloon filled with fluid is placed in the bladder in order to keep the bladder wall away from the radium in the growth. It is claimed that subsequent discomfort is minimized by this procedure, and that post-radiation cystitis is much less. The mortality is low—Barringer claims that in his cases it is 7.2 per cent.—and complications are rare.

The aftermath of treatment may be unpleasant, especially where large doses have been given over a wide area. Radium causes a slough to form, which may take months to separate—very much longer than after fulguration. Phosphatic deposits may be found on the area treated, and slough and deposit sometimes make it difficult to be sure whether there is still growth present or not. From the patient's point of view the prospect is often not a pleasing one, but to say that every patient treated by radium is made miserable for months after his treatment is simply not true. In fact, the after-symptoms vary in severity, from dysuria and frequency of a serious kind to transient discomfort which worries the patient very little. There are many patients who are made worse by radium treatment, chiefly those suffering from infiltrating carcinoma of great extent, where the dosage over a wide field is liable to act on the whole bladder, causing a very severe cystitis; if these patients have received a dose which is insufficient they are made miserable without the disease being eradicated. Experience will, we hope, lead us to avoid these cases.

The results of radium treatment show that papillary carcinoma is sensitive to radium, and that it is amenable to treatment by radium when it is not too extensive, and

when the growth is confined to the bladder. The infiltrating type, on the other hand, is more radio-resistant, and operable cases of this type should, I think, be treated by resection. Inoperable cases must be carefully considered. If they are extensive within the bladder their extravascular spread probably renders them incurable by any means, and widespread interstitial irradiation runs the danger of making the patient more miserable than he was before. Experience with these sixty cases at the Radium Institute seems to show that cystoscopic implantation of seeds should be limited to those cases of papillary carcinoma where the growth or growths are not more than 2 to 3 cm. in diameter, and that larger growths should be dealt with by the suprapubic route; that operable infiltrating carcinoma should be resected; and that great care must be taken in selecting inoperable cases suitable for radium treatment.

ALLERGIC FACTORS IN RHINORRHOEA AND NASAL CATARRH*

BY

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The term "allergic disease" has been introduced into medical literature by American investigators (Cooke and others), to designate a number of conditions which show one common aetiological characteristic—namely, hypersensitiveness to proteins or other substances that are innocuous to normal people. For the most part the patients suffer from acute attacks, while in the interval between two attacks they are in good health. Often, however, especially in the more severe cases, they present symptoms of their illness continuously, and suffer from acute exacerbations.¹

I do not propose to deal with bronchial asthma, skin conditions, or true hay fever, since these are already clinical entities, but I shall restrict myself to allergy as seen by the rhinologist in a rather indefinite form, either complicated or uncomplicated, by catarrh of bacterial origin. The following headings may be mentioned: hypersensitiveness to (1) drugs; (2) various pollens; (3) so-called animal proteins; (4) foodstuffs; (5) bacterial products; (6) colloidal substances of unknown composition, the presence of which in the air is due to climatic influences (miasma).²

It is a well-known fact that certain people are hypersensitive to certain drugs, but in one important respect they differ from allergics: the symptoms they exhibit with a small dose of the particular drug are the same symptoms exhibited by normal people with an excessive dose. The true allergic exhibits symptoms which are totally different from any that might occur in persons non-sensitive even on really excessive dosage. I propose to pass over hypersensitiveness to various pollens, to animal proteins, and to foodstuffs, but would like you particularly to bear in mind hypersensitiveness to bacterial products.

It has been thought that there was an anaphylactic element in allergic diseases, but the main arguments against this theory are: (1) Allergic disease is often inherited; anaphylaxis is not. (2) Allergic symptoms are sometimes shown the first time the person comes in contact with the incriminated substance. (3) Allergy cannot be transmitted passively to animals; in anaphylaxis this experiment usually succeeds. (4) The symptoms

of allergy differ largely from those of anaphylaxis, but show resemblance to those of drug idiosyncrasy.

You are all familiar with the typical case of vasomotor rhinitis or paroxysmal rhinorrhoea associated with violent sneezing attacks, and a pouring of clear watery fluid from the nose to such an extent that patients are compelled to use towels instead of handkerchiefs for relief. But I believe, though in many cases I have no definite proof of the statement, that in a large number of so-called chronic catarrhs there is a very definite allergic factor; and I am sure that it is concerning the latter type of case that we should attempt to increase our knowledge.

Factors Operating in Vasomotor Rhinitis

The factors generally found in cases of vasomotor rhinitis are: (1) some personal idiosyncrasy; (2) a sensitive condition of the nasal mucous membrane; (3) some outside irritation; and (4) a supposed nervous element. Of these I consider the first all-important, and the last almost negligible.

As regards personal idiosyncrasy, we know that allergics, whether they be hay fever patients, asthmatics, or persons sensitive to animal emanations, on cutaneous testing, do not only react to their own usually specific protein, but also to numerous others, and that their sensitivity to these various proteins may vary from day to day. According to van Leeuwen, all allergics are sensitive to human dandruff, though varying in their reaction to other proteins. With this fact I will deal in greater detail later.

Our reasons for suspecting increased sensitivity of the nasal mucosa are rather empirical. The nasal mucosa either appears normal, pale, velvety, and slightly congested, or there may be whitish patches on it. This condition may apparently be rendered less liable to irritation by either cauterization or ionization. In certain patients this treatment affords either relief or cure, but it should be borne in mind that the sensitivity is often only to some specific irritant in the allergic person.

It is fully granted that the external irritation, acting on the mucous membrane of the allergic, is the trigger which sets off the attack. The nervous element is, in my opinion, the one most open to doubt. With most patients I consider that the discomfort, nuisance, and distress of repeated attacks of severe rhinorrhoea, which come on at least expected and most inopportune moments, are the cause of the patient's neurosis rather than the result.

Some Causes of Simple Vasomotor Rhinitis

Let us now consider simple uncomplicated vasomotor rhinitis, which is a condition with which we are all familiar. I am not going to deal with its pathology or clinical manifestations, but I would like to suggest one or two causes of the condition. St. Clair Thomson, in the 1916 edition of his book *Diseases of the Nose and Throat*, stated that vasomotor rhinitis was more common in the young male than in the young female. I am sure you will all agree with me that in these days the disease is much more common in the young woman. I think the reason is, not that there are more allergics, or that the young women are more neurotic, but that practically all women do use face-powder. We are all familiar with the white sheen that is seen on the septum and turbinates of the more heavily made-up woman. Many women are particularly susceptible to orris root, and I am told on good authority that orris root is to be found in certain makes of powder. In fact, one patient of mine told me that she could not use a powder in which orris root was known to be present, as it "was death to her." Quite often the changing of the make of powder is a valuable aid to treatment; it is more than the physician can do to stop its use.

* Read in opening a discussion in the Section of Oto-rhino-laryngology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Sensitivity to Staphylococcal Infection

I mentioned at the beginning of this paper that patients could be sensitive to a specific bacterial protein. Many patients suffering from typical vasomotor rhinitis have cracks in the skin about the anterior nares, and these cracks have been looked upon as a necessary adjunct to the disease. We all know that unless these cracks are cleared up there is little hope of alleviating the vasomotor rhinitis, whatever treatment to the nasal mucous membrane may be employed. But we see, in our specialty, many cases of vasomotor rhinitis without any obvious cracks; and we have numerous cases of vestibulitis, a condition that is most certainly of staphylococcal origin, which, after persisting for weeks, months, or even years, have no vasomotor symptoms. (The infection of the cracks is always staphylococcal.)

I would suggest, therefore, that the cracks occasionally seen in the nares of patients suffering from vasomotor rhinitis are not necessarily due to the allergic condition of the nose, but that the patient may have had a very mild and unnoticeable staphylococcal infection of the anterior nares, and, being sensitive to the specific staphylococcus protein, the subsequent vasomotor symptoms were caused by the patient's allergy to that particular protein. At any rate we do know, however far-fetched the idea may seem, that vasomotor rhinitis associated with cracks will not clear up until the latter are cured. I have no definite proof that sensitivity to staphylococcal protein is the cause of many cases of vasomotor rhinitis.

In some cases of rhinitis, or, as the patient expresses it, chronic catarrh, there is evidence that the condition may be due to the patient's sensitivity to the protein of a specific organism. It must be in everybody's experience that in many patients complaining of chronic catarrh there is apparently no abnormality in the nose, sinuses, or nasopharynx. On careful questioning these patients give histories of mild stuffiness of the nose with a slight or negligible watery discharge, while at other times they have symptoms of the typical bacterial cold, with a thick muco-purulent discharge. I believe that these patients are really allergics who are sensitive to the specific proteins of one or other of the bacteria which may cause rhinitis, and that the acute exacerbations of the catarrh are due to the bacterial infection, and the intermittent slight catarrh to the allergic reactions of the patient to the specific bacterial protein.

Again, it is a common fact that in many cases of vasomotor rhinitis, especially of the unilateral type, on careful examination, a latent and unsuspected antral infection is found on the homolateral side, and that on clearing up the infection the vasomotor symptoms subside. In these cases I believe that the running from the nose is a local condition, caused by intermittent leakage of the specific protein from the infected antrum.

Nasal polypi are often found in conjunction with asthma, much less commonly with simple vasomotor rhinitis, and it is known that in asthmatics who have this condition local removal of even small polypi causes a diminution of the symptoms. The polypi have been regarded by certain physicians as part of the allergic swelling of the nasal mucosa, but I believe that, however small, they are evidence of a local ethmoiditis, and that their removal allows the secretion in the cells to be either washed out or blown clear, thus reducing the chance of affection of the sensitive mucous membrane of the nose by that specific bacterial protein.

A patient of mine suffered from very severe asthma, which completely incapacitated her. When I first saw her she had a mild ethmoiditis, which I treated by an anterior middle turbinectomy and curetting of the ethmoid cells. This treatment was followed by a series of minute doses of an autogenous vaccine, with improvement. Small polypi then began

forming with recurrence of the asthma, which was temporarily relieved by removal of the small polypi and with continuance of the vaccine therapy. However, in spite of several local removals of the polypi, spread over many months, her asthmatic condition became very much worse. She had, I should have mentioned, an intercurrent antral infection which increased the symptoms, but on opening and washing out the antrum the symptoms improved, and she was back at her old level. This antral infection was purely an intercurrent event in my opinion, but, as I have said, the continuance of the ethmoiditis caused her to be completely incapacitated by her asthma. I therefore decided to perform an external ethmoidectomy, with a view to exenterating all the ethmoid cells. Since then her asthmatic condition has been wonderfully improved. She still has her ups and downs, and has pocketed pus behind the scar or in the nose on occasion, when her symptoms are always more pronounced but are almost immediately alleviated by drainage of the cooped-up secretion. That she has these recrudescences is probably due to faulty technique of my own. She has continued with intermittent courses of autogenous vaccine in minute doses; any large increase in the dose immediately brings on an exacerbation of the asthmatic symptoms and nasal discharge.

I must apologize for quoting a case of asthma as illustrative of some of my points, but it was one of the most severe cases I have had to deal with, and the results, though not dramatic, were satisfactory, and, I think, have a bearing on my point concerning specific bacterial protein sensitivity.

Autogenous Vaccines in the Allergic

Out of the case I have just quoted there emerges another question, that of giving minute doses of vaccine to asthma patients with apparent improvement, whereas the ordinary minimum dose of vaccine given to patients suffering from any form of bacterial rhinitis causes an exacerbation of the symptoms in the allergic. It is known that one can immunize people sensitive to a specific protein by injecting infinitesimal doses of that protein at frequent intervals, say every other day or twice a week, whereas larger doses of the same protein cause increased sensitivity. Ipecacuanha is a case in point.

We know that certain bacteriologists in cases of chronic catarrh are accustomed to give infinitesimal doses of autogenous vaccines over a long period of time, with improvement, the doses being minute in comparison with the ordinary doses of vaccine given, either for treatment or for prophylaxis, in bacterial catarrhs. I would suggest that the results are obtained, not by an immunization of the patient against these organisms, but by the desensitization of an allergic patient to specific protein of the bacteria in his nose. Further, we have all seen patients who complain bitterly of catarrh when in theatres, cinemas, and close warm rooms where people are assembled, whereas they are completely free from it when out of doors, whether in hot, still weather or whether walking over wind-swept moors. One would naturally conclude, I think, that people suffering from a bacterial catarrh would be worse under the conditions of cold and wind. Even the normal person experiences running from, and stuffiness of, the nose under these conditions.

As I have mentioned, van Leeuwen states that all allergics are sensitive to human dandruff. He is also the pioneer of the "miasma theory" of allergic irritation. This theory presumes that allergic patients may be sensitive to foreign proteins in the air, which are in such infinitesimal quantities that their presence cannot be proved. It is not hard to visualize the fact that human dandruff may be present in sufficient quantity in the air of crowded rooms and theatres to satisfy these postulates in the case of allergic people. This may be an explanation of this type of catarrh, for in most cases when the patients arrive in the cool quiet of the consulting room their upper air passages appear normal.

I apologize for being so unscientific and for having stated so many unproven opinions, but I believe that the study of allergy in connexion with our specialty is still in its infancy, and that several aural conditions, which are now tentatively supposed in some cases to be partly allergic, will in the future be definitely established as such. Out of my ignorance of the subject I fear I have been provocative to those who know more. My only hope is that I may have stimulated the more knowledgeable to a good discussion from which some of us may learn something for the future.

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THE ADVANTAGES OF INTRAVENOUS (EVIPAN) ANAESTHESIA IN OPHTHALMIC SURGERY

BY

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Although intravenous anaesthesia with evipan is used on quite a large scale in many hospitals to-day for various types of cases it is perhaps not fully realized that it is of particular value in ophthalmic surgery. This article is designed not to introduce the authors as authorities on evipan anaesthesia, but to set down their experiences with a small series of some eighty-six cases at the Royal Westminster Ophthalmic Hospital and their conclusions therefrom, as we feel certain that our findings may be of interest and of practical value to many persons engaged in ophthalmic practice who may not have used this type of anaesthesia in their operative work.

As only a minority of ophthalmic operations are performed under general anaesthesia our series is necessarily small, but so superior have been our results with evipan in comparison with other forms of general anaesthesia in our operative work at this hospital, both from the ease and speed of induction, the saving of time, the simplicity of apparatus, the optimum conditions for the surgeon, patient, and anaesthetist, and the apparent great margin of safety, that we have adopted evipan as the routine anaesthetic for practically all cases requiring general anaesthesia. In every case in our series evipan gave more or less complete satisfaction to the surgeon, and we have not had any worry, from the anaesthetist's point of view, in any patient. Our observations will be presented under the following headings: technique of injection, dosage, etc.; general advantages of evipan; special advantages in ophthalmic surgery; and an analysis of our series.

Technique of Injection, Dosage, etc.

With a little experience the optimum dosage can be very accurately calculated after a rapid consideration of the length of anaesthesia required, of the patient's approximate body weight and age, and whether of a robust, frail, or toxic constitution. Our dosage varied from 4.5 c.cm.* in the case of old toxic patients to a full 10 c.cm. in strong, healthy adults. In a few of the latter we found it necessary to give as much as 12 c.cm. to

* Strength of solution is 1 gram of sodium evipan per 10 c.cm. of distilled water.

produce the requisite degree of relaxation. Healthy children required a relatively much larger dose than adults, a healthy average child of 4 years taking 5 c.cm., while children of 10 years and upwards generally required a full 10 c.cm. Old, feeble persons required very little more than 4 c.cm.

Having roughly estimated the required dosage for the individual case, a 10 c.cm. syringe is fully charged with a previously mixed solution of evipan, and the needle introduced into a vein in the arm, the patient being instructed to count slowly aloud. When consciousness is lost, as indicated by the cessation of counting, the amount already injected is noted and the injection continued until as much again has been given, in accordance with the practice of the German school. The needle is kept in the vein, and the surgeon then grasps the conjunctiva with forceps. If the dosage is insufficient, as indicated by movements of the patient's limbs, a small additional injection is made until the patient relaxes, the anaesthetist being careful not to exceed his original estimated dose by more than 1 to 2 c.cm. unless the movements of the patient indicate a further dosage. After consciousness is lost the jaw is kept supported to keep a clear airway. *No preliminary medication is required or should be given.*

Carbon dioxide and oxygen for inhalation is kept at hand in case of respiratory failure, but we have not found the use of this emergency treatment necessary in any of our cases. In many of the older cases a severe sneezing reflex, several times repeated, occurs during early manipulations of the conjunctiva. This does not, however, seriously interfere with the course of the operation. A delay of one or two minutes before commencing the operation frequently eliminates this phenomenon. It has not occurred in any of the children in the series. With children, the arm must be kept rigid during the injection, as otherwise the needle may be dislodged by a sudden movement as the patient loses consciousness.

In the average case under the above technique the duration of anaesthesia suitable for ophthalmic surgery is from fifteen to twenty-five minutes. In very short operations a reduced dosage is given, and when more prolonged anaesthesia is required a further injection may be given when the effects of the original dose show signs of wearing off. This appears to act very satisfactorily. Our longest case was on the operating table for one hour and fifteen minutes, during which time a total of 14.5 c.cm. was given in two separate injections, the anaesthesia being satisfactory throughout.

General Advantages of Evipan

Evipan may be given with safety to patients of any age, provided a very small palpable vein can be found. We had no difficulty in this respect even in very young children. The youngest patient in our series was 4 years of age and the oldest 85.

The contraindications are very few—mainly severe disease of the liver and of the kidneys—and it appears to be safe to use the method even in severe diseases of the cardiovascular and respiratory systems, where inhalation anaesthesia may involve grave risks. The induction is very rapid. The material is inexpensive, requires an absolute minimum of apparatus, and does not need any special skill on the part of the anaesthetist. The period of recovery is very rapid, several of our cases being able to talk rationally within fifteen minutes of leaving the operating table. In the majority of our cases there were practically no after-effects attributable to the anaesthetic. The adult patients were in all cases very pleased with the anaesthesia.

In this connexion it is interesting to note that one of the authors had an evipan injection for the removal of some teeth, having previously at one time or another taken most

inhalation anaesthetics. He considers evipan far superior to anything he has previously experienced.

In the stress of circumstances it is possible for a surgeon to give the anaesthetic and carry on the operation with a minimum of nursing assistance and practically no danger to the patient. Evipan may be given without danger with a partially full stomach. Owing to the great rapidity of induction, the total time required for an operation is very materially reduced, especially with several consecutive short operations.

Special Advantages in Ophthalmic Surgery

The whole of the face and head is left free for the surgeon, which is a considerable help in eye operations. As most ophthalmic operations are of short duration, a single evipan injection is peculiarly suitable to most such. We have found it very suitable for cases of squint in children, for excisions and eviscerations of the eyeball, for acute glaucoma, plastic operations—in short, for practically all eye operations where a general anaesthetic is advisable.

Under evipan anaesthesia the intraocular tension falls, both in eyes with normal tension and in those with raised tension. This was demonstrated in selected cases in our series by palpation and by the use of the Schiötz tonometer. This is a very advantageous factor in operations for acute glaucomatous conditions. In a considerable number of ophthalmic operations the subjects are old, enfeebled persons, perhaps suffering from diabetes, tuberculosis, or other constitutional diseases, in whom inhalation anaesthesia frequently involves grave risks. In the majority of these cases evipan may be given with safety, with every satisfaction to the patient and surgeon alike.

Analysis of Our Series, with Comments

1. *Excision of Eyeball.*—Evipan is ideal for this operation, and we have now adopted it as the routine method of anaesthesia. Thirty-nine operations were done, the age of the patients varying from 30 to 85 years. Particular mention should be made of the advantages over inhalation or local anaesthesia in the following cases:

(a) I. B., male, aged 58 years, an advanced case of Graves's disease with chronic iridocyclitis from corneal ulceration, due to severe proptosis.

(b) A. S., male, aged 66 years, severe arteriosclerotic and hyperpictic, with recent hemiplegia and mental changes.

(c) W. J., male, aged 72 years, very feeble patient with myocardial degeneration and chronic bronchitis.

In all these cases anaesthesia was most satisfactory, and there were no untoward after-effects. Another patient, M. P., male, aged 65 years, was feeble and cachectic, and clinically his liver contained large masses of secondary growth. He was given evipan for removal of a secondary glaucomatous and painful eye, the seat of a primary malignant melanotic tumour. No ill effect followed, although it is said that severe liver disease is a contraindication to the use of evipan.

2. *Evisceration of Eyeball.*—Nine cases, age of patients varying from 9 to 75 years.

3. *Operations for Glaucoma.*—Six cases, consisting of four trephines, one Lagrange's operation, and one posterior sclerotomy. The only difficulty here, as in any general anaesthetic, is the tendency of the eyeball to roll upwards, although this tendency is much less noticeable with evipan than with inhalation anaesthesia. We have found that the intraocular tension is always lowered; this is easily demonstrable by palpation, and we have shown it conclusively by the Schiötz tonometer to be reduced by as much as 10 mm. in some cases.

4. *Lid Operations and Plastic Operations on Sockets.*—Eight cases. The great advantage here is that distortion of the eyelids with local injection fluid is avoided. One case, J. W., male, aged 66 years, underwent a successful operation for paralytic ectropion (due to facial palsy complicating middle-ear disease), fascia lata strips being taken from the thigh and used as slings. The operation lasted one and a quarter hours, and anaesthesia was satisfactory throughout, the total

amount injected being 14.5 c.cm. (given in two successive injections). Another case worthy of mention was H. S., male, aged 43 years, suffering from fibroid phthisis, who underwent a "plastic operation on socket" with good result.

5. *Squint.*—Twenty cases, consisting of eighteen "tenotomies and advancements" and two tenotomies. In one case, a nervous female aged 18 years, operation was commenced under local anaesthesia, but the patient was unable to keep still, and so an injection of evipan was given immediately, and the operation proceeded with satisfactorily. Inhalation anaesthesia would have been impossible owing to the fact that the patient had recently had a meal. Evipan has not been used very considerably for squint, because for obvious reasons local anaesthesia is to be preferred when the patient is sufficiently old to exercise self-control.

6. *Attempt to Remove Deep Intraocular Foreign Body.*—One case; satisfactory anaesthesia.

7. *Opening of Lachrymal Abscess.*—Three cases.

Summary

1. The advantages of intravenous anaesthesia with evipan in ophthalmic surgery are shown.

2. A series of eighty-six cases is presented, showing very satisfactory results with no complications.

We are indebted to the members of the honorary staff of the Royal Westminster Ophthalmic Hospital for their kind co-operation in the use of evipan for their cases.

CHORIONIC CARCINOMA

WITH A REPORT OF A CASE FOLLOWING RUPTURED TUBAL GESTATION

BY

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Cases of chorionic carcinoma are always of sufficient interest and rarity to merit publication. According to DeLee's "hydatidiform mole preceded the development of this disease in 33 to 40 per cent. of reported cases." Again, Eden and Lockyer state that "in two out of every three cases the immediately preceding pregnancy terminated in abortion." Both the above statements presumably refer to uterine pregnancies. The urgent symptom would therefore be uterine haemorrhage, and the fact that it was preceded by an abortion, either of the ordinary type or more especially of a hydatid mole, would tend to put one on guard. Chorion, wherever situated, may, however, be liable to malignant degeneration. DeLee states that "ectopic gestation may undergo this [hydatidiform] degeneration." Tubal and ovarian pregnancies must therefore share in the general danger.

Chorionic Carcinoma of Tube or Ovary

The clinical picture of a malignant degeneration of a chorion situated in the ovary or tube is nevertheless very different from that of the uterine variety. Such cases must be very rare indeed, and, occurring as they do without the usual symptoms of the uterine type, coupled with the fact that the growth is hidden away in the abdominal cavity, must give rise to much confusion in diagnosis. There is not always uterine bleeding to warn the patient that something is wrong. Advice would tend to be sought late, thus giving further time for the condition to develop. Pain in the abdomen or the presence of a tumour in the lower abdomen following an operation for ectopic pregnancy would be the probable reason for seeking advice.

The literature yields the following information. Risel collected eleven cases of primary chorio-epithelioma of the tube, and reports a case of chorio-epithelioma developing in the pelvis, proved at subsequent operation two

and a half months after removal of tubal gestation (about six and a half months after this had started). The woman died shortly after the second operation, and a post-mortem examination showed no growth in uterus or genitalia, but metastases in liver and lungs. Liepmann¹ reported seven more. In one case recorded by Davidsohn² chorio-epithelioma formed in the stump of a tube excised for ruptured tubal gestation. Lefquist³ gives an account of a tubal pregnancy removed from a tube which was left *in situ*. Two years later a pregnancy recurred in the same tube, which was removed. Pathological examination revealed an early primary chorio-epithelioma of the tube. Hartz⁴ described a case of ruptured tubal gestation in which there were extension of chorionic epithelium into the wall of the tube and chorionic epithelial cells in the lumina of some of the veins. The patient was well two years afterwards. In his paper Hartz states that "primary chorio-epithelioma of the Fallopian tube is of comparatively frequent occurrence when we take into consideration that tubal gestation forms but a small proportion of all uterine pregnancies. Of 300 chorio-epitheliomas up to 1905 the primary tubal variety comprised 3.5 per cent." He also states that "metastatic growths occur from tubal growths just as readily as they do from the uterine variety."

Vaginal Metastasis

Duggan,⁵ in the report of his case, says that the patient came for treatment of "a rather friable, purplish swelling on the right vaginal wall. A mass was felt in the left vault, not movable, irregular, and slightly tender. Uterus slightly enlarged." Removal of both ovaries and tubes and supravaginal hysterectomy were carried out. The left tube was ruptured. Pathological examination showed chorionic carcinoma. X-ray and radium treatment were given, and when the patient was seen two years later "pelvic examination revealed no sign of recurrence—she had gained weight and strength." Bethel Solomons and Smith⁶ recorded a case almost identical with Duggan's, and both are very interesting in that a vaginal metastasis was present at the time advice was first sought. Solomons and Smith seem to have been in doubt as to whether their case was secondary to tubal gestation, as "the chance of it being secondary to tubal pregnancy is most doubtful, for her periods had always been absolutely regular." But the history they give surely does not agree with this, for they state "she was sent to hospital because of continuous hæmorrhage since her last menstruation, which had started three weeks before admission." Obviously her last period was most irregular. And, equally obvious, before admission she could have had a tubal pregnancy of nearly six weeks' duration which ruptured three weeks before the patient was seen by them. Chorionic carcinoma may have developed at any time within these limits. It is even possible that the previous (?) normal menstrual period was really uterine bleeding associated with a small unnoticed attack of pain due to commencing rupture of the tube.

Miles Phillips⁷ had a case of ruptured left tube, with "a small nodule of adherent blood clot on the bladder wall." Tube and nodule were excised. After chorionic carcinoma had been demonstrated microscopically the uterus was curetted, nothing abnormal being found. Six weeks later there was recurrence in the left broad ligament, "an ovoid purplish nodule in the anterior vaginal wall," and a nodule on the bladder wall at the site of the previous nodule. There was also a mass at the root of the mesentery of the small intestine. Total hysterectomy with removal of broad ligament growth, all appendages,

and the bladder nodule was then done. The mesenteric growth was irremovable. All these showed chorionic carcinoma. Three years later she was alive with no signs of recurrence in the abdomen or elsewhere. Fleurent,¹¹ in his case report, quotes Risel's twelve cases, and says that accounts of twenty others were given between 1905 and 1930. If we add his case, Duggan's, Stein's, and mine, the number up to date would appear to be at least thirty-six.

Pathology

It is interesting to recall that Marchand divided the disease into two groups—atypical or benign, and typical or malignant. The benign is characterized by comparative or complete absence of Langhans's cells, and to this type Ewing gives the name "syncytioma." Lynch and Maxwell¹² state "the prognosis in syncytioma is essentially favourable, since the process advances slowly, and the life of the wandering cells is short." Referring to the malignant type, they say "the tumour seems to have a more rapid course, and to metastasize more quickly than does chorio-epithelioma of the uterus. Albert's case and that of Hartz are the only ones which recovered." Duggan's and Phillips's cases are apparently two more.

The degree of malignancy seems to depend on the presence of proliferating and atypical cells of Langhans's layer, which are always present in the malignant type, even in the metastases. Secondaries may be found in the abdomen, spleen, lungs (very common), liver, vertebral column, vagina, and brain. Ovarian changes associated with the disease are well known. Lynch and Maxwell¹² say "there is no doubt but that pronounced cystic changes in both ovaries occur so frequently with chorio-epithelioma as to constitute a specific anatomical feature of the disease." In this connexion, Friedlander¹³ quotes Zondek and Aschheim, and Evans and Smith, as showing this formation of lutein material to take place after implantation of anterior pituitary and ovarian substance in animals, and Murati and Adachi as having produced the same results with the placenta. Urine from a case of chorionic carcinoma may contain as much as 500,000 mice units of anterior pituitary hormone per litre, compared with 8,000 to 12,000 units in normal pregnant urine. Does this excess of hormone hold the secret of both chorionic carcinoma and lutein cyst formation?

Friedlander also quotes Oskar Fraenkl as showing that the serum of a normal pregnant woman is able to destroy foetal tissue from placenta, liver, or kidney, while the serum of a woman suffering from chorio-epithelioma does not possess this lytic action. He concluded that the formation of chorio-epithelioma is due to the absence from the blood of the pregnant woman of the syncytiolytic properties of the serum, and believes that spontaneous cures are due to a recovery of these properties. We do not know what limits the normal invasive power of the chorionic epithelium. That there must be some limiting agent is obvious. If Fraenkl's theory holds the explanation, it could be proved by the injection of serum from a normal healthy pregnant woman into a series of cases of chorionic carcinoma. Such a serum would be very easily secured. Theoretically, it should be obtained from women three to four months pregnant, when limitation of the invasive power of the chorionic epithelium should be taking place and the syncytiolytic properties of the serum presumably be at their height. As a control, estimation of the urine as regards the number of mice units (Aschheim-Zondek) of anterior pituitary hormone might be made, and only that serum the urine of whose donor contained less than 12,000 units be used for the purposes of treatment.

History of Case

The following is the history of my case of ruptured tubal pregnancy which was followed by chorionic carcinoma.

The patient, a Hindu, was admitted into the Irwin Hospital, Jamnagar, suffering from pain in the abdomen, with slight, dark-coloured haemorrhage from the uterus. She had missed two periods. Examination revealed a small tender mass in the region of the right tube, and a diagnosis of ruptured ectopic gestation was made. I operated upon her the same day, and found a tubal gestation which had ruptured intraperitoneally. There was not a great quantity of free blood, and not many clots. The tube was removed, the clots were cleared out, and the abdomen was sponged dry and then closed. Her immediate convalescence was uneventful, and she left the hospital three weeks later.

Two months afterwards she was again admitted. She was now looking very ill, and complained of a swelling in the right side, with considerable pain in the lower abdomen. There was no haemorrhage or discharge from the uterus. Palpation confirmed the presence of the tumour in the right pelvic region, and vaginal examination showed that the tumour was in very close proximity to the uterus, which was enlarged to the size of a three-months pregnancy. The upper surface of the tumour reached well above the brim of the pelvis. The woman had lost weight appreciably, and was looking anaemic and obviously worried. I opened the abdomen again, and found the whole of the right side of the uterus and the right broad ligament covered with a soft, friable, dark-grey-coloured growth. Its nature was only too obvious. It had already begun to spread towards the bladder, and there were several small masses on the peritoneum of Douglas's pouch. The right cornu of the uterus was the seat of a somewhat larger mass, and a small piece was taken from this situation for microscopical examination. There was no possibility of benefit from excision of the uterus, as this would have only taken away about a quarter of the growth. The bladder and Douglas's pouch were already involved. The site of the ectopic was a mass of growth. The abdomen was closed on the tragic sequel to what had been a successful operation for ruptured ectopic gestation. The small piece which had been removed was sent to the Haffkine Institute, Bombay, and a report was received ten days later, confirming that the growth was chorionic carcinoma. The slide which the director of the institute sent me was typical of chorionic carcinoma of the uterus.

At this time it struck me that a few doses of deep x rays might do the patient some good. They could, at any rate, do no harm, and there was no other possible method of treatment. She was therefore sent to the x-ray department, where she received two "massive" doses at intervals of three weeks. I left India about a fortnight after the second dose, so am unfortunately not able to give any later information than up to this date. At this time, however, the tumour had definitely begun to retrogress, and was about half the size it was on admission. The patient's general condition was also much better, and her pain was decidedly less. Locally, therefore, deep x-ray therapy had certainly had some beneficial effect. There was always the possibility of metastasis having already taken place, but clinically there had been no signs of this. I do not know whether deep x-ray therapy was continued after I left Jamnagar. In view of the benefit already experienced it is to be hoped it was.

Summary and Discussion

Though the story must remain unfinished the following conclusions can be drawn:

1. Ruptured tubal pregnancy, removed by operation, was followed within a very short time by malignant disease of the chorion.

2. Three months after operation the growth had become palpable above the pelvic brim, and was found at the second operation to have involved the whole of the right broad ligament, the right pole of the uterus, the bladder, and Douglas's pouch.

3. The symptoms were: lower abdominal pain, cachexia, and a tumour in the right iliac fossa. There was no uterine bleeding or discharge.

4. Two "massive" doses of deep x-ray therapy resulted in definite retrogression of the tumour, considerable lessening of pain, and improvement in the general condition of the patient.

To my mind there are three possible ways in which this case can be explained. In considering them we must remember that we are dealing with a gestation sac which had ruptured into the peritoneal cavity. The possibilities are as follows:

1. During the rupture chorionic elements may have been "sprayed" over the surrounding parts, especially the right broad ligament and the pouch of Douglas. These underwent malignant degeneration later.

2. Chorionic carcinoma may have begun to develop before the actual rupture took place, with the result that malignant cells were directly spread over the broad ligament and Douglas's pouch.

3. This type of growth extends via the veins. Although scattering of malignant cells may not have taken place, the veins of the broad ligament may nevertheless have been packed with syncytial and Langhans's cells spreading in all directions. These would have gone on proliferating after removal of the ruptured ectopic gestation. An earlier stage of this condition would appear to have been present in Hartz's case.

Lastly, the interesting question arises as to the "receptive," or perhaps I should say "resistive," qualities of the pelvic peritoneum in a condition of this sort. We know that the pelvic peritoneum is far more resistant to infection than that of the upper abdomen. But the pelvic peritoneum during the period of pregnancy is not in quite the same condition as it is in the non-pregnant state. There is a much increased blood supply, and all the pelvic organs are in a much more "luscious" condition. May it not, therefore, on this account provide a more "receptive" nidus for the malignant cells showered over it?

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According to S. J. J. Leroux (*Thèse de Paris*, 1934, No. 307) undulant fever is not uncommon in Paris, but often escapes recognition. It is usually contracted by slaughterers and butchers who come in contact with sheep from the Mediterranean district. The other chief sources of contamination are raw goat's milk and cheese. Undulant fever in Paris does not assume any special clinical form, but complications are rare and the prospect of recovery is excellent. As regards treatment, novarsenol, vaccine treatment, and microbial extracts in the form of melitin, endoprotein, or endoglobulin prepared from *Br. abortus* should be employed. Prophylaxis should be carried out by vaccination in infected areas, boiling the milk, and the creation of co-operative stores for the sale of milk and cheese with a sanitary guarantee. The thesis contains the histories of twenty cases in patients aged from 10 to 49.

A CASE OF EPIDURAL SPINAL ABSCESS

BY

J. MINTZMAN, F.R.C.S.

Further to the article on acute epidural abscess by Leonard Abrahamson, A. A. McConnell, and G. R. Wilson (*Journal*, June 23rd, p. 1114), I present below the record of a recent case of acute osteomyelitis of spine with epidural abscess. These cases are fairly rare, and very few are published in the British literature.

Case Record

History.—Mrs. B., aged 38, complained of pain in the middle of the back on November 19th, 1932. The pain increased in severity during the following day. On the first day of the illness she had a temperature of 100° F., becoming normal on the third day. Pain in the back continued. On the third day of her illness she started vomiting, which continued for three days. She also complained of very severe bitemporal headache. She was admitted to the National Hospital, Queen Square, under Dr. Gordon Holmes, on November 28th. Her past history was good, but there had been a boil on her chin three weeks before admission.

Examination.—Speech and all cerebral functions were normal, as were all cranial nerves. There was slight but definite pallor of the left optic disk; the right appeared normal. No diplopia, ptosis, strabismus, or exophthalmos. The motor system was normal as regards the upper limbs and trunk, but the patient appeared unable to sit upright without the use of the arms. Motor power was quite good on both sides in the lower limbs. There was disinclination to exercise full motor power in either limb. Reflexes: biceps-jerk, triceps-jerk, and supinator-jerk present right and left. Upper and lower abdominal reflexes absent. Knee- and ankle-jerks present. Plantar extensor on both sides. No signs of meningeal irritation. Sensation appeared to be normal when tested on admission. Vibration, which was faintly appreciated in both lower limbs, was perhaps slightly more obvious on the right side; it was only faintly appreciated below the tenth dorsal spine.

Progress.—On November 29th the condition of spastic paraplegia, which was present on the previous day, had changed into a marked partial paraplegia of a flaccid type, but with preservation of deep reflexes, which were not accentuated. The right plantar was now extensor and the left flexor. Abdominal reflexes had now disappeared. The intercostal muscles below the ninth on the left side were not contracting, and there was present a relatively sensitive level for pinprick and for vibration at the ninth dorsal nerve segment. Some sensation to pinprick was preserved in the legs. The abdominal muscles did not contract so forcibly below the umbilicus, and the latter was drawn up 2 cm. upon head-raising. This had increased since the previous night. There was tenderness over the lower thoracic and upper lumbar spines. At a later hour of the same day the patient had a complete paraplegia of the flaccid type, with absence of knee- and ankle-jerks. Plantar reflexes were also absent. Sensory examination showed a relatively sensitive level to light touch at the ninth dorsal nerve segment on the left, 2 in. above the umbilicus, and in the ninth dorsal segment 1 cm. below the umbilicus on the right. There was now an absolute level for sensation to pinprick at the proximal portion of the second lumbar segment, below which pain was not felt on either side, except down a strip in the antero-lateral portion of the left thigh, in which the pain from the prick was referred to the foot, beneath the left great toe. There was an absolute level at the third lumbar segment for sensation to hot and cold, that for the former being 2 in. higher than that for the latter. Sensation for deep pressure was preserved in the left toe, calf, and thigh, and in the right leg at and above the knee only. In each case it seemed more distinct in the left leg. Sense of position was present for coarse movements at the ankle, but was absent in the great toes. Pathological examination: differential blood cell count showed 19,000 leucocytes on November 29th

at 2.30 p.m. Cerebro-spinal fluid: yellow, setting solid; jelly-like coagulum; total protein 4 per cent., cells 3 per c.mm. On culture, no growth in twenty-four hours.

Operation.—On November 29th, at 11.45 p.m., Mr. Julian Taylor removed the laminae from the seventh to twelfth dorsal. Yellow creamy pus coated the dura over this region. The pus seemed to trickle round from the ventral and lateral aspects, and more was collected towards the caudal portions of the exposure. The next day, at 10 a.m., there was feeble movement of the toes of the right foot. The knee-jerks were absent, and the left ankle-jerk was present: plantar reflexors? flexor. There was some degree of appreciation of pinprick over both legs. On December 3rd there was a fair degree of appreciation to pain over the left leg and thigh; there was a slight return of sensation to pinprick in the right leg above the knee. Below the knee the prick was felt only as indefinite touch localized to the right leg. Light touch was not felt in either leg. The patient knew when the left, and perhaps the right, foot was being moved. Otherwise sense of position was entirely absent. Sensation to deep touch was present in both legs, and localized to the proper leg. This was preserved before operation. Reflexes in the legs were absent except for one plantar reflex flicker on the left. A radiogram of the dorsal spine before operation showed no evidence of bone disease. It may be noted that the temperature never rose above 100°, except immediately after operation.

Post-mortem Examination.—The patient died on December 9th. The brain appeared healthy. There was an open laminectomy over the dorsal spine still draining pus. This seemed to be coming from the front of the cord round the left side. On removal of the cord there was evident erosion of the back of the bodies of the first and second lumbar vertebrae. On opening the dura the arachnoid was seen to be infiltrated with purulent lymph over the lumbar enlargement. From pus removed at operation, on November 29th, a heavy growth of *Staphylococcus aureus* was obtained in culture.

Discussion

This patient gave a definite history of a boil on the chin three weeks before the onset of acute osteomyelitis. The boil was not treated by incision. On first examination paraplegia was found to be present, and an acute transverse lesion of the cord was diagnosed, probably myelitis; but the rapid change in the patient's condition led to the conclusion that this was a case of compression of spinal cord. The sensory changes were just as predominant as motor changes. There was improvement after operation, but, as the post-mortem demonstrates, she had a ventral abscess resulting from the disease of the bodies of the vertebrae, and had developed spinal meningitis, which caused her death.

I am grateful to Dr. Gordon Holmes and Dr. Greenfield for their kind permission to publish these notes.

G. Faldella, writing in the July 31st issue of *Riv. di Patol. e Clin. Tuberc.*, maintains that the only truly active and effective method of treating early pulmonary infiltration in its various stages consists in a carefully performed artificial pneumothorax, followed by a good collapse of the lung, continued for a variable time, in different cases, but usually only for a short period. Conservative and expectant treatment, if carried on, under the supervision of a competent physician under conditions of bodily and mental rest in a modern sanatorium, may be reserved for exceptional cases in which the lesion is in the very earliest stage and there are few or no bacilli in the sputum, no haemoptysis, and no signs of intoxication. Owing to the extreme sensitiveness of these infiltrations to stimuli of any kind, it is important to avoid any strain or stimuli of a clinical, climatic, emotional, or other character. Symptomatic remedies may be of value if used carefully. The best treatment for early pulmonary infiltration therefore consists of artificial pneumothorax, a hygienic mode of life, rest, and symptomatic remedies, followed by climatotherapy.

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In a graceful preface Dr. S. A. Henry of the Factory Department of the Home Office gives an interesting and informative biographical sketch of the late Sir THOMAS LEGGE, for several years senior medical inspector of factories. It was a disappointment to those who knew him intimately, and had worked with him, also to many medical men who only knew him through his writings, when, in 1926, Legge retired from the Home Office. The circumstance was not without its repercussion, for it left him with an amount of leisure which was foreign to him. He died on May 7th, 1932, at the age of 69. In *Industrial Maladies*⁴ he has left a book which will live. It was a fortunate choice on the part of the Home Secretary and Sir Arthur Whitelegge when, in 1898, Dr. Thomas Legge was appointed the first medical inspector of factories, for the work not only appealed to him, but supplied him with the opportunity of rendering services he loved to give. The occasion was opportune, for there had risen in this country a wave of public opinion and a sympathetic consideration for the health of the working classes. Lead poisoning, phosphorus poisoning in the manufacturing of lucifer matches, and lead poisoning in the manufacture of pottery had just been subjects of departmental inquiry, and had been reported upon to the Home Office, while in 1895 certain occupational diseases had become notifiable. The foundation was thus laid, and upon it Legge reared his stately fabric. One of his helpful contributions to the elucidation of industrial poisoning is the part played by dust inhaled by the respiratory passages as against other possible channels of entrance, such as the alimentary canal and skin. Experience has confirmed the validity of his contention.

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Clinical Memoranda

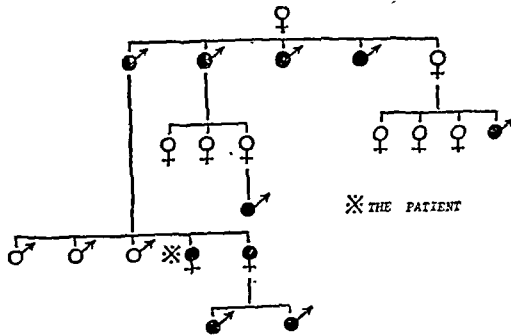
FEMALE "BLEEDERS"

While it is not generally admitted that haemophilia can exist in females, it is certain that there are clinicians who are becoming persuaded that the curt statements to that effect in standard textbooks cannot wholly be justified.

CASE RECORD

The "bleeder" who we briefly discuss here came to us on the third day of her puerperium. A primipara, she had a precipitate labour, and was admitted to hospital after two brisk haemorrhages accompanied by continuous vaginal oozing. A fully trained nurse, she maintained that she was a female haemophilic, and was supported in this statement by her sister, who claimed the same distinction, and was also a nurse. Both came of bleeder stock, as is shown below, and both had had repeated prolonged haemorrhages from trivial causes. Our patient had been in *extremis* on one occasion from tooth extraction. When the occasion arose for her sister to have a major gynaecological operation her assertion that she was a bleeder was wisely confirmed by the finding of a prolonged clotting time, and only minor measures were adopted.

So far as it can be traced the genealogy of these two sisters is as follows:



While one did not wholly accept the stories of our patient and her relative, an examination under gas and oxygen showed that her condition was no ordinary post-partum haemorrhage, the interior of the uterus being perfectly normal for her period of the puerperium. The bleeding was from a serious vaginal laceration, which was oozing from no particular point, and which was mildly septic. This was packed firmly, and a very necessary blood transfusion given with prompt excellent results.

DISCUSSION

Two points may be given particular notice. First, there is the existence of two female bleeders in a known haemophilic family. We use the term "bleeder" in deference to those who maintain that a female haemophilic is beyond reason. That these two might be purpuric is not impossible, but the fact that the two sons of one of them are both haemophilics is suggestive. What may happen to the male child whose birth brought this question to our notice it is yet too soon to predict. The second point is the transmission of a tendency to bleeding to his daughters by a haemophilic male, and those daughters having also the classical taint. It is also worthy of note that the male issue of this haemophilic man is without symptoms, and his sons have had tonsils and adenoids removed without trouble. One uncle of our patient also appears to have transmitted the tendency to a daughter, who is the mother of a definite male bleeder. The least dogmatic authority at our disposal states that a haemophilic man rarely transmits the disease to his sons or the tendency to his daughters. If this is haemophilia it is surely an outstanding example.

M. A. FOULIS, M.D.

J. W. CRAWFORD, M.D.

Glasgow.

Reviews

ACUTE INFECTIOUS DISEASES

An important new work on Acute Infectious Diseases fills the first volume of the Handbook of Internal Medicine, originally edited by Professors Mohr and Staehelin, and now under the editorship of Professors G. von BERGMANN of Berlin and R. STAHELIN of Basle, with the collaboration of Professor von SALLE of Berlin. The whole subject of acute infectious diseases is now contained in a single enormous volume, in contrast with the previous edition, in which it occupied two, each of them more truly deserving the title of handbook than the present somewhat unwieldy tome. The work, which comprises the contributions of seventeen well-known authorities in Germany and Switzerland, deals not only with the acute infections of temperate climates including acute articular rheumatism and miliary tuberculosis, but also with tropical diseases.

The first articles, written by Professor Gustav Liebermeister of Duren, consist of introductory matter and an essay on septicaemia. Among the other contributors are Professor Carl Hegler of Hamburg, co-editor of the second edition of Jochmann's textbook on infectious diseases and author of a monograph (noticed in our issue of May 26th, 1934, p. 950), who writes on acute articular rheumatism, erysipelas, erysipeloid, psittacosis, plague, and tularaemia, and Professor Ulrich Friedemann, formerly head of the department for infectious diseases at the Rudolf Virchow Hospital, Berlin, who contributes an exhaustive and up-to-date article on diphtheria. Professor Eduard Glanzmann of Berne discusses all the acute exanthemata, except small-pox, which is considered by Dr. Albert Eckstein of Düsseldorf; and Professor Alfred Schittenhelm of Kiel contributes the articles on serum sickness, tetanus, dysentery, undulant fever, typhus, Volhynian fever, Haff sickness, and Weil's disease. Professor Felix Lommel of Jena discusses actinomycosis, glanders, foot-and-mouth disease, trichinosis, anthrax, and rabies; and Professor Werner Schultz, who first described agranulocytosis in 1922, has been given the article on the various forms of faucial angina. Professor Rudolf Massini of Basle writes on influenza and herpetic fever, Professor Max Klotz of Lübeck on whooping-cough and mumps, and Professor Morawitz of Leipzig on acute poliomyelitis and cerebro-spinal fever. The contributors to the section on tropical diseases are Professor Carl Hegler and Professor E. G. Nauck of Hamburg, who deal with the various forms of malaria, relapsing fever, rat-bite fever, trypanosomiasis, dengue, Japanese river fever, and yellow fever; Professor Victor Klingmüller of Kiel, who discusses leprosy; and Professors Herbert Elias of Vienna and R. Doerr of Basle, who deal with cholera.

The most important articles in the work, in the reviewer's opinion, are those by Professor Glanzmann on the acute exanthemata and by Professor Friedemann on diphtheria. Unlike many Continental authorities, Professor Glanzmann appears to accept the streptococcal aetiology of scarlet fever, and is convinced of the value of the specific antitoxin, which, however, he regards as unnecessary in the treatment of mild cases. In his description of rubella he emphasizes the close clinical and epidemiological relationship of the exanthem to glandular fever, and classifies them both under the heading of benign lymphoblastoses, in distinction from the malignant leukaemic lymphoblastoses. In spite of an extensive experience of the acute exanthemata he has never met

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of plumbism had increased in house painters. This was followed by a decline, mainly due to the recommendation of C. A. Klein to substitute the "wet" for the "dry" method of rubbing down of painted surfaces. It is not only a satisfaction to observe the reduction of the occupational mortality of lead poisoning generally in this and other countries, but interesting to note the change in the symptomatology of the malady. Lead poisoning has lost much of its severity: its symptoms are milder. Colic with constipation, anaemia, and headache remain the triad of its early symptomatology; wrist-drop follows, as a rule, later, while in one of the acute forms of the toxæmia severe headache, convulsions, and coma seldom occur to-day compared with three decades ago. Contracted kidneys and thickened arteries still remain the final pathological finding in chronic plumbism. Allusion is made in the text to the important research work by Aub and his colleagues in Harvard University, and especially to the circumstance of the metal in the body being transported by the blood stream in the form of colloidal lead phosphate, and of being deposited in the bone tissues as a rather insoluble tertiary lead phosphate.

There is hardly any subject of industrial medicine which is not dealt with in the book. The chapters on metallic poisoning, generally, and the harmful effects of gases, bear evidence of careful preparation, as do also the pages devoted to benzene and its homologues. Such subjects as mule-spinners' cancer, silicosis, and pulmonary asbestosis are also adequately reviewed. Sir Thomas Legge has left a valuable contribution to the subject of occupational maladies. High praise is due to the editor, Dr. S. A. Henry, for the efficient manner in which he has discharged a fraternal task.

MEDICO-LEGAL NECROPSIES

The Medicolegal Necropsy^{*} is an American publication of 167 pages, consisting of an introduction and six papers delivered at a symposium of the American Society of Clinical Pathologists in June, 1933, dealing with the determination of the cause of death in supposedly criminal cases. The collection, which is edited by the chairman of the society's committee on necropsies (who has also written the introduction), includes papers on "The Medical Examiner's Findings in Deaths from Shooting, Stabbing, Cutting, and Asphyxia," by H. S. Martland, the professor of forensic medicine in New York University; "Toxicology in the Medicolegal Necropsy," by Alex O. Gettler, toxicologist to the chief medical examiner's office, New York City; "Pathological Anatomy of Death by Drowning," by E. L. Miloslavich of the Institute of Legal Medicine, Yugoslavia; "The Medicolegal System of the United States," by O. T. Schultz; and two papers on "The Medicolegal Necropsy," by A. V. St. George and Charles Norris, chief medical examiner, New York City. The first forty pages are a condemnation of the coroner system. The evidence brought forward for its abolition and replacement by a medico-legal institute will strike many readers as most convincing, and the statement is made that "the superiority of the medical examiner system in those populous communities where the system has been tried is without question."

The experience of some of the contributors will be realized when it is seen that over two thousand human bodies are analysed annually in Dr. Gettler's department, and that during the five-year period 1928-32 there were 2,457 homicides in New York City. Their conclusions as to the best system to be adopted for carrying out these investigations are not to be lightly put aside. The impor-

tance of a detailed post-mortem examination in cases of fatal street accidents is emphasized by the chief medical examiner, New York City, and is of interest in connexion with the present road safety campaign in this country. He stresses the point that alcoholism, not only of the drivers, but also of pedestrians, is a large causal factor, and states that the statistics of his office show that in nearly 25 per cent. of deaths in street accidents a full post-mortem examination proved the victims to have been drunk at the time of their death. Dr. Miloslavich draws attention to several not widely recognized effects of drowning, especially to haemorrhages in the tissues of the neck, which may lead to an assumption of strangulation; and the last paper, by Professor Martland, which is profusely illustrated, deals shortly with various causes of violent death.

This publication expresses the trend of opinion among workers of enormous experience in this branch of medicine, as to the requirements of a modern community in the investigation of sudden deaths; and, though not containing much scientific detail, it is both stimulating and valuable.

ESSENTIALS OF HISTOLOGY

It is nearly fifty years since Sir E. SHARPEY-SCHAFER'S *Essentials of Histology* first appeared. On its appearance it immediately took its position as the standard textbook of histology for students in this country, and it has maintained that position in the twelve editions that have subsequently appeared. The enormous advances in knowledge and method which have been made in the interval give the recently issued thirteenth edition^{*} the appearance, by comparison, almost of a new work. By those, however, who knew the original, many features, in illustrations, directions, and arrangement, will be recognized, and the characteristic qualities of the work remain unchanged. The editorship of the present edition has been entrusted to Dr. H. M. CARLETON. He has made no considerable changes, but certain portions, such as the sections on the development of blood corpuscles and on ossification, have been rewritten. A number of the older illustrations have been replaced by new figures, mainly photographs of microscopical preparations. Of the figures themselves, with which the book is copiously illustrated, it is impossible to speak too highly.

Notes on Books

In his essay on the Aetiology of Infectious Diseases[†] Dr. RAPPIN, who is honorary professor of the medical school and director of the Pasteur Institute of Nantes, in collaboration with Dr. DOUSSAIN makes a claim on behalf of the old conception of diathesis, constitution, and temperament, which, he maintains, should not be entirely discarded in favour of the exogenous origin of infectious diseases. Instead of the system of the individual being regarded as entirely passive, and being ready to allow micro-organisms from outside to invade it, the view should be held that microbic disease may be the result of a spontaneous deviation of an organic function, the micro-organisms in such cases originating in the system itself.

The little work on *German Medicine*[‡] in the Clio Medica Series has been compiled by Professor WILHELM HABERLING, who occupies the chair of the History of Medicine in the Medical Academy at Düsseldorf. Within a small

^{*} *Essentials of Histology. Descriptive and Practical.* By Sir E. Sharpey-Schafer, F.R.S. Thirteenth edition, edited by H. M. Carleton, M.A., B.Sc., D.Phil. London: Longmans, Green and Co. 1934. (Pp. 618; 721 figures. 15s. net.)

[†] *Considérations sur l'Étiologie des Maladies Infectieuses.* By Dr. Rappin, in collaboration with Dr. Doussain. Nantes: Imprimerie de Bretagne. 1933. (Pp. 136; illustrated.)

[‡] *German Medicine.* By W. Haberling, M.D. Translated by Jules Freund, M.D. New York: Paul B. Hoeber, Inc. 1934. (Pp. 160; 9 figures. 1.50 dollars.)

^{*} *The Medicolegal Necropsy. A Symposium held at the Twelfth Annual Convention of the American Society of Clinical Pathologists at Milwaukee, Wisconsin, June 9th, 1933.* Edited for the Society by Thomas B. Magath. London: Baillière, Tindall and Cox. 1934. (Pp. 167; 59 figures. 11s. 6d.)

compass the book gives an excellent summary of the contributions to medicine by German workers from the earliest times until the present day, special chapters being devoted to German medicine in the Renaissance, with special reference to Paracelsus; the seventeenth century, when the teachings of Paracelsus were further developed in the iatrochemical and iatrophysical schools; the eighteenth century, in which the most prominent representatives were Friedrich Hoffmann, Stahl, Albrecht von Haller, and van Swieten; and modern times. The text is accompanied by portraits of Paracelsus, Haller, Johannes Müller, Schwann, Virchow, Koch, Ehrlich, Roentgen, and von Pettenkofer.

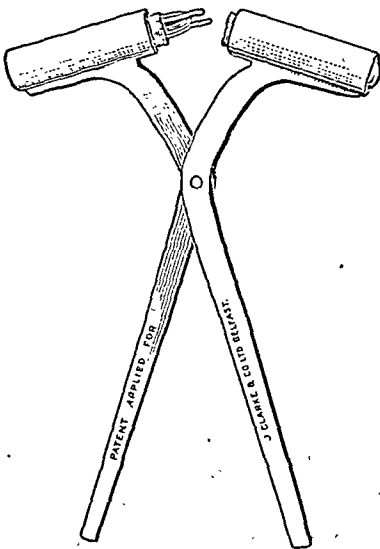
Mr. SIDNEY B. WHIPPLE's book entitled *Noble Experiment* contains the history of the origin and progress of the prohibition movement, for which, as is well known, ex-President Hoover used the term that forms the title of the work. While giving a highly sensational account of the activities of all concerned in the production and supply of illegal liquor, it entirely ignores the hygienic and economic benefits conferred by prohibition, particularly in the early period, when enforcement was more rigorously carried out. The optimistic note upon which the book ends has not been confirmed by the latest information from the United States, according to which there has been an increase in drunkenness, motor accidents, and arrests for crime since the repeal of the Volstead Act.

America under Prohibition.
Shuen and Co., Ltd. 1934.

Preparations and Appliances

CATGUT TUBE CRACKER

Mr. W. R. MACKENZIE, F.C.O.G. (Belfast), writes: To overcome the difficulty of breaking "catgut tubes" and save the risk of tearing gloves I have had made for my own use a breaker which is both practical and satisfactory. It consists of two short tubes, one of which is closed at one end, mounted on curved handles hinged together at the centre, which act "anti-scissor-wise." The end of the catgut tube is placed

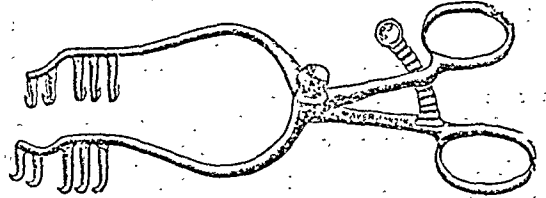


in the cracker, the handles squeezed together, thus breaking the glass tube in the middle. The catgut can then be lifted out with dissecting forceps without touching the glass. The great advantage of the instrument is that the catgut tubes are not touched. If they are placed in a basin of lotion they can be scooped up into the cracker and broken with one hand. This cracker has been made for me by John Clarke and Co. (Succrs.), Ltd., 8, Donegall Square West, Belfast.

MASTOID RETRACTOR

Mr. REGINALD H. SMITH, D.L.O. (Manc'ester), writes:

Below is described a mastoid retractor which I have designed and have found useful in practice. The two blades carry five teeth each. Three are for the main or central part of the incision, and the two shorter ones, fitting in the lower part of the incision, are carried on the terminal part of the blade, which is curved inwards. This inward curving of the blades, together with the fact that only three teeth are used for the central part of the incision, prevents the lower end



of the incision being stretched and drawn upwards. The instrument is designed with the object of attaining a more satisfactory and adequate exposure of the mastoid cortex—especially the tip, which frequently offers difficulties when instrumental manipulations have to be made. It has the further advantage of holding itself very securely on the wound, and has no tendency to "jump out" while the operation is in progress. It thus gives easy access to the field of work.

I am indebted to Messrs. Mayer and Phelps for the production of this instrument.

ALLENBURYS' URINACIDOMETER

The "Allenburys" urinacidometer has been designed by Allen and Hanburys Ltd. (Bethnal Green, E.2) in order to provide the physician with means for rapidly determining the pH of urine samples from patients who are on a ketogenic diet. It is based upon the use of coloured charts, the colours of which have been matched against samples of urine tinted with the indicators prescribed, and are examined in the special flat test tubes provided in the set. The outfit is contained in a neat japanned metal box, 7½ in. by 4½ in. by 2½ in.; and its price, complete, is 45s.

MEASUREMENT OF VITAMIN A

The replacement of biological methods of standardization by physical or chemical methods is always desirable; but this is particularly true in the case of vitamins, where the biological methods are expensive both in time and in material, since they involve the special feeding of populations of experimental animals for months.

The estimation of the vitamin A content of liver oils was greatly facilitated by the discovery that the vitamin A potency was proportional to the intensity of blue colour developed on the addition of antimony trichloride. The use of this method, however, involves a certain amount of chemical skill, and even when used correctly it sometimes gives unsatisfactory results. The estimation of vitamin A has now been reduced to extreme simplicity by means of a spectrophotometer designed by Messrs. Adam Hilger (98, King's Road, Camden Town, N.W.1). Vitamin A shows an absorption band at 3280 Å, and the apparatus measures the amount of absorption that occurs at this wave-length. The light that passes through the solution falls on a fluorescent screen, and the image formed thereby is matched against a second image, the intensity of which is varied by means of an adjustable aperture. A scale reading proportional to the concentration of vitamin A is thus obtained. The makers claim that any reasonably intelligent operator without any specialized training can estimate the vitamin A content of a liver oil, since the instrument dispenses with the use of chemical reagents and with the need for colour discrimination.

The instrument provides an interesting example of the way in which the ingenuity of the manufacturer of physical apparatus can provide instruments which act as substitutes for human skill. The biological tests for vitamin A require a wide range of specialized knowledge and experience: even the chemical test requires adequate training in special chemical methods, but with this instrument it is simply necessary to move a lever until two lines of light become equally bright. The price of the instrument is only £35, which is not more than the cost of a few biological estimations of vitamin A.

STATE OF THE PUBLIC HEALTH

SIR GEORGE NEWMAN'S REPORT

The assessment of the health of a nation—as, indeed, of an individual—is attended by obvious difficulties. Health is a condition of balance, an imponderable state, “a kind of temper,” as John Arbuthnot expressed it, “gotten and preserved by a convenient mixture of contraries,” only to be brought within the statistical compass by recording the departures from it. Sir George Newman's annual volume—the sixteenth above his, signature—is entitled *On the State of the Public Health*,¹ but it has to be concerned in the main with the study of sickness, incapacity, and mortality. Only in that way can any standard of health be deduced, and even then the standard is relative and inexact. We have an impression that if there were any practical means, such as a periodical assay of the physique of the individuals composing the nation, of expressing national health in positive, instead of negative, terms, the result would be even more encouraging than the figures and inferences in this document concerning the lessening incidence of certain common diseases.

INFANT AND CHILD MORTALITY

Even on such statistical basis as offers itself, the picture, though not without shadows, is a bright one. The crudest of all measurements is the death rate, and here the death rate for the whole population, the infant and child mortality rates, and the particular death rates for measles, whooping-cough, tuberculosis, diphtheria, scarlet fever, small-pox, and rickets have steadily declined for a generation past. The infant mortality rate is now 64 per 1,000 births registered; in the last pre-war year it was 108. It should be added that the improvement relates principally to infants over 1 month old. During the first month of life the mortality is not much less than it was twenty years ago (32 per 1,000, as against 39). Until the early years of the present century the highest infant mortality, owing to the prevalence of epidemic diarrhoea, was in the July-September quarter. The hottest months levied the greatest toll from infancy; the coldest gave the highest general death rate. This difference has now disappeared, and the July-September quarter gives the lowest death rate for infants, as it does for the rest of the population.

Does the pre-school child show a similar improvement in respect of mortality? A statistical review covering this point, for which Professor Major Greenwood and Dr. Bradford Hill are responsible, is embodied in the report, and shows that in spite of the relative absence of direct action by public health services on behalf of the pre-school child, the greatest improvement in mortality for the past three-quarters of a century has been recorded in the ages 1 to 5 years. With the exception of influenza, all the major causes of death in early childhood show a decline as compared even with the immediate pre-war period. The mortality among adolescents, another relatively neglected class, shows the same trend. It may be noted that tuberculosis, the dominating cause of mortality in adolescence, has receded more markedly among boys than among girls.

One cause of death which reflects itself in the tables both for children and for adolescents is a cause of which Sir George Newman's predecessors cannot have taken much cognizance—namely, road accidents. Out of every 1,000 people who die in this country forty-six reach a violent

end, and a principal cause of deaths attributed to violence is the state of the highway. The number of persons killed on the road last year was 6,498, far exceeding the total of suicides and homicides. Sir George Newman permits himself a little homily to the pedestrian, but it rather misses its mark so far as the young child victims—a very large proportion of the whole—are concerned.

STILL NO EVIDENCE OF WIDESPREAD MALNUTRITION

The conclusion set out in last year's report, that there is no widespread malnutrition in spite of economic and social difficulties, is repeated. Evidence collected from various parts of the country, including the distressed areas, indicates that the health of the unemployed and their dependants is, as a whole, not suffering seriously or generally, though it is evident that some of the unemployed men and many of the women and children in the distressed areas are showing the physical signs of prolonged deprivation. The best that can be said is that it is not a deprivation comparable with that of certain periods of the nineteenth century, thanks to the comprehensive resources of public assistance and mutual aid now existing.

Excerpts are given from the reports of medical officers of health and school medical officers in centres where malnutrition might be expected. We make a few representative quotations:

County of London.—" . . . in view of the fact that the selection of schools and age group was made with the direct purpose of discovering the worst, the percentage of children found to be below par is surprisingly small."

Monmouthshire.—" . . . no increase in malnutrition in the school children."

Nottinghamshire.—" . . . no evidence in this county of any definite deterioration in the nutrition of the elementary school children."

Yorkshire (East Riding).—" . . . no evidence of a lowered standard of nutrition."

Yorkshire (West Riding).—" The bulk of the children may be said to be in a reasonable condition of well-being."

Birmingham.—" . . . the children in the city do not show evidence of that malnutrition which is encountered in those areas of the country which have gone through the long period of depression."

Bristol.—" . . . it cannot be said that malnutrition among school children in the city really exists."

Liverpool.—" . . . it does not appear from the evidence that, taking the children as a whole, there has been any increase in the prevalence of malnutrition."

Manchester.—" Malnutrition and rickets to-day only exist among Manchester school children to half the extent to which they did five years ago."

Newcastle-upon-Tyne.—" . . . our figures show an improvement upon those of 1932 and 1931."

Sheffield.—" . . . no falling off in the nutrition of Sheffield elementary school children in spite of hard times."

An inquiry made by the regional medical staff in April, 1934, told the same story—malnutrition not prominent, widespread, or increasing, chiefly reported from Tyneside and dockyard areas on the north-east seaboard, but even there not affecting more than a small proportion of the adult population, and almost entirely absent from the reports from South Wales. So far as the death rate is any criterion, of the six English and Welsh counties most seriously affected by unemployment and industrial depression in 1933 two had a general death rate actually below the average for the country and in the other counties it was only slightly higher. Of the fourteen county boroughs to which the same description applies, three were below the national average and only two (in Lancashire) markedly above it. The infant death rate, however, in nearly all areas was above the national average, often well above.

¹ *On the State of the Public Health*. Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1933. (H.M. Stationery Office. 4s. 6d. net.)

The conclusion drawn by Sir George Newman is that for more than twenty years the nutrition of the people has been steadily improving, but the problem which remains is far too complex to solve by a model menu; it calls for still further education of the public in personal health, the understanding of the needs of the body, and the wiser choice of foods.

THE TOLL OF MATERNITY

The curve for puerperal mortality is still slightly in the ascendant. The 1933 figure of 4.51 per 1,000 live births registered is the highest in the table, which goes back to 1911. Up to 1924 the rate rarely exceeded 4 per 1,000; since then it has exceeded it every year. The number of mothers who died as a direct consequence of childbirth was 2,618. These ten years of rising incidence have also been years during which an organized effort has been made to reduce the casualties of maternity. Time must be allowed, of course, before the effect of such efforts can be felt, but it is disappointing to find the number of births dramatically falling year by year—the number in 1933 was only two-thirds of the number in 1913—while the maternal mortality remains obstinately high.

One feature which calls both for hopefulness and for inquiry is the fact that the high rate is not evened out over the whole country. There are certain areas which are chiefly responsible for its continuance over a long period. Sir George Newman blacklists thirty-six areas which have had for ten years past an average maternal mortality of above 5 per 1,000 births. Certain Welsh counties and Lancashire boroughs lead the way. "Is it asking too much," he says, "of the authorities responsible for the health governance of these thirty-six sanitary districts to call for a report of this high maternal death rate (if they have not already done so), and then give careful consideration to its contents?" As a contrast he gives the figures for a number of institutions dealing with many thousands of lying-in cases, where the average maternal mortality for ten years has never reached 2 per 1,000. Among 600,000 district midwifery cases of the Queen's Institute of District Nursing the average maternal mortality for ten years has been 1.91.

The continuing high death rate can be assigned to several causes. Inquiries into the deaths of women in childbirth during 1933 showed that in 23 per cent. of them the absence of effective ante-natal supervision contributed to the fatal issue. The ante-natal clinics are insufficiently used, according to Sir George Newman; advice by practitioners is not given as commonly and as customarily as it should be, and in many cases the ante-natal supervision in clinics, in hospital, and in private practice is at present perfunctory, unskilled, or incomplete. Another factor is the neglect of the nutrition of the mother during pregnancy, and yet another, too much or untimely intervention.

ABORTION: CONTRACEPTION

In connexion with the figures for maternal mortality one point which seems rather important is made, not in the report before us, but in the recently issued annual report of the London County Council.² The maternal mortality rate is arrived at by dividing the number of registered births (580,413 in England and Wales in 1933) into the number of deaths recorded as due to pregnancy and parturition (2,618 in that year), giving the figure of 4.51 per 1,000. But whereas in the total of deaths those from miscarriage and abortion are included, the total number of miscarriages and abortions among which these deaths occurred is not added to the total of births. The

births necessarily in general relate to pregnancies of more than twenty-eight weeks' gestation, but the deaths also include those occurring before the twenty-eighth week, and consequently all abortions, even of single women, of which latter a far greater proportion are septic than of married women. This does seem to be a point on which some revision of the statistical method is desirable.

In discussing the question of abortion Sir George Newman points out a primary difficulty with which also the new committee set up by the Council of the British Medical Association will be faced—namely, that there is no system of notification of abortion in this country, and statistical information as to an increase in its occurrence is wholly lacking. It has been estimated that about one in seven pregnancies terminates in abortion, but the figures on which the estimate is based cannot be assumed to furnish a true index of frequency. In 1933 the deaths attributed to abortion in England and Wales numbered 463, of which 257 were due to post-abortive sepsis, being 24.2 per cent. of the total deaths from puerperal sepsis; 121 were due to abortion not returned as septic, and eighty-five were classed as criminal abortions (inquest cases), of which in sixty-eight there had been instrumental interference, while three were known to be due to drugs. In addition, ninety-seven deaths were associated with abortion, though not classed to it. Sir George Newman stresses the need for suitable accommodation for cases of abortion.

The report contains a statement which may be regarded as the considered answer of the Ministry of Health to those who urge local authorities to provide facilities for the practice of artificial contraception. The advocacy of indiscriminate and unskilled contraception has substantial disadvantages: organized instruction might become propagandist, and lead to the commercial exploitation of the means, and the means themselves might be deleterious in their social or physical results, and used for selfishness and debasement. It is not the function of an ante-natal centre to give advice with regard to birth control. In exceptional cases, where avoidance of pregnancy seems desirable on medical grounds, the woman attending a centre should be referred for particular advice on birth control to a private practitioner attached to, or recommended by, the centre or to a suitable hospital or clinic. There is no general statutory power enabling a local authority to establish birth control clinics as such. It is admitted, however, that such clinics are attended by many women who are in need of medical or surgical treatment of disease or discomfort, and the report suggests that possibly there is a place for a different kind of institution which would serve as an out-patient gynaecological clinic, where mothers needing advice on physical and health matters might be assisted. Such an institution under proper medical supervision could receive minor gynaecological cases, counsel mothers of subnormal physique or mentality, and give advice on the practice of contraceptive methods when medically needed. That, apparently, is as far as the Ministry will go.

The sections on general epidemiology, on tuberculosis, venereal diseases, and cancer, on the insurance medical service, and on hospital administration must await a later review.

The National Council for the Unmarried Mother and Her Child has issued a fourth edition of its leaflet entitled "A Few Points of the Law of England and Wales relating to Unmarried Mothers and Illegitimate Children." This is a matter on which the advice of medical practitioners is sought from time to time. Copies may be obtained (price 3d.) from the general secretary, Miss Susan Musson, 117, Piccadilly, London, W.1.

² Annual Report of the London County Council, 1933. Vol. iii (Part I), Public Health. Published by the L.C.C. (1s.)

British Medical Journal

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DEATH AND THE SURVIVAL OF RIGHTS OF ACTION

A recent change in the general law relating to the survival of rights of action after death is of considerable interest to members of the medical profession. For many centuries the law of England has been that *Actio personalis moritur cum persona*. Broadly speaking, the effect of this maxim was that if the victim of an injury caused by negligence died, whether in consequence of that negligence or from natural causes, his right of action died with him. His personal representatives could not continue a suit pending at the date of death, nor could they commence proceedings thereafter. To this rule an important exception was made by statute in the middle of last century, when, by an Act known as Lord Campbell's Act, it was provided that if death is caused by negligence those who were dependent upon the deceased might sue for compensation. But this right was conferred only upon a limited class of persons—for example, the parent or child of the deceased—and the amount of compensation recoverable had reference to the degree of "dependence." Again, the action must have been brought within one year of the date of death. To take a concrete example. If a patient dies in circumstances which expose the surgeon to an action for malpraxis, the right of action survives (by virtue of Lord Campbell's Act) to the dependants of the deceased.

But the law has now been altered. Not long since the Lord Chancellor appointed a committee, as the result of whose report an Act known as the Law Reform Act, 1934, was passed in July, 1934. It is with only one of the changes made by this Act that we are concerned. An action now lies or can be continued for damages for personal injury caused by negligence, notwithstanding the death of the victim, and whether the death was or was not caused by the negligence complained of. Furthermore, the action may be brought at any time within six years of the date of the injury. This change in the law is fraught with grave consequences to the medical profession. Consider one or two cases which may arise. A patient dies on the operating table. He may have submitted to the operation, knowing that it was his only hope. He may have been the last person in the world to charge the surgeon with negligence; yet the surgeon is exposed for six years to the risk of an action at the suit of those who are interested in the estate of the deceased. They need not even have been in any way related to or dependent upon him! Again, take the case of a patient who, having submitted to treatment or to an operation, subsequently dies as the result of some

supervening injury or disease. The practitioner who attended him remains—for six years—exposed to the risk of an action, albeit the patient himself had no intention of bringing suit and no ground of complaint against his medical adviser. That the legislature had some compunction—some consideration for the living in so extending the right of action on behalf of the dead—is manifest, because the statute does do something to restrict the amount of damages which may be recovered for negligence causing death. Thus the court or a jury may not award exemplary damages; and damages caused to the estate merely as a result of the death are not to be awarded. For example, if an annuitant or a man enjoying a life interest were to die, the resulting loss to his estate must not be considered. On the other hand, a gain to the estate is not to be taken into account, as where, for example, a man dies whose life is insured.

Had Parliament been content to enact that actions pending at the time of a man's decease may be continued for the benefit of those who come after him there might have been little cause to complain. The proceedings would then have been commenced at the instance of the one person who best knew whether he had a righteous claim or not. But now members of the medical and all other professions are exposed to the risk of actions for negligence at the suit of persons to whom they owed no duty, and to whom they never desired to owe any duty. We can only wonder whether the committee which framed the report that has resulted in this change in the law took any of these matters into consideration in the course of its deliberations.

BRIGHT'S DISEASE

It was Bright's genius that recognized kidney disease as the common cause of a number of different disorders in which death occurs under such widely various circumstances as dropsy, acute inflammation, apoplexy, and uraemia, not one of which points evidently to the kidney as its source. And this brilliant generalization is in no way belittled by the fact that we no longer include under the heading of Bright's disease, as in his day, all kidney affections accompanied by oedema and albuminuria, reserving this term now for bilateral haematogenous renal disease caused by infection or damage to the kidneys incurred in their function as excretory organs. Indeed, Bright's original description can be transferred almost unmodified into the textbooks of the present day; and the clinical picture he drew is so true and proportioned that the subsequent hundred years of work and observation have only painted in the detail without essentially altering the broad outlines. Nevertheless, many advances have been made in our knowledge of renal disease, and these upon several lines.

Histological studies from the middle of last century showed that the essential structures of the kidney could be divided into at least three different parts: the capsule

of Bowman surrounding a knot of thin-walled capillaries, and two tubular portions, of which one was obviously secretory in function and supplied by a rich network of capillaries, while the function of the other was as obviously purely to conduct the secretion to the pelvis of the kidney. It was not till much later, however, that there arose the modern conception of nephrons as the units of which the kidney is built up. Each nephron consists of a glomerulus and its attached tubule. The blood supply of the nephron is peculiar in that the afferent artery breaks up into the knot of capillaries impinging into Bowman's capsule, and reunites in an efferent vessel, which breaks up again into capillaries distributed to the secreting tubule. There is thus a double supply of capillaries to each secretory unit. The kidney is, as it were, a composite secretory organ in which each floret of the daisy head has this double capillary supply. Such a conception has brought harmony into the hitherto discordant theories of urinary secretion, and has enabled a modern theory to be enunciated which accords so well with the results obtained in experimental physiology and pathology as to warrant acceptance. According to this theory the soluble and diffusible substances of the blood are filtered off through the thin capillary wall, which holds back only the cells, proteins, and other colloids, and pass into the lumen of the tubule, where an active secretion brings about a reabsorption of enough of those substances which are useful to the body to raise them to a normal threshold value in the blood, allowing the remainder of the glomerular filtrate, together with the excess of water, to pass on into the collecting tubule and pelvis of the kidney, and so eventually to the exterior.

These conceptions of the structure and function of the kidney have contributed largely to a co-ordinated view of what goes wrong in disease, but the most vehement controversies have raged round the interpretation of the histological findings in the diseased kidney, and much haematoxylin has been spilt in trying to elucidate the problems involved. It is obvious that attempts would be made to differentiate lesions of the glomerulus from affections of the tubules, but the pathological classification into glomerular and tubular nephritis was found to have no regular correlation with the clinical condition of the patients before death. The final position reached in studies on these lines was that the kidney consisted of glomeruli, tubules, blood vessels, and interstitial tissue, and that in diseased kidneys all these four elements were affected in greater or less degree; though of course differentiation could be made when affection of one of the four elements predominated. With glomerular destruction a haemorrhagic nephritis with more or less nitrogen retention occurs; with arteriosclerotic changes in the small renal vessels there is early hypertension; and with degeneration affecting mainly the tubules there tends to be oedema and proteinuria without haematuria or hypertension. Various names have been suggested for these groups; Volhard and Fahr's classification into glomerulo-

nephritis, nephrosclerosis, and nephrosis is perhaps as widely accepted as any. The first group includes acute nephritis and latent or progressive chronic nephritis leading to renal failure; the second and third groups correspond roughly with the old classification into chronic interstitial and chronic parenchymatous nephritis respectively.

For years Volhard has held that, in the first group, acute glomerulonephritis starts with a toxic spasm of the glomerular capillaries. Recently, however, it has been possible, as Fahr¹ points out, to produce experimental lesions in rabbits by means of a specific nephrotoxin. The earliest lesion is found to be an endothelial proliferation which precedes the vascular changes; these may be a hyperaemia or an emptying of the capillaries through pressure of exudation rather than a primary vascular spasm. In the chronic stages Volhard assumes that the spasm, at first reversible, becomes fixed by changes due to endarteritis. This endarteritis and necrosis of the arterial wall is not constant, and is more likely the result of the chronic glomerulonephritis, which is kept up by a mild continuous streptococcal infection. Even in the form which is progressive without apparent chronic infection, it is unnecessary to assume the intervention of vascular changes, since once the glomerular epithelium is sensitized it may be damaged further by the excretion of waste products which would not ordinarily affect healthy cells.

The term "nephrosis," introduced in Germany to cover cases of primary degenerative changes in tubules and glomeruli, and accepted in the United States, where many clinical examples have been recorded, has never really been adopted into British medicine. There are certain cases of Bright's disease in which the dominant features are prolonged proteinuria and oedema without accumulation of urea and nitrogenous products in the blood; but the more carefully histological examinations are made the fewer remain in which no glomerular changes can be demonstrated. Professor Shaw Dunn,² in an admirable review of the present state of knowledge of the subject and from his own carefully conducted observations, concludes that in all these cases the primary lesion is in the glomerulus. He further suggests that a mild lesion widespread throughout the glomeruli, causing them to be constantly permeable instead of contracting and dilating at intervals as in health, will best explain the large amount of albuminuria which is combined in these cases with oedema and no retention of nitrogen, since all the damaged glomeruli are constantly patent and allow increased filtrate, while the slow trickle through the tubules consequent upon the absence of hypertension permits of increased reabsorption of salt and water. He regards the accumulation of lipoids in the tubules as entirely secondary, and brought about by the opportunity for increased absorption owing to the sluggish current in the lumen of the tubule. In the other forms of so-called nephrosis, lipoid or amyloid, again the tubular

¹ *Klin. Woch.*, April 28th, 1934, p. 609.

² *Journ. Path. and Bact.*, 1934, xxxix, 1.

accumulations are secondary, and in these cases are due to extrarenal causes; as also is the kidney of pregnancy, in which liver changes are as severe as the renal changes, and probably contribute more to the symptoms. In regard to the third group, it is perhaps too early to decide that cases of nephrosclerosis are to be differentiated entirely from the essential renal lesion underlying Bright's disease. Leading pathologists would appear to be returning to the position taken up by Bright in his celebrated researches—namely, the unity of nephritis as an affection of the essential renal elements. As a river stagnating spreads out through channels and diverticula, these, though meandering, run roughly parallel till they join again into a stream that will bear forward the raft of medical knowledge.

RHEUMATISM AND THE "ACID CHILD"

The acid diathesis of rheumatism is a long-standing theory which is liable to be criticized when the vague general term is applied more particularly to the manifestations of rheumatic infection in childhood. An attempt to divide children into "acid" and "alkaline" types in a textbook¹ some years ago had an unpopular reception, and the suggestion that the rheumatic child fell into the first group was countered by Professor Leonard Parsons with a report² showing that examination of the hydrogen-ion concentration of the blood, for example, demonstrated no significant difference in the rheumatic as compared with the normal child. In the August issue of the *Archives of Disease in Childhood* Dr. W. W. Payne, biochemist at the Hospital for Sick Children, Great Ormond Street, attacks the problem in another way. He points out that in a normal functioning body the blood may very well fail to show changes in the acid-base regulation owing to the efficiency of the excretory organs. Of these the kidney is the most important, so that an examination of the acid output might reveal differences impossible to detect in the blood. The method adopted in testing this hypothesis was to take a group of about 200 children attending a "rheumatic clinic" and two control groups—one attending an "asthma clinic" and one of healthy children in a residential school. It was unfortunately not possible to secure a strictly comparable group of healthy children attending hospital, but Dr. Payne brings forward strong arguments to support his acceptance of the residential school children as strictly normal and comparable. Three specimens of urine were obtained from each child—that passed on rising, after breakfast, and on going to bed. The chemical examination included estimation of the hydrogen-ion concentration, free acid, ammonia, chlorides, phosphates, and urea. The methods used for expressing the results have been chosen to get over the difficulties of the large number of uncontrolled factors which can influence the fluid excretion of the body. By frequency curves and by a statistical analysis of the figures obtained it is shown that the asthmatic and rheumatic groups both

differ from the controls. For free acid the two former groups show a significant excess over the normal; there is the same excess of total acid, while the normals also excreted less phosphate. Other minor differences are also present, all tending to indicate a real excess of acid excretion by the rheumatic and asthmatic groups. Unknown to Dr. Payne the latter group were all receiving hydrochloric acid as part of their treatment (1½ drachms daily in most instances). When a deduction is made from this in the results obtained the asthmatic group approaches very closely to the normal group as regards the excretion of acid, a point used to emphasize that the institutional children may be fairly used as controls. From the results obtained it would appear that Dr. Payne's hypothesis has been substantiated. He concludes that the rheumatic child in a quiescent interval excretes more acid in its urine than does either an asthmatic or a normal child. This excess production of acid is insufficient to disturb the equilibrium of the blood.

CHEESE-PARING AT GENEVA

The penny-wise people who have been so active in the League of Nations these last few years (writes our Geneva correspondent) have had their way, and it is an impoverished organization and depleted staff which waits upon the fifteenth Assembly. No fewer than fifty-eight posts in the Secretariat, out of six hundred or so, have been suppressed, at an annual saving of 500,000 Swiss francs, and the budget for 1935 is down by a corresponding amount. Despite this large reduction of staff, entailing the disappearance of some high officials who have been with the League since its beginning, we are assured that efficiency—blessed word!—has been maintained. The expenditure on the International Health Organization is only two-thirds of what it was in 1931, and it is frankly stated that any further reduction in its budget can only be obtained by serious curtailment of fundamental activities. But still the economizers—chiefly delegates from the British and Dominion Governments, for the Continental mind seems to be more emancipated in this respect—remain on the warpath. Politicians who in their own parliaments vote for a new battleship without a blush are querying at Geneva the cost of repairs to a chimney flue or the family allowance of a clerk. To judge from some expressions of imperial opinion at the present Assembly, the most magnificent contribution which the League could make towards peace would be to reduce its annual expenditure on that object. International good will, apparently, is worthy of lip service, but not of any odd change that happens to be in the pocket. The actual figures ought to be stated as baldly as possible. The total expenditure of the League as estimated for 1935 is, roughly, 30 million Swiss francs, or, at the present low value of the pound, £2,000,000 sterling, and of this amount the United Kingdom pays one-ninth. All the fuss and fury of a certain section of English opinion over the extravagance of Geneva concerns a matter of a quarter of a million pounds, or an annual tax of something like one penny farthing on each British citizen. Taking the International Health Organization alone, which is a field where the League might expect to have no critics, except those who urge it on to bigger endeavour, the total expenditure for

¹ *Recent Advances in Diseases of Children*. By W. J. Pearson and W. G. Wyllie. First edition.
² *Arch. Dis. in Child.*, 1926, iv, 291.

1934 was 1,650,000 Swiss francs; and for 1935 the estimate is 1,185,000, the chief savings being on the work of the technical committees, the experts, the collective and individual studies, and the contribution to the Singapore bureau. The amount mentioned includes grants from the Rockefeller Foundation, with the result that the net expenditure chargeable to the League for international health work for 1935 is only some 800,000 Swiss francs, or about £50,000, of which the British contribution is equal to the salary of a Cabinet Minister. For this modest sum many expert inquiries are set on foot, a service of epidemiological intelligence is undertaken, missions to parts of the world where public health is backward are conducted, and the system of liaison between the various health services is maintained. The Rockefeller Foundation provides the salary of the chief of the epidemiological service and of fourteen other officials. It is certainly a little depressing to hear the Secretary-General declare apologetically that since 1932 the budget for these and other League services has been progressively reduced, and still more melancholy to find the delegates, instead of rising up in wrath, accepting the fact complacently as a tribute to the business acumen of themselves and their predecessors.

A METABOLIC EXERCISE TOLERANCE TEST

S. Soskin, L. N. Katz, *et al*¹ describe a simplified method of determining the excess oxygen consumption during exercise and the time required for recovery by the metabolic exercise tolerance test. It permits a visual check on the steady state of the patient before the exercise, and his return to the resting level after it. The simplified method is hardly more difficult to perform than the ordinary basal metabolism test when the equipment has been assembled, and in this form it is suitable for routine use in the clinical laboratory. The objective nature of the test, eliminating the subjective influences of both patient and physician, renders it suitable for comparative work by different groups of observers, and applicable to the classification of cardiac disability for insurance purposes. In a second contribution² the authors record the results of applying this test to a group of patients with cardiac disease. It was found that the measurements, particularly of the excess oxygen consumption during exercise, were greater than normal in patients with organic heart disease and with a history of some limitation of activity, even when no congestive heart failure was present. When these patients were classified into subgroups according to the history of the degree of limitation of activity, the measurements became progressively greater as one passed from the group with no limitation of activity to the group with marked limitation. It is concluded, therefore, that this test, which yields an objective quantitative estimation of the cardiac capacity of a patient at the time of examination, merits further consideration as an adjunct in the study of cardiac disease, and affords material for determining prognosis and treatment. A series of tests is in progress on patients developing and recovering from congestive heart failure, and on patients with reactivation of rheumatic infection, in order to correlate more closely the results of the test with the condition of the patient at the time of the

test. The investigations have already made it clear that both healthy and diseased patients show a considerable variability in their response to the test in short periods of time, but that such variability has well-defined limits in each case. It is suggested that such individual variations have been overlooked in previous estimations of capacity, and that this accounts for discrepancies in reports by different series of investigators.

CASE MORTALITY OF DIPHTHERIA

It is well known that the case mortality of diphtheria in some areas has risen in late years, and the full explanation is not obvious. D. T. Robinson and F. N. Marshall,¹ in Manchester, have inquired whether the "gravis" and "intermediate" types of diphtheria bacilli cause an unduly high death rate. They found no difficulty in dividing four to five hundred strains into the gravis, intermediate, and mitis groups of J. S. Anderson² and co-workers, though, like some other pathologists, they found variations within the groups. Thus only two-thirds of 127 gravis strains were non-haemolytic, and one-quarter failed to produce the typical early alkaline reversal in broth. By agglutination, Miss Ewing³ could define several starch-fermenting types, none of the types appearing among fifty non-fermenting strains. The dangerous infections with gravis and intermediate strains were found in about 78 per cent. of Manchester patients with death rates of 14 and 16 per cent., while the mitis, present in about one-sixth of the infections, caused a death rate of only 3 per cent. McLeod's collected figures from 2,000 cases show corresponding death rates of 14, 10, and 3 per cent., while Mair and Joe⁴ in 152 London cases found death rates of 11, 8, and 6. Evidence is therefore accumulating in support of McLeod's hypothesis that "mitis" does cause a "milder" infection, at least in the districts from which he gathered strains. It seems that the prevalence of types is changing in places, for Dudley and Parish meet with typical starch-fermenting (gravis) strains more often now in London patients than a few years ago, and of sixty strains tested about 1923⁵ only two fermented starch. Robinson and Marshall think that ordinary antitoxin is more effective against mitis infections: about 70 per cent. of the deaths in the gravis group occurred in patients treated within three to four days of infection. Not all writers would agree with these workers in calling this "early" serum therapy, for, while Cobbett⁶ in an analysis of some 4,000 cases collected over many years found a case mortality of *nil* among persons treated on the first day, the figure for the third day was 11, and for the fourth 17—figures not widely different from those found by the Leeds workers. Parish, Whatley, and O'Brien⁷ injected large amounts of toxin or culture of gravis and mitis strains into guinea-pigs and gave ordinary antitoxin at intervals thereafter. Antitoxin given two hours after infection saved all animals; after eight hours it saved none. In the intervening periods there was no signi-

¹ Robinson, D. T., and Marshall, F. N.: *Journ. Path. and Bact.*, 1934, xxxviii, 73.

² Anderson, J. S., Hapgood, F. C., McLeod, J. W., and Thomson, J. G.: *Ibid.*, 1931, xxxiv, 667.

³ Ewing, J.: *Ibid.*, 1933, xxxvii, 345.

⁴ Mair, W., and Joe, A. E.: *Lancet*, 1934, i, 299.

⁵ "Diphtheria," Medical Research Council, 1923, No. 418.

⁶ Cobbett, L.: *British Medical Journal*, 1933, ii, 139.

⁷ Parish, H. J., Whatley, E. E., and O'Brien, R. A.: *Journ. Path. and Bact.*, 1932, xxxv, 653.

¹ *Arch. Int. Med.*, May, 1934, p. 706.

² *Ibid.*, p. 710.

ficant difference between the percentages saved in the gravis and the mitis groups of animals. Long clinical experience strongly indicates that all diphtheria infections are fundamentally similar, for there is apparently no instance on record in any part of the world in which prophylactic doses of ordinary antitoxin have failed to give complete and immediate protection. A further attempt to explain the high death rates recently recorded led to the suggestion that sera of low "avidity"—that is, low readiness to combine with and neutralize toxin—may be at fault. W. Kolle and R. Prigge* have recently examined the point and give no support to this view: they stress the effectiveness of serum in the early stages of infection. Robinson and Marshall suggest that the ordinary Schick-negative level of immunity affords complete protection against the attack of mitis strains, but not always against gravis or intermediate strains, for they record one severe and three moderately severe infections in children with a "Schick-negative" reaction; presumably the level of antitoxin in the blood of the patients was not determined. Parish (loc. cit.) found that three-score Schick-negative guinea-pigs suffered no harm from the injection of lethal doses of a number of different strains of gravis. Robinson and Marshall inquired whether the infection of the organs and heart blood after death could be detected less commonly in animals injected with mitis strains: mitis was found in pleural fluid or heart blood in about 25 per cent., while the other two types were found approximately twice as often. No observations of the kind relating to human subjects appear to have been made. The average reader, after reflecting on all this puzzling evidence, will again ask how it comes about that, despite the high hopes that insurance practice would offer great opportunity for improvement in early diagnosis and treatment, so many unfortunate children are submitted for serum treatment three, four, or more days after the beginning of the attack. Can our magnificent health organization do nothing by popular education of patients, and by appeals to doctors, to end this reproach?

OPIUM AND THE LEAGUE OF NATIONS: A NEW SOURCE OF MORPHINE

The last report of the Advisory Committee on Traffic in Opium and Other Dangerous Drugs presented to the Council of the League of Nations surveys the present position of the problem as regards both licit and illicit traffic in narcotics. The committee has been strengthened by the addition of representatives of Canada, Persia, Sweden, and Turkey to its membership; Mr. L. A. Lyall, chairman of the Central Opium Board, has been reappointed as assessor, along with M. de Myttenaere, a Belgian pharmacologist of repute. Shrinkage of the licit commerce, under international conventions, and the serious increase of illicit production and traffic in China and Manchuria, as well as in Bulgaria, are the notable features of the committee's survey. While the average annual production of raw opium in the world, apart from China, is stated to be 1,770 tons, the total production in China in 1930 was estimated to be 12,000 tons, or seven times that of the rest of the world. In Bulgaria, according to the Canadian representative, the production of raw opium

is reported to have increased from 4,000 kilos in 1932 to 65,000 kilos in 1934. From the quantities of acetic anhydride imported into Bulgaria, presumably for the manufacture of heroin, it was estimated by the American representative that some 3,000 to 6,000 kilos of this alkaloid were produced in clandestine Bulgarian factories in 1933, or from two to four times the legitimate heroin requirements of the whole world. In Manchuria the introduction of a monopoly system has proved unsatisfactory. In the northern part of the country the production of opium has got out of Government control. It is estimated that no less than 30 per cent. of the population of Manchuria are addicts, while opium shops and smoking establishments abound. A novel and disturbing element in the opium problem is the discovery, made by a Hungarian chemist, that morphine can be manufactured from the dry parts of the poppy plant (straw and chaff) remaining after the ripe capsules have been extracted. These parts have hitherto been treated as useless refuse, and either destroyed or used as manure. The new process has been exploited by the Alkaloida Co., Ltd., in which the Hungarian Government has a controlling interest. There are some 8,000 hectares of land under poppy cultivation in Hungary, and the produce of this poppy straw is estimated at about 13,000 tons in a year. From a ton of poppy straw some 800 grams of morphine base and 80 grams of codeine base can be obtained; it is estimated that this year about 480 kilos of morphine will be thus produced. The Advisory Committee is concerned at the effect which this new source of opium alkaloids may have on the world market; it instructed the secretariat to study the legal and practical aspects of the utilization of this new raw material, and resolved to go more fully into the whole question at its next session.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS

We publish in the *Supplement* this week, at the request of the Registrar of the General Medical Council, a list of the names of those medical practitioners who have not replied to his inquiries as to the accuracy of their postal addresses. Any practitioner, wherever resident, whose name is included in this list should communicate at once with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, or, in certain specified cases, with the Registrar of the Scottish Branch Council, 12, Queen Street, Edinburgh, 2.

On November 25th, 1884, the first operation for the removal of a cerebral tumour was performed in the Hospital for Epilepsy and Paralysis (then in Portland Terrace, Regent's Park) by Mr. Rickman John Godlee, afterwards Sir Rickman Godlee, Bt., P.R.C.S. It is proposed to celebrate this jubilee by a paper to be read by Mr. Wilfred Trotter, F.R.S., at the Royal Society of Medicine, and by a commemoration dinner.

By an Order of the Committee of Privy Council the Marquess of Linlithgow is appointed a member of the Medical Research Council on the retirement of Viscount D'Abernon, whom he will succeed as chairman.

* Kolle, W., and Prigge, R.: *Med. Klinik*, 1934, p. 258.

THE BRITISH PHARMACEUTICAL CODEX

A SURVEY OF MATERIA MEDICA

We welcome the publication to-day of the fourth edition of the *British Pharmaceutical Codex*.¹ This is one of the most useful reference books available to the medical profession, and our gratitude is due to the Codex Committee of the Pharmaceutical Society for providing an authoritative account of the majority of the drugs used in medicine. Eleven years have passed since the last edition appeared, and the dates of the three previous issues are 1907, 1911, and 1923. Inspection of the volume will explain these relatively long intervals: it is a work whose revision must entail an enormous amount of labour. A comparison of the new edition with that of 1923 shows that the size, form, and general arrangement of the book have not changed greatly, but on closer examination it is evident that the material has been almost wholly rewritten. A large amount of new information has been introduced, and the size has been kept constant by a careful editing of the old material. The scope of the revision can be indicated by the analysis of a typical section—namely, the monographs on sodium salts: in the last edition there were forty-three of these monographs and they occupied forty-four pages, while in the new edition there are thirty-six monographs, which occupy forty-one pages. These figures do not, however, indicate the amount of change, since thirteen of the old monographs have been discarded and six new ones introduced. Moreover, the monographs retained have been rewritten.

The first essential for a work of reference is that it should be up to date, and the new *B.P.C.* is completely satisfactory in this respect. For example, monographs on the following subjects are included: solution of vitamin A, vitamin B concentrates, vitamin C concentrates, cortin, corpus luteum, oestrin, parathyroid extract, and extract of the anterior lobe of the pituitary.

STANDARDS FOR NON-OFFICIAL MEDICAMENTS

The extensive revision the *Codex* has undergone has been accompanied by a certain change in the character of the book. The original purpose of the *Codex* was to provide information concerning all drugs and medicines in common use throughout the British Empire, and to serve as an imperial dispensatory for medical practitioners and pharmacists. Experience has shown, however, the urgent need for authoritative standards for the composition of medicaments which are not included in the *British Pharmacopoeia*, and the new volume devotes a large amount of space to the provision of such standards. In the case of substances included in the *Pharmacopoeia* a brief reference is made to the standards there laid down, but in other cases standards have been devised where this is possible. The provision of standards for a wide range of drugs that are outside the *Pharmacopoeia* is an important public service. The editors explain in the preface that whereas the Food and Drugs Act requires a drug to be of the nature, substance, and quality demanded by the purchaser, yet no legal standards have ever been provided. In practice the courts have used the *British Pharmacopoeia* as a presumptive legal standard, but there has been a need for standards for drugs not included in the *Pharmacopoeia*, and these are provided by the new edition of the *Codex*. The setting up of these standards has raised certain interesting problems; thus the editors have worked out a new and ingenious method for the quantitative measurement of the number of foreign particles present in powdered vegetable drugs.

A new feature of the *Codex* is a short but important section providing standards for surgical dressings. For example, it states limits for the amounts of medicament that should be contained in such preparations as mercury and zinc cyanide gauze, iodoform gauze, boric lint, capsicum wool, zinc oxide plaster, etc. The importance of having some uniform standard for such substances is obvious.

¹ The *British Pharmaceutical Codex*, 1934. Fourth edition. London: The Pharmaceutical Press, 1934. (Pp. 1,768. 35s. net, inland postage 1s.)

This provision of standards is one of the most important functions of the *Codex* so far as pharmacists and chemical manufacturers are concerned, while from the point of view of the medical profession the special value of the *Codex* is that it furnishes information about a much wider range of drugs than those included in the *Pharmacopoeia*. The difference in scope of the two volumes can be illustrated by a simple example. The titles of four successive monographs in the *Codex* are hexamine, hexyl-resorcinol, hirudo, and holarrhena. Hexamine is in both the *Pharmacopoeia* and the *Codex*, hexyl-resorcinol is a synthetic drug which has not been admitted to the *Pharmacopoeia*, hirudo (the leech) disappeared from the last edition of the *Pharmacopoeia*, whilst holarrhena is an old-standing Indian remedy for dysentery which has never been included in the *Pharmacopoeia*.

PHARMACOLOGICAL AND THERAPEUTIC ACTIONS

Another important difference between the *Pharmacopoeia* and the *Codex* is that the former confines itself to laying down standards for drugs, whereas the *Codex* in addition gives information about their pharmacological and therapeutic actions. This feature makes the *Codex* very valuable to medical practitioners, but it has involved the editors in the difficult task of reconciling therapeutic customs with known scientific facts. The compromise adopted has been to list the preparations actually in frequent use, and at the same time to indicate their probable value. For example, eight preparations of dilute hypophosphorous acid are described, whilst under the heading "Actions and Uses" is the simple statement: "There is no pharmacological evidence that they (hypophosphites) behave differently from other inorganic salts, and any benefit derived is ascribed to the iron or calcium with which the acid may be combined." Similarly, two varieties of parathyroid tablets are described, but the reader is warned that this preparation is of little value when taken by mouth. There are also monographs on eight lithium salts; but in each case it is pointed out that the action is essentially the same as that of sodium or potassium salts. The attitude adopted seems a reasonable compromise, but it is important to realize that the *Codex* simply describes what the medical profession prescribes, and does not reject any substance in common use merely because there is no rational foundation for such usage.

A THOUSAND STANDARD PRESCRIPTIONS

The monographs on drugs and on dressings occupy two-thirds of the volume, while the formulary occupies more than half of the remainder. This formulary contains about 1,000 standard prescriptions. Not only is the prescription given, but, where necessary, notes on dispensing are added, and in all cases standards for the resulting mixture are given. In this section regard is paid to elegance rather than to economy. Prescriptions with more than twelve ingredients are not uncommon, and a link with the past is preserved by the inclusion of the antiperiodic tincture, which, with its nineteen ingredients, is a lineal descendant of the theriac or treacles of the Middle Ages. The insurance practitioner who followed these models would, however, probably get into difficulties with the local Panel Committee, and it seems a pity that simpler if less interesting prescriptions have not been included. For example, a formula that will provide a satisfactory emulsion of liquid paraffin and agar is often required, but the one included in the *Codex* contains nine ingredients, and it seems probable that a simpler formula could be devised. The *Codex* would certainly perform a useful service if, in addition to the elegant formulae set out, which often contain half a dozen different flavouring agents, the editors would also give a parallel series of utilitarian formulae.

AN INDEX OF PROPRIETARY NAMES

The volume closes with a series of appendices, most of which are concerned with physical and chemical measurements and chemical tests. The appendix headed "Pharmacological Index" might with advantage have been revised somewhat more rigorously. For example,

the list of nerve tonics opens with formic acid, glycerophosphates, and hypophosphites, whereas the monographs on these substances point out that there is no reliable evidence that they have any such action.

The final appendix gives a list of some 800 proprietary trade names of medicinal substances. The editors point out that it has only been possible to include a small fraction of the branded products that are on the market, but inspection shows that most of the best-known substances have been included. Secret remedies naturally do not appear. The list contains two chief classes of names: first, proprietary names of well-known official drugs such as acetyl-salicylic acid, procaine, barbitone, etc., and secondly, important new drugs that are only sold under their proprietary names—for example, plasmoquine, nupercaine, nembutal, evipan, etc.

An index of this kind was introduced into the last edition of the *Codex*, but was then much smaller. The great increase in the size of the index is an indication of the increasing importance in therapeutics of drugs sold under proprietary names. This index is a feature of the *Codex* that will be found of great value by the medical profession, since it provides an easy means of discovering whether some new and unfamiliar name represents a possible therapeutic advance or merely refers to a special brand of some well-known drug.

It is difficult to do justice to a work of reference of this kind in a short review, since the utility of such a volume depends so much on its detailed accuracy. Perusal of the *British Pharmaceutical Codex*, 1934, shows, however, that every effort has been made to bring it completely up to date, and that it represents the skilful accumulation of a vast amount of information of importance alike to the pharmaceutical and to the medical professions.

Ireland

Local Government and Health Legislation

The text of the Local Government Amendment Bill (Irish Free State) (No. 2), which was recently introduced in the Dail, has been published. Until the Bill is discussed it is not quite clear how far it may go. It would appear, however, that it provides, in certain circumstances, for the abolition of the county health boards. This would mean the transfer of medical and other officials to the county councils, and, in some instances, the discontinuance of existing officers. The Bill provides that on the request at any time, whether before or after the passing of the Bill, of a county council the Minister for Local Government and Public Health may make a dividing order: (a) declaring that there shall be as from the commencement of the order a specified number (not less than two) of rural sanitary authorities in such county; (b) specifying the portion of the county which is to be included in and is to constitute such rural sanitary district, and so far as may be requisite, defining the boundaries of each sanitary district; and (c) selecting a day, not less than three months after the date of the order, to be the appointed one for the purpose of the order. The Minister may also, on the request of the council, alter in such manner as shall be specified in the request the numbers of the council. An order made by the Minister shall, without any confirmation from the Oireachtas, come into operation and have effect on and after the first triennial election of members of the council held after the appointed day. When the Minister has made a dividing order, and either or both of the following circumstances exist, he shall make a new division of the county into county electoral areas, and shall so make such divisions that every electoral area is wholly within one or other of the new rural sanitary districts: (a) one or more of the county electoral areas is, at the date of the order, situate partly in another or others of the new

rural sanitary districts; and (b) the Minister has altered the number of members of the county council. Wherever the Minister has made a dividing order the following provisions shall, on and from the appointed day, have effect: (a) the area of the county, which at the date of the order is a rural sanitary district, shall cease to be a rural sanitary district; (b) there shall be constituted in the county the number of rural sanitary districts specified in the order, and each rural sanitary district shall contain that portion of the county specified in the order; (c) the council of the county shall be the sanitary authority for each of the rural districts so considered; (d) each of the rural districts shall be a county health district within the meaning of the principal Act, and shall be called by the name of the "County Health District of . . ." with the addition of the name of the county and such distinguishing name as the Minister shall direct; (e) subject to the provisions of this Act the principal Acts shall apply and have effect in and relative to every rural sanitary district and county health district, as if such district had been constituted by an order made under Subsection (2) of Section 9 of the Act of 1925; (f) if there is a board of public health in and for the county at the date of the order the board shall be dissolved and cease to exist; (g) a scheme shall be prepared and submitted to the Minister for Local Government and Public Health providing for the continuance or discontinuance of the officers of existing boards. The scheme shall provide: (a) for the continuance of an officer in the service of the board of health of one of the new districts, either in the office he held before, or in an analogous office with analogous duties; or (b) for his appointment, according to law and with his consent, to an office in the service of the board of health of a new district; or (c) for his removal from office. Every dispute as to whether an office is analogous to another, or the duties are analogous to those of another office, or the whole of an officer's time is occupied shall be determined by the Minister, whose decision shall be final.

Criticisms of the Clean Milk Bill

The Department of Local Government and Public Health, in reply to criticisms by Dr. J. C. Saunders, Cork county borough medical officer of health, of the Clean Milk Bill, 1934, has issued a memorandum stating that the object of the Bill is to supplement the legislative powers already in existence for safeguarding milk intended for human consumption, so as to enable the recommendations of the Inter-Departmental Committee on the Milk Supply to be carried into effect, in so far as these recommendations are deemed practicable and desirable. In considering the new powers to be acquired it is necessary in the first instance to review the existing statutory provisions dealing with the supervision of the milk supply. These provisions are mainly contained in Section 34 of the Contagious Diseases (Animals) Act, 1878, and empower the Minister for Local Government and Public Health to make orders in regard to: (a) the registration with local authorities of all persons carrying on the trade of cowkeepers, dairymen, or purveyors of milk; (b) the inspection of cattle in dairies and the regulation of lighting, ventilation, cleansing, drainage, and water supply of dairies and cowsheds; (c) the cleanliness of milk stores, milkshops, and of milk vessels; (d) the precautions to be taken for protecting milk against infection or contamination; and (e) the authorization of local authorities to make regulations concerning the foregoing. The objections of Dr. Saunders to the Milk Bill, as set out in his general commentary, were as follows: (1) the difficulty of obtaining convictions for the sale of dirty milk in the absence of a specific definition of dirty milk; (2) the omission of clauses dealing with the fre

quent veterinary inspection of cows, and measures for the eradication of tuberculous cattle; (3) absence of provisions requiring all milk vendors to be licensed; (4) non-recognition of power of extra-territorial inspection of cattle and premises from which milk is supplied in an urban district; and (5) precautions not yet prescribed in regard to the bottling of milk. He recommended that dairy employees committing offences under the Dairy Regulations should be rendered liable to penalty in lieu of the employers. The Department has dealt with Dr. Saunders's objections as follows: (1) As regards the necessity of defining dirty milk, this term is included in the Dairy Produce Act, 1924, which prohibits the supply of dirty milk or cream to a creamery, and it is understood that no difficulty has arisen in securing convictions under that clause. (2) The problem of the eradication of tuberculous cattle is being considered in all its aspects by the Minister for Agriculture, and is expected to be dealt with shortly. (3) Having regard to the proposed licensing under the Act of all milk vendors selling milk of special designations, including pasteurized milk, it has been deemed sufficient to rely on the powers set forth above under Section 34 of the Contagious Diseases (Animals) Act, for the registration of persons carrying on the trade of cowkeepers, dairymen, or purveyors of milk. (4) The Minister is already empowered under Section 19 of the Tuberculosis Provisions (Ireland) Act, 1908, to authorize an urban district council to arrange for the inspection of dairies outside its district from which the local milk supply is delivered. (5) Under Clause (d) Section 34 of the Contagious Diseases (Animals) Act, 1878, the necessary power for the regulation of milk bottling is available, and will be exercised on the revision of Dairies, Cowsheds, and Milkshops (Ireland) Order of 1908. It is also intended, in connexion with the revision of these regulations, to provide for the penalizing of dairy employees committing offences against the regulations.

The Dufferin and Ava Hospital, Belfast

At a recent meeting of the Belfast Board of Guardians the annual report of Dr. S. R. Armstrong, visiting medical officer, was received. The report stated that 325 mothers and 691 infants had been admitted during the year. The death rate amongst the infants was 17 per cent. A great benefit had been bestowed upon all the patients in the Ava Hospital by the general excellence of the arrangements and appointments. The wards were bright, cheerful, and well ventilated. There was an easy access to beautiful balconies, which were sheltered and sunlit all day. The visiting medical officer referred to some of the difficulties which mitigated against a greater success, although their statistics compared very favourably with those of any other hospital. One difficulty was the large number of infants admitted too late in their illness or so hopelessly ill that it was almost impossible to do anything to save their lives. Fourteen infants died within a period measurable by hours from the time of their admission. A second difficulty was that a hospital such as theirs admitted a large number of infants who could not be discharged, as they were from voluntary hospitals, and when they recovered from the acute conditions and were convalescent, required further careful nursing by a mother, and segregation from all other acutely ill infants. Dr. Armstrong's report went on to state that it was obvious that they could not discharge infants who were convalescent but grossly under weight, because an outcry from some quarter would immediately be heard. Yet this was unquestionably the correct procedure. Such infants should be removed from hospital, where the possibilities of fresh contagion so palpably existed. An essential for such infants was the fondling and mothering and individual attention which every baby

had, even in the poorest of proper homes. A further difficulty which only came into prominence when one had to compare statistics with voluntary hospitals was that they must necessarily admit cases which would not be admitted to the latter hospitals. These were the incurable, and he referred especially to infants newly born with gross skeletal defects of the spine, skull, palate, etc., which could not be remedied by operation. From such defects during the past year they had had eight deaths. A solution of some of their difficulties was obvious even before the Ava Hospital plans were completed, but he hesitated to suggest the large expenditure which inclusion in the new building of an infant convalescent department would have necessitated. The report was adopted.

Royal Academy of Medicine in Ireland

At a meeting of the General Council, held in Dublin at the Royal College of Physicians of Ireland on September 21st, the following candidates were duly elected Fellows of the Royal Academy of Medicine in Ireland: James Bell, D.Sc., E. J. Conway, D.Sc., M.B., T. J. O'Connell, M.B., Harry Lee Parker, M.B., J. A. Wallace, M.B.

England and Wales

L.C.C. Lewisham Hospital Extension

Lord Dawson of Penn will open an extension of the London County Council's Lewisham Hospital on Tuesday, October 9th. The extension includes a maternity department, a children's section, and two general wards. The maternity department is situated on the upper and part of the middle floor of the three-storied block, and provides accommodation for sixty-three mothers and forty-five infants. The principle of the small ward has been followed and there is ample provision of single-bedded wards. There are five labour rooms grouped together on the top floor in a projecting wing and thus isolated from the wards. A sterilizing room, sink room, bathrooms for adults and infants, and a premature babies' room with special heating are placed in convenient proximity. The children's section contains thirty-five cots; there are three wards, of which the largest contains twelve cots, and six isolation cubicles. The two general wards with their associated small wards contain sixty-six beds, and the total additional accommodation provided in the extension is 164 beds, which brings the number of beds in the hospital to 747.

Child Welfare in Birmingham

In his annual report for 1933 Dr. H. P. Newsholme, medical officer of health for the city, points out that a most encouraging indication of the improving health in the younger generation is afforded by the steady and marked decrease which is still discernible in the death rate in early childhood. This rate for the age period 1 to 2 years fell from 45.9 per 1,000 in 1912-15 to 14.3 in the years 1931-3, and the corresponding rate for those aged 2 to 5 fell from 12.2 in the first-year period to 3.9 in the second. He remarks that such a fall, accomplished by successive regular steps during successive periods, is obviously not fortuitous, but is a sign that the general and the specific measures of public health, whether of the maternity and child welfare or of other cognate services affecting the young child, are bearing fruit in the most obvious manner. The birth rate continues to fall in the centre and the middle rings of the city. The death rate in the centre wards is still higher than in the outer

wards, a fact probably associated with such environmental factors as overcrowding, less efficient maternal care, and nutritional difficulties associated with poverty. It is largely due to preventable disease. The continued high neo-natal mortality is preventing a further fall in the infant mortality rate. There is, however, a progressive, though small, improvement, possibly related to the better care which is now taken of feeble infants. The loss of life from stillbirths is unabated, and the number of these is actually higher than that of the neo-natal deaths. While a proportion of these must remain inevitable, being associated with gross congenital malformations, it would appear to be deducible that ante-natal care has not yet reached the root of the problem in its extent or its character. In the age group 1 to 5 years pneumonia is the more frequent cause of death, enteritis being relatively unimportant. Statistics indicate that at the beginning of its life a baby runs little more risk of death if living in the central wards of the city than in the outer ring, but between the third and sixth months the effects of a bad environment become increasingly apparent, until, at the age period 9 to 12 months, the mortality is twice as high in the central as in the outer wards. The city council now maintains twenty-eight child welfare centres, and two subsidiary ones. An attendance at these centres of 71 per cent. of the infants born during the year is very satisfactory, and is higher than in previous years. The number of older children attending has also increased. Special efforts have been made to teach housewifery and family budgeting to the younger women. In some areas the fathers have shown special interest in the work of the centres, and fathers' councils or parents' leagues have been formed. Dr. Newsholme suggests that the general standard of ante-natal care at the child welfare centres could be definitely improved by greater co-operation between medical practitioners, institutions, midwives, and patients, but more research is needed for abnormal cases. Many women also fail to come early enough in pregnancy to gain the full advantage of the present state of knowledge. The public health committee has provided ten ante-natal beds in each of the two city maternity homes. Dr. Newsholme emphasizes the importance of rest in the case of postural defects, since most of the children coming to the remedial exercise clinic are suffering from too little rest. Mothers in most cases do not recognize the need of a daily rest for children between the ages of 3 and 5. The experience of this clinic indicates that improvement cannot be expected quickly, but, given sufficient time and conscientiousness on the part of the parents at home, the results are gratifying.

Scotland

Royal Samaritan Hospital, Glasgow

A medical report is published annually by the Royal Samaritan Hospital for Women, Glasgow, containing details of the work and statistical information. In the issue for 1933 it is recorded that during that year the total number of patients dealt with was 2,962; there were 2,638 operations, and the mortality was 1.32 per cent. A list is given of the aetiological factors involved in the production of the pathological lesions encountered. Injury associated with child-bearing was noted in 1,214 cases, and infection so associated in 578. Infection not associated with childbirth was responsible in 369 cases. The figure for new growths was 481, and for errors of development 188. A detailed analysis of the pathological lesions in tabular form shows the average age of the patients in each group, and their relation to such condi-

tions as parity, the number of years since the last pregnancy, if any, the average number of children and miscarriages, and the incidence of operative intervention. Matter of considerable scientific value is thus published. Two new tables appear in the 1933 issue, under the headings respectively of "Symptoms" and "Surgical Procedures." They have been added to convey an idea of the frequency of the different complaints made by patients coming to the institution, and the number of occasions on which various surgical procedures were performed in the course of a single year. From this it appears that the two most common causes bringing patients to the hospital were haemorrhage and bearing-down sensations, each accounting for about 14 per cent. of the whole. Pain on the left side of the abdomen was a primary manifestation in 10 per cent., on the right side in 6.2 per cent., and on the mid-line or bilateral in 5.2 per cent. Pain in the back alone was the cause in 6.6 per cent., while back pain associated with pain in the lower abdomen was noted in 2.9 per cent., most commonly on the left side. Vaginal discharge was similarly concerned in 8.3 per cent., sterility in 5, excessive menstrual bleeding in 5.1, bladder symptoms in 4.3, and symptoms referable to the rectum in 2 per cent. Dilatation of the cervix and curetting of the uterus were performed on 1,119 occasions, trachelorrhaphy on 500, colpo-perineorrhaphy on 338, subtotal hysterectomy on 256, anteversion of the uterus by shortening the round ligaments (various methods) on 218, and tubal insufflation on 205. A brief summary of each of the thirty-nine fatal cases is appended.

Hospital Problems in Dundee

Hospital policy is discussed in some detail in the annual report for 1933 of the public health department of the City of Dundee. Dr. W. L. Burgess, medical officer of health, states in this connexion that the attention of the City Council during the year was mainly directed to reorganizing the various institutions under their own management, the stage not having yet been reached when complete co-operation with the University and with other hospitals would be possible. He attacks the tendency to emphasize unduly the "hospital services" or the "hospital scheme" as though such services or schemes fell outside the general health movement; the effect, he thinks, might easily be that the hospitals would tend to become a separate service not properly linked up with the other medical and allied services. Even in a general health scheme, he adds, it would be perfectly possible for these institutions to retain their voluntary status, character, and traditions. At present there is believed to be a shortage of hospital beds, and the natural tendency is to aim at providing more, but it is essential to be certain first that the available beds are being used to their best advantage. This matter has been carefully considered by the Dundee Council, which has satisfied itself that by administering Maryfield Hospital under the Local Government (Scotland) Act of 1929 instead of under the Poor Law (Scotland) Act of 1845 better use could be made of the beds in that institution. Accordingly, its services are now no longer restricted to persons whose names are on the poor roll, but have been made available for the general public. Whereas formerly at certain seasons the hospital was not in full use, because it was open to only one section of the public, the beds are now being fully utilized all the year round, and thus without the addition of a single bed the hospital accommodation available to the general community has been definitely increased. Again, a vigorous campaign against slums is now in operation and, if brought to a successful issue, will probably permit domiciliary treatment for many who under the present

conditions would have to be dealt with in hospital beds. An extension of the facilities for home nursing might also have a very definite influence on the demand for hospital treatment, and Dr. Burgess is convinced that the expansion of the national health insurance scheme to cover wives, dependants, and all persons in similar circumstances would render the present hospital problem very much less formidable. If medical attention became more easily available, earlier treatment would prevent many cases from reaching the hospital stage. A larger number of patients could be treated at home if certain additional facilities in respect of diagnosis and treatment were placed at the disposal of general practitioners, or at any rate the average stay in hospital could be appreciably shortened. Such facilities might include laboratory assistance, consultations with specialists, and x-ray reports. Until the report is published of the Departmental Committee which is at present considering the whole question of the health services in Scotland, Dr. Burgess thinks it wise to proceed cautiously so as not to prejudice future action.

CORRESPONDENCE

Increased Mortality from Diabetes

SIR,—The interesting letter from Dr. Alex. Fraser (September 22nd, p. 570) affords a possible explanation for a statement recently repeated that the mortality from diabetes has increased since the introduction of treatment by insulin. This statement, to anyone familiar with the treatment of diabetes during the past thirty years, is so astounding as to be incredible. We know that before the introduction of insulin there were really no known cases of recovery from diabetic coma; I can recall two or three instances in the literature and, to the best of my recollection, they were but temporary recoveries followed by death after a very brief period. To-day recovery from diabetic coma is the rule rather than the exception, and there must be many of us who have seen it occur in over a hundred cases. It is perfectly true that we sometimes encounter a case in which coma is already so deep that we fail to save life; it is also true that the careless diabetic patient may have further attacks of coma months or years after discharge from hospital—instances of restoration from coma five or even ten times in the same patient are not difficult to collect. But how is it possible in the face of this one fact, the modern treatment of coma, to suggest that the mortality from diabetes has increased?

The explanation, as Dr. Fraser suggests, lies probably in faulty statistical analysis. Prolonged experience with a diabetic clinic soon establishes the fact that diabetic patients fall into two main groups: (a) children and young adults with severe diabetes, and (b) elderly people with diabetes of milder degree but commonly associated with arterial disease. The former group call for the greater skill on the part of the physician as regards diet and treatment with insulin, but given a reasonable degree of technical competence the results are almost uniformly good, and the prognosis equally so. The latter group frequently require little treatment as far as the diabetes is concerned, but have a prognosis which is chiefly governed by the concurrent arterial disease; it is an every-day experience to see such patients, in whom the diabetes has been effectively controlled for several years, succumb to such diseases as cerebral haemorrhage, cardiac failure, or gangrene secondary to arteritis. It seems very probable that the frequent inclusion of the word "diabetes" on the death certificates of this latter group accounts for the myth that diabetes itself treated on modern lines affords a bad prognosis.—I am, etc.,

London, W.1, Sept. 22nd.

T. IZOD BENNETT.

Preliminary Ligation in Graves's Disease

SIR,—Since last June there has been an interesting exchange of views in the various numbers of the *British Medical Journal* on the subject of preliminary ligation. It is surprising to find the expression of so many diverse opinions. About twelve years ago the pre-operative treatment of Graves's disease was placed upon a firm scientific basis. Since that time the indications for preliminary arterial ligation are few and far between.

It is true, but not universally true, that the patients who derive greatest benefit from ligation belong to precisely the same group as those who respond readily to the administration of iodine. Conversely, if iodine fails it is reasonable to assume that ligation will prove a disappointment. Dogmatism is, however, to be avoided in this as in most other surgical considerations.

After a long experience in an area in which Graves's disease was not uncommon, I have been guided by certain beliefs.

1. In the case of the really bad surgical risk in which adequate and prolonged pre-operative preparation is of no avail, ligation is indicated. The second or third shot sometimes hits the target and the prognosis may become completely changed. Thus ligations, although rarely indicated, may convert a bad surgical risk into a case safe for thyroidectomy when other weapons have failed.

2. A severe reaction sometimes follows ligation or any other procedure. Such a reaction indicates the intolerant condition of the patient, and is a warning to proceed with caution by carefully graded operative measures.

3. In the event of a fatal result following ligation in the serious type of case under review surgery is blameless.

4. It is important to ligate the trunk of the superior thyroid artery after clear exposure. The anterior branch is sometimes mistaken for the main vessel. Additional ligation of both anterior and posterior branches inhibits the collateral circulation from below. Personally I avoid thyroidectomy in a case of uncontrolled hyperthyroidism without a preliminary attempt to obtain control by ligations. We must recognize, however, that the personal factor is of importance.

Each surgeon will obtain the best results by following the path with which he is most familiar, but familiarity with thyroidectomy does not necessarily imply familiarity with the ligation of the isolated thyroid trunk. I have seen Kocher, Mayo, Crile, and many others at home and abroad, including some of your correspondents, operate on cases of severe hyperthyroidism. As a spectator one instinctively felt that if each had operated in precisely the same manner the brilliancy of the results would have been adversely affected.

Preliminary ligation of the inferior vessels, sometimes recommended as a step towards thyroidectomy, is attended by too much disturbance to justify it as a routine. Here again personal factors must be weighed. Some surgeons have perfected their methods of approach and regard ligation of the inferior thyroid artery as a valuable addition to the patient's defence. Finally, may I suggest the retention of the term "Graves's disease" in general discussions on this subject? Knowledge is incomplete until the works of the great Dublin physician are studied and digested.—I am, etc.,

London, W.1, Sept. 24th.

W. I. DE C. WHEELER.

SIR,—In the hands of my teachers, Sir James Berry and Dr. Strickland Goodall, the use of ligation in severe cases of toxic goitre impressed me so much that I practise it also. The recent correspondence on this subject (*Journal*, June 30th, p. 1187; July 14th, p. 84; July 21st, p. 136; July 28th, p. 181; September 22nd, p. 569), in

which I am greatly interested, prompts me to make the following observations.

It is no argument against ligation to say that it has a mortality. I have known two patients with toxic goitre die when being x-rayed, and only the very worst cases come into the tables of cases treated by ligation. In 280 thyroid operations I have lost one patient following a ligation, but I have lost two patients in 100 resections for toxic goitre, and I believe that ligation is the safer procedure when there is any doubt as to the post-operative reaction.

That there is a therapeutic effect following ligation I have not the slightest doubt. I now have a short series of cases whose goitres were highly toxic, very vascular, diffuse, and small, treated by ligation, in stages, of all four arteries. Some were thus treated before we were using preliminary Lugol's iodine solution. The effect of ligation upon these throbbing, purring, and highly vascular glands was very noticeable, and, what is perhaps more important, the relief of the patients which followed. I would refer to just three such cases: those of a plumber, a railway signalman, and a young schoolmistress. Each was a case of highly toxic, very vascular, diffuse goitre, for whom quadruple-stage ligation was performed with such relief that, from being confined to bed for long periods, each patient was able to return to normal employment. These cases have been seen since and have not relapsed, and the thyroids are apparently normal. In the *British Medical Journal* (1926, i, 561) I drew attention to the benefit to be derived from ligation in such cases.

I believe that the inferior is the more effective artery to tie, because it is the artery to the hilum of the gland (cf. renal, etc.), is usually larger than the superior, and, through a small incision behind the sterno-mastoid, its trunk can be secured, well away from, and therefore without interfering with, the gland itself. I recorded these and other observations relating to the thyroid arteries in the *Journal of Anatomy* (1929, lxiv, 50).

While admitting, therefore, that subtotal thyroidectomy is the operation of choice in most cases, I believe that ligation of arteries has a distinct place in the treatment of toxic goitre, and that those surgeons who lack the very extensive clinical and operative experience of Mr. C. A. Joll will do well to apply the maxim: When in doubt ligate.—I am, etc.,

LAMBERT ROGERS.

Surgical Unit, Welsh National School of
Medicine, Cardiff, Sept. 24th.

Ether Convulsions

SIR,—The following case serves to strengthen an already strongly held opinion—that gas and oxygen should always replace ether as far as possible, especially in young and septic patients.

On July 28th, 1934, I anaesthetized a male patient, aged about 20, for operation for acute appendicitis. He was of very good physique; it was an emergency case at midnight, so no basal anaesthetic was used: for these two reasons ether was employed. Induction was by ethyl chloride and eau-de-Cologne, followed by closed ether and oxygen. Colour was bright pink throughout. Respiration was somewhat jerky all the time, in spite of nasal and oral tubes, which gave a good airway. Otherwise anaesthesia was without incident until the peritoneum was being sutured. This was after about fifty minutes—the appendix was sloughing, adherent, and difficult to separate, which accounts for the operation taking three times as long as usual.

Twitching movements of the right side of the face were then noticed. The anaesthetic was stopped immediately, as their significance was realized at once owing to experience of a previous case. The twitchings spread over the face, and also affected the body muscles. They continued for five to ten minutes, but never became very severe. Carbon dioxide and

oxygen was given, and the table raised into the head-up position. The movements then stopped. (Raising the head is a method of treatment which appears to have been successful in other cases.) It is an interesting fact that, as far as I know, only one case of chloroform convulsions has been recorded. This is suggestive, in view of the cerebral anaemia produced by chloroform.)

Intravenous barbiturates have been recommended, but no sedative of this sort was available (it was a nursing home case and 1 o'clock in the morning); so a second dose of morphine was given. Uneventful recovery followed.

This case is very typical: young adult, septic case, summer weather—these three factors are almost invariably present. In the *British Medical Journal* (June 21st, 1930), following a previous (fatal) case of ether convulsions, I collected twelve different theories of causation from the literature, none of which fitted the facts. I tentatively suggested a thirteenth—namely, that the convulsions might be due to impurities in the oxygen. Unfortunately the oxygen used in this case could not be tested, because the cylinder ran out just before the onset of the convulsions.

The points of interest in this case are: (a) The convulsions were not severe. Was this due to the stopping of the anaesthetic immediately the first slight facial twitching appeared, or was it just luck? (b) They stopped almost immediately the head was raised. Again, was this *post* or *propter*? (c) As in my only previous case the patient had died on the table it was a very anxious five minutes. Even when the convulsions stopped there was the possibility that they might start again during the next few hours. This has been known to occur. The morphine was given for this reason, and also a supply of carbon dioxide was left by the bedside. (d) Was the jerky respiration, in spite of a good airway, a premonitory sign of the convulsions, or due to the same cause which produced them?—I am, etc.,

Morley, nr. Leeds, Sept. 23rd.

W. STANLEY SYKES.

Control of Treatment in Cancer by Serum Tests

SIR,—Dr. Hernaman-Johnson's letter (September 15th, p. 534), with regard to his employment of the modified Bendien reaction as a means of estimating the response to x-ray treatment in cancer patients, is an interesting and valuable corroboration of my own findings, to which reference has been made in a recent publication on the "Serological Observations from Cases of Cancer under Treatment." From my experience of this test during the past three years, the reaction of the serum in the large majority of cases is positive in those showing active clinical cancer, the exceptions being found in those associated with sepsis or suffering a marked degree of emaciation, and the reasons for the alteration of the usual reactions under these conditions are explained in the paper referred to above. After removal or destruction of the local cancer, the blood serum reaction in the majority of cases still remains positive. In those in which it subsequently has become and remained negative, and regained a normal reaction, recurrence or metastases have not so far developed. In others, whose serum had regained a negative reaction, clinical recurrence has been preceded by the return of a positive serum reaction, and these alterations can be observed and detected by consistent periodic follow-up serum tests such as Drs. Hernaman-Johnson and Harry Coke are adopting.

It is in the group of cases whose serum reaction has remained persistently positive in spite of clinical post-operative improvement that recurrence and metastases have been found to develop most regularly. There is, however, a further group of cases which have now been

watched for periods of two years or more in which the serum reaction remains consistently positive though the primary tube reaction is more or less in the normal zone, and in these so far there has been no evidence of clinical recurrence.

The observations of Lockhart-Mummery and others have given very strong evidence that the local development of cancer depends upon an intrinsic gene instability of the cells affected, producing those mutations which result in dedifferentiation. If surgical treatment has successfully removed all such cells, it is quite feasible that further local cancer will not recur or develop, although the serum reaction of the patient remains positive, and thereby demonstrates that the normal somatic cytolytic defence is still defective. Such an unsatisfactory condition, however, leaves the patient open to the redevelopment of cancer elsewhere should a further gene mutation occur in another group of cells. During the past two years three such cases have been observed. In each there had been clinical evidence of improvement after the removal of the primary local cancer—breast, stomach, and cervix uteri respectively. In each the blood reaction continued positive; in each a further primary cancer ultimately developed; and in each it happened to be of the colon and sigmoid.

The modified Bendien reaction has been shown in other publications to depend upon certain serum biochemical alterations which are also associated with deficiency of normal enzymic content of the blood serum, and that this is accompanied by a deficiency of that cytolytic defence which presumably under normal conditions destroys, by a process of cytolysis, the abnormal type of cell that results from the particular gene mutation producing dedifferentiation; and, experimentally, it has been shown that the recovery of a normal and negative reaction has been associated with re-establishment of a normal blood serum enzyme content and evidence of immunity from recurrence of cancer. Any therapeutic treatment which is followed consistently by such a result would appear worth while pursuing, and the results to which Dr. Hernaman-Johnson refers from his particular method of application of x-ray treatment are definitely encouraging. Somewhat similar results are being obtained by various forms of injection treatment which are being employed in my own clinics, but they must be observed over a longer period of time before evidence can be gained as to whether both the clinical and the serological improvement are maintained.

The observations emphasize what is, I think, a growing consensus of opinion—namely, that the effective prevention and control of cancer recurrence necessitates that, as soon as the requisite local surgical or radiological treatment has been carried out, every case of cancer should be considered an urgent medical problem, and that the state of constitutional deficiency which precedes the clinical development of cancer and usually continues after its surgical removal should be rectified and maintained normal by whatever therapeutic means shows this to be possible.—I am, etc.,

Liverpool, Sept. 20th.

E. CRONIN LOWE.

Treatment of *B. coli* Infections

SIR,—In Professor D. M. Lyon's excellent review of present views on the aetiology and treatment of *B. coli* infections, in the *British Medical Journal* of September 8th (p. 455), there is a strange omission of any reference to the intravesical method of the treatment of urinary infections with this organism. Far be it from me to suggest that the intravesical route is the most satisfactory for the treatment of such cases; my personal experience is too limited to make any such claim. But

as I showed in a paper published in the *Journal* of June 7th, 1925, the intravesical injection of collargol produced a cure, more or less rapid, in 68 per cent. of the small number of cases I had treated in this way. Moreover, the treatment had yielded successful results in the hands of others, including the late Sir Percy Sargent. Experience as a hospital pathologist has shown me that other lines of treatment, although sometimes surprisingly successful, are by no means always so, and in any case are usually lengthy.

In the circumstances it seems unfortunate that intravesical treatment should receive no mention, and therefore tend to be neglected.—I am, etc.,

London, W.8, Sept. 23rd.

HAROLD H. SANGUINETTI.

Rupture of Extensor Pollicis Tendon

SIR,—I have read with interest, in your issue of September 15th (p. 515), the article by Mr. A. T. Andreasen on bilateral rupture of the tendon of the extensor pollicis longus. Although I have not seen a bilateral case, I saw a unilateral one a few months ago which had some similarities to Mr. Andreasen's case. The history in this case is interesting.

The patient, a female, had a slight accident to her right wrist. A short while after this she discovered that she had lost the use of the terminal phalanx of her thumb. On examination there was found to be loss of power in extending the terminal phalanx. It was decided that resuture of the torn tendon was necessary.

At operation the terminal portion of the tendon of the extensor pollicis longus was exposed, but the proximal portion could not be found, in spite of an extensive incision. It was then decided to perform a tendon transplant. The extensor carpi radialis longus was exposed and cut across at its insertion into the base of the second metacarpal bone. The tendon was then sewn to the distal end of the torn extensor pollicis longus. The wound was sutured and the thumb was placed in a moulded plaster-of-Paris splint in the position of extreme extension. The functional result is perfect, and there is no weakness in the movements of the wrist or thumb.

Mr. Andreasen's case is of interest in that he used a slit in the tendon of the extensor of the index finger for anchoring the torn tendon. Should another case present itself to me I should not hesitate to follow his procedure.—I am, etc.,

London, W.1, Sept. 21st.

MAURICE LEE.

Alkali Reserve in Asthma

SIR,—Dr. James Adam's letter in the *Journal* of September 15th very pointedly draws attention to the disputed problem of alkalosis or acidosis in asthma. At repeated intervals one reads the statement that asthma presents an alkalosis, but no evidence of any value is ever brought forward to substantiate this claim. On the other hand, Dr. Adam's own work, and that of others in this country and abroad, does more than suggest the acidotic tendency in this disorder. The reference in Dr. Moll's article to the Tiefensee acidifying diet being beneficial in asthma is largely discounted by the later article of Michel Szour (*Med. Press*, December 9th, 1933, p. 98).

It seems to me that the alkalotic theory, having once been put forward, is accepted without question, and repeated *ad nauseam* without evidence. The same intolerance to all other views is shown by those who are allergic enthusiasts, despite the fact that many, like Dr. Adam, do not accept allergy *per se* as the real cause of asthma, but as an added state within a basic condition. None deny the fact of allergy: they only question its importance. It is obvious that the nose condition described by Adam,

Haseltine, and others is quite misunderstood by their critics. It can be made quite clear that nasal operation is the last thing desirable in asthma, and it is only gross abnormalities which demand it.—I am, etc.,

London, W.1, Sept. 18th. A. J. D. CAMERON, M.B., Ch.B.

The Swab in Diphtheria Diagnosis

SIR,—I have followed this correspondence with interest. In my opinion clinical experience will have to count for much in those patients not children, and probably in a high percentage, owing to the early use in illness of anti-septics such as lozenges, gargles, throat sprays, etc. Fortunately that age group is not the "tracheotomy-danger" one if reliance is placed upon a swab from a disinfected part.—I am, etc.,

Bacup, Sept. 23rd.

J. PERCIVAL BROWN, M.B.

Tuberculin

SIR,—Dr. Halliday Sutherland's letter in the *Journal* of June 30th (p. 1188) has tempted me to relate a personal experience of mine with tuberculin.

Four years ago I worked in a children's hospital near London. Each child admitted to the section in which I was engaged was submitted to an intradermal tuberculin test, O.T. Koch being used. Three dilutions of tuberculin were supplied from a central laboratory. I have no figures, but over one hundred children were tested, their ages varying from about 3 to 12 years.

0.1 c.cm. of 1 in 10,000 dilution was discarded, being too weak.

0.1 c.cm. of 1 in 1,000 dilution was most reliable and safe, as it never caused any general symptoms or local trouble.

0.1 c.cm. of 1 in 100 dilution was never used as an initial test, or if more than a slight flush without induration was caused by the higher dilution. Children negative to 1 in 1,000 dilution, as a rule, gave only slight or no reaction to 1 in 100 dilution, and no general symptoms or local trouble occurred. 0.1 c.cm. of 1 in 100 dilution I consider dangerous as an initial test, and, perhaps, too searching for any test.

Each week, after applying the test to a number of children, I injected, intradermally, into my own forearm, 0.1 c.cm. of 1 in 1,000 dilution. After each injection a well-marked, tender, inflammatory lump developed which persisted for several days. I once injected 0.1 c.cm. of 1 in 100 dilution intradermally. About eight hours later I felt very ill, with severe rigors and temperature 103° F. Next morning my temperature had returned to normal. I felt weak, but did not remain in bed. In forty-eight hours I had recovered completely. There was severe local reaction with blistering, and lymphangitis extending to the axilla. No mistake was made in the dose, because only the three dilutions mentioned were available, and just previously some quite young children had had similar doses. These children, as mentioned, were negative to higher dilutions.

Three members of my family—brother and sisters—died of tuberculosis, and a fourth is an invalid with the same disease. I have been subject to attacks of bronchitis every winter since I was a child. My health has otherwise been quite good, and I am now over 40. My finger nails are slightly curved, but there is no clubbing. For several years past I have examined my purulent sputum every time I got a cough, but have never found any tubercle bacilli. About two years ago I had my chest examined and x-rayed by a leading physician in London. No evidence of pulmonary tuberculosis was found. I had to leave England because of my winter disability.

My single experiment seems to indicate that a severe local and general reaction, following even so small a dose as one thousandth of a cubic centimetre of Koch's old tuberculin, is not proof of active tuberculosis in an adult. It proves also that, to some of us, tuberculin is highly toxic.—I am, etc.,

August 13th.

M.B., D.P.H.

Haemorrhage from Peritonsillar Abscess

SIR,—If Mr. Thomas A. Clarke turns to page 257 of Mr. Irwin Moore's authoritative work *The Tonsils and Adenoids and Their Diseases* (Heinemann, 1928) he will find the following passage:

"Cunningham states that . . . (d) the descending palatine branch of the internal carotid anastomoses with the ascending palatine and tonsillar branches of the external maxillary, and with the ascending pharyngeal."

The gist of Mr. Denis Browne's communication seems to be that haemorrhage following tonsillectomy is venous rather than arterial in origin. Anybody who has seen small arterial twigs spurting in the tonsillar fossa at operation will find it hard to believe this. Again, one often sees a considerable length of the medium-sized vein referred to lying on the capsule of the tonsil after tonsillectomy with the guillotine, and it is remarkable how very seldom haemorrhage follows.—I am, etc.,

Dublin, Sept. 18th.

T. G. WILSON.

Medical Training for Natives in South Africa

SIR,—Our attention has been drawn to a communication from your Pretoria correspondent in connexion with medical and nursing services in the native territories of the Union of South Africa which was published in your issue of July 21st (p. 128). With the proposition that the provision for these services is hopelessly inadequate we are in complete agreement, and we welcome the action of His Majesty's Ministers in the Union of South Africa in deciding to improve the position. Since, however, the remarks of your correspondent may be taken to mean that the medical schools already in existence in this country are unwilling or unable to undertake the work of training natives as doctors, we have thought it desirable to address you on the subject, and to show conclusively that this is not the case.

The position of this university in this matter was set out in Union Government Blue Book 35, 1928, Section 55, which reads:

"55. The resolutions on the subject, which were adopted by the University of the Witwatersrand in October, 1927, are to the following effect:

(a) That, if the Government decides that facilities for the training of non-Europeans in medicine should be provided, the Council considers that no separate school should be instituted for the purpose, but that the facilities should be offered by one of the existing medical schools.

(b) That this University is prepared to undertake the training under the following conditions:

(i) In view of the strong prejudice of the community, non-European students cannot be admitted to the existing medical classes for European students, but they must be taught in separate classes.

(ii) The same training should be given and the same standard demanded as for European students.

(iii) As the finances of this University cannot support the additional burden entailed by the establishment of classes for non-European medical students, full provision should be made for such additional cost, including the necessary buildings and equipment as well as the recurring expenses."

With these resolutions we are still in complete agreement, except that we should not now lay quite so much stress on segregation. Obviously native medical students could not receive their clinical training in European wards, but some of the pre-clinical work could be done in joint buildings. In so far as clinical material is concerned there is an ample supply in Johannesburg. Our one bottle-neck is obstetrics, and even here, with the admirable facilities provided by the Bridgman Memorial Hospital for Natives, we could obtain amply sufficient

cases for the number of native medical students likely to come forward in Johannesburg.—I am, etc.,

University of the Witwatersrand,
Johannesburg, Sept. 4th.

H. R. RAIKES,
Principal.

* Although the views expressed by the Principal are entitled to respect, it must be pointed out that three of the five members of the Government committee, to whose report he appears to take exception, were themselves members of the Board of the Faculty of Medicine of the Witwatersrand University, and therefore presumably well-informed as to the true sentiment of the university. These members were: Sir Edward Thornton, Dr. A. J. Orenstein, and Dr. E. H. Cluver. Further, in spite of public statements as to the willingness of the university to provide higher education for natives (including medical education), no Bantu student has yet been admitted to the university, although there must be numbers of natives desirous of reading medicine, since not a few proceed overseas to British schools to take the course.—ED. B.M.J.

"Port Sanitation and Common Sense"

SIR,—Having spent some years as a port medical officer I was much interested in the article by "Ship Surgeon" in the *Journal* of August 25th, and I should like to express my entire agreement with his very common-sense criticisms.

Bills of health, of which the captain usually produces a bundle, all duly stamped for varying amounts, are seldom looked at, and the present system under which ships from so-called "infected ports" are boarded, crews inspected, and addresses taken regardless of the state of health of those on board, and in the absence of any infectious disease, is an anachronism seldom justified by results. It is immaterial where the ship comes from, provided she is free from infectious disease, and I consider that if the captain or doctor can answer the questions on the declaration of health in the negative, the ship should be given free pratique without reference to the port medical officer. If, however, the captain or doctor is for any reason unable to do so, it is nowadays a simple matter to send a wireless message stating the probable time of arrival, and the port medical officer can then make the necessary arrangements to meet her. I am convinced that if a system on these lines was adopted it would effect considerable economy in time and money without loss of efficiency.

In your editorial of September 8th (p. 480) Dr. White, medical officer for the Port of London, is quoted as expressing the hope that the routine boarding of ships from infected ports may be discontinued. In this I wish him every success, though I fear he will meet with opposition from higher authorities. I have been told many amusing stories of the procedure in some foreign ports—amusing, that is, in retrospect, though undoubtedly irritating at the time—but I think "Ship Surgeon" will agree with me that in English ports he is not pestered for details of the bos'n's lumbago, etc., and that ships are cleared with the least possible delay and inconvenience. At any rate, captains have on several occasions expressed their appreciation of the quick clearance they get in home ports, as contrasted with the delay and irritating inquisition to which they are subjected in many foreign ports.—I am, etc.,

September 20th.

P.M.O.

SIR,—I appreciate the reply by "Ship Surgeon" to my criticism of his original article on "Port Sanitation and Common Sense." I also realize that his remarks were aimed chiefly against the officials in South American and Mediterranean ports rather than against those in Great Britain.

Let me remind "Ship Surgeon" that the questions about cases of illness, etc., are still put verbally by the quarantine officer of H.M. Customs when granting pratique to vessels arriving from ports within the area bounded by the mouth of the Elbe on the east and Brest on the west, for which area the declaration of health does not require completion. His objection to a recital of cases *completely recovered* from illness occurring early in the voyage may at first sight seem reasonable. But what of the fomites? It is essential for the port medical officer to know what has been done in the way of fumigation and disinfection (if anything, has been done at all) to the bedding and the quarters occupied by the patient. In my experience surgeons are apt to be rather vague on this point, and few ships carry the wherewithal to fumigate so important a fomite as, say, the mattress on which the patient lay.

The general practitioner ashore is in precisely the same position as the ship surgeon with regard to "missing" a case of typhoid fever, etc., but experience teaches port medical officers to have typhoid in particular uppermost in mind, as it is the most frequent disease labelled "influenza" or "P.U.O.," especially in the first stages or when of the ambulatory type. I take it "influenza" is one of "Ship Surgeon's" "minor maladies" in the ordinary way. Ninety-nine times out of a hundred "minor ailments" may be mares' nests, but it so happens that the port medical officer has to be constantly on the *qui vive* for the hundredth occasion.

No port medical officer would claim omniscience for an instant, but with great diffidence I would point out that a D.P.H. and/or a D.T.M. and H. are essential qualifications for a port medical officer, in England at least, whereas a ship surgeon requires at present no special qualifications. Until the ship surgeon is legally made the medical officer of health of the vessel he serves in, I feel that the Utopia we all hope for, when much of the routine can be abolished, is still far distant, and the law (ass that it may be) will have to be maintained. I fully appreciate that "Ship Surgeon" was not addressing his remarks at British port sanitary authorities, and I would again like to express the great pleasure it gave me to read his article, a pleasure which I am sure was enjoyed by many others.—I am, etc.,

September 23rd.

A PORT MEDICAL OFFICER.

The Services

Lieut.-Colonel Nanalal Maganlal Mehta, Indian Medical Service, died at Trichinopoly on July 19th, aged 46. He was born on December 31st, 1887, and was educated at the Grant Medical College, Bombay, where he took the L.M.S. in 1910, and at the Middlesex Hospital, taking the M.R.C.S., L.R.C.P. in 1911. Entering the I.M.S. as lieutenant on July 26th, 1913, he became lieutenant-colonel after twenty years' service. He served in the war of 1914-18—in German East Africa in 1914-16 and in the Egyptian Expeditionary Force in 1916-18. After the war he entered civil employ in the Madras Presidency, where he had been civil surgeon, successively, of South Kanara, Coonoor, and Trichinopoly.

Lieut.-Colonel Albert Anderson Meaden, D.S.O., R.A.M.C. (ret.), died after a year's illness at Dymchurch, Kent, on August 31st, aged 58. He was born on June 15th, 1876, the son of the late Rev. R. A. Meaden, was educated at Highgate School and at Bart's, where he gained the Lawrence gold medal and scholarship in 1903, and took the M.R.C.S., L.R.C.P. Lond. in 1902. Entering the R.A.M.C. as lieutenant on January 30th, 1904, he became lieutenant-colonel on October 4th, 1926, and retired on June 15th, 1931. He served in the war of 1914-18, was mentioned in dispatches in the *London Gazette* of February 7th, 1915, and January 1st, 1916, received the D.S.O. in 1916, and served in Afghanistan in 1919, again being mentioned in dispatches. He leaves a widow and one daughter.

Obituary

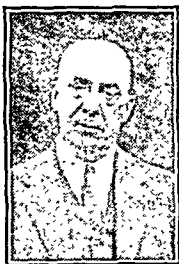
W. H. TRETHOWAN, F.R.C.S.

Orthopaedic Surgeon to Guy's Hospital

The death of Mr. William Henry Trethowan, at a comparatively early age, came as a great shock to all his friends. He had been unwell with acute tonsillitis, but had made a good recovery, and it was hoped that on the return from his holiday he would come back full of vitality. He unfortunately appears to have developed an acute septicaemia, from which he died on September 12th after a short illness in Stockholm.

He was an exceptionally gifted man. From the outset his career was brilliant: he worked his way up with a series of scholarships and entered Guy's Hospital in 1901.

In 1906 he was awarded the gold medal in the M.B., B.S.Lond.; and subsequently held all the junior house appointments at Guy's. In 1912, after obtaining the F.R.C.S., he was appointed the first orthopaedic surgeon to that hospital. During the war he was chosen by Sir Robert Jones as one of the surgeons to help him in the great work at the Military Orthopaedic Hospital, Ducaune Road, Shepherd's Bush. After the war he was elected surgeon to the Royal



National Orthopaedic Hospital and consulting orthopaedic surgeon to Queen Mary's Hospital for Children, Carshalton.

To those who knew him any obituary notice must sound cold and inadequate, for he was a most remarkable man. He was said by his contemporaries not to have shown in his early days any special surgical aptitude, but the fact remains that, whether it was an inherited or an acquired gift, he succeeded in making himself the most masterly technician of his day. He developed certain methods of his own. He always operated under a tourniquet, and was well known for the length of his incisions—in fact, it was always easy to recognize a case that had been operated on by him. Some used to think that his incisions were unnecessarily long; but when one saw him at work, and saw how the parts seemed to fall away under his magical fingers, and how a difficult operation when performed by him appeared so easy, one realized that though the incision may have been long it greatly simplified the operation. Onlookers were often amazed to see him sew up the wound without ligaturing any vessels, and when questioned upon this he always used to say that if you get down to the bone at its most superficial part and stay there you cannot cut anything of importance. His facility with the knife led him to do operations which other people might hesitate to undertake, and there is scarcely any orthopaedic condition for which he has not at one time or another attempted some bold procedure. His boldness was such that it left his audience flabbergasted, but he seemed to have an uncanny gift of knowing exactly how far he could go with safety. This operative skill in the hands of a lesser man would have been a most dangerous one, but Mr. Trethowan was a very strong critic of himself and was the first to admit if any method he advocated did not come up to his expectations.

He had a very great sense of responsibility—responsibility to his hospitals, to his patients, to his students, to his subordinates. He was continually worrying whether he was teaching his dressers sufficiently and whether full use was being made of the beds he had at his disposal. The trouble he was always up against was how he could reconcile this sense of responsibility to his

hospital work with the clamourings of a colossal practice. The tragedy is that he succeeded, and those who were in close touch with him realized he was doing far too much.

Mr. Trethowan could never think in a groove. Any subject he gave his attention to he always illuminated; consequently, though unorthodox, he was a most inspiring teacher. His out-patient clinics were always well attended, not only by Guy's students but by men from all parts of the world. There was never one moment's dullness while listening to him. He could always extract some interest out of an apparently dull case, and even the proceedings by outbursts of an irrepressible sense of humour. We have already mentioned in how many directions he was torn by his sense of responsibilities and how, at the expense of his health, he succeeded in reconciling it, but there was one duty he overlooked, and that was his duty to posterity. It will always remain a matter of deep regret to his friends and colleagues that the call upon his time was so great that he was not able to put in writing the thoughts that passed through his brilliant brain. He was such a great artist in everything he did that had he elected to write a textbook on orthopaedic surgery there is no doubt that it would have been a memorable volume.

C. L.

E. M. L. writes:

The untimely death of William Henry Trethowan must be deplored by all those who worked with or under him. When, during the world war, the appalling mortality of gunshot wounds of the limbs was realized by the Government, and Sir Robert Jones (then Major-General Jones) was entrusted with the formation and direction among others of the Military Orthopaedic Hospital at Shepherd's Bush, he very wisely decided to form a staff of young surgeons who might be expected to be receptive of new ideas and not have much to unlearn. Among those selected was W. H. Trethowan, who joined the staff as a captain R.A.M.C.(T.) and served on it till some time after the cessation of hostilities, when the hospital was continued under other designations. The lessons which he learnt at Shepherd's Bush Trethowan put into practice at Guy's and at the other scenes of his activity. Trethowan was an outspoken critic of others' work: his own work in the operating theatre was bold but sound. His was always an independent mind, and it was never his habit "jurare in verba magistri" without critical inquiry. Nevertheless the teaching of Robert Jones affected him strongly, and he contributed the article on "The Treatment of Simple Fractures" to Jones's *Text-Book of Military Orthopaedic Surgery* in 1920. He also contributed the article on orthopaedic surgery to Choyce's *System of Surgery*. He was a skilled musician, and among his instruments were the organ and the pianoforte.

JOHN A. MILROY, M.A., M.D.

Professor of Biochemistry, Queen's University, Belfast

We regret to record the death, on September 19th, of Professor John A. Milroy, who came to Belfast as lecturer in physiology in 1902. After a distinguished undergraduate career at Edinburgh he graduated M.B., C.M. in 1896, having obtained the degree of M.A. in 1893. He filled the posts of demonstrator in physiology in Leeds and at Owens College, Manchester, and proceeded to the degree of M.D. in 1902. Part of his post-graduate studies had been undertaken on the Continent, and he gained valuable experience in laboratories in Germany, where his enthusiasm was stimulated and his knowledge extended by studies carried out in that country.

Professor Milroy never lost interest in the work of universities all over the world, and he was familiar with

physiological progress in Germany, Austria, and the Netherlands, whose languages he read in the original text. His wide knowledge of the literature was in frequent demand by his co-workers. In this connexion it is pleasant to record his agreeable personality and ease of approach: no one in search of help ever found a man more willing to assist without leaving any sense of inferiority or animosity, but rather arousing a sense of admiration. "Doctor John," as he was familiarly known, never obtruded his own views solely to stimulate a conflict in a discussion, nor did he ever appear other than kindly, if somewhat shy; nevertheless, he expounded his views with a quiet assurance that was more than helpful. Milroy made many valuable scientific contributions to various journals, with which his colleagues in biochemistry and physiology are familiar. He was one of the contributors to the *Encyclopaedia of Medicine*, but is best known to medical students for his book, *Practical Physiological Chemistry*, of which his brother, Professor T. H. Milroy (who holds the Dunville chair of physiology at Queen's University, Belfast), was part author.

Having filled the post of lecturer in physiology at Queen's University for seven years from 1902 Dr. Milroy, as he then was, succeeded to the lectureship in biochemistry, and subsequently, in 1922, was appointed reader in the same subject. The munificent donation of the late Mr. J. C. White to the university was partly devoted to laboratories and to the establishment of the chair in biochemistry, of which Professor Milroy was the first occupant, and which he held at his death. In this position he more than fulfilled the early promise of his undergraduate days, and his loss leaves a vacancy which will be difficult to fill.

During his thirty-two years' connexion with Belfast Professor Milroy endeared himself to his colleagues and successive generations of students. He was unmarried, and resided with his brothers and sisters, with whom deep sympathy is felt in the medical and academic world of Belfast.

CYRIL CHARLES WILLIAM MAGUIRE, M.D., M.R.C.P.

Physician to Out-patients at Queen's Hospital, Birmingham

Dr. Cyril Maguire died at his residence in Harborne Road, Edgbaston, on September 15th, at the age of 37. He returned from his holidays in Scotland at the end of August, and soon afterwards developed a cold, which led to severe complications, and he died of septicaemia after an illness of about twelve days.

He was the only son of Mr. Bernard Maguire of Stirling Road, Edgbaston, and was educated at St. Philip's Grammar School, and at Birmingham University, which he entered as a medical student in 1916 at the age of 19. He had scarcely embarked on his medical career when he volunteered for military service, and joined the Royal Warwickshire Regiment at the end of 1916. In the war he served with distinction, and was awarded the Italian Military Cross for a special act of bravery, and was twice mentioned in dispatches by the Earl of Cavan. He resumed his medical studies in 1919, and after a distinguished career as a student took his medical degree in 1923.

In preparation for the career before him he held a succession of posts in Queen's Hospital, Birmingham, being in turn house-surgeon, house-physician, medical registrar, and pathologist. In 1926 he obtained the post of physician for out-patients at Queen's Hospital, and after a course of study in Paris and Vienna took up his duties at the hospital. He quickly added to his reputation, and was soon a very popular young physician, held

in high esteem by his colleagues and beloved by his patients. The students appreciated his teaching, and attended both his out-patient clinic and his lectures in large numbers. At the same time he developed a big private practice, and was highly thought of by a wide circle of medical practitioners, who relied on his help in their most difficult cases. Dr. Maguire was joint honorary secretary of the Birmingham Branch of the British Medical Association in 1927-30. He leaves a widow and two children.

An old school friend writes: Cyril Maguire was a man of striking personality. He was always so. Even when a schoolboy he stood forth from his fellows. He worked hard and he played hard. He had a spice of joyous mischief, a heritage from his Irish forebears, which endeared him to everyone. On the football field his vigour was more striking than his orthodoxy, but his coltish figure already gave promise of the impressive physique which so dignified his manhood. At an age when normally he should have been pursuing his medical studies he became a subaltern in the Royal Warwickshire Regiment. He served in France, and later on the Austro-Italian front. He was twice mentioned in dispatches, and earned the Italian Military Cross by a deed of gallantry typical of the man. Two days before the battle of the Piave River he volunteered to enter the Austrian front line trenches to take a prisoner for the purposes of interrogation. With three others he succeeded in his mission, running the gauntlet of fire from the enemy and our own troops. On demobilization he returned to us, not as the homing warrior, but as a man who, having done one job, was eager for the next. As a medical student he displayed the same energy and thoroughness, passing his professional examinations in his stride. As a humorous writer he became a stalwart of the *Queen's Medical Magazine*. He was a man who won and kept the friendship of the many who now mourn his loss. A devout Catholic, his faith was reflected in his daily life. We who loved him knew that no success would spoil him, and his young life was rich with promise.

We regret to announce the death of Dr. JOHN HOLLINGWORTH at the home of his son in Cottingham, Yorkshire. When he retired from active work, on grounds of health, after practising in East Hull for more than fifty-five years, Dr. Hollingworth was the oldest medical man in that city, where his father had practised for many years before him. He was born in 1853, and studied for his profession at the Leeds School of Medicine, obtaining the M.R.C.S.Eng. diploma in 1877. During his earlier years of practice he took an active part in politics, serving as chairman of local Conservative organizations and helping to found the Primrose League in Hull. In later life he was prominently associated with the work of local scientific, photographic, and other learned societies, and his services as lecturer were much in demand. At the time of his retirement last November Dr. Hollingworth had been a member of the local Division of the British Medical Association for fifty-six years. A kindly, competent, well-informed North Country doctor of the old school, with a strong sense of public duty, his memory will long be held in affection by a wide circle of friends and former patients.

The death occurred in Edinburgh on September 20th, of Dr. JOHN YOUNG, who had practised for half a century at Earlston, Berwickshire. He was born in 1855 at Lilliesleaf, Roxburghshire, where his father was minister of the United Presbyterian Church. After a medical course at Glasgow University, Dr. Young graduated M.B., C.M. there in 1883. He spent a period as resident house-

surgeon in the Glasgow Eye Infirmary, and then as house-surgeon in Scarborough Hospital; in the latter town he also engaged for a time in general practice. He then settled at Earlstoun, and became one of the best-known practitioners of the Border region. During the coming autumn he was to have received a public testimonial in recognition of the great affection and esteem in which he was held by his patients, and of his fifty years in practice. Unfortunately, he became ill while on holiday, and died after only a few days' illness. Dr. Young was a keen supporter of the British Medical Association, which he joined in 1887, and at one time was chairman of the South-Eastern Counties Division. He was a devotee of motoring in the early days of this form of transport, and was one of the first doctors in Scotland to use a motor car. He is survived by a widow and two married daughters.

Dr. MARION BALFOUR MARSHALL ROCKWELL, for over thirty years a prominent physician at Amherst, Mass., U.S.A., died there on August 15th. She was born in Scotland on April 24th, 1873, the daughter of Thomas R. Marshall. Educated at Edinburgh and in Germany, she travelled in France and Switzerland before starting her medical studies at the school of the Royal Colleges of Physicians and Surgeons, Edinburgh. Two years later the University of Edinburgh was opened to women students, and Marion Marshall studied there, graduating M.B., C.M. in 1899. She then took a post-graduate course in bacteriology and in ear, nose, and throat diseases, and worked at the Royal Infirmary under Dr. Norman Walker (now Sir Norman Walker). In 1901 she went to America and married Dr. Herbert G. Rockwell, whom she had met at Edinburgh while he was taking a post-graduate course there. In 1902 Dr. Marion Rockwell passed the Massachusetts State Board medical examinations, and shortly after this they moved to Amherst. Dr. Herbert Rockwell enlisted in the medical service during the war, and Dr. Marion cared for her own and her husband's practice while he was on service. He died in 1927. She was a practitioner of unusual sympathy, and was noted for the great amount of charitable work she did. She was a widely travelled woman and an interesting speaker. Throughout the years music provided a delightful refreshment from her strenuous life as a physician. But she loved her medical work, and many of her patients were her personal friends. Though she had travelled extensively in Europe, the East, America, and Canada, she loved to revisit Edinburgh, the home of her childhood. She was a sister of the late Dr. George Balfour Marshall of Glasgow. Dr. Marion Rockwell is mourned by a large circle of friends, both in this country and in America. She was for twenty years a member of the British Medical Association.

The following well-known foreign medical men have recently died: Professor OSKAR WELTMANN, head of the medical department of the Kaiser Franz Joseph Hospital, Vienna, aged 49; Professor TOM RINGEL, director of the First Surgical Department of St. George's Hospital, Hamburg, aged 65; Dr. CONSTANTIN KAUFMANN, founder of the Swiss society of industrial diseases and accidents; Professor KOBAYASHI, director of the lepers' hospital at Oshima, Japan; Professor PIO PEDICINI, a prominent syphilologist of Rome, aged 55; Professor LUIGI SIMONETTA of Milan, a prominent hygienist and Senator of Italy, aged 77; Geh. Med. Rat Dr. PAUL KRAUSE, professor of internal medicine and director of the medical clinic at Münster, aged 62; Professor M. HAMELINCK, a Ghent psychiatrist, aged 51; Dr. VALDEMAR MEISEN, a Danish surgeon and medical historian, aged 56, of coronary thrombosis; and Surgeon General Inspector EMILE CALMETTE, who took part in the Tunisian Expedition of 1881, and during the war was Director of the Medical Service of the 19th Army Corps, aged 83.

Medical News

The opening address of the new session at University College Hospital will be given by Sir John Rose Bradford in the library of the Medical School on Monday, October 1st, at 3.15 p.m. The annual dinner will be held on Friday, October 12th, at 7.30 p.m., with Sir John Parsons in the chair.

The new session at Guy's Hospital Medical School will open on Wednesday, October 3rd, at 2.45 p.m., when Lord Nuffield will distribute the prizes and Mr. C. H. Fagge will give the inaugural address.

The opening of the ninety-third session of the School of the Pharmaceutical Society of Great Britain and the presentation of the Hanbury medal, diplomas, and prizes will take place on Wednesday, October 3rd, at 17, Bloomsbury Square, W.C. The inaugural sessional address will be given by Dr. George Barger, F.R.S., professor of chemistry in relation to medicine in the University of Edinburgh.

The 1934-5 session of the West London Medico-Chirurgical Society opens on Friday, October 5th, at 8.30 p.m., when Mr. Howard M. Stratford will deliver his presidential address at West London Hospital, entitled "A General Practitioner Surveys Psychology." On December 7th papers will be read by Mr. Johnston Abraham on "The History of Syphilis," and by Mr. James Kemble on "The Medical Life of Lord Byron." On January 11th, 1935, Mr. Hugh Cairns will read a paper on "Recent Advances in Intracranial Surgery," and on February 1st Mr. V. B. Green-Armytage will open a discussion on an obstetric subject. A discussion on "Jaundice" will be opened by Dr. J. W. McNee on April 5th.

The annual dinner of the West Sussex Clinical Society will be held at the Dolphin Hotel, Chichester, on Wednesday, October 3rd, at 7.30 p.m. Tickets 8s. 6d. each. Ladies and non-medical guests are invited. After dinner, Dr. Habberton Lulham will deliver a lecture on "Human Nature through a Doctor's Eyes."

The final programme has now been issued for the opening of the new session at the Faculty of Medicine of the University of Birmingham. Besides the usual address and the annual dinner of the school, a series of post-graduate lectures will be given at the affiliated hospitals. On October 4th there will be lectures at the Queen's Hospital in the morning and afternoon; and at 5 p.m. Dr. F. Brett Young will distribute the prizes to students and give an address. At 7.45 p.m. a reception by the dean at the Grand Hotel will be followed by dinner in the Grosvenor Room. On October 5th there will be lectures in the morning at the General Hospital, and in the afternoon at the Children's Hospital, Ladywood Road.

Professor Charles Singer will deliver his presidential address before the London Jewish Hospital Medical Society at the London Jewish Hospital, Stepney Green, E., on "Jewish Influence on Western Europe in the Early Middle Ages," on Thursday, October 4th, at 3.30 p.m.

A series of lectures on "The Prevention of Disease," delivered under the joint auspices of the Royal Institute of Public Health and the Institute of Hygiene at 28, Portland Place, W., opened on September 26th, and will be continued on Wednesdays at 3.30 p.m. to December 12th inclusive.

The old students' post-graduate course at the London Hospital Medical College will be held from Wednesday to Saturday, October 17th to 20th inclusive. The Schorstein Memorial Lecture will be delivered by Sir Farquhar Buzzard, Regius Professor of Medicine in the University of Oxford, in the Medical College on October 18th at 4.30 p.m., and the old students' dinner will be held on that day at 7.30 p.m. in the Trocadero Restaurant, when Dr. J. H. Thomas, a former student, will preside.

The British Institute of Philosophy (University Hall, 14, Gordon Square, W.C.) has arranged a course of four lectures on the importance of a philosophy of life for mental health, for the medical profession, on Thursdays at 5 p.m. from November 1st to 22nd. The first lecture, on "The Biology of Social Life," will be delivered by Professor W. Langdon Brown; the second by Dr. William Brown on "Health, Self-determination, and Free Will"; the third, on "Creative Activity and Mental Health," by Dr. Emanuel Miller; and the fourth by Dr. H. Crichton-Miller on "Belief and Adaptation." Applications to attend the course, the fee for which is 12s. 6d., should be made to the director of studies at the Institute.

A course in tropical medicine and hygiene will be held at the Hamburg Institute for Naval and Tropical Diseases from October 8th to December 8th. Further information can be obtained from the Institut für Schiffs- und Tropenkrankheiten, Bernard Nocht Strasse 74, Hamburg.

A course in cardiovascular diseases will be held at the Hôpital Broussais, Paris, from October 8th to 20th, under the direction of Dr. C. Laubry. The fee is 150 francs. Further information can be obtained from Dr. Lemant, Hôpital Broussais, Paris 14e.

Professor Portmann of Bordeaux will give a course in oto-rhino-laryngological surgery in Paris from October 17th to 24th.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., at 2.30 p.m. on October 2nd and 9th. Courses of instruction include a week-end course on diseases of the heart and lungs at the Royal Chest Hospital, occupying the whole of October 13th and 14th; medicine and surgery, at the Metropolitan General Hospital from October 8th to 20th, 10.30 a.m. to 6.30 p.m.; cardiology, at the National Hospital for Diseases of the Heart, October 8th to 20th, occupying the whole of each day; ophthalmology, at the Royal Westminster Ophthalmic Hospital from October 15th to November 3rd, every afternoon; clinical surgery, at the Royal Albert Dock Hospital, October 20th and 21st; gynaecology, at the Chelsea Hospital for Women from October 22nd to November 3rd. These courses are open only to members and associates of the Fellowship.

The twenty-second annual meeting of the National Association of Insurance Committees will be held at Scarborough on October 4th, 5th, and 6th.

The Anglo-American Continental Medical Society will hold a meeting in Paris at Dr. Jarvis's (81, Boulevard Maiesherbes) on Saturday, October 6th, at 5 p.m. Medical men who are eligible for membership—that is, those who possess British or American qualifications and are licensed in Europe or contiguous territory—are invited to attend. At an informal dinner afterwards a number of London and Paris guests will be present. We are asked to correct a slip in the report in our *Supplement* of August 18th of the society's luncheon party at Bournemouth during the Annual Meeting of the British Medical Association. The honorary secretary is not Dr. Tom Williams (Bordighera), who was deputed to make the arrangements on that occasion, but Dr. H. J. Spon (6, Via Cavour, Ospedaletti, Ligure, Italy).

Features of special interest in the annual exhibition of the Royal Photographic Society, Russell Square, which closes on October 6th, include a photograph of the third quarter of the moon enlarged to 7 feet by 4 feet; aerial views; photographs taken during operations on the brain; and the application of Grenz rays for radiography of small biological specimens. Considerable advances have been made during the last twelve months in the production of sensitive materials suitable for use with cathode-ray and other high-speed oscillographs. The cathode-ray cardiograph for recording heart beats, and various x-ray cinematograph films are demonstrated on Monday, Wednesday, Thursday, and Saturday evenings, and on Saturday afternoons.

The second international Congress of the History of Science will be held at Madrid under the presidency of E. García del Real from October 7th to 14th. Further information can be obtained from the general secretary, Professor Francesca Vera, Calle de Caracas 8, Madrid.

The annual prize distribution and conversazione of the Royal Dental Hospital of London, School of Dental Surgery (University of London), will take place at the hospital in Leicester Square, W.C., on Friday, October 5th, at 8 p.m., when Professor William Wright will preside.

A congress of the Association for Photographic and Cinematographic Documentation in Science will be held at the State Paedagogic Museum, Rue d'Ulm, Paris, from October 8th to 12th. Further information can be obtained from Dr. Claoué, 39, Rue Scheffer, Paris, 16e.

A severe epidemic of poliomyelitis has recently broken out in Denmark.

Professor Bruno Oskar Pribram, director of St. Hildegard's Hospital of Berlin, has been made a corresponding member of the Société Nationale de Chirurgie de Paris; Dr. Ludwig Robert Müller, professor of internal medicine at Erlangen, honorary member of the Neurological Society of Tokyo; and Dr. Ludwig Frankel, professor of obstetrics and gynaecology at Breslau, honorary member of the Italian and Brazilian Societies of Gynaecology and Obstetrics.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Chronic Bone Sinus

"A. B. C." invites suggestions for the treatment of chronic bone sinus, three to four inches in depth, the result of acute osteomyelitis many years ago. Non-healing is due to a narrow neck, and the cavity being in bone now much sclerosed. Is frequent irrigation after curettage best, or can the vaseline pack be employed? If irrigation, what solution, what strength, and how often? The correct treatment of "saucerization" in this case is impracticable. The disease is one of many years' standing and the patient elderly. Are internal medications, such as pot. iodide, manganese, etc., of any help?

Amidol Poisoning

"M. B." (Aden) wishes to know if there is any chemical inactivating or detoxicating agent other than rubber gloves to prevent amidol poisoning through the skin.

After-effects of Continued Doses of Adrenaline

"X. Y. Z." (London) writes in reply to "L. H." (*Journal*, September 15th, p. 538): Some years ago it was my privilege to see a patient—a chronic asthmatic—who to my knowledge had more than 50,000 injections of adrenaline over a period of twenty-five years in order to relieve his asthma. He was an expert chemist, and always made his own solutions, administering the injections himself. On occasion he had as many as ten doses a day. I never found his blood pressure more than 120 systolic, and his death a few years ago at the age of 74 was due to hypostatic pneumonia. Some other points may interest your correspondent. First, that adrenaline should always be given early in the attack, and that small doses are generally enough—I have seldom found more than 5 minims at one time necessary, while Dr. Hurst states that 3 minims is enough. Secondly, the dose may be repeated if need be. Finally, it would appear to be undesirable to administer adrenaline to an inflamed area.

Senile Pruritus

"EX-SUFFERER" writes from South Africa in reply to the inquiry by "Vrach" (July 28th, p. 192): I recommend the following prescription:

R. Hydrarg. ammon. chlor. 0.06 gram
Nivem hazelini (B. W. and Co.) . . . ad. 64.00 grams
Sig.

An amount the size of a split pea to be rubbed on the affected part until dry.

No scratching allowed. Relief comes within a few minutes.

*Income Tax**Employment of Assistant*

"A. B. T." inquires what effect, if any, would result (a) for the coming assessment, and (b) for the return to be made next April, from the employment of an assistant as from October 1st next.

* (a) No result—the assessment for 1934-5 being based on the profits of the previous year. (b) The cost of the assistant would be deductible as an expense from October 1st, and the return for 1935-6 would be affected accordingly—for example, by the deduction for three months if the accounts are made up to December 31st, and by six months if they are made up to March 31st.

New Practice—Cash Basis

"R. E." acquired his deceased partner's share, and thereafter the practice has been treated as a "new" one. Returns have throughout been on the "cash receipt" basis, but the inspector of taxes now claims that either the sums payable to the deceased partner's estate be brought into the calculation or the gross income be reckoned on the basis of bookings.

* The inspector's attitude is correct, because if "R. E." bases his return on the cash received by him the gross income for the first year or so will be shown at less than the true gross earnings. Probably the best course to follow will be to make the return on the basis of adjusted cash receipts—that is, the amount received plus the increase in the value of the book debts over the period.

LETTERS, NOTES, ETC.

Earwig in Ear

Dr. A. M. VALERIE BONHOTE (Tadworth) writes: At 1 a.m. I was rung up to attend a patient with acute earache. As this was an ante-natal case six weeks from her confinement I was rather anxious. On arrival I found her smiling and apologetic, saying that there was now very little pain. About half an hour before she had woken with a sensation of fluttering in her ear, and told her husband she thought she had a moth in it. She rubbed it, and then had one moment of acute pain, sufficient to make her cry out and wake her neighbours. Since then there had been two attacks of momentary, but less severe, pain; apart from that, there was merely a little discomfort. I found the meatus full of wax, and the drum could not be seen; there was a little blood on the posterior meatal wall, which was disquieting. The other ear was normal in appearance. There had been no history of nasopharyngeal catarrh, and the patient had gone to bed three hours previously feeling perfectly well. The temperature

and pulse were both normal. I decided that it would be safe to leave the patient for a few hours, after inserting some glycerin and carbolic acid drops. I saw her first thing in the morning, and she seemed well, and had had quite a good night. I very cautiously syringed the ear, and to my relief an earwig emerged, together with the wax. The appearance of the drum was interesting: the handle of the malleus was injected, and at one point there was a small scab where the vessel had been punctured. This explained the momentary acute pain and the bleeding—the work of the earwig. I imagine the glycerin and carbolic acid killed the earwig.

Pipe Cleaners' in Gynaecology

Dr. D. V. LATHAM (Mwanza, Tanganyika Territory) writes: Some years ago I conceived the idea of using ordinary pipe-cleaners, doubled up and held in forceps, where previously I had used Playfair's probes. I find the pipe-cleaners very useful, because the wire can be bent to any desired shape, they can be sterilized by boiling, and because, as they are not made by a surgical instrument manufacturer, they can be purchased from any tobacconist at twelve a penny. I am tempted to bring this device to your readers' notice because, on a recent visit to some of the more important teaching centres in the British Isles, I was surprised to find that the clumsy Playfair's probe still held sway.

Diagnosis of Glanders

In an *Epitome* abstract of this subject (No. 95, August 4th, 1934) reference was made to the Strauss test, and it was implied that in this test female guinea-pigs are used as experimental animals. The test actually consists of the intraperitoneal injection of suspected material into a male guinea-pig. This is followed, if the test is positive, by a purulent inflammation of the tunica vaginalis.

Diet Cards at Harrogate

A series of simple diet charts, adaptable to most types of diseases met with at the spa, have recently been drawn up by the Medical Society of Harrogate. They comprise the following varieties: low calorie, restricted carbohydrate-high-vitamin, restricted protein, lactovegetarian, and low fat. Printed on cards and used in duplicate, one of them is given to the hotel and the other retained by the patient. A particular point is the simplicity of the diets, which aims at bringing the scheme within the compass of the smaller hotels and boarding houses. The Harrogate Corporation, which provides us with this information, thus intends to remove the reproach levelled against Harrogate that sufficient attention is not paid to the important matter of diet in connexion with the "cure."

Vitamin D Concentrate

Glaxo Laboratories (56, Osnaburgh Street, N.W.1) have produced an illustrated pamphlet, "A Decade of Vitamin D," to commemorate the introduction in August, 1924, of ostelin liquid. Ten years ago ostelin liquid was prepared by extracting the vitamin D fraction from fish-liver oils; later its vitamin D content was derived from crude irradiated ergosterol; since 1932 this vitamin has been in the form of chemically pure calciferol, and its standardization can thus be effected to a degree of precision that was previously unattainable. Copies of the booklet are available to medical practitioners at their request.

Orthopaedic Treatment of Infantile Paralysis

In Dr. Charles Mackay's letter on page 534 of our issue of September 15th, nine lines from the bottom, the word "possible," through an unfortunate printer's error, appeared instead of "impossible." The sentence should have ended, "... this ideal treatment advocated is not impossible of achievement."

Watson and Sons, Ltd., Sunic House, 43, Parker Street, Kingsway, W.C.2, have issued a pamphlet entitled *Short-Wave Therapy*. A good deal of this is devoted to their "novotherm" valve-operated apparatus, while there are also added indications for treatment and a short bibliography.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 160.

BRITISH MEDICAL JOURNAL

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USE OF NARCOTICS IN THE TREATMENT OF NERVOUS AND MENTAL PATIENTS*

BY

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When I was asked to open this discussion before the combined Section of Neurology and Psychological Medicine I protested that I was neither a neurologist nor a psychiatrist. It was thought, however, that some observations by a general physician might prove a good jumping-off ground for the experience of those engaged in these two special branches of medicine. I concurred in this, but I will frankly admit that my acceptance of the invitation was influenced quite as much by my desire to pay homage to the doyen of psychological medicine, whose personal request had so honoured me, as by any other consideration. I shall assume the privilege of opener to present the subject from rather a wide outlook, because my own work leads me inevitably to take such a view, and although the essence of the discussion will turn upon the use of drugs, it can scarcely be out of place for the opener to consider exactly where drugs stand in relation to other measures and what are the indications for their use.

Clearly the term "narcotics," as used in this discussion, is generic, and includes measures that allay pain, whether mental or physical, as well as measures that induce sleep. Otherwise we tend to make a convenient distinction between pain killers or narcotics proper, sleep producers or hypnotics, and measures which bring quiet and poise to the nervous system or sedatives. There is considerable overlap between these groups of therapeutic agents. All narcotics help to produce sleep, either indirectly or directly, but all hypnotics do not relieve pain unless used in doses large enough to produce unconsciousness which is more than mere sleep. In this case they are termed anaesthetics, and are, strictly speaking, outside the limits of our discussion. When the chief cause of sleeplessness is pain then even mild doses of narcotics, by allaying it, may induce sleep indirectly rather than directly, and sedatives, by cooling the fevered brain, prepare the patient for sleep which is then more natural than artificial.

Causes of Insomnia

The key to the successful treatment of insomnia, as in every other disease, is a correct diagnosis. We must track down the cause or causes. Psychological causes have been termed "primary," as against pain, fever, etc., which are regarded as "secondary." But sleep is so essentially a function of the whole organism that such a classification is as unsatisfactory as are most classifications in regard to diseases. Anxiety, or mental pain, is not the only

psychical cause of sleeplessness; all the emotions (remorse, fear, love, anger, sorrow, even joy) may give rise to it. These things require psychological treatment rather than, or as well as, drugs. The attitude of the patient's mind towards sleep and sleeplessness is sometimes very important, and especially the fear that want of sleep may cause him permanent injury. The fact that most people sleep more than is necessary, just as they eat more than is necessary, may be made use of in order to reassure the patient who is troubled on this score.

Purely intellectual brain work rarely, if ever, causes insomnia, provided the work be done under reasonably good physical conditions. But excitement—over-stimulation of the mind—frequently does. How, therefore, the patient spends the day, and especially the end of the day, is an important consideration. In some persons excess of bodily fatigue produces insomnia. More frequent causes are the various forms of dyspepsia, and in this category flatulence is a much more common factor than is pain. Here care is needed in the choice of food and the time of the last meal. Some patients sleep better if no food has been taken for at least two hours, and others if they take a little food just before retiring. For the dyspeptics the best hypnotics may well be an alkali, a carminative, or an antispasmodic.

Circulatory and respiratory troubles carry their special indications. Cough is a great disturber of sleep, and has its own list of causes needing consideration. Defects in the nose and other parts of the upper respiratory tract may also call for treatment; so also does pain, whether inflammatory, visceral, or due to direct nerve irritation as in sciatica and other forms of neuritis—or in neuralgia.

Fever, usually associated with toxæmia, demands special attention when present. Doctors and nurses who have not had experience of dealing with typhoid fever patients find themselves at a loss when the relatively unusual case of this disease appears in a severe form. When typhoid was much more rife and much more serious the routine was better understood and better practised. The influenza epidemic of 1918 found many practitioners ill prepared for the treatment of the sleepless pyrexial patient, the cardinal principle of adapting the bed-clothes to the height of the temperature, for example, rather than to the feelings of the patient, being often neglected. Organic brain diseases not infrequently demand hypnotic therapy, and this even when there is a general subsidence of the cerebral functions so that the patient is quiet for hours together. Encephalitis lethargica sometimes deceives us into thinking that the patient does not need sleep, and this may be a serious error.

* Read in opening a discussion in the Section of Neurology, Psychological Medicine, and Mental Diseases at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Insomnia without Mental or Physical Cause

But we may assume that all these so-called secondary causes of insomnia have been passed in review and have been dealt with so far as is possible. We pass on to the "primary" causes of insomnia. Of course the major psychoses form a very important group; those characterized by excitement are not the only ones requiring hypnotic measures: states of depression may need them quite as much. I shall be followed by speakers who have special experience of handling these patients, so I shall not deal specifically with them. But the sleepless patient who is not the victim of any gross morbid mental defect on the one hand, and who does not suffer from structural bodily disease on the other, presents a problem to all who engage in general medicine.

Before we decide to use any hypnotic drug we cannot know too much about the patient, both his body and his soul. Not infrequently he needs no drug at all, but rather a careful rearrangement of his routine and his habits, and perhaps the restoration of confidence in his ability to sleep, which he may have lost. It is necessary to consider first of all certain general measures. The patient may be, as many of us are, sensitive to noise. If he is intelligent it is not perhaps the actual volume of sound during the night which keeps him awake so much as his appreciation of the fact that certain noises are needless and preventable. This sense of the fitness of things is disturbed, and a process of thought is set going on the matter and a feeling of provocation. Some of us are trying to remedy this evil of needless noise, and I am glad to see that this Association has thought well to express sympathy with our efforts. Next to quiet comes fresh air—proper ventilation of the bedroom. But it must be admitted that if fresh air can only be secured at the expense of extra noise, many patients find that they sleep better if they exclude both.

There is great individual difference in the matter of darkness or light, as there is in that of warmth or coolness; in these things the patient is often a law unto himself. So also is he, as already observed, when food is considered. But in the matter of mental relaxation as a preparation for sleep we probably all follow the same rule, that the more complete this is the more certainly will sleep come to us. Two other general considerations deserve mention—posture and the bed the patient lies on: here are materials for experiment in individual cases.

Indications for Salicylic Preparations

When we come to the question of drugs it is always worth while to consider the simpler remedies first. I have referred already to alkalis, and to carminatives. The salicylic preparations, and especially aspirin, are frequently very useful. Ten grains each of bicarbonate of soda and aspirin—powdered, of course, rather than in tablet form—constitute one of the most useful sleep producers for simple cases of restlessness that I know. The addition of the same dose of bromide of sodium or ammonium will often be effective in even more tiresome cases, where it is important to put a mute upon a too active mind. Smaller doses of pyramidon, or phenacetin, or antipyrine, or a mixture of these, find their indication in another series of cases where there are physical discomforts, such as headache, eyestrain, myalgia, or over-fatigue in the bodily, rather than in the mental, sense. As pure sedatives the bromides are far and away our most useful preparations for controlling discharges of central nerve energy, whether paroxysmal and purposeless as in epilepsy or merely excessive and wasteful.

Of alcohol as a narcotic much might be said. To the tectotaller it is an excitant, and therefore quite useless. To the person accustomed to take it in moderation certain forms of it act as a mild and useful sedative.

Opium, Hyoscine, and Chloral

The great indication for opium and its derivatives is pain, in the presence of which sleep becomes impossible. This is especially so in those conditions in which pain tends to show exacerbations during the night. It is generally quite useless to prescribe pure hypnotics when insomnia is the direct result of physical pain. But the addition of a small dose of such a drug as medinal to an opiate sometimes enables us to give less of the latter than would otherwise be needed. Opium has an undoubted function in some forms of mental pain; very small doses serve at times to produce a state of euphoria, which is helpful in the re-education of the patient's mind along the lines of increased confidence. The older physicians prescribed tinct. camph. co. for the hypochondriac, and one of the best remedies I know for that state of *misère* from which patients of a pessimistic type not infrequently suffer over long periods is a grain of pil. saponis co. twice or three times a day. It has the advantage of not revealing the nature of its essential ingredient, a not unimportant point in these days, when most patients read their prescriptions before they leave our consulting rooms.

The good effects of hyoscine in Parkinson's disease and post-encephalitic Parkinsonism are well known; but this drug is worth exploiting also in some allied states, though always in the smallest doses. For controlling excitement and delirium it is rather dangerous, or so I think. I have seen an excited pneumonic patient felled by it as one fells an ox, the quiet so effectually produced becoming quickly the quiet of death. I do not use the drug in delirium associated with acute infections, or with organic visceral disease. In such patients I rely very largely upon the somewhat old-fashioned mixture of bromide with chloral, and I control delirium tremens by the same mixture, being careful to begin its use too early rather than too late.

Chloral has, I think, gone out of fashion undeservedly. Strangely enough, even bromidia, possessing as it does the attraction of being proprietary, and containing a little of that drug so tinged with romance—cannabis indica—is used very much less to-day than formerly. As to cannabis indica, it is unlikely that many specimens are active, and, when they are, their action is so erratic and individual that it seems largely a gamble if the patient is helped rather than hindered in his search for mental rest.

Of the others of the older group of narcotics, paraldehyde, despite its unpleasantness, still retains a good deal of popularity. Few know the hint given many years ago by Bevan Lewis that tinct. quillaiæ is its best adjuvant. The drug is an alcohol, and therefore acts incidentally as a volatile stimulant—one reason, no doubt, why, with all its nauseous qualities, it becomes occasionally the object of a drug habit. I have known a patient consume a pint in the twenty-four hours, and I remember diagnosing the case as I passed up the street and knocked at the door. For the rest, sulphonal, trional, and chloralamide seem to have lost favour, though we shall doubtless hear if this is as much so in asylum practice as it is in general work. This is an age when direct action is popular, and these drugs, to get their best effects, must be given some time before, and not immediately before, their effect is desired.

Intermediate between these older narcotics and the barbituric group are two bromide-urea compounds which deserve mention—bromural and adalin. I find them both useful, and since not a few patients remind me of the danger of what they call "dope," I am able to assure them that certain recent cautions applied to drugs of an entirely different class.

The Place of the Barbiturates

There is no doubt whatever, I think, that the introduction of the newer group of narcotics, termed "the bar-

biturates," has been a great boon to medicine. I refer, of course, to veronal, medinal, luminal, dial, allonal, and nembital. Not that this exhausts the list: the ingenuity of the chemist and the pharmacist sees to it that the list shall be endless. The British patient, just back from the Black Forest or from Lausanne, proudly takes a carton of the latest isomer of veronal out of her pocket or vanity bag and says: "You will not have seen this new drug, doctor." And she is quite frequently correct. It is claimed for the new preparation that it has all the virtues and none of the drawbacks of the old, and so it may be taken with advantage and with impunity. It seems a pity to dash these hopes in the patient's mind, and, to tell truth, we British are too good doctors to yield to the temptation.

The chief reasons that the barbiturates mark an advance in our available narcotics is that the dosage is more exact and the effects more constant. The number of patients possessing intolerance is very small, and I think the ill effects which have been adduced against their use have been exaggerated.

May I now deal with a few general considerations? In the first place we should remember that there is no ideal hypnotic. To get a constantly reliable effect without passing through a preliminary stage of excitement, to get no gastric irritation or cardiac depression, to get rapid assimilation and equally rapid and complete excretion, and, finally, to get no tolerance established—to get all these things in any drug is impossible. But certain of the barbiturates seem to attain more nearly to this ideal than any other narcotics known to us.

It is not the drug but the drug habit that calls for condemnation. Stimulants and sedatives provide a means of relative or entire escape from the troubles of life, and in this respect narcotics do not differ from alcohol, cocaine, tobacco, and tea. Sleep is one of the safest and pleasantest forms of escaping life. Some folk are able to form this habit of escape without drugs; they are quite as vicious as their less fortunate brothers and sisters who need a drug in order to achieve this blessed oblivion.

I suggest that we pay more attention to the state of the patient's mind and nervous system and less attention to the mere provision of sleep. If we can help him to a state of equanimity during the day, sleep will be more easily won during the night. This leads me to refer to the fact that if half the evening dose of a narcotic be given in the morning and the other half at bedtime the effect is frequently much better. Even such a small dose of medinal as 2 to 2½ grains, say, with 5 grains of bromide, given at (say) eleven in the morning and again on retiring, may be more helpful than if the whole dose be given at bedtime. For one thing the patient is not strung up for the moment of doubt and fear that faces him when the night comes, itself a deterrent against sleep. Again, he does not regard the medicine as a dope of which he is afraid or ashamed, or both—more deterrents.

In other matters it is the day that counts. Patients not infrequently resist a tendency to sleep during the day, lest giving way should prejudice their chances of sleep during the night. I think this is an error. Sleep is a habit—protective no doubt—and I have sometimes found patients sleep better at night if they encourage a doze midday.

Finally, let us remember the efficacy of the sleeping draught (in these days I suppose I should say the sleeping tablet) that is not taken, but stands by the bedside "in case." We must not deny the patient this boon; indeed, we may now insist upon it, for the fear of the dope has with many become greater than the fear of sleeplessness, and we must avail ourselves in the patient's interest of this new fear while it lasts.

OVARIAN CONDITIONS AS CAUSES OF PELVIC PAIN*

BY

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I welcome the opportunity of being one of the openers of a discussion on ovarian conditions as causes of pelvic pain because the subject is of interest to general practitioner and gynaecologist alike, and both will probably agree that so-called ovarian pain is one of the bugbears of medical practice. The word "bugbear" means "something frightful, as a spectre, or anything imaginary which arouses needless fear," and can only be rightly applied to pain that is supposed to, but does not actually, arise in the ovary. The object of our discussion to-day is to decide what conditions of the ovary do produce pain, or, conversely, how much of the so-called "ovarian" pain is really of ovarian origin.

Before attacking the main problem I would like to recall a few facts concerning the anatomy and physiology of the ovary. Although lying within the abdomen the ovary is not covered by peritoneum, but by a layer of cells, often imperfectly preserved, known as the germinal epithelium. This arrangement no doubt facilitates ovulation. T. C. Clare¹ has pointed out that the ovary is also unique in a physiological sense in that it is the only organ in the body normally subject to trauma and consequent reparatory changes. The trauma consists of the surface wound occurring at the time of rupture of the follicle; the reparatory process is the formation of the small scar by which the lesion is repaired. These two factors, together with a third—the periodic increase of tension within the ovary associated with ripening of the follicle and formation of the corpus luteum—have all to be considered in connexion with the subject of ovarian pain. The presence of follicular cysts in an ovary which is not adherent may be regarded as evidence of disordered function due to overactivity of the anterior pituitary, or, as suggested by Clare, increased formation of fibrous tissue (keloid) in the scars of the ruptured follicles, it being well known that there are wide variations in the regenerative capacity of different individuals.

The ovary is attached to the back of the broad ligament by its hilum, and as both uterus and broad ligament have considerable mobility the position of the ovary must be constantly changing.

The ovarian blood supply comes from both ovarian and uterine arteries, and the venous return is through the pampiniform plexus to the uterine and ovarian veins. On the left side the venous return is said to be somewhat hindered by the fact that the ovarian opens into the renal vein and not directly into the vena cava, but it must be remembered that the pampiniform plexus also drains through the uterine into the internal iliac veins.

The nerve supply is from the aortic plexus of the autonomic system, and reaches the ovary by way of the infundibulo-pelvic ligament and hilum. The surface of the ovary appears to be insensitive to mechanical stimuli, but firm pressure produces, as in the case of the testis, a sickening pain. True ovarian pain is splanchnic, and apparently of a low order; reflected superficial pain of ovarian origin only occurs when the parietal peritoneum is irritated by the ovary.

To simplify the discussion I have divided the ovarian conditions which may produce pelvic pain into four groups, under the headings functional, mechanical, inflam-

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

matory, and neoplastic, but as they cover such a wide field and the space at my disposal is limited I propose to devote the greater part of this paper to a consideration of the functional group.

Functional Disturbances

In this group we have to consider those cases in which so-called "ovarian" pain is complained of although no definite pathological lesion can be demonstrated in the ovary.

Exactly thirty years ago, at the Annual Meeting of the British Medical Association at Oxford, the problem of so-called "ovarian" pain was discussed, and the discussion was dominated by the wise scepticism of the late Dr. Herman. You may possibly agree that a similar attitude of mind is right and proper to-day when assessing the value of certain new surgical procedures introduced for the relief of this troublesome symptom.

We have first to consider whether pelvic pain can be produced by follicle and corpus luteum formation, or by ovulation. As regards actual ovulation, it is quite possible that a certain amount of peritoneal pain may occur if blood escapes in quantity from the ruptured follicle.

Visceral pain is produced by tension within the organ affected, and it might be expected that the periodic distension which the ovary has to undergo during reproductive life would as regularly produce pain of that type. Nature, however, has saved womanhood from this misfortune by making the ovary practically insensitive to gradually increasing tension, and therefore it can be said that the follicular cycle is painless, or at the most attended with but slight pelvic discomfort in normal individuals. We must remember, however, that although the uterine contractions during menstruation are also practically painless, they are in some women quite otherwise, and produce the well-known "spasmodic" type of dysmenorrhoea. May not the process of follicle ripening behave similarly and produce ovarian dysmenorrhoea? In both uterine and ovarian cases we may (a) deny that the pain exists, as may be the case in certain hysterical subjects, (b) assume that the threshold for pain has been so lowered, as in neurasthenia, that the normal discomfort becomes a severe pain, or (c) attribute the pain to local disease.

In the case of the ovary the two local conditions which are said to produce pain are cirrhosis and sclero-cystic disease, but Herman² would have none of them, and in opening the discussion already referred to said:

"It is stated that cirrhosis is the final stage of sclero-cystic disease, but those who say it have adduced no evidence that this is so. Sclero-cystic disease is often present without pain. I find no criteria by which a sclero-cystic ovary which caused pain can be distinguished from one that did not. I find no criteria by which cirrhosis of the ovary can be distinguished from the natural shrinking due to age which is not painful nor by which a shrunken ovary which caused pain can be distinguished from one that did not."

And he concluded with these words:

"In brief, I know of no morbid change in a freely movable ovary that causes chronic pain. The so-called 'chronic ovarian pain' is either a reflected pain due to neurasthenia or is a manifestation of hysteria. It is not curable either by surgical treatment of the ovaries or by their removal."

Lhermitte and Dupont,³ on the other hand, are convinced that ovarian dysmenorrhoea exists, and give as its criteria premenstrual pain located in one or other side of the abdomen and radiating to the inner side of the corresponding thigh, with distant manifestations such as gastric disturbances and headaches. They have found the ovaries to be sclero-cystic in patients complaining of severe ovarian pain, and have been able to demonstrate

to their satisfaction various changes in the sympathetic nerve fibres similar to those found when a nerve is caught in a cicatrix.

I have given you two extreme views, and as usually happens the truth will probably be found to lie somewhere between them. There can be no doubt that a certain number of cystic ovaries do produce pain, but it is equally certain that a much larger number do not.

My own view with regard to these functional cases is that a woman with a lowered threshold for pain may genuinely complain of ovarian pain, and that this is produced by pressure upon the sympathetic nerve endings as a result of congestion, increased formation of scar tissue, or cyst formation.

Treatment of Functional Disturbances

Treatment in the first instance should aim at raising the tone of the patient's nervous system by ensuring physical, mental, and emotional rest. If there is no improvement after a thorough trial of these measures the pros and cons of surgical treatment may have to be considered. Conservative measures, such as puncture of the cysts or resection of portions of the ovaries, have been uniformly unsuccessful, and need not be further discussed. Removal of the ovaries is much too drastic a procedure, at any rate in younger women, and, in any case, the resulting menopausal disturbances will place a further strain on the already weakened nervous system.

During the last ten years operations upon the sympathetic nervous system have come into prominence in surgical literature, and, as was to be expected, have been employed in the treatment of various functional disturbances of the female genital organs. Excision of the so-called "presacral" nerve has been extensively employed in cases of uterine dysmenorrhoea, as well as for a variety of other conditions, but is not applicable to cases in which the pain is definitely ovarian. Cotte, whose work on presacral sympathectomy is so well known, has tried to cure some of these cases by periarterial sympathectomy of the ovarian artery in the infundibulopelvic ligament, but with indifferent success.

More recently Lhermitte and Dupont⁴ have published two series of cases in which they excised the ovarian nerves in the hilum of the ovary, and they claim good results, not only in the relief of ovarian pain, but also of those remote manifestations of disturbed ovarian function. Their results, however, are somewhat vitiated by the fact that in most cases other surgical procedures, such as removal of the appendix and hysteropexy, were carried out at the same time.

The operation, however, appears to be fairly easy, reasonably safe, and not harmful to ovulation, so it may be worth trying in those cases in which surgical intervention is considered necessary.

I have already referred to the possibility that the uncomplicated cystic ovary may be the result of endocrine disturbance, and if this be so it is quite likely that organotherapy, when it becomes a more exact science, will prove to be the best method of treatment for cases belonging to this group.

Mechanical Disturbances

The commonest mechanical disturbance of the ovary is prolapse, generally beneath a retroverted uterus, and as a result the ovary becomes more sensitive from congestion or pressure. In the normal individual discomfort or slight pain may be experienced on coitus or on defaecation, but in one who is neurasthenic the pain may be constant, severe, and debilitating.

Varicocele of the broad ligament is said to be frequently associated with ovarian prolapse, but its presence is

difficult to diagnose and its clinical importance somewhat doubtful.

A more serious occurrence is torsion of the ovarian pedicle, but this rarely occurs unless a cyst is present in the ovary. Sudden pain is the principal symptom, and this is partly due to increased tension within the ovary and partly to irritation of the parietal peritoneum by the damaged cyst wall.

Inflammatory Disturbances

Inflammation of the ovary is of frequent occurrence, and usually follows a salpingitis, the infection reaching the surface of the ovary and causing it to become adherent to neighbouring structures. The disturbance of function resulting from these adhesions may lead to cyst formation in the ovary. Infection may occasionally come by the blood stream, as in severe streptococcal infections or some of the acute fevers.

The inflamed ovary is an undoubted cause of pelvic pain, but as it is always associated with pelvic peritonitis, and in chronic cases with adhesions, it is the irritation of, or dragging on, the sensitive parietal peritoneum which is mainly responsible.

So-called "chronic ovarian pain" is frequently diagnosed as "ovariitis," but needless to say there is no pathological foundation for this diagnosis unless the ovary is adherent. The same criterion should apply in the case of the small cystic ovary, the significance of which has already been discussed.

Neoplasms

As a general rule ovarian tumours are practically painless unless torsion, degeneration, or infection occurs, which shows that the ovary is not sensitive to gradual distension.

Endometrioma, however, is an exception, and does, in the majority of cases, produce severe pelvic pain. These tumours are almost invariably adherent, and the pain is partly due to stretching of the ovary by effused menstrual blood and partly to dragging on the sensitive parietal peritoneum and nerves in the broad ligaments.

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The annual dinner of the British Serbian Units Branch of the British Legion was held in London at the Lysbeth Hall on September 27th. Lieut.-Colonel A. E. Kidd took the chair, and those present numbered 156, including a large party of Yugoslav ex-service men who were in London for the Federation Interalliée des Anciens Combattants. After dinner the healths of King George and the King of Yugoslavia were drunk, and were followed respectively by the National Anthem and the Yugoslav National Hymn. Colonel P. H. Mitchiner then proposed the toast of "The Guests," and Lieut.-Colonel Lioubomir Stephanovitch and Major Fetherston-Godley, chairman of the British Legion, replied. The Mitchiner silver bell and spoon for marksmanship was presented to Mr. Surtees Shill. The toast of "The Branch and its President" was proposed by His Excellency the Yugoslav Minister, and Colonel Kidd replied. All the speakers stressed the point that of the many branches of the British Legion this Serbian Branch was of particular importance owing to its international significance for Europe. The dinner was followed by dancing, during which the kolo, the Serbian national dance, was performed with much spirit by British and Yugoslavs. Among the principal guests besides those mentioned were Sir James Berry, Madame Agathonovitch, Lady Ralph Paget, Sir James and Lady Purves-Stewart, General Mihailovitch, and Colonel Blackham.

OVARIAN CONDITIONS AS CAUSES OF PELVIC PAIN*

BY

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This subject is one which bristles with difficulties and gives rise to much difference of opinion among gynaecologists. It is very controversial, and one's attitude towards its many problems is bound to evoke criticism. In perusing the literature of an older generation one is struck by the ready tendency to blame the ovaries for various vague pelvic pains, and to practise their removal as a means of cure. The frequent failure to relieve and the awful aftermath of the surgical menopause in young women caused a swing of the pendulum to present-day conservatism.

I propose to approach the subject from a purely clinical standpoint, and to consider the ovarian conditions which in my opinion do give rise to pain, mentioning in passing a few interesting cases, and then to discuss the best means of treatment.

It is essential, in the first instance, to accept the fact that it is necessary to find physical signs in the ovary or its neighbourhood before blaming it as a cause of pain, and that in the absence of physical signs it is extremely foolish to adopt any but the most conservative treatment. I, for my part, have experienced the post-operative annoyance of the patient whom I have opened only to find a normal pelvis. Neurasthenic women with ovarian pain are many, and it is much better to place them in the safe hands of a physician.

Ovaries which are the seat of chronic infection, cases of chronic salpingo-oöphoritis, and pelvic adhesions are constantly accompanied by pelvic pain. The burial of the ovary and the consequent difficulty of ovulation may help to produce this, but the drag of peritoneal adhesions also plays a part. The treatment lies in clearing up the pelvis, returning the organs to their normal position as well as possible, and removing what is beyond repair. Adhesions are liable to re-form, but one may count on some amelioration of symptoms.

Intermenstrual pain or "Mittelschmerz" may be considered here. I have seen two undoubted examples of this condition. I opened the abdomen and found enlarged, hard, white ovaries with thickened cortex and very few scars. My treatment consisted in shaving off portions of cortex and making criss-cross incisions. It was all I could think of doing at the time. The result, needless to say, was completely disappointing. When presacral nerve avulsion came into fashion I considered its possibilities in such cases, but fortunately realized in time that the presacral nerve has very little to do with innervation of the ovaries. The ovarian nerve supply derived from the aortic plexus comes down in the ovarian plexus and is delivered through the infundibulo-pelvic ligament and hilum. It is possible that division of the ovarian plexus in the infundibulo-pelvic ligament might relieve this condition, and if I met another case I should be inclined to try it; anterior pituitary hormone might also be a help.

Prolapsed and Cystic Ovaries in the Causation of Pelvic Pain

Prolapsed ovaries lying underneath a retroflexed uterus definitely give rise to pain and sometimes cause very severe dyspareunia. Such ovaries are sometimes cystic, and may have formed light adhesions to surrounding

* Read in opening a discussion in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

peritoneum. They are often congested, and during the premenstrual period they ache and become hypersensitive. A somewhat similar tenderness is produced in cases of varicocele, and here we find a definite referred pain, which is most marked half-way along the line joining the umbilicus to the mid-point between the symphysis pubis and anterior superior spine. This varicocele is an analogous condition to that found in the male which produces a testicular ache. It occurs in the pampiniform plexus, and shows itself as a markedly dilated and varicose condition of the ovarian veins running from the broad ligament through the infundibulo-pelvic ligament. I have noticed it a number of times at operations for chronic retroflexion, and I have seen it relieved by the Gilliam operation, which not only lifts up the uterus but also shortens the broad ligament and so relieves the kink. Pain is also produced in prolapsed ovaries not accompanied by retrodisplacement of the uterus, and this is best relieved by an operation designed to replace the ovary in as nearly normal a position as possible. This can be obtained by stitching a suitable point of the infundibulo-pelvic ligament to the side wall of the pelvis near the interior abdominal ring. One authority reports seventy-six such cases with 88 per cent. of cures.

Endometriomatous growths in the ovaries may cause pain, and ovarian dysmenorrhoea is common in such conditions. These growths tend to come on after the age of 30, and should be suspected in women complaining of dysmenorrhoea and lower abdominal pain starting at this age. Interstitial haemorrhage in the ovary will also produce pain. I have noted these conditions at operation for pelvic pain, but they are not common.

I have little faith in the idea that the small cystic ovary occasions pain, and the so-called cirrhotic ovary is not in my opinion a pathological entity. Adhesions in the region of the infundibulo-pelvic ligament involving or catching up the fibres of the ovarian plexus may result in chronic ovarian pain and dysmenorrhoea. Such a condition has been described by Lupan following removal of appendix; a complete cure was obtained in his case by division of the plexus in the infundibulo-pelvic ligament. Peritoneal bands or adhesions to the ovary can produce pain; I had one such case following an appendicectomy when an omental band had caused internal pain in the rectum for a long period. Division of the band gave complete relief. Large tumours of the ovary, whether malignant or benign, do not as a rule give rise to pain unless the pedicle becomes twisted, causing congestion or formation of adhesions.

It is probable that the ovary itself is fairly insensitive, as otherwise the recurrent follicle ripening, with associated increase of tension, would produce pain. We must recognize, however, that at times the ovaries become more sensitive, for example, just before menstruation, or if there is any marked pelvic congestion; also in cases of repeated unsatisfied sexual stimulation there will develop a hypersensitiveness of the ovary. This is evident by the dyspareunia which sometimes develops in such women.

Apart from organic disease of the ovary we, as gynaecologists, are confronted with three conditions which have been, and will continue to be, dubbed ovarian pain: (a) reflected pain, (b) neurasthenic pain, and (c) hysterical pain. Abnormal conditions of the female genitals affect the lower dorsal and upper lumbar segments of the cord. This causes a hyperaesthesia of the cutaneous areas supplied by these segments, and consequently tenderness and pain on pressure over a fairly wide area situated between the umbilicus and the anterior superior spine. A diagnosis of oöphoritis is often made, although the ovary may be completely free from blame.

In neurasthenia we have a condition in which the resistance of the nervous system is decreased, and consequently the threshold for pain is lowered. This may be produced

by anaemia, chronic disease, long-continued suffering, or mental worry. The patient will complain of pain in the region of the ovary where no ovarian pathology exists. Lastly, in cases of hysteria the patient often fixes her attention on her ovaries, though the ovary is absolutely normal.

The lesson to be learnt from these considerations is that we must be extremely careful when a patient comes to us complaining of pain which she has been told is due to her ovaries. If on examination we find definite physical signs of pathology in her genitalia then we can with confidence recommend operative treatment. If we find the uterus and cervix healthy and normal in position, and we are not sure of the condition of the tubes and ovaries with regard to adhesions, possible endometriomata, displacements, etc., then we should explain the position carefully to the patient and advise an examination under an anaesthetic, and at the same time carry out a Rubin's test. This examination should put us in the position of knowing whether it is necessary to open the abdomen or not. It will also be of value from its suggestion effect on the patient.

Finally, if we are certain in our own minds that there is no pathological condition present we must tell the patient so firmly, and assure her that operative treatment will not improve her condition, and that if she has patience and adopts the measures necessary to improve her general health she will gradually get rid of her pain.

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TOTAL THYROIDECTOMY IN THE TREATMENT OF PATIENTS WITH CONGESTIVE HEART FAILURE AND ANGINA PECTORIS

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Any measure which promises to prolong, in fair comfort, the lives of patients with both the congestive and the anginal forms of heart failure, in whom the efficacy of all other forms of treatment has been exhausted, must command serious attention, as, if the promise is fulfilled, the method will have a wide application. It is for this reason that the papers of Blumgart¹ and Levine,² and their associates, have excited such great interest. They claim that the removal of the whole thyroid gland in patients without thyrotoxicosis, incapacitated by congestive or anginal heart failure, is not only comparatively safe, but that it so greatly improves the patients' condition that many of them again become capable of work. Blumgart³ says that the operation has now been performed with gratifying success in over fifty cases.

Rationale

It is established that ordinarily the heart's output of blood per minute varies directly as the rate of metabolism. The more rapid the metabolism the more oxygen do the

tissues use, and the more oxygen-containing blood does the heart have to send them. In hyperthyroidism the heart's output is increased because the metabolic rate is raised; in myxoedema metabolism is slowed and the cardiac output is diminished. In the late stages of congestive heart failure the heart's output of blood per minute is diminished, in spite of the fact that the metabolic rate is normal or even increased, and no doubt this is largely responsible for the symptoms at this stage.

Blumgart's preliminary researches were concerned, not with the volume of blood expelled by the heart per minute, but with the linear velocity of blood flow, and this was done in the present series because the linear velocity is easy to estimate, while the estimation of the volume output presents great technical difficulties in patients with congestive heart failure. Blumgart found that in health the linear velocity of blood flow through the lungs was proportionate to the metabolic rate. In hyperthyroidism the velocity was increased. In heart failure, even in its early stages, it was diminished. In myxoedema the velocity was as low as in heart failure, but there were no circulatory symptoms. Blumgart therefore argued that heart failure is due to the heart being unable to maintain a sufficient volume and velocity of blood flow for the needs of the tissues. The damaged heart, on ordinary medical treatment, is pumping the greatest volume of blood at the greatest speed of which it is capable, but the needs of the tissues are unsatisfied. The only course left is to reduce the metabolic needs (by thyroidectomy) to a level at which they can be satisfied by the diminished output of which the heart is capable.

Two further arguments support this. First, the most severe heart failure in cases of hyperthyroidism is usually completely relieved by subtotal thyroidectomy. Most observers agree that thyrotoxic heart failure is not due to organic damage to the heart, but partly to the occurrence of auricular fibrillation and partly to the increased metabolism making excessive demands on the heart. Again, patients with myxoedema rarely have circulatory symptoms, but sometimes, when thyroid extract is given, anginal attacks or congestive failure occurs, and the attempt to cure the myxoedema has to be abandoned.

Levine and Blumgart's Observations

If the argument is correct, improvement might be expected in angina pectoris as well as in congestive failure. It is thought that angina is due to the coronary arteries being unable to transmit enough blood for the increased needs of the heart during exercise. Thyroidectomy diminishes the body's oxygen consumption, both at rest and on exertion. The heart's work is thus reduced, and a large blood supply to the heart becomes unnecessary. Levine and Blumgart⁴ therefore tried the effect of partial thyroidectomy in a number of cases. They found that, though the symptoms were temporarily relieved, the metabolic rate soon rose again and the symptoms recurred, presumably owing to the regeneration of the fragments of thyroid tissue left behind. They also found that irradiation by x rays or radium was useless, as doses which do not damage the other tissues have little effect on the normal thyroid. It was evident that nothing short of total thyroidectomy was likely to succeed, and this was done in another series of cases. They have described in detail⁵ the results in twenty-two cases, including cases of rheumatic, arteriosclerotic, hypertensive, syphilitic, and pulmonary heart disease, with congestive failure, angina, or both. All were unable to work, and many were bedridden.

The results in the twenty-one cases in which sufficient time had elapsed since the operation, after varying periods up to six months, were as follows:

(a) There were two operative deaths.

(b) One patient with frequent attacks of cardiac asthma had no more attacks for three weeks after the operation, but then died in his first post-operative attack. Another, with mitral stenosis and auricular fibrillation, was not improved, and died after a subsequent operation for pericardial adhesions. A third, with syphilitic aortic incompetence, angina, and congestive failure, was not improved, and died a few days after discharge.

(c) Two patients with mitral stenosis, auricular fibrillation, and congestive failure (one of them with a complicating chronic nephritis) were not improved.

(d) Three patients with angina and congestive failure were relieved of their angina. The congestive symptoms were improved greatly in one, slightly in another, and not at all in the third. All three were much more comfortable than before the operation.

(e) One patient with only angina was completely relieved.

(f) Ten patients with congestive failure were much improved. Patients previously orthopaedic and bed-ridden were able to lie flat, and to be up and about without distress, and some were able to return to light work.

(g) Signs of slight hypothyroidism often developed, and small doses of thyroid extract had to be given continuously to five patients, and for a short period to two others. The mental slowness and heaviness of myxoedema rarely appeared, and most of the patients said they were mentally quicker than before the operation, no doubt owing to the improved cerebral circulation. Slight signs of tetany appeared for a few days in some cases, but were easily controlled by calcium and vitamin D.

Present Series

Such successful results in patients hopelessly ill indicated that the method was worthy of further trial, and this paper gives the initial results in a small series of six cases. They had all been observed for months or years by one of us in the out-patient department, Queen's Hospital, Birmingham. They were all incapacitated by their cardiac symptoms, which were slowly progressing in spite of treatment, including, in four cases, one or more periods of in-patient treatment. So far as could be forecast, they had not more than a few months or years of increasingly miserable existence before them. Cases in which the cardiac lesions were rapidly progressing—for example, cases of active rheumatic or syphilitic disease—were excluded. None had clinical evidence of hyperthyroidism, though in some, as is common in heart failure, the basal metabolic rate was raised.

Preliminary Investigations.—In order to diminish subjective errors a number of objective measurements were made before operation for comparison with the post-operative findings, and although the changes in the patients' symptoms were often greater than indicated by the measurements, it may be of interest to record the results in the accompanying table. Radiographs of the heart and electrocardiograms were taken. The venous blood pressure was measured by the direct method, since a rise in the venous blood pressure is a fairly early sign of congestive failure, and a fall usually occurs with improvement. The velocity of the circulation through the lungs was measured by the cyanide method of Weiss and Robb.⁶

About 7 minims of a 2 per cent. solution of sodium cyanide is injected into a vein at the elbow; this travels to the heart, through the lungs (which takes most of the time), and out into the systemic arteries. When it reaches the carotid sinus, at the bifurcation of the common carotid artery, it suddenly stimulates a great transient increase in the rate and depth of respiration. The time between the injection and the first deep inspiration is taken with a stop-watch.

The vital capacity of the lungs was measured by means of a spirometer. It is thought that a vital capacity diminished by the encroachment of distended pulmonary capillaries on the air space, or by the congested capillaries making the lung more rigid, is more closely related

Table Showing the Results of Special Examinations Before and After Operation

Case	Time in Relation to Operation	Venous Blood Pressure in cm. Saline	Pulmonary Circulation Time in Seconds	Vital Capacity in c.cm.	Basal Metabolic Rate (per cent.)	X-Ray Findings	Electrocardiogram
I	Before	7.0 to 12.5	12.5 to 19.6	1,700 to 2,300	- 2 to 0	Heart enlarged to left	Left ventricular preponderance. Depressed S-T I and II. Deeply inverted T I
	After	8.0 to 10.0	10.0 to 17.5	2,000 to 2,300	- 8	Increase in enlargement to left and right	
II	Before	9.3	13.2	2,300	+ 4 to + 15	Heart enlarged to left	Left ventricular preponderance. Diphasic T I and II
	After	0.5 to 3.2	18.6 to 19.6	2,300	- 9	Unchanged	Unchanged
III	Before	17.0 to 22.5	25 to 26	2,300	+ 12	General enlargement of heart	Bundle-branch block of the unusual variety
	After	19.0 to 21.0	29 to 30	2,400	- 5	Slight increase in enlargement	Unchanged
IV	Before	6.0 to 15.2	12.2 to 16.4	1,900	+ 16 to + 20	General enlargement of the heart	Left ventricular preponderance. Diphasic T I and II
	After	8.0	16.3 to 18.0	2,100	0 to + 2	Unchanged	Unchanged
V	Before	2.2 to 3.2	21.6	2,300	+ 19 to + 20	Heart normal in size and shape	Intraventricular block
	After	2.5 to 5.0	21.6	2,500	- 7	Slightly enlarged	Diminished voltage of QRS waves and flattened T waves
VI	Before	4.0 to 10.2	10.2 to 15.4	1,400	+ 28 to + 31	Heart enlarged to left	Left ventricular preponderance. Negative T I
	After	6.0	15.6	1,700	+ 21	Unchanged	Unchanged

to the occurrence of cardiac dyspnoea than is any other factor.

These tests have been done repeatedly on all the patients during the time they were being watched in the out-patient department. In addition, photographs were taken so that any subsequent change in their appearance due to myxoedema might be more readily appreciated. Finally, their exercise tolerance was carefully estimated. Five patients walked up and down the ward until compelled to stop by pain or dyspnoea, and the number of times they walked the length of the ward and the time taken to do so were observed. The sixth patient was able to walk slowly on the flat almost indefinitely, and she was made to walk up a flight of stairs until compelled to stop. In each case the test was repeated several times on different days, and the best result taken for comparison with the post-operative findings.

The Anaesthetic.—Local anaesthesia was not used for several reasons. We thought it desirable to minimize mental stress in patients subject to angina pectoris. The added adrenaline is also liable to bring on anginal attacks. It was thought possible that a cervical block might paralyse the phrenics, with disastrous results in patients already dyspnoeic. Finally, orthopnoeic patients, if conscious, would be unable to lie in the "thyroid position." Avertin-gas-oxygen anaesthesia was ultimately decided upon. Avertin ensures quick induction and avoids pulmonary irritation, but it depresses the circulation and respiration and reduces the blood pressure. Gas and oxygen is non-toxic and non-irritant, and it tends to stimulate the circulation and respiration and to raise the blood pressure, thus counteracting the undesirable effects of the avertin. Glucose was given in large quantities for several days before the operation in order to protect the liver (already damaged by chronic venous congestion) against the toxic action of the avertin. Atropine 1/75 grain was given an hour before the operation. The avertin (0.1 gram per kilo of body weight in 2½ per cent. solution) was given with the patient lying on his left side with his head propped up on pillows, and he remained in that position till narcosis was produced. The patients may, however, be moved to the theatre and placed in the thyroid position on the operating table without undue anxiety. The gas and oxygen was given by Magill's mask and the Clausen harness method. An airway was inserted as soon as possible, and a high percentage of oxygen was necessary in order to maintain a good colour.

The operation must be approached with great circumspection, and the procedure must be delayed if anything occurs which might further handicap the patient temporarily.

Berlin's technique⁶ was that essentially followed.

The whole thyroid gland, with the pyramidal lobe and any near-by nodules of aberrant thyroid tissue, was removed. The chief dangers are that the recurrent laryngeal nerves may be cut and that the parathyroids may be removed. The recurrent laryngeal nerve is best sought for after the upper pole has been freed, and while the lateral lobe is being drawn towards the mid-line. It is a comfort to see that the nerve is safely left behind, but if a careful search shows that it is not running through the terminal branches of the inferior thyroid artery it can be accepted that it is safe. The total removal of the parathyroids can be avoided by observing the following:⁷ (a) the parathyroids, unlike aberrant thyroids, are not rounded, but elongated, flattish, and soft; (b) they are usually wrapped in a little fat; and (c) one or more are usually well away from the thyroid, at least 1 cm. from the lower pole of the gland.

The operation, *pace* those who scoff at the dissecting surgeon, is a *dissection*, to be done deliberately. Haste is more dangerous to the patient than a little extra anaesthesia. After the operation the patient should be kept lying flat until consciousness returns, when he is propped up. Cyanosis should be prevented, while the patient is lying flat, by the use of oxygen.

Records of Six Cases

CASE I

History.—Mrs. K. P., aged 49, hypertension, with coronary sclerosis and ? occlusion. Angina pectoris and congestive heart failure. Under observation since February, 1931. Since 1928 stiffness of left hip, and much pain in the back. Since 1929 severe headaches and retrosternal pain, spreading down left arm to the wrist on exertion. In March and September, 1932, and February, 1933, complained of attacks resembling coronary occlusions—severe cramp-like epigastric pain, coming on while at rest, spreading to the chest, not relieved by amyl nitrite, lasting several hours. Since the first of the attacks ankles began to swell, she became very dyspnoeic and orthopnoeic, and, though just able to get about, was unable to do her housework. In spite of treatment, including two periods in hospital, she continued to go downhill. In addition to her cardiac symptoms she was troubled at intervals by severe pain in the back, associated with osteoarthritis of the spine.

Examination.—She was of the hypersthenic, plethoric type. The left hip showed great limitation of movement. She was orthopnoeic. The liver was large and tender. There was slight oedema of the ankles. The apex beat, which was forcible and heaving, was just outside the mid-clavicular line. The aortic second sound was very accentuated. The blood

pressure ranged from 220/130 to 290/160. The electrocardiogram showed left ventricular preponderance, and a depressed S-T interval in Leads I and II.

Operation.—Total thyroidectomy (January 10th, 1934). Thyroid of average size and appearance, and normal histologically. Her condition caused no anxiety during or after the operation, though for three days her blood pressure fell to 126/76. There was slight pyrexia for three days, and a little cough for a further few days.

Progress.—Her condition greatly improved for two months after the operation. Before operation she had to be propped up in bed with a bed-rest and three or four pillows, and could only walk five times the length of the ward in two and a half minutes before having to stop because of pain and dyspnoea. After the operation she dispensed with the bed-rest and used only three pillows, and she walked six times the length of the ward in two minutes without discomfort, and then stopped only because of the jocular comments of the other patients. After returning home, she found she could walk to hospital and up the stairs to the ward without discomfort, though previously she had to stop many times on her way to hospital. Angina occurred only after excessive exertion, such as walking up three flights of stairs to the laboratory immediately after walking to hospital. Her dyspnoea was also much less, and she was able to use only two pillows without a bed-rest. Her oedema has disappeared. During the next three months, however, she had a return of the pain in the back due to arthritis of the dorsal spine, and her activities were much reduced by this. Her dyspnoea is now greater than in the two months after her operation, though less than before the operation, and she has had no angina at all for the last three months. She feels that but for the pain in the back she is better than she has been for years. She has developed slight hypothyroidism, with puffiness of the eyelids and roughening of the skin, but there is no perceptible slowing of the mental processes, and she herself thinks she is brighter and mentally clearer than before.

CASE II

History and Examination.—Mr. H. P., aged 53. Hypertension, ? coronary disease, and angina pectoris. Under observation since August, 1933. Severe anginal pain, stopping him after walking thirty yards slowly on the level. Unable to do even light work. Unimproved by treatment, including a period in hospital, and prophylactic nitroglycerin. Apex beat one inch outside mid-clavicular line. Accentuated aortic second sound. Thickened arteries. Blood pressure 164/106 to 206/118. Electrocardiogram showed left ventricular preponderance, diphasic T I and II.

Operation.—Total thyroidectomy February 19th, 1934. Gland of average size and appearance, and normal histologically. His condition during and after the operation caused no anxiety, but he developed painful red swellings of the joints of the hands after operation, which troubled him for several weeks. (He had been subject to "rheumatism" for years.)

Progress.—Before operation he developed some pain after walking four times the length of the ward, and was forced to stop after walking eight times in three and a half minutes. After operation he walked ten times the length of the ward in four and a half minutes without pain, though he was slightly dyspnoeic. Since leaving hospital he finds he can walk much further on the flat without pain, but he still gets pain on walking uphill. No evidence of hypothyroidism has developed, though he has put on a little weight.

CASE III

History and Examination.—Mrs. G. W., aged 48. Hypertension, ? coronary disease, congestive failure, and angina. Under observation since November, 1932. Since 1929 increasing dyspnoea on exertion. Unable to walk up flight of eleven steps at home without resting for some period angina on exertion. Oedema of ankle since April, 1932, and swollen abdomen (ascites) since October, 1932. The ascites disappeared under treatment with mercurial diuretics in hospital, but the other symptoms became slowly more marked. She was unable to do any housework. Marked cyanosis and orthopnoea (bolster and three pillows). Marked oedema of

legs, and, when first seen, great ascites, recurring slightly from time to time while under observation. Large tender liver. Apex beat in sixth space two and a half inches outside mid-clavicular line, and dullness one inch to the right of the sternum. Loud systolic murmur in tricuspid area. Pulmonary and aortic second sounds much accentuated. Blood pressure 220/138 to 236/142. Electrocardiogram showed bundle-branch block of the unusual type.

Operation.—Total thyroidectomy, March 28th, 1934. Gland of average size and appearance, except that there was a long pyramidal lobe which was traced to the region of the hyoid, where it tore away. Histologically gland showed some fibrosis, and a parathyroid was seen in its substance. Her condition caused no anxiety during or after the operation.

Progress.—Two weeks after operation she dispensed with one of her pillows, and then, after returning home, with another. Before operation she was stopped by pain and dyspnoea after walking four times the length of the ward in two and a half minutes, and at home had to rest while going up a flight of eleven steps. Two weeks after operation she stopped because of slight dyspnoea, without pain, after walking eight times the length of the ward in three and three-quarter minutes, and she walked twice up and down a flight of twenty-seven steps with no discomfort at all. Since returning home she walks to hospital and up the stairs to the ward without discomfort, whereas previously she had to rest several times on her way to hospital. She has not yet begun to do any housework, though she feels well enough to do so. Her cyanosis is less, she has oedema only of the right leg, which has thrombosed varicose veins, and the liver is not tender, though still large. Her blood pressure is 196/120. There is no evidence of hypothyroidism.

CASE IV

History and Examination.—Mrs. G. D., aged 54. Hypertension, coronary disease, angina, and congestive failure. Under observation since September, 1932. Headaches and increasing dyspnoea since 1929. Angina on effort since March, 1933. Occasional attacks of mild cardiac asthma, lasting up to two hours, since April, 1933. For six months before admission unable to do housework because of dyspnoea and pain. Stout, plethoric, and orthopnoeic. Large tender liver. Apex beat in fifth space in mid-axillary line. Dullness one inch to right of sternum. Blood pressure 236/138 to 270/150. Electrocardiogram showed left ventricular preponderance, diphasic T II and III.

Operation and Progress.—Total thyroidectomy April 11th, 1934. Gland of average size and appearance, and histologically normal. Her condition caused no anxiety during or after the operation. Before operation, stopped because of pain and dyspnoea after walking six times length of ward in six minutes. Twelve days after operation she walked fourteen times the length of the ward in five minutes, and then stopped only because her legs were tired, not because of pain or dyspnoea. After resting fifteen minutes she walked twice up and down a flight of twenty-seven steps without distress. Improvement continued after returning home, and she is now doing all her housework except the heavy washing. The only sign of hypothyroidism is slight roughening of the skin.

CASE V

History and Examination.—Mr. W. N., aged 54. ? old coronary occlusion, angina. Under observation since January 11th, 1934. In October, 1933, while at rest, had severe precordial pain radiating down both arms lasting several hours (probably due to coronary occlusion). Since then anginal pain on slight exertion. Unable to do even light work. Emphysematous chest. Thickening of arteries. Heart of normal size. No murmurs. Blood pressure 152/98. Electrocardiogram showed intraventricular block.

Operation and Progress.—Total thyroidectomy April 11th, 1934. Gland of normal size and appearance, and normal histologically. Somewhat collapsed immediately after the operation, but had recovered the same evening, and after this was troubled only by a little cough, apart from local discomfort. Before operation had to stop, because of pain and dyspnoea, after walking six times length of ward in two and a quarter minutes. The pain was not relieved by prophylactic nitroglycerin, and was no better after three weeks in bed. Several attacks of pain while in bed. Only slight improve-

ment after operation, as the patient still got occasional slight attacks while at rest, and was forced by pain to stop after walking ten times length of ward in three and a quarter minutes. Before operation he had to stop at least six times on his way to hospital. Now has to stop only once, but is still incapable of work. No obvious hypothyroidism.

CASE VI

History and Examination.—Mrs. F. R., aged 58. Hypertension, congestive failure, cardiac asthma, and angina pectoris. Under observation since September, 1933. Since February, 1932, attacks of paroxysmal nocturnal dyspnoea, with precordial pain radiating down left arm. At end of attack brings up about half a pint of frothy sputum. Since onset, increasing dyspnoea and oppression in chest on exertion. Unable to do housework for six months before admission. Thin, nervous woman. Apex beat in sixth space one inch outside mid-clavicular line. Accentuated aortic second sound. Marked arteriosclerosis. Blood pressure 208/110 to 246/140. Electrocardiogram showed left ventricular preponderance, inverted T I.

Operation and Progress.—Total thyroidectomy April 21st, 1934. Gland of average size and appearance, except for cyst 1 cm. in diameter in right lower pole. Normal histologically. Her condition caused no anxiety during or after operation. Before operation was forced to stop after walking twice up a flight of twenty-seven stairs in five minutes. After operation walked three times up and down same stairs in four and three-quarter minutes without distress. She was able to get about much better after discharge, but six weeks after operation she suddenly became unconscious, was paralysed down the right side, and died the same day, after readmission to hospital. Post-mortem revealed a greatly enlarged heart, due to hypertrophy of the left ventricle. There was very little coronary atheroma. A large haemorrhage into the left cerebral hemisphere had burst into the lateral ventricle.

Discussion

It is striking that all six of these seriously ill patients stood the operation so well. One was a little collapsed for a few hours, but the others gave no anxiety. So far only two patients show signs of slight hypothyroidism, in spite of the removal of the whole thyroid gland. Blumgart and Levine also found that the signs of hypothyroidism by no means always appeared. Kocher in 1883 said that myxoedema almost always followed total thyroidectomy, but the collective investigation on myxoedema by the Clinical Society of London in 1888⁸ showed that in many cases myxoedema did not occur. The committee concluded that "the apparent immunity in many cases was probably due to the presence and subsequent development of accessory thyroid glands, or to accidentally incomplete removal, or to the insufficiently long observation of the patients after the operation." All the patients in the present series were middle-aged, and it is possible that the thyroid in middle and old age is less active and less essential than in youth. It is striking that one of the patients displaying the obvious physical signs of hypothyroidism does not show the characteristic mental slowness. This is probably due to the improvement in the cerebral circulation relative to the needs of the brain.

Some improvement in the circulatory symptoms occurred in all cases. In Cases II and V it was slight, in Cases I and VI it was moderate, and in Cases III and IV fairly marked. Patient VI died of cerebral haemorrhage six weeks after the operation; it seems improbable that her death was hastened by it. No patient is free from symptoms, but all were capable of more exertion than before operation, and one has already taken up her housework again, after being unable to do it for more than six months. Some improvement occurred in both the congestive and the anginal symptoms, though previously the patients were going steadily downhill in spite of all treatment. It seems fair to attribute the improvement to the operation and not to rest in bed in hospital,

because all the patients were kept in bed for two or more weeks before the operation without improvement, while four had had one or more previous periods in hospital without benefit. Moreover, the patient was kept in bed for only five to twelve days after the operation.

It cannot yet be foretold how long the improvement will last. As the underlying cardiovascular disease is slowly progressive, it can only be a matter of time before the capacity of the heart is again lowered below the demands of the body, lowered though these are by thyroidectomy, so that sooner or later the symptoms will no doubt recur. The patients are being kept under observation, and it is hoped to make a further report on their condition in about twelve months' time.

The cause of the improvement is not yet entirely beyond doubt. It seems very probable that the main factor is the reduced metabolism. Although the heart can drive on no more blood than before, the small volume it can drive on is now sufficient for the diminished needs of the body. This statement needs modification in two particulars. First, if the needs of the body are reduced so much that the heart, instead of being "all out," is able to reduce its work without the tissues suffering, the heart is rested, and recovers some of its lost reserves, so that it becomes able, when necessary, to expel more blood than before the operation. Secondly, in myxoedema the heart is usually enlarged and less efficient than normal, though the inefficiency is masked by the diminished needs of the tissues. There are also characteristic electrocardiographic changes. Both the enlargement and the electrocardiographic changes usually recede under treatment, showing that they are due to the myxoedema, and not independent changes. In three of the present series the heart enlarged, and in two electrocardiographic changes occurred, after the operation (see table). Any impairment of the heart's efficiency due to myxoedematous changes would tend to counteract the benefits of the reduced metabolism.

Levine pointed out that improvement sometimes occurred at a time when there was no change in the metabolic rate, though the basal metabolic rate usually fell, with further improvement later. This was also true of some of the present series. But too much stress should not be placed on basal metabolic rate readings taken shortly after operation. Possibly apprehension may be responsible for unduly high readings at this stage. Levine suggests that some of the improvement, especially in cases with angina, is due not to the diminished work of the heart but to humoral changes, particularly an alteration of the reaction of the heart to adrenaline. This suggestion is based on his previous work,⁹ in which he stated that in patients subject to angina an attack can always be precipitated by an injection of adrenaline. He suggests that in the absence of thyroid secretion this perhaps may not occur. This seems to be purely speculative, and, moreover, other observers do not agree that angina can always be precipitated by a dose of adrenaline, so that there is no need to consider this hypothesis further at present.

Though the diminished need of the tissues for oxygen-containing blood after thyroidectomy is no doubt the chief factor in the improvement, Blumgart's observations on the velocity of the circulation must not be held to prove this. The linear velocity of blood flow depends not only on the output of blood by the heart per minute, but also on the cross-sectional area of the vessels through which the blood flows. If the volume of blood expelled by the heart per minute and the cross-sectional area of the vessels are both halved, the linear velocity of blood flow remains unaltered. In early congestive heart failure the velocity of blood flow through the lungs may be much slowed, though the output of the heart per minute is practically unaltered. This is

because the dilatation of the pulmonary capillaries increases the cross-sectional area of the vessels through which the linear velocity of flow is measured. The linear velocity of blood flow can therefore be taken as an index of the work done by the heart only if it can be shown that the cross-sectional area of the vessels remains unaltered. In the cases under consideration there is no absolute proof of this, though there is indirect evidence pointing in this direction. The vital capacity of the lungs gives an indication of the cross-sectional area of the pulmonary vessels, since if these are dilated the vital capacity is diminished as the air space is encroached upon. In Blumgart's cases, as in our own, the vital capacity was unaltered or slightly increased, showing that the pulmonary vessels were, if anything, less dilated than before. The velocity of circulation through the lungs after the operation is either unaltered or slowed (see table). These two facts together—namely, a lessened linear velocity through narrowed vessels—show that the volume of blood flowing through the lungs per minute is diminished. Since the output of the left ventricle must equal that of the right, this indicates that the heart as a whole is doing less work.

Summary and Conclusions

The whole thyroid gland has been removed in six patients without hyperthyroidism, showing incapacitating congestive heart failure, angina pectoris, or both, in whom all previous treatment had been ineffectual. There were no operative deaths, though one patient with a very high blood pressure died of cerebral haemorrhage six weeks after the operation. All six patients showed slight to fairly marked improvement in their circulatory symptoms after the operation, and were capable of more exertion. One of them, who had done no housework for over six months, is now doing all her housework except the heavy washing. The cases are all too recent for the permanent effects to be judged, but it is hoped to report on their condition again in about twelve months' time. Slight signs of hypothyroidism appeared in two cases only. The rationale of this method of treatment is discussed.

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Juliette Harburger (*Thèse de Paris*, 1934, No. 284) states that during the last two years (1932-3) observations at the Hôpital Laennec, Paris, have shown that alcoholic cirrhosis is three times as frequent in women as in men, and that the disease is more fatal in women (0.73 per cent.) than in men (0.09 per cent.). The malignant hypertrophic forms of cirrhosis are those most frequently found in women, as is shown by the fact that out of twenty-three cases thirteen were hypertrophic and ten atrophic. During the same period 1932-3 alcoholic neuritis showed the same frequency, relative proportion, and characters as in the case of alcoholic cirrhosis, there being four female cases to one male. The inversion of the ordinary frequency of alcoholic symptoms in the two sexes appears to be due both to social conditions, such as the employment of women in factories, and the economic crisis, and to anatomo-physiological conditions, the women representing a new and therefore particularly susceptible soil for alcoholic intoxication.

TRAUMATIC RUPTURE OF THE LUNGS WITHOUT SIGNS OF TRAUMA IN THE CHEST WALL

BY

W. E. COOKE, M.D., F.R.C.P., D.P.H.

As the title suggests, we are concerned in this note with traumatic rupture of the healthy lung. Pathological perforations due to tuberculosis, abscess, emphysema, empyema, neoplasm, etc., and pulmonary laceration by fractured ribs, stabs, and projectiles have been excluded in the cases mentioned, either by necropsy or by the circumstances, age, and history rendering the presence of any of the above conditions extremely improbable. From time to time during the past century these cases have been published. The increase in the number of deaths by violence will, no doubt, bring more to notice, and further emphasize the fact that extensive damage to internal organs—rupture of the lungs, liver, kidneys, spleen, bladder, and intestines, and, for example, extensive retro-peritoneal haemorrhage—frequently occurs without any external evidence of trauma. Injury to the abdominal viscera would appear to be due to direct violence to the organs through the flaccid abdominal wall, as in the case of the passing of a cart wheel, or the wheel of any heavy vehicle, over the abdomen, or by blows or falls in which the abdomen is forced on to a projecting ledge.

Rupture of the lungs cannot be so simply explained. Traumatic rupture of the lungs without injury to the chest wall may be of three types, any of which may occur alone, or the lungs may present all types in varying degree.

Pneumothorax Type

The first condition is simple rupture of a few alveoli, leading to pneumothorax without evidence, such as haemoptysis or haemothorax, to suggest extensive damage to the parenchyma. These cases are not very infrequent, but as the vast majority recover completely they are not published.

Giovanni,¹ in 1861, recorded the case of a boy, aged 15, over whose chest the wheel of a carriage passed. He died on the tenth day. At necropsy no fracture of the ribs or sternum could be detected, but air escaped on opening the thorax. Another instance is the following. A healthy young woman, aged 19, slipped from the top of the household step-ladder, and felt something unusual in her right side. On x-ray examination a pneumothorax was found with complete collapse of the right lung. No fracture of the ribs or other injury to the chest wall could be found. She made an uneventful recovery. No evidence of any lung disease could be found at the time, and radiological examinations at intervals during the subsequent eighteen months failed to detect any signs of tuberculosis.

Parenchymal Rupture

In the second type rupture of the lung parenchyma occurs without laceration of the visceral pleura. On section the lungs present numerous haemorrhages, varying in size from a pea to a walnut, or larger. The haemorrhages completely disintegrate the lung tissue, giving the appearance of cavities filled with blood. In addition, there are ecchymoses throughout the lung fields. Neither pneumothorax nor haemothorax is present, but haemoptysis is constant, and may be the only sign.

Moore² published an example. A healthy young man fell off a horse and sprained the left wrist and bruised the left elbow. No bruise of the chest wall and no fracture of the ribs could be found. He had severe haemoptysis and died three days later. The following is another instance. In 1934 a healthy man, aged 42 years, received a blow on the chin and fell to the ground. He died in a few moments from haemorrhage into the fourth ventricle. No marks of violence

630 Oct. 6, 1934]

TRAUMATIC RUPTURE OF LUNGS

were found, but at necropsy the upper lobe of the left lung presented several haemorrhages in its substance, the largest being the size of a walnut.

Combined Type

The third type is a combination of the foregoing conditions much exaggerated. The visceral pleura is torn, there is haemopneumothorax, and there are extensive haemorrhages into the lung substance.

On May 7th, 1934, a girl, aged 15, collided whilst cycling with an on-coming motor-car, and was thrown into the air. She sustained fractures of the right femur, right humerus, and right clavicle. The ribs and sternum were intact. No bruises could be found on the chest, nor was there any effusion of blood into the muscles of the thorax. The ribs, as one expects in a girl of this age, were very resilient. There were two and a half pints of blood in the right pleural cavity, and the right lung was collapsed. There was a laceration, extending deeply into the lung tissue, six inches in length, on the posterior surface of the right lower lobe, and another two inches in length on the internal surface. The right upper lobe presented a tear, three inches in length, on its anterior surface. In front of this laceration a piece of the lung tissue, two square inches in extent, was almost completely severed. Haemorrhages of various sizes, with disruption of the lung tissue, were present, and numerous ecchymoses mottled the lung fields. The left lung presented similar haemorrhages and ecchymoses, but there was no rupture of the pleura.

Smith³ mentions a case of a boy, aged 8 years, who, in 1896, was run over by a heavy cart. There was not the slightest trace of abrasion or bruising of the skin of the chest, nor behind the ribs and sternum, but the upper lobe of the right lung had been cut completely off from the root of the lung, and was floating freely in a pleura full of blood.

Similar cases are recorded by Le Conte,⁴ Wideroe,⁵ Kerr,⁶ MacTaggart,⁷ and Spiers.⁸

Discussion

Injuries of the type described above must occur frequently, but rupture of the lung is comparatively rare. A convincing hypothesis on the physics of traumatic rupture of the lung is difficult to propound, especially when the characteristics of the normal lung are considered. The recorded cases are almost all in young persons. With the exception of the case mentioned above, MacTaggart's case seems to be the oldest—a man, aged 35, fell from a scaffold thirty-five feet high; his lungs were ruptured, but no ribs were fractured. This suggests that resilience of the ribs may be an important factor. But however resilient the ribs it is unthinkable that direct violence without gross damage to them could rupture the tough, spongy, non-resistant lung unless some other factor or factors were present.

It is reasonable to suppose the other factors to be an expanded lung and a glottis closed at the moment of impact. Given these three conditions—resilient ribs, expanded lungs, and a closed glottis—the effect of sudden violence might be likened to the bursting of a blown-up paper bag between the hands. Both lungs are affected, but greater damage might be expected on the side receiving the greater force.

The absence of bruising in some cases of internal injury and in violence to other parts of the body is a constant source of surprise to the legal mind and to juries. The factors governing the production of bruises are not fully understood, and all that can be said is that violence, and extreme violence, is frequently unaccompanied by bruising.

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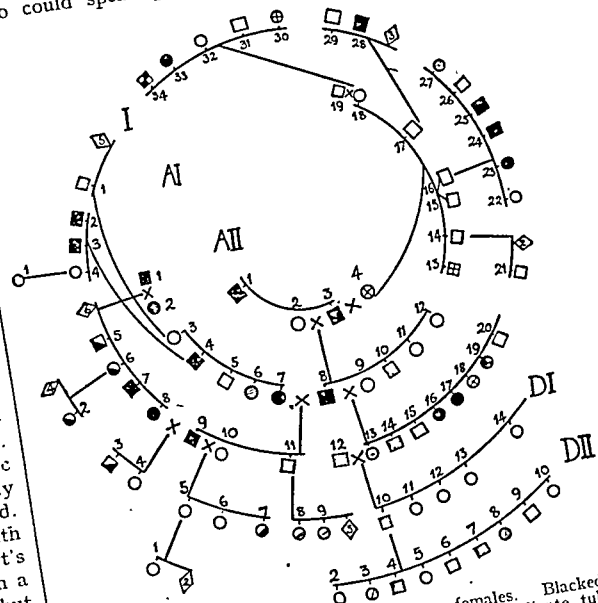
MORBIDITY IN A FAMILY TREE

BY

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The study of human heredity is a relatively unexplored part of the young science of genetics; and for obvious reasons progress therein must be slow. Thus it is important to record even a single family tree, to afford material for later research. The present case is brought forward for this reason, and also in the hope that it may interest some practitioners in the investigation of the vast amount of similar material to which they have special access.

The bulk of the records were obtained from the matron of a large hospital, who had kept old family diaries, and who could speak personally of many of the members.



Squares indicate males. Circles indicate females. Blacked-in signs indicate cardiovascular cases. Shaded signs indicate tuberculosis. Signs containing cross indicate malignancy. Half shading indicates individuals still alive. Diamonds indicate siblings of indeterminate history, and the number within the diamond the number of such siblings.

Some individuals were known to the investigator, and in some instances the family physician supplied valuable details. The rest of the data were obtained from others of the family, independent confirmation being sought in all cases. The subject studied was the cause of death, although it is admittedly not an ideal one for such investigations, since it is so frequently uncertain, and post-mortem reports are not commonly available. It can, however, yield a certain amount of information, particularly in instances such as this, where many of the records give clear indication of the major morbid factors.

The tree is given graphically in the figure, and the international convention of nomenclature has been adopted. One generation has been arbitrarily named I, and the ancestor and descendant generations are called AI, DI, and so on. The individuals in each generation are numbered consecutively. Siblings of negative or unobtainable history are indicated by diamonds, the number within showing the number of children. The progeny have not been shown when all the offspring yield no

data of any kind. In-comers by marriage are only given when necessary. Cardiovascular cases are indicated by blocked-out signs, tubercle by cross-shading, and malignancy by a cross. All the members are Scottish, except where otherwise stated.

NOTES ON INDIVIDUAL CAUSES OF DEATH.

Case	Cause of Death	Notes
AI1.1 ...	Paralytic stroke	Over 80
AI1.2 ...	Died in childbirth	4-par. Italian
AI1.3 ...	Apoplectic seizure	Aged 71
AI1.4 ...	Malignant disease (abdominal or pelvic)	Over 60. French
AI.1 ...	Series of paralytic strokes	Aged 63
AI.2 ...	Several paralytic strokes	Over 70
AI.4 ...	"Heart disease"	Aged 64
AI.6 ...	Adult tubercle	—
AI.7 ...	Paralytic stroke	Aged 70
AI.8 ...	Sudden death	Aged 65
AI.9 ...	—	Second wife of AI.8. Cousin of the first wife, AI.7
AI.11 and AI.12	—	Died at 82 and 85 respectively
AI.13 ...	Tumour, probably malignant	—
AI.15 ...	—	Twin; died a few days after birth
AI.16 ...	—	Enlargement of the liver
AI.17 ...	Typhus	Between 40 and 50
AI.18 ...	From uterine fibroid	18 years' invalidism; aged 50
AI.19 ...	Pneumonia	Aged 52
I.1 ...	Tubercle	—
I.2 and I.3	"Strokes"	Over 60
I.5... ..	—	60
I.6... ..	—	60
I.7 ...	Cerebral haemorrhage	Just over 60
I.8... ..	Apoplexy	Aged 48
I.9... ..	V.D.H. and Bright's disease	Aged 59
I.11 ...	—	Alive and well; aged 77
I.12 ...	Tubercle	Husband of I.13, who also died of tubercle when adult
I.14 ...	Tubercle and pneumonia	—
I.16 ...	Cardiac failure	Aged 75
I.17 ...	Cerebral haemorrhage	Aged 80
I.18 ...	Malignant disease	Over 60
I.19 ...	Apoplexy	Aged 73
I.20 ...	Sunstroke in India	Between 40 and 50
I.21 ...	—	Aged 16
I.22 ...	Following upon operation	Nature unrecorded
I.23, I.24, and I.25	? Heart failure	No details
I.27 ...	Tubercle	Aged 12
I.28 ...	Cardiac failure	About 70
I.29 ...	—	Aged 71
I.30 ...	Carcinoma of stomach	Aged 74
I.31 ...	Following prostatectomy	Aged 73
I.32 ...	—	Alive and well; aged 87
I.33 ...	Angina pectoris	Over 60
I.34 ...	Angina pectoris and carcinoma of oesophagus	—
DI.1 ...	Tubercle	When a young adult
DI.2 ...	—	V.D.H. following on acute rheumatism; alive, aged 49
DI.3 ...	—	D.A.H.; alive, aged 35
DI.6 ...	Diphtheria	Aged 12
DI.7 ...	—	D.A.H. and pulmonary congestion; alive, aged 55
DI.8 ...	—	Tuberculous glands in neck; alive, aged 37
DI.9 ...	—	Tuberculous glands in neck; meningitis in infancy; alive, aged 23

NOTES ON INDIVIDUAL CAUSES OF DEATH (continued)

Case	Cause of Death	Notes
DI.10 ...	Tubercle	Over 50
DI.11 ...	—	Acute rheumatism (heart?); alive, aged 31
DI.13 ...	—	Tuberculous glands in neck; alive, aged 38
DI.14 ...	Infantile tubercle	—
DI.16 ...	Died soon after birth	—
DI.17 ...	Pneumonia and tubercle	Aged 16
DI.18 ...	—	Tuberculous hip; alive, aged 34
DI.19 ...	Died in early infancy	—

Summary

Summarizing these results, the notes of 108 individuals are recorded, of whom twenty-one are known to have died from cardiovascular disease (this does not include the case of sunstroke), and five cardiovascular patients are alive; five had malignant tumours, one of whom also had angina pectoris; of thirteen tuberculous cases four patients are alive. Sixteen patients are known to have attained the age of over 70 years, and a further twelve to have passed 60.

In the absence of data regarding the members of whom nothing is recorded, an extended analysis of this tree is scarcely justified. At the same time some support seems to be afforded to Weitz's¹ conclusion that hypertension is a hereditary diathesis. He says:

"It appears to me beyond question that a dominant heredity accounts for the majority of the cases. For most of the others a dominant heredity is probable but not certain; there is a small residue of instances in whose production heredity has not been shown to play a part."

It must also be noted that many of the individuals reached an advanced age, and so the expected incidence of cardiovascular degeneration among them would be much increased. But at the same time, if a hereditary tendency to hypertension is indeed present, as would seem to be the case both in the main stock—that is, progeny of AI1.3, and in the subfamily of AI.1 and AI.2—then it would be expected to manifest itself at the weakest point of the constitution when old age advanced nearer to dissolution.

The hereditary aspects of malignant disease and rheumatoid diathesis are now attracting much attention, while the relation of inheritance to tuberculosis has been extensively investigated. For a full discussion of these subjects, and also of the inheritance of cardiovascular defect, reference should be made to Baur, Fischer, and Lenz,² who deal with the whole topic in a wide and inclusive manner.

The expenses incident to this investigation have been met by a grant from the Ella Sachs Plotz Foundation.

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K. O. Evensen, writing in the August issue of *Norsk Mag. f. Laegevid.*, reports a case of aortic rupture in a man aged 52 who lived two and a half days after the rupture had taken place. The clinical symptoms were haemopericardium and ascites. The blood pressure was high, the systolic being 170 and the diastolic 80. The urea in the blood serum was 155 mg. per c.cm. Electrocardiographic examination showed negative T waves in the first two leads. Post mortem, a large heart, weighing 1,000 grams, was found. The pericardial sac contained 800 c.cm. of blood. A nearly complete rupture was discovered 2 cm. above the aortic valve. Macroscopically no morbid changes could be seen on the aortic wall, but, microscopically, slight inflammation changes in the media and some arteriosclerotic changes were detected.

Clinical Memoranda

ACUTE RETENTION OF URINE

AN UNUSUAL COINCIDENCE

The occurrence of acute retention of urine in the same individual twice in less than two years from such different causes as carcinoma of the penis and enlarged prostate may be considered sufficient excuse for the publication of the notes of the case.

The patient, a gnarled old labourer who, after years of toil had found a peaceful haven as a lavatory attendant, was 71 years of age when first seen on February 21st, 1932. He sent for me because he was unable to pass a drop of urine. There had been some slight difficulty for a few days previously. On examination the bladder was found to be distended and there was a large fungating mass at the tip of the penis involving the prepuce and the glans, and apparently completely blocking up the meatus urinarius. The patient was very vague as to how long the growth had been present. I admitted him at once to hospital and ordered him a hot bath and 30 minims of tincture of opium. This failed to relieve him, so after a considerable amount of difficulty I managed to find the meatus and passed a gum-elastic catheter. This was left *in situ* and the bladder drained by stages. As there were no enlarged glands to be felt in either groin, and as the patient's general condition was so feeble I decided that a partial amputation of the penis would have to suffice. This I carried out on February 24th. The wound healed remarkably well, but there was still some difficulty with micturition, so the patient was taught to pass a rubber catheter on himself. He left hospital on March 12th. When I saw him again on March 16th the left leg was swollen and tender on account of a deep venous thrombosis. He continued to pass a catheter on himself until March 23rd, when he found that he could pass water naturally. By the end of March he was walking about again, and in the middle of April he returned to work.

For six months after operation I saw him regularly once a month and thenceforward at two-monthly intervals. There was no sign of recurrence, either locally or in the inguinal glands, and the act of micturition gave rise to no difficulty or discomfort. At the regular inspection on July 12th, 1933, everything appeared to be in perfect order. On July 14th he walked into my consulting room evidently in considerable pain, and reported that he had been unable to pass any water for twenty-four hours. His bladder was felt reaching up to the umbilicus. There was no obstruction at the urethral opening and he was soon relieved by the passage of a large silver catheter. He came again next day and reported passing only a few drops of blood. Examination revealed a moderately enlarged prostate, so into hospital he went again. Drainage of the bladder by an indwelling catheter was resorted to and continued for ten days. The catheter was then removed in the hope that natural function might have been restored. It was not, so a further spell of drainage was tried. At last I decided, with considerable reluctance, that the only choice left open was removal of the prostate. This I did by the suprapubic route on August 21st, 1933. The prostate was the size of a tangerine, with a central flap, which, falling across the urethral opening, completely blocked it, but which was quite easily pushed up out of the way by the point of the catheter. There was a rather severe secondary haemorrhage on the sixth day, but otherwise progress was good and the patient was discharged to his home on October 14th with the wound healed and dry. A few days later a small pin-point fistula formed in the wound, and this remained a source of annoyance, though only a few drops of urine escaped each day until December, when it finally dried up. On December 21st I was sent for late at night and found the patient in agony, with the left testicle swollen and excruciatingly tender. Suppuration followed, and finally the testicle sloughed completely.

The final chapter in this tale of woe was that in March of this year a large hernia appeared through the operation

scar. Now, fitted with a belt, he is able to walk three or four miles a day, pass water "like a king"—as he expresses himself—and he is quite keen to return to his subterranean duties. Incidentally, this case illustrates what an extraordinary amount of trouble can be survived on occasion by one who, judged by all ordinary standards, would be considered a thoroughly bad surgical risk.

Bridlington.

C. J. GORDON TAYLOR, M.D., Ch.B.

TREATMENT OF MAXILLARY FRACTURES

Although fractures of the maxilla are relatively rare, with modern conditions and means of transport they are now becoming increasingly common. Many require very little in the way of surgical appliances, but a certain number may present difficulties which are not easily overcome. The following case, and the method of treatment, may be of interest.

A man aged 52 was admitted to hospital, very shocked, and bleeding profusely from a large laceration at the root of the nose. A fracture extended transversely across



the root of the nose, completely detaching the whole of the maxilla. There was downward and backward displacement of the maxilla of about a quarter of an inch, but the maxilla was freely movable.

The treatment was complicated by: (1) the absence of any articulating teeth; (2) oral sepsis (there were several broken-down teeth and roots present in each jaw); (3) the displacement; (4) facial injuries. Factors (1) and (2) made the use of mandibular-maxillary pressure useless, whilst (3) and (4) were incompatible with the use of a winged maxillary dental splint.

The following splint was devised (see figure), which consists of two main parts—an iron strut fixed to a plaster cap, and a strut having a small vulcanite maxillary dental plate attached to its distal end. The two struts are fastened in the required position by screws passing through a slot, thus giving an adjustable proximation.

The advantages of the method are: (1) comfort to patient and ability to have facial dressings performed without moving splint; (2) the patient can still feed in comfort; (3) he can sleep with head in any required position; (4) he can keep his mouth in aseptic condition; (5) the method provides a strong enough splint to attain and retain anatomical reposition of structures, and there is therefore less likelihood of infection.

A. SIMPSON-SMITH, M.Ch., F.R.C.S.

W. M. GRAVES-MORRIS, L.D.S. R.C.S. Eng.

London, S.E.1.

Reviews

INFLUENZA

The enormous literature of influenza necessitated the division of the monograph published by the Pickett-Thomson Research Laboratory into two parts. Part I was reviewed in this *Journal* on April 21st and its general standard of excellence commented on. We have not had long to wait for the companion volume,¹ which fully maintains the standard set by its predecessor; the medical profession will be grateful to Drs. D. and R. THOMSON for this comprehensive and valuable book of reference.

Part II opens with a chapter on the complications and sequelae of influenza, and since probably no other infectious disease gives rise to so many complications it is not surprising that their consideration should occupy 300 pages. None have been overlooked—in fact, the authors' policy has been to include all the available published evidence, confining critical remarks to their summaries and conclusions, which follow each chapter or section. The effect of influenza on various physiological states such as menstruation, pregnancy, labour, and the puerperium, and its influence on other diseases are discussed in the next three chapters. The suggestion which has been made occasionally that influenza may initiate such conditions as diabetes mellitus, Addison's disease, and pulmonary cancer is dismissed as extremely doubtful and unproven, but stress is laid on the unfavourable effect of concomitant influenza on many diseases, more particularly pulmonary tubercle and surgical conditions.

Chapter XL is devoted to pathology—a comprehensive account—and this brings us to a consideration of epidemiological data. There is still a lot to learn about the epidemiology of this disease, which is responsible for such enormous and serious pandemics. Is there more than one strain of virus? Is the high mortality of the secondary waves of epidemics due to co-operation between the prime cause and a secondary infecter, the two passing together as one aetiological agent? What is the relationship of interpandemic influenza to epidemic influenza, and how often do we err in the diagnosis of the sporadic case? Only a more intimate knowledge of the prime cause of the disease will enable us to answer these questions, and the authors rightly hail as of fundamental importance the recent work at the National Institute for Medical Research in this respect. Following this are chapters on the mode of transmission, and vaccine and serum prophylaxis and therapy. Everyone will agree that direct transference from patient to patient represents the way in which the great majority of infections take place; although this disease may occasionally be spread indirectly by articles used by the patient this can hardly be of great epidemiological importance.

The authors' summing up on vaccine prophylaxis also is not likely to meet with much dissent. They agree with the view recently expressed by Dochez and his colleagues that by the use of vaccines the incidence of influenzal pneumonia can be lessened; whether the use of vaccines made with the prime causal agent will be of any value only future experiment can decide. Convalescent serum in prophylaxis and treatment has not received extensive trial, and the authors suggest that further work should be done along these lines. Finally, we have chapters on prevention and treatment. Prevention can really be summed up in good personal and

environmental hygiene and avoidance of infection. Attention is rightly drawn to the fact that nasal douches and gargles may be harmful through irritation of the mucous membranes; care should be taken in their choice. The authors have a preference for one containing sodium ricinoleate in an oily medium.

The volume closes with an addendum on work published too late to be dealt with in its appropriate section, a list of some 4,500 references and authors, and subject indices. The authors state that they propose to rest for a few years from the labours entailed in the compilation of these monographs; they surely deserve to.

MEDICAL TREATMENT

The seventh volume of the series on medical therapeutics published in connexion with the chair of therapeutics of the Faculty of Medicine of Paris has now appeared.² This volume deals with the treatment of affections of the blood vessels and kidneys, and like the former ones is brought out under the immediate supervision of Professor LOEPER, who himself contributes several chapters. The subject is divided into sections, each separately considered. For instance, the affections of the kidney are discussed under the headings of the kidney and its response to diuretics, treatment of renal lithiasis, haematuria, urinary antiseptics, tuberculosis of the urinary tract, and general chapters on bleeding as a therapeutic measure, the effect of endocrine gland extracts on renal function, and the principles of dietetics in nephritis. The idea is to approach therapeutics from the clinical aspect, explaining the genesis of the symptoms as an indication for treatment, and the physiological use of a medicament in order to decide whether to prescribe it, or exclude it in varying circumstances. There is thus a certain amount of duplication in the sections, but the articles are well written and full of information. For those who can read easy French this volume will be useful as a guide to modern therapeutics. It is more suitable for a library than for the practitioner's consulting room, as the series is to be completed in nine volumes, each costing 45 to 50 francs.

SURGERY FOR THE G.P.

Surgery of a General Practice,³ by ARTHUR E. HERTZLER and VICTOR E. CHESKY, is a development of a book on minor surgery which appeared four years ago, and it endeavours to give the general practitioner the information he requires for dealing with such surgical conditions as may lie within his scope. The first part is devoted to a consideration of wounds and haemorrhage and all infective conditions, and this is followed by a general survey of the whole of surgery, including the special region of the nose and nasopharynx, and gynaecology, but excluding the abdomen. The concluding portion deals with such technical matters as the preparation of materials, the closure of wounds, bandaging, and general therapeutic methods.

The compression of such a range of material into so brief a compass necessarily means very unequal treatment, and we feel that it would undoubtedly have been better to limit the subject-matter to conditions which the general practitioner may actually be called upon to treat. The injection of the trigeminal nerve, for example, can scarcely come within his scope, whilst half a page is scarcely sufficient for a discussion on carcinoma of the tongue.

¹ *Thérapeutique Médicale*. Vol. vii, *Faissant et Reims*. By Maurice Loeper. Paris: Masson et Cie. 1934. (Pp. 249; 26 figures, 50 fr.)

² *Surgery of a General Practice*. By Arthur E. Hertzler, M.D., and Victor E. Chesky, M.D. London: Henry Kimpton. 1934. (Pp. 602; 472 figures. 42s. net.)

¹ *Annals of the Pickett-Thomson Research Laboratory. Influenza*. Part II. Monograph XVI, vol. x, May, 1934. By D. and R. Thomson. London: Baillière, Tindall and Cox. 1934. (Pp. xix + 951. 53 2s.)

When in the latter case we are told that "complete destruction with the cautery under local anaesthesia gives as good results as most radical operations," and when radium is not even mentioned, we can understand that "treatment is discouraging in the extreme."

Like most American publications, the volume is finely produced and magnificently illustrated. The illustrations alone are well worthy of the study of anyone engaged in the practice of surgery, whether as a general practitioner or as a consultant. Many of them illustrate rare conditions and should be of great assistance in their diagnosis, but we have sufficient confidence in general practitioners in this country to be sure that they will never attempt to treat them.

PICTURES OF EYE DISEASES

There have appeared of late quite a number of atlases of drawings of eye diseases and abnormalities as displayed in the fundus by examination with the ophthalmoscope. Now one has been issued which deals with external conditions. Mr. HUMPHREY NEAME has compiled an *Atlas of External Diseases of the Eye*,⁴ and his fifty-one pictures cover a wide variety of disease. Some are of the simplest and most familiar order, such as the picture of the common sty; others are of an exceptional and rare type such as that of a war injury, the result of burns by dichlorethyl sulphide, or mustard gas. There is not unnaturally a great temptation to include pictures of rarities, just because they may, and in this instance we hope sincerely will, never be seen again. But in a little book that is evidently intended for students such inclusions would seem to be a mistake; rather, the space might have been given to the further illustration of more common conditions, such as interstitial keratitis, of which there are only two illustrations, yet the forms of the disease are protean. Facing each figure there is a page of text. There are terse details on synonyms, symptoms, diagnosis, aetiology, pathology, course, prognosis, treatment, and complications. The drawings are excellent, and the reproduction by process blocks is as good as lithis can be. But the somewhat florid complexion of this means of reproduction makes us sigh for the delicate beauty of the old-time lithography.

BACTERIOLOGY

MACKIE and MCCARTNEY'S *Introduction to Practical Bacteriology* is well known to laboratory workers in English-speaking countries. It has passed through four editions in nine years, each edition providing an expansion of contents without, fortunately, adding much to the bulk of the volume. A feature particularly welcome in the latest edition⁵ is the description of the methods Dr. McCartney has developed for substituting stoppered bottles for cotton-wool-plugged test tubes. The advantages claimed for this is that the stock of media does not get so dry when stored for a few days, and the bottles can be more easily packed and transported. Whether or not the new methods will prove as satisfactory as the old can only be decided by experience, but in the meantime pathologists will be glad to have a description of the new canned medium methods. This book has always been a very good one for reference purposes. During the four or five weeks since it was sent to the reviewer it has happened that he has had to look up a number of points of technique. On each occasion he has looked first to

see if the question was dealt with in the new Mackie and McCartney. The subjects have included methods for the isolation of viruses, the diagnosis of climatic bubo, the natural diseases of guinea-pigs, complement-fixation tests in diseases other than syphilis, and the identification of *Salmonella* bacteria, etc. On each of these subjects he has found something fresh and useful in the new edition of this book.

Dr. GOHAR'S *Elementary Bacteriology*⁶ has been written for medical students preparing for their examination in pathology. It will probably be useful for this purpose because the facts are set out in a pithy way without any detail which the student could regard as redundant. Looked at from a more disinterested point of view the book is open to much criticism, for its many mistakes in spelling (some of which are corrected on an errata slip attached to page 136), and for the poor character of the illustrations. The two sections at the end of the volume, on blood diseases and elementary hygiene, are out of place in a textbook on bacteriology.

SCIENCE AND SOCIAL NEEDS

Professor JULIAN HUXLEY'S *Scientific Research and Social Needs*⁷ is published as the first volume of a library of science and culture which is to be issued under the editorship of Professor H. Levy. The purpose of the library is stated to be the presentation of a picture of the world as science is shaping it. Professor Huxley has undertaken a pilgrimage of survey, at the suggestion of the B.B.C., into the activities of British science, and this volume is partly an account of his survey and partly his comments thereon and those of others with whom he has discussed its bearings. In the first half of the book there are chapters dealing with research in relation to food, building, clothing, health, and transport, and each of these chapters contains records of great interest; the rest is devoted to the discussion of the relations between science and social affairs. The general observation is made that while the applications of science to industry are highly developed and financially supported, biological and humanistic research is relatively undeveloped and ill supported. In arriving at this verdict Professor Huxley does not appear to have taken into account the work that is being done in the medical sciences in institutions throughout the country which are not under public authority and which, presumably, should be included in the humanistic class. Throughout the volume he uses the word "science" in a more restricted sense than is generally favoured to-day, when the tendency is to extend the title to all "gathering of evidence," whether this proceeds to judgement or whether judgement is suspended. He has a particular complaint as to the little use which public authority is making of psychological science, but the reason for this is not far to seek: considering the psychological knowledge at present available and agreed, as distinct from opinions and doctrines, it would be difficult to justify the establishment of a specialist psychological service in public institutions independent of medical service.

The book includes discussions with Professor Levy, with Sir T. D. Barlow on "Research and Industry," and with Professor Blackett on "Pure Science." The discussions with Professor Levy turn chiefly on the political aspects of sociology, and the reader is given glimpses of a society regimented and controlled on "scientific principles," in which all national distinctions have disappeared. Those who plan on this scale might

⁴ *Atlas of External Diseases of the Eye*. By Humphrey Neame, F.R.C.S. London: J. and A. Churchill, Ltd. 1934. (Pp. 110; 51 coloured plates. 15s.)

⁵ *An Introduction to Practical Bacteriology. A Guide to Bacteriological Laboratory Work*. By T. J. Mackie, M.D., D.P.H., and J. E. McCartney, M.D., D.Sc. Fourth edition. Edinburgh: E and S. Livingstone, 1934. (Pp. 504. 12s. 6d. net, postage 6d.)

⁶ *Elementary Bacteriology*. By M. A. Gohar, Ph.D., F.R.C.P.E., M.R.C.P. Cairo: F. E. Noury and Sons. 1934. (6s.)

⁷ *Scientific Research and Social Needs*. By Julian Huxley. London: Watts and Co. 1934. (Pp. 287; illustrated. 7s. 6d.)

profitably consult the experience of the profession of medicine, and among the points in that experience specially worthy of attention are the lessons it has learnt regarding the value of the panacea, the confident dogma, and the too hastily welcomed remedy. The idea that society is a proper object for "scientific" treatment is declared by Professor Huxley to be revolutionary. Presumably he has in mind some wholesale treatment, for the beginnings were made long ago. The idea of running and controlling society as a business venture on scientific principles has its fascinations, and no doubt the few in control would enjoy life; but it would be difficult to find to-day a body of scientists of the first rank who would be willing to draw up a scheme of complete reorganization and to guarantee that, under it, the many would enjoy themselves. One "scientific principle" held, at any rate, by medical science is that the time to apply a remedy is when the result is predictable; application without this proviso is called by another name. The rule is cautious, but is it over-cautious?

In his chapter upon science and health Professor Huxley debates many questions of great importance: to several of them he would be among the first to admit that answers cannot be given. With the answer which he gives to one the medical profession is in complete accord—namely, that the best of all weapons against disease is the maintenance of a high standard of general health.

Notes on Books

With the increasing use of the rhesus monkey for experimental purposes the need for a manual on the anatomy of this animal became imperative. Consequently the American Association of Anatomists in 1930 set up a committee to go into the matter, and a book* has now appeared in which eighteen contributors collaborated. The B.N.A. nomenclature is used throughout, the terminology of human anatomy having been chosen rather than that of comparative anatomy. Nearly all the illustrations were drawn especially for this book by a medical artist, Benjamin Kopel.

Two numbers of *Tabulae Biologicae Periodicae*† which have recently appeared contain collected data over a wide range of biological sciences. Two articles are of interest in relation to human physiology: one on the energetics of contraction of skeletal muscle, and another on blood groups. The former article gives collected data showing the heat production, lactic acid production, oxygen usage, etc., of skeletal muscle. Most of the figures refer to frog's muscle. The particulars have been assembled from seventy-four papers, most of which were published during the last five years. The article on blood groups contains a large amount of interesting data. Diagrams are given which show the relationships between man and the anthropoid apes, as indicated by the blood groups. The inheritance of blood groups is becoming a question of medico-legal importance, and this article shows the chances of inheritance from all the various types of parentage; it also discusses some of the theories of gene distribution that have been advanced to account for these figures. Finally, there are data regarding the geographical distribution of blood groups.

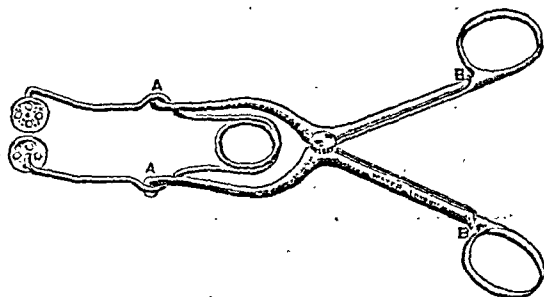
The small monograph *Hallucinations et Délire*‡ written by Dr. HENRY LY, with a preface by Dr. J. Séglas of the Salpêtrière, is based on work carried out in the clinic of Professor Henri Claude. The author discusses the relationship of verbal psychomotor phenomena and hallucinations. He divides hallucinatory phenomena into three main

groups—illusions, hallucinations, and pseudo-hallucinations—which he defines as objectifications of the phenomena of thought and language. In all of these there is both a sensory and a motor component. The book is divided into two sections, the first dealing with hallucinatory symptoms and verbal automatisms, the second with verbal automatisms and delusional forms. It will well repay reading because the author gives the views of the French school of psychiatry, including the well-known work of Clérambault.

Preparations and Appliances

MODIFIED BENEY'S TONSIL CLAMP

Mr. ALEX. TUMARKIN, F.R.C.S.Ed. (Liverpool), writes: Nowadays dissection of tonsils under general anaesthesia is becoming more and more the operation of choice. Haemorrhage is, of course, the main bugbear, and the widespread use of Beney's tonsil clamps is sufficient proof of their efficiency. My own method is to dissect the right tonsil first, and then, as quickly as possible, and without looking for any bleeding points, to apply a large dab to the tonsillar fossa and keep it in place with a Beney clamp. The left



tonsil is treated similarly, by which time removal of the right pack usually reveals a dry fossa. The interval between removing the tonsil and applying the dab should be as short as possible, so as to minimize the brisk haemorrhage which frequently occurs. Unfortunately, using the ordinary Beney handle, one often fumbles for valuable seconds in picking up the clamp, and it is precisely during those seconds that the pharynx can fill dangerously with blood. I have therefore modified the handle simply, so that its points (A A) lie in abduction, as in the figure, instead of adduction. The clamp is thus firmly gripped in the handle and can be picked up and applied in a moment.

The instrument was made to my design by Messrs. Mayer and Phelps of New Cavendish Street, London, W.1.

ACETYLCHOLINE BROMIDE

We have received specimens of acetylcholine bromide prepared in ampoules (0.1 gram in 1 c.cm.) for intramuscular injection (Burroughs Wellcome and Co.).

During the last year it is probable that more physiological research has been carried out in connexion with acetylcholine than in relation to any other single chemical substance. The result of this intensive work has been to show that it is one of the most important chemical regulators of the functions of the body.

The clinical use of this interesting substance is attracting increasing attention. It is dangerous to give the drug intravenously owing to its powerful action on the heart; and, since the blood contains a powerful esterase which breaks down acetylcholine in a few seconds, the substance has little action when given subcutaneously. Intramuscular injections have, however, been found to give satisfactory results. Acetylcholine has been used successfully to counteract post-operative paralysis of the intestine, and to a certain extent to relieve acute constipation. It is also of value in certain types of vascular disturbance associated with arteriolar spasm.

DESITIN OINTMENT

Desitin ointment (prepared by Desitin-Werk, Hamburg, marketed by Messrs. Coates and Cooper, Ltd., 94, Clerkenwell Road, E.C.1) contains cod-liver oil mixed with a basis of soft paraffin, zinc oxide, and talc. The rationale of the preparation is that a local supply of fat-soluble vitamins should promote healing.

* *The Anatomy of the Rhesus Monkey (Macaca Mulatta)*. Edited by Carl G. Hartman and William L. Straus, jun. London: Baillière, Tindall and Cox, 1934. (Pp. 383; 128 figures, 27s.)

† *Tabulae Biologicae Periodicae*. Band III, No. IV; Band IV, No. I. Berlin: W. Junk, 1934. (M. 35 for single volumes; M. 48 for subscribers to whole work.)

‡ *Hallucinations et Délire*. Par Dr. H. Ly. Paris: F. Alcan, 1934. (Pp. 122, 15 fr.)

NOISE AND HEALTH*

BY

DAN MCKENZIE, M.D., F.R.C.S.Ed.

Can it be shown that noise inflicts definite injury upon body or mind? Is noise harmful, or is it only disagreeable? This inquiry deals with the effect of noise upon the general mind and body, and it leads us into several interesting regions of physiology and psychology. Physically, as we know, noise is a complex of irregular, conflicting, and discordant sound waves—a chaotic jumble. But this physical fact does not interest us much, since we are chiefly concerned not with physical things and vibrations but with living people. So we shall adopt the psychological definition that any sound becomes noise when it is unpleasant. But even this definition needs explaining. What makes a sound pleasant or the reverse?

First of all comes loudness, and we may say that sounds which are painfully loud are harmfully loud, either to ear or to brain, or to both. Here the disagreeable is undoubtedly harmful. Sound may be so loud as to be directly dangerous to life. I have suggested that some of the deaths from high explosives during the war were caused by the shock of sound waves imparting a violent succussion or shaking to the neurones of nerve centres. These, of course, are not the sounds we are ourselves concerned with at present. Our street and traffic noises do not directly endanger life.

Sound in Rhythm

There is, however, no need to dwell upon the particular element of loudness, since it is sufficiently obvious to everyone. But there is another disagreeable quality of noise, of which little or no mention is made, but which deserves notice—namely, that of arrhythmia or unexpectedness. In the matter of rhythm we enter a region of vital mechanics of which we know, even to-day, very little in so far as its fundamentals are concerned. Rhythm, meaning thereby the repetition of an event at regularly recurring intervals, is one of the modes by which time enters into the constitution of the universe as we know it. The question is, of course, the old one: is the element of rhythm imparted to the cosmos by our own mind or is it inherent therein? For the nerve processes themselves function by following a regular rhythm, which seems to vary in different forms of life, although it is fixed for each. In ourselves it seems, moreover, to vary with age, as in childhood it is, like the heart beat, more rapid than in old age, and the more rapid the individual rate the slower do outside events seem to move, as in the time machine of H. G. Wells. Or to put it another way, the more rapid the rhythm the more rapidly does the brain perceive and register impressions. To a child a day is as long and as eventful as a week is to an old man, for the mind measures time, not by the clock, but by its own happenings. That being so, the life of an ephemerid may seem to these insects every bit as long as ours. Their minutes may equal our days. This leads us to a fascinating subject, which, however, I may only glance at—namely, the function of rhythm in the arts, more particularly in those like music and poetry, which appeal to us exclusively or chiefly through our hearing.

Our particular interest in the subject proceeds from the close and intimate connexion that subsists between hearing and muscular movement, in consequence of which, among other effects, we dance and march in time to music. It is, by the way, a remarkable fact that just as there are people who are tone-deaf—that is, people who are devoid of the sense of pitch—so there are people who have no sense of rhythm. Sir Humphry Davy, for example, is said to have been quite unable to keep step in marching. The feeling for rhythm and that for pitch appear to be independent of each other. You may

have no "ear for music" like Sir Walter Scott, and yet be able to dance and to write verse, even verse rhythmically complex such as that in *Hail to the Chief*.

The point to which I wish to direct attention is that rhythmic sound, in which accent or recurring loudness coincides with our movement, as in marching to music, has the effect of preventing or postponing fatigue. For rhythm sustains and carries us onwards as on wings, the sound stimulus passing direct from ear to muscle in such a way as to render our movements automatic. And it is by a free surrender of ourselves to the almost hypnotic influence of musical rhythm that we become such automata. But the automatism, unlike that of true hypnotism, is only partial, seeing that the conscious mind remains fully aware of what is going on. Nevertheless it suffices to release the upper nerve centres from the need of supplying the succession of nerve stimuli necessary to initiate and sustain the muscles in their incessant movement. For continually recurrent acts of volition generated inside the brain there is substituted a periodic stimulus from without. In this way the mind is set free to enjoy the activity of a body that is no longer a burden upon its attention, a drain upon its energy.

From this analysis it would appear that, inasmuch as rhythmic movement in response to music can be continued for surprising lengths of time without leading to fatigue, it is the act of volition, the effort of willing, and not the muscular action itself, that most rapidly tires us. Thus rhythmic or expected sound works along with our natural impulses, and so gives us pleasure. Moreover, it can be made to harmonize with the natural muscular expression, in voice or movement, of our various emotions. We dance and are joyful; we are depressed and solemn as we listen to a funeral march; and in the old days of romantic war, fortresses were stormed to the tune of the "British Grenadiers."

Arrhythmic Sound or Noise

Rhythm pervades creation. But in noise we revert to chaos, a strange, unfriendly world, where every event grates upon our sensibilities. Now whether it is rhythmic or arrhythmic, musical or noisy, sound when it falls upon the ear passes direct to the muscles, exciting them to movement, the rhythmic pleasant, but the arrhythmic unpleasant. Arrhythmic, or as we call it "unexpected," sound startles us, disturbs us, irritates us, apparently because its irregular motion conflicts with the even motion of our being. And as it is a world in opposition, so it necessitates an irregularly recurring adjustment of our mental processes, together with a difficult effort of the will.

The Neuro-muscular Response to Noise

Now in describing the effect of unexpected noise upon the mind I said that "it startles us." Let us examine the phenomenon. Our first reaction to a sudden, sharp, unexpected sound is a muscular start, which places us in a *position of defence*. It is involuntary, and is so rapidly accomplished that our consciousness lags behind the dispositions made, just as it lags behind the events when we are involved in a motor or other accident. I have known a sudden loud bang bring a sleeper out of his bed and on to his feet before he became awake. Along with this "start" there are set in train the changes in the living body which we associate with the emotion of fear: the face pales; the limbs tremble; the male prepares to strike; the female to flee or to faint. In a word, a sudden loud noise arouses fear and all its effects. When sufficiently pronounced it is liable to be followed by what is called "shock," in which there is a general depression of vitality.

I do not for one moment mean to say that every noise we hear and object to startles us and is accompanied by fear and followed by shock. What I do say is that on many occasions a certain degree of those signs and symptoms is induced, and if one is exposed to their continuance a general feeling of fatigue and even exhaustion follows. If, as happens not infrequently, the start having passed, the moment of terror is associated with a moment of paralysis of the will, of hesitation, of oscillation of the

* Abridgement of paper read at the Conference of the Anti-Noise League, Oxford, July 14th, 1934.

body in and out of danger, then you get, for example, the pedestrian's contribution to the accident that may either kill or maim him. In a paper on health and noise this source of ill-health is not to be ignored; nor is the means of prevention to be slurred over. As to that, my own conviction is that the motor hooter should be entirely abolished. It is a deceitful instrument; it confers upon the driver a false belief that he can take risks, and it confers upon the public the false belief that it prevents accidents. I affirm that it causes more accidents than it prevents.

It is because of neuro-muscular disturbance that noise is tiring, and to people who are depressed in health, and particularly to those who are mentally unhealthy or ill-balanced, it may be dangerously tiring. But I know even healthy people who get a genuine migraine whenever they travel in a London tube train. Contrast the muscular reaction from rhythmic sound with that from noise. The one relieves the brain of its burden, lightens its work, and postpones fatigue; the other increases its burden, adds to its work, and so hastens and increases fatigue. There are, of course, great differences in the reactions of people to noise. Some few fortunate persons never seem to suffer any inconvenience at all, and they cannot understand what we are making all the fuss about. At the other extreme we find the hypersensitive; their patron saint is Thomas Carlyle, who once accused a carpenter, working in his house, of breaking the Decalogue with every stroke of his hammer. But between those two extremes there lies the great mass of ordinary men and women who are upset when noise is unusually loud, or when they themselves are out of sorts.

"Accustomed" Noise and its Effect

We must now take notice of a criticism that is frequently levelled against anti-noise work. It is, that as we get accustomed to noise we learn to ignore it, and it then becomes innocuous. This statement is partly true and largely false: true that we learn to ignore it, up to a point; false that it is then innocuous. First of all—and here I appeal to general experience—the everyday noises we can tolerate when we are well and robust become unbearable when we are weary, depressed, or ill. This shows, what the physiologist can understand, that no nerve stimulus or impulse, once initiated, can be annulled.

Nerve energy is as indestructible as any other kind of energy. In noise, whether habitual or occasional, the ear receives and the ear transmits a hyperstimulus to the brain. If we are unaccustomed to it, reaction is manifest in an exclamation or a start—that is to say, in a more or less violent muscular movement—the consequence of the firing of an explosive train. If, however, we are accustomed to it, no reaction is visible, not because the nerve impulse is obliterated, but merely because it is side-tracked and dispersed among a number of subsidiary nerve centres. We are often quite aware of the effort necessary to inhibit or damp down such effects. As the visible reaction is less, so the secondary emotional effects are also reduced, and the phenomenon of fear and shock minimized. But the point is, that although the expenditure of energy is diminished it is not entirely prevented; there is still some waste, and as a result there may be fatigue.

The kind of noise that we most easily get accustomed to is continuous noise. Yet here again the rule of inevitable nerve impulse holds good. The result in this case is, that although the muscular response does not take the form of a start or a jump it nevertheless still manifests itself, this time in continued muscular tension. People whose occupation places them in positions of prolonged strain and responsibility know how restful it is to bring about a state of general muscular relaxation or slackening of fibre. Continuous noise renders such relaxation difficult of accomplishment. And once again you see how it leads to fatigue and even exhaustion.

So we may say that while noise does not induce organic disease, apart from deafness, it does induce a condition of functional weakness or disability, which is manifested in

exhaustion more or less severe according to: (1) the kind of noise; (2) the normal mental and constitutional make-up of the recipient; and (3) the state of his health at the time of his exposure. And this state of fatigue, though not itself disease, opens the door to disease.

Here we have one of those functional upsets that may lead to organic troubles. A healthy man in full vigour can stand ordinary diurnal street and traffic noise without suffering much, if any, damage. Not so, however, the hypersensitive and the weakly. Noise makes them irritable, and irritability is a sign of asthenia. I have heard robust men blame the hypersensitive because they suffer from such excessive nerve stimuli. But the problem is not to be solved by cursing these people. We may not all be hypersensitive, but there are very few of us who have not our hypersensitive moments, when noise, even moderately loud noise, becomes an intolerable irritant.

Noise and the Sick

There remains still to be considered an aspect of the subject which calls for direct and deliberate attention, and that is the deleterious effects of noise upon the sick. There are many diseases, mostly acute, in which quiet is of supreme importance; much more important often than feeding. Yet, while minute dietetic directions may be given by their medical attendants, "quiet" is, as it were, understood. Take pneumonia, the septic infections, those forms of heart disease that are attended with insomnia, post-operative states, the melancholy troubles of nervous sufferers that form the borderland between sanity and insanity—these are only a few of the commoner diseases in which rest and sleep are not only desirable but imperative if the patient is to recover rapidly and smoothly. How do they fare to-day? Go round any of the London nursing homes and hospitals and ask the ward sisters, or become a patient and make the experiment yourself. I am sure if noise could be reduced, so would the consumption of 'sleeping-draughts'.

It is true, no doubt, that much of the noise disturbance in nursing homes and hospitals comes in from the streets; but not all of it. Too much is generated within the hospital itself. Doors are banged, blinds rattle, lift gates crash, tin pails clatter, and a hundred other noises, great and small, are constantly occurring. This ought to be stopped. One of the ideals, too often forgotten, not only in the construction but also in the running of a hospital or nursing home, is the ideal of *quiet*. Apart altogether from the exclusion of an irritant, the positive value of a calm and soothing environment upon the subconsciousness of a sick person is inestimable. It helps to constitute the therapeutic atmosphere, and, by soothing the patient's apprehension, aids in the cure of his disease, as the old Greek physicians of the Aesculapian temples knew. Not only in health, but also in sickness the ideal of quiet is one that we modern physicians have lost. Should we not try to regain it?

R. Benard and G. Thoyer (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, July 2nd, 1934, p. 1069) record a case of Addison's disease to demonstrate the respective actions of suprarenal cortical and medullary extracts in this malady. Primary treatment with the former caused rapid disappearance of the acute symptoms, particularly the asthenia, but had no effect on the blood pressure. Conversely, the medullary extract, which was then given, produced a marked durable rise in the arterial tension without influencing the asthenia, which reappeared in a few days, rapidly disappearing, however, on the resumption of the cortical extract. The patient has remained well and active for three months following the total cessation of treatment. A daily dosage of 1 gram of the cortical extract may be safely administered, provided that this maximum amount be attained by progressive doses and given in two divided daily doses. Bédère suggests that the extract does not act, as in thyroid medication, by supplementing an endocrine insufficiency, but by favouring a compensatory hypertrophy of the portions of the suprarenal par-m-chyma remaining healthy.

STATE OF THE PUBLIC HEALTH

SIR GEORGE NEWMAN'S REPORT*

It is sometimes forgotten by the public that the Ministry of Health concentrates the health services previously exercised not only by the Local Government Board but by the National Health Insurance Commission, and in the latter respect it controls a general practitioner service of enormous extent, engaging 16,500 practitioners in England and Wales, and entitling two-fifths of the population to medical benefit. In Sir George Newman's annual reports the two services—one represented by the medical officer of health and the other by the insurance practitioner—are not set opposite to one another, but are regarded as complementary. This British system has not only tradition but the balance of argument in its favour, and it derives noteworthy support from the Chief Medical Officer of the Ministry, who praises highly the medical service—which is a general practitioner service—afforded to the insured population. Not only is it vastly superior, he says, to the service given to the same class of people before the introduction of national health insurance, but the improvement in its content since the Act came in has been steady and continuous.

Three factors which are chiefly responsible for the rise in quality of the service are mentioned. In the first place, the Ministry of Health, in consultation with the Insurance Acts Committee of the British Medical Association, and, where necessary, with the approved societies, has sought to improve and simplify the conditions under which practitioners contract to provide advice and treatment. Secondly, the experience of the insurance medical service has developed in the members of the profession an appreciation, to an extent not previously attained, of their function as participators in a professional service for the public good. Finally, as a result of the progress of research, methods of treatment have been made available which, until recently, were unknown and unused, such, for example, as the treatment of diabetes by insulin, or of pernicious anaemia by liver extract.

THE "BOTTLE OF MEDICINE" HABIT

What the newspapers call a "story" might be written around the statistics of insurance prescribing. The people of England—the same does not apply to Scotland—are sometimes regarded as confirmed medicine drinkers. The bottle of medicine is looked upon by the working man, and still more by his spouse, as a necessary concomitant of medical attendance. Statistics show, however, that this habit of mind does not prevail to the same extent in all parts of the country. A table is given in the report showing, for every one of the 128 insurance areas in England, the average cost of prescribing per head of insured population in 1933. The list extends over a surprisingly wide area, from progressively thinking Manchester, where the average annual cost of medicines per insured person is very nearly five shillings, to "backward" Oxford, where it is below 1s. 10d., with London in a middle place, at just under three shillings. Even among districts in close geographical relationship there are surprising differences. Why should the cost in Gateshead be a shilling more than in Middlesbrough on the other side of County Durham, or in Essex a shilling more than in West Suffolk, or in Cambridgeshire a shilling more than in the Isle of Ely, or in Rutland 1s. 4d. more than in the adjacent Holland division of Lincolnshire? The population most thoroughly "physicked" is that of Lancashire and Cheshire, where in almost every household

in years gone by a regular item of expenditure was the doctor's bill, and an equivalent was demanded in the shape of something to be received not merely by the understanding but by the mouth. Traditional habit reflects itself in the prescribing statistics, and of the twenty most expensive prescribing areas eleven are in these two counties palatine.

It is easy to scoff at the bottle of medicine, just as Douglas Jerrold wrote of the pill as the daily bread of thousands. Sir George Newman pronounces a more considered judgement when he suggests that many practitioners give medicine in order to ensure that due regard is paid to their advice. It is not a question of sugar-coating the pill, but of using the pill itself as a cloak for counsel, which may be even more disagreeable to take. The prescribing doctor may have no greater faith in some of his medicines than the educated layman, but it is important that the patient should continue to come to him and heed what he has to say. Some doctors no doubt give a bottle of medicine fearing that they may otherwise lose their patients, but, at any rate where doctors work together with a reasonable understanding, there ought to be no difficulty on that score. A cantankerous patient may leave one doctor for another, but an equally cantankerous patient may at the same time leave the second doctor for the first, and possibly through these various transfers it may dawn upon the prescribed-for community at last that the important thing is not what they get made up at the chemist's, but the professional skill and care which is just as effective even when medicine is withheld.

THE CHIEF CAUSES OF SICKNESS

Another interesting sidelight on insurance practice is afforded by the result of the special investigation made of insurance medical records for 1933. A table is given showing the relative incidence of the chief causes of sickness for which insured persons consult their doctors. The number of practitioners whose records were investigated for this purpose was 825, and the insured persons for whom they were responsible numbered just over a million. Of the 77,180 cases attended during the year the largest number—nearly a quarter of the total—were cases of bronchitis, tonsillitis, nasal catarrh, and the common cold. Next came influenza, and after this the cases grouped respectively under diseases of the digestive tract, injuries and accidents, and lumbago and rheumatism. Only 548 of the cases (0.7 per cent.) were of tuberculosis in any form, and only 154 (0.2 per cent.) were of malignant disease. Indeed, the chief mortal diseases all take a low place in such a table. If these statistics are a reflection of insurance practice generally, out of every 100 patients he sees the practitioner comes across only about one having organic heart disease, one with anaemia, one with pneumonia, three with diseases of the genito-urinary system, five with skin diseases, six with diseases of the nervous system and special senses, and seven with abscesses, boils, and other septic conditions. "This demonstrates again," says Sir George Newman, "that morbidity figures have little direct relation in practice to mortality figures, and that while the general practitioner has on occasion to sign death certificates, his day-to-day work consists in the alleviation and cure of the less fatal ills of life, and staving off, with considerable success, the end which is in store for each of us."

INFECTIOUS DISEASES

The decline in the mortality of infectious diseases during the last thirty years has been remarkable. In 1933 there were only 2,646 deaths in England and Wales from diphtheria, 1,948 from measles—the lowest on record—and 729 from scarlet fever, although the total number of cases

* The first notice of the Annual Report for 1933 of the Chief Medical Officer of Health appeared in the *Journal* of September 22nd (p. 598).

of scarlet fever (129,528) was the highest for thirteen years. The prevalence of small-pox (*variola minor*) was very much lower than in the previous year, the number of cases being 631, as compared with 2,039, and for the first time since 1921 the year included one week in which no case of small-pox was notified. The number of deaths classified to small-pox was two. Enteric fever showed a large decrease—1,758 cases as against 2,544 the year before. Reference is made to the small outbreak in the North Riding of what is called in the report "epidemic myalgia" or "epidemic myositis," as described by Dr. W. N. Pickles' under the name "Bornholm disease." This was the first occasion on which the disease has been recognized in this country, though there is no doubt that it has been observed previously both here and in other countries, and recorded under various designations suggested by its cardinal symptom.

TUBERCULOSIS AND VENEREAL DISEASE

In dealing with tuberculosis Sir George Newman mentions that it is twenty-one years since a Departmental Committee was appointed under the chairmanship of Mr. (now Lord) Astor to consider a general policy in respect to the tuberculosis problem. Nothing in the experience of the subsequent period casts any doubt on the soundness of the lines of action laid down by the Departmental Committee on which the present national scheme for dealing with tuberculosis is based. To no one special factor in public health can the credit for the general improvement be assigned, but statistics prove that all forms of tuberculosis are declining. Immediately before the setting up of the national scheme the annual total of deaths in England and Wales from tuberculosis of the respiratory system was 38,000; the figure for 1933 was below 28,000; and the diminution in the number of deaths from other forms of tuberculosis within the same period has been even more remarkable. Yet there is still much to be done. In particular, more attention needs to be devoted to the examination of contacts, and a second problem is efficient after-care for the patient whose disease has been arrested by effective treatment. The medical supervision of such a patient may be fully arranged for, but often his home surroundings and his work cannot be satisfactorily adjusted to his physical condition. One disturbing feature is the rise of mortality in the industrial areas of South Wales at the ages from adolescence up to 35 years. Many of the social and geographical features of coal-mining districts favour tuberculosis: such as the loss of sunlight in the deep and narrow valleys in which the villages are situated, the tendency to crowd in small rooms and halls, the lack of playing fields, and, sometimes, an unsuitable dietary.

The venereal diseases scheme has now been in operation for eighteen years. In syphilis it has been attended by a considerable measure of success. Careful inquiries show that the majority of persons infected with syphilis resort to treatment centres, so that the returns from these centres are strong evidence of the trend of the disease, and the 1933 figure for cases dealt with for the first time (21,525) was the lowest yet recorded. There is no evidence of decline in gonorrhoea, and the incidence is likely to remain unchanged until either a specific remedy is found for the disease or the proportion of infected women applying for treatment increases very materially.

NEW OUTLOOK ON THE CANCER PROBLEM

The number of deaths from cancer recorded last year was 28,837 for males and 32,735 for females. As compared with the previous year the death rate for males decreased from 1,495 to 1,490 per million living, and the rate for females rose from 1,524 to 1,559. Since 1920, the

latest year in which the crude rates were modified as the result of war conditions, no similar instance of a fall in rate by comparison with the previous year has occurred for either sex.

Sir George Newman discusses the changing outlook in cancer prevention. It was a natural tendency when cancer became a subject of active experimental research to assume that such research would culminate in the discovery of some method of causation which would indicate a road to prevention. Opinion is moving away from this conception, in Sir George Newman's view, and it is now thought that the change in the character of the cells which have undergone malignant transformation is no more than a pathological, perhaps even a physiological, reaction to one or more of a wide variety of stimuli, more or less peculiar to the different organs affected. Such a change of conception brings about a definite alteration in the attitude towards measures of control. Previously it was thought wiser to await the result of research than to attempt measures of control which might be not only mistaken but wasteful. Now it is held that the hope of putting into application some general or universal method of prevention may have to be replaced by realization of the need for minute investigation of the abnormal conditions which precede or determine the emergence of cancer, conditions which probably differ widely in their nature for different organs of the body. The compiler of this report is alive to certain signs of discontent at the apparently negative character of the results of laboratory investigations for the solution of the cancer problem, as well as the comparative ineffectiveness of treatment on the mortality rate. Such an attitude of mind may easily be exaggerated. Laboratory research may not have discovered the "cause of cancer," but it has greatly contributed to a better understanding of the nature of the disease, and if the results of treatment are poor, at any rate it is encouraging to know that if conditions could be so modified that a majority, instead of a minority, of patients underwent treatment at an early stage, a higher curability rate would be secured. "Nevertheless, it is difficult to avoid receiving an impression of growing dissatisfaction with the rate of progress. . . . A similar feeling seems to be manifest abroad as well as at home." The future will probably reveal a tendency, says Sir George Newman, to concentrate more on clinical research. Incidentally this will give to national and regional radium centres a wider sphere of action. They might, by co-operating with voluntary and municipal hospitals and with practitioners, extend their functions to cover those of diagnostic centres and centres for research into all forms of treatment. The part played by local health authorities in the campaign against cancer is also likely to become even more important.

VOLUNTARY AND MUNICIPAL HOSPITALS

We began by mentioning Sir George Newman's reference to the general practitioner; we may close with his reference to the other great sphere of non-official medical service—perhaps the technical term should be "non-provided"—namely, the voluntary hospitals. He pleads again, with his customary eloquence, for co-operation between local authorities and the governing bodies and medical staffs of these hospitals. In most areas it should be possible, as it certainly would be advantageous, for the local authority and the voluntary hospital to agree on an arrangement whereby all patients requiring a particular form of treatment—especially treatment requiring expensive apparatus or materials or highly specialized skill—should be admitted to a particular hospital. "There is no reasonable cause of war between them [the municipal and voluntary hospitals]; there is cause only for marshalling them together for a joint war against disease."

¹ *Brit. Med. J.* 1933, November 4th, 1933 (p. 817).

MENTAL DISORDERS IN 1933

NUMBERS UNDER CARE

The twentieth annual report, Part I, of the Board of Control for 1933¹ shows that on January 1st, 1934, the number of persons suffering from mental disorder notified as under care in England and Wales was 150,266. This number is an increase of 1,491 during the preceding twelve months, which may be compared with the increase of 2,079 during the year 1932, or with the average annual increase for the five years ended January 1st, 1934, of 1,636. Were this diminishing rate of increase an index to the incidence of mental disorders in the general population favourable deductions might be drawn, but, as the Board points out, the yearly increases are merely the excesses of admissions over the combined deaths and discharges. Moreover, the numbers of admissions are affected by the amount of accommodation available in public mental hospitals, so that in some areas, notably in Lancashire, the true increase is larger than the Board's figures indicate because so many patients in need of active treatment have had to be retained in public assistance institutions for want of beds in mental hospitals.

Nevertheless, the Board is able to say that while the total number under care can never be a true index of the incidence of mental disorder, "the relatively small increase during the year affords some indication that the strain under which many have suffered has not been reflected in any increase in the number of new cases." The last few words are of significance, for it is the number of new cases, or, to be more precise, the ratio to the general population of the first admissions to mental hospitals and other institutions receiving "mental" patients, which furnishes the nearest approach to a true index of the incidence of mental disorder. This matter is not discussed in the present report, probably for lack of detailed information by the Board as to the movements—that is, admissions, discharges, etc.—of persons suffering from mental disorders in public assistance institutions and municipal hospitals. It may be noted in passing, however, that excluding these—and, after all, the county and borough mental hospitals receive over 80 per cent. of the whole mental patients in the country—the first admissions during 1933 showed an actual decrease of 629, there being 19,976 as compared with 20,104 in 1932.

Of the total of 150,266 patients under care on January 1st, 66,475, or 44.2 per cent., were males, and 88,791, or 55.8 per cent., were females. As to class, 8,428 males and 6,567 females were private patients, 57,383 males and 76,999 females were rate-aided patients, and 664 males and 225 females were criminal patients. The distribution of the 150,266 under care was as follows: 123,977, or 82.5 per cent. of the whole, were in county and borough mental hospitals and 230 in other premises of the local authorities; 2,422 in registered hospitals; 2,862 in licensed houses; 266 in naval and military hospitals; 830 in Broadmoor Criminal Lunatic Asylum; forty-two only were recorded as in nursing homes; 339 in private single care; 4,132 in outdoor relief; and 15,166 in public assistance institutions and municipal general hospitals.

It is interesting to note that while the rate-aided patients increased during the year by 1,692, the private patients decreased by 196 and the criminal patients by five. This actual decrease in the number of private patients—not merely a decrease in the rate of admission, notwithstanding the considerable separate provision now made for private patients in county and borough mental hospitals and the much-reduced fees charged by hospitals and houses solely for private patients—is significant of the hard times through which the country has been passing.

STATUS OF PATIENTS

Turning to the status of the 150,266 patients, 3,194 were voluntary patients, 226 temporary, and 146,846 certified. Of the voluntary patients no fewer than 2,015

were in county and borough mental hospitals, and of these 1,845 belonged to the rate-aided class, showing that this part of the Mental Treatment Act promises well. In "other premises" of the local authorities there were 230 more voluntary patients; in registered hospitals, 478; in licensed houses, 424; in private single care, eight; and in naval and military hospitals, one. Strangely enough, in nursing homes—that is, in nursing homes approved under the Mental Treatment Act—there were only thirty-eight voluntary patients under care on the first day of the year. The report does not give any indication of the numbers of nursing homes approved under the Act.

Of the temporary patients, of whom fifty-seven were males and 169 females, forty-six males and 116 females were in county and borough mental hospitals, the remainder being distributed as to thirty-two in registered hospitals, twenty-eight in licensed houses, and four in nursing homes. These numbers are disappointingly small, and show that, from whatever reason, the section of the Mental Treatment Act concerning temporary patients is being very inadequately worked. Thus the direct admissions during the year 1933 were 25,659 (males, 11,439; females, 14,220) and the proportions per cent. of these admissions arranged according to status were as follows: certified, 78.7; voluntary, 19.2; temporary, 2.1. Commenting on the fact, the Board says:

"Except in a few areas where special effort has been made the number of temporary patients in public mental hospitals remains disappointingly small. The total number of rate-aided temporary patients admitted during 1933 was 298. Private patients admitted on a temporary basis numbered ninety-nine. Excluding voluntary patients, the ratio of rate-aided to private patient admissions is ninety-seven to three. There is no reason whatever to suppose that the proportion of patients suitable for temporary treatment is any larger among private than among rate-aided patients. If the proportion of temporary admissions of rate-aided patients corresponded to the proportion among private patients, the total temporary admissions in the rate-aided class would have been approximately 3,280 instead of an actual total of 298. In other words, the non-volitional paying patient has about eleven times as good a chance of admission without certification as the rate-aided patient. An analysis of cases shows that only a fifth of the temporary admissions require to be certified subsequently, and it follows that in round figures 2,400 persons were certified in 1933 who might, if advantage had been taken of temporary treatment, have escaped certification altogether."

The report also shows that the procedure was not used in thirty-four of the county and borough mental hospitals, and was confined to less than 5 per cent. of the direct admissions in fifty-two hospitals, whereas at one or two named hospitals the proportions were from 10 to 17 per cent. and at one no less than 42 per cent.

MOVEMENTS OF PATIENTS

Owing to the absence of detailed information concerning the movements in public assistance institutions, etc., particulars of the patients in such institutions are not included in the Board's report on admissions, discharges, deaths, etc. Bearing this in mind, the following extracts show that the direct admissions to mental hospitals (25,659) gave a ratio of admissions per 10,000 of the population of England and Wales (aged 16 and upwards) of 8.47 (males, 8.01; females, 8.87), a decrease on the previous year of 0.02. If the voluntary patients are discounted, the ratio of admissions is 6.83 per 10,000 of population.

During the year under review 14,920 patients (males, 6,254; females, 8,666) were discharged or departed from statutory care as recovered, relieved, or not improved. Of these, 8,520 were discharged as recovered, yielding a recovery rate, calculated on the direct admissions, of 33.2 per cent. (31.7 for males, 34.5 for females). Patients discharged as relieved numbered 5,103, and as not improved 1,297. Deaths during the year numbered 9,408 (males, 4,385; females, 5,023), giving a death rate, calculated on the average number daily resident (129,712), of 7.3 per cent. as compared with 7.6 for the previous year.

¹ The Twentieth Annual Report of the Board of Control for the Year 1933. Part I. 1934. London: H.M. Stationery Office. (2s. net.)

ACCOMMODATION

The report states that despite financial difficulties satisfactory progress has been made in the development of the mental health services, and so far as public mental hospitals are concerned the position has distinctly improved. The aggregate number of patients in excess of accommodation in these hospitals has fallen from 1,717 on January 1st, 1933, to 843 on the first day of 1934. To a considerable extent this improvement is due to the new Middlesex hospital at Shenley, to which patients began to be admitted on January 1st, 1933. But although in general the shortage of beds which two years ago caused grave anxiety has now been materially reduced, in particular areas there is still overcrowding.

Referring to the boarding out of patients from mental hospitals the report says that "though the number of patients suitable for boarding out is necessarily limited, probably not much more than 5 per cent. and certainly less than 10 per cent. of the total, we regret that more extended use is not made of a form of care which is economical. It saves capital expenditure, and, if the patients are wisely chosen, is beneficial to the patients, since it enables them to live a more normal life than is possible within the curtilage of a mental hospital." An experiment, we learn, is being made in East Suffolk in boarding out from the mental hospital. At the end of the first six months twenty-five patients, elderly women, some of whom had been in the mental hospital for over twenty years, were placed out in the care of sympathetic and capable women guardians. The experiment is still in its early phases, but the Board says that it has been shown beyond doubt that even patients who are thoroughly institutionalized do appreciate and respond to normal surroundings and home life, in which, with hardly any exception, they have rejoiced. This may very well be the beginning of a widespread movement in favour of a system the benefits of which, as a supplement to hospital treatment, resulting in an increase in happiness and health to patients, a lessening of the burden on the public, and the release of hospital accommodation for cases urgently in need of it, were emphasized in this *Journal* as long ago as 1905.

OUT-PATIENT CLINICS

Of outstanding interest is the Board's report on the centres or clinics for the out-patient treatment of nervous and mental disorders, most of which have come into being since the passing of the Mental Treatment Act. While appreciating the valuable out-patient work of the mental hospitals themselves and at such centres as dispensaries and municipal offices, the Board describes the growth of clinics for the treatment of mental illness which form sections of the out-patient departments of general hospitals, and at which at least a share of the treatment is directed by members of the mental hospitals' staff. During the five years 1925-30, and excluding the London area, the twelve voluntary general hospitals thus linked to mental hospitals grew to twenty-five, and during the first year's working of the Mental Treatment Act thirty-five more were added. At the end of 1931 there were sixty-one general hospitals linked up for the purposes of out-patient treatment of mental illness with forty-nine mental hospitals, and at the close of 1933 there were eighty-five general hospitals linked up with sixty-seven mental hospitals. The methods and frequency of sessions vary in the different centres, and for this reason the report contains brief accounts of twelve separate clinics, their constitutions, attendances, and so on. It may be noted, however, still excluding London, that 10,000 cases were treated at these out-patient clinics during 1933, and that the attendances numbered 45,000. "Evidently," the Board continues, "another substantial step forward has been taken, and we believe that we have reached a stage at which adequate facilities for the out-patient treatment of nervous and mental diseases should properly be regarded as an essential and normal part of an area's mental health service."

MENTAL DEFICIENCY IN 1933

The mentally defective patients under care on January 1st, 1934, numbered 70,764 (males; 35,835; females, 34,929), giving a net increase for the year 1933 of 4,871, or for the ten years 1924-34 of 28,467. Included in these totals are the patients under statutory supervision, and those under guardianship or notified, who numbered 31,921 and 3,049 respectively.

The annual returns furnished by local authorities to the Board show that on January 1st, 1934, the number of defectives, whether "subject to be dealt with" or not, reported to these local authorities was 106,439, giving an increase over the preceding year's figures of 4,094. The growth in numbers and ratios to population in the defectives of whom the local authorities have taken cognizance during the decade 1924-34 is shown in a table, according to which the ratio per 1,000 of population has risen from 1.46 for the period 1924-6 to 2.65 for the period 1932-4.

This last ratio of 2.65 may be compared with the estimate of the Wood Committee of 4.52 per 1,000. Of the total number (106,439) reported to the local authorities, 78,438 (1.95 per 1,000) were reported as "subject to be dealt with," and of these 11,100 were in receipt of poor relief, including 4,018 receiving outdoor relief. This last fact is the subject of comment by the Board, which urges all local authorities to give the matter their serious consideration, since there are many reasons why financial help, if needed by mentally deficient persons, should be given through the mental deficiency rather than the public assistance committees.

The Board draws attention to a disquieting decrease in the number of children notified by local education authorities, and also to the fact that when mentally defective children leave ordinary schools (not special schools or classes) on attaining the age of 14 the local education authorities have no power to notify, while the mental deficiency authority has no power to act until the child is 16. There is thus a gap of two years to be bridged, possibly by amendment of the Act. It may be hazarded that the consequences of this hiatus would be much less serious if a common standard of "mental deficiency" were accepted by the two authorities.

The event of the year was the opening of the Hertfordshire colony for mental defectives at Cell Barnes with 600 beds. This is the second complete colony to be opened by a local authority, Hortham being the first. The actual cost of building (£299 a bed) is much below that of constructing a mental hospital. The total number of beds provided during the year was 2,254, and the Board says that steady progress is still being made in providing institutional accommodation for defectives.

DEFECTIVES IN MENTAL HOSPITALS

For many years mental hospital authorities have hoped that the operation of the Mental Deficiency Act would result in the transference of mental defectives in mental hospitals to mental deficiency colonies or institutions, thus restoring considerable numbers of hospital beds to their proper or better uses. The results of an investigation into this matter at certain mental hospitals is therefore of much interest and importance. The mental hospitals were Barming Heath, Chatham, Cheddleton, Stafford, Burntwood, Suffolk, Ipswich, Bridgend, Cardiff, and Swansea. The examination of the patients, who were selected by the medical superintendent as *prima facie* defective, was carried out by two medical commissioners of the Board. In all 2,007, or 17 per cent. of the total number of patients in these hospitals, were examined individually. Of these 1,692, or 14 per cent., were found to be mentally defective. Obviously not all could be expected to be fit for transfer to care other than provided in mental hospitals. But this indication that at least 12 per cent. of the patients in mental hospitals are suitable for transfer to mental deficiency institutions undoubtedly has an important bearing on the provision of mental hospital accommodation throughout the country as a whole.

INTERNATIONAL HEALTH WORK

[FROM OUR GENEVA CORRESPONDENT]

The praises of the Health Organization of the League of Nations have again been sung in the present Assembly. Delegates from a score of countries paid earnest tribute to the work done. The chorus was led by M. Borberg, Minister of Public Education for Denmark, who emphasized the important achievements in the field of biological standardization. The work of the second conference, held in London in June, he said, would be very useful to factories marketing vitamin products, as well as to the official laboratories engaged in inspection. The Commission on Biological Standardization, meeting in August in Copenhagen, had done some practical work by adopting for international use standard preparations and potency standards for the anti-gangrene, anti-pneumococcus, and anti-staphylococcus serums.

RURAL HEALTH SERVICES

Dr. Broekhuisen, the South African Minister at The Hague, mentioned that next year a conference is to be held at Capetown to discuss sanitary and medical services in rural districts, the health of natives and organization of medical services on their behalf, protective measures against the introduction of yellow fever, and prophylactic measures against plague and other diseases. South Africa, he said, attached great importance to this conference, and hoped that it would be pan-African. Sir Homi Mehta, the Indian delegate, acclaimed the pan-African congress as of great interest to India, which had participated in a previous congress at Capetown, and Mr. G. H. Shakespeare, M.P., for the United Kingdom, promised the support of his Government. Mr. Shakespeare also mentioned the value of collective study tours, such as that made in Poland in 1933, and thanked the director of the Health Organization for having organized a tour which would shortly enable British doctors to study the construction and arrangements of hospitals in other countries.

The malariological course recently organized at the Institute of Malariology at Rome was mentioned by Senator Cavazzoni of Italy, and M. Raphael spoke of the help rendered by the Health Organization to Greece in reorganizing its health services. He mentioned that Dr. Norman White had given five years' service to that country, and said that his name would always be linked with the creation of the School of Health, of which he had been a director. Professor Djuvara, from Rumania, said that the Health Organization had carried out in his country a number of studies and inquiries of the greatest scientific and practical interest. He mentioned particularly a study of the comparative efficacy of synthetic remedies and of quinine in the treatment of malaria. The Health Committee had sent Dr. Akroyd to Rumania to study, in collaboration with the Rumanian authorities, the problem of pellagra, and this collaboration was already bearing fruit. An experimental research centre had been opened near Jassy, and a fall in the incidence of the disease had already been observed among the groups of populations subjected to experiment. From Czechoslovakia M. Kunz-Jizersky bore witness to the co-operation of the Health Organization with his Government in endeavouring to raise the standard of public health in Slovakia and sub-Carpathian Russia.

General Tanczos, the Hungarian delegate, referred to the usefulness of the study of rural health services. Hungary was co-operating in inquiries concerning the possible effects of the economic depression on health and nutrition, the Home Office in that country proposing to carry out an inquiry into the state of nutrition of 1,000 families living in rural districts. Dr. Pedro de Alba of Mexico mentioned large sanitary undertakings in his country in the shape of waterworks and drainage schemes, in which useful advice had been forthcoming from the Health Organization; and Dr. Chodzko, a former Minister

of Health for Poland, emphasized the importance of the Epidemiological Bureau, and the great medical, social, and commercial value of accurate news of epidemics.

Then came the representative of the Irish Free State, who said that his Government had drawn up a programme on which it was necessary to obtain technical advice of the highest quality. It had accordingly appealed to the Health Organization, which at once made a study on the spot of the problem to be solved. At the present moment the public health authorities in the Free State and the Health Organization of the League were co-operating in framing a scheme of rural hospitalization, and there was every ground for hope that a scheme would be created which would later serve as a model for other countries. M. Jules Gautier of France congratulated Dr. Rajchman, the head of the International Health Organization, on the fact that the organization had remained intact and was even expanding, notwithstanding the decrease in its financial resources. Representatives of China, Venezuela, Canada, and other countries were similarly complimentary, and a resolution was unanimously carried noting with satisfaction that the Health Organization had ensured the continuity of its essential work while adapting its activities in such a way as to take account of existing economic and financial conditions.

SMALL-POX IN 1933-4

The July-August issue of the *Epidemiological Report of the Health Section of the League of Nations* contains, as it did last year, an informative alphabetically arranged survey of the recent incidence and mortality of small-pox throughout the world.

Egypt, in which there were 5,697 cases with nearly 1,000 deaths, was one of the most important foci in Africa. The disease was not uniformly and simultaneously present in every province, but followed an independent course in each. In 1934 the disease showed a definite decline, the number of cases in May and June being about one-fifth of those reported during the same months of 1933. In Central and East Africa there was a progressive decline in the disease in Tanganyika Territory and Nyasaland, whereas in the Belgian Congo the number of cases rose considerably, although the mild form predominated. In Morocco the small-pox endemic has considerably declined, and in Algeria and Tunisia the number of cases remains extremely low. As regards America, small-pox is on the decline both in Canada and in the United States where the disease is rare in the densely populated States of the north-east, relatively high in the centre and south, and highest in the States of the Pacific and mountain areas. In Mexico, though it is on the decline, small-pox still causes thousands of deaths each year. In Asia, British India, in which the number of cases recorded rose from 115,000 to 250,000 in 1933, continues to be the primary focus, the increase being due not to any severe local epidemic, but to general spread of the disease. In China small-pox was frequent at the ports, especially Canton, Shanghai, and Hong-Kong, in 1933, and increase in small-pox incidence also took place during the first part of 1933 in Manchuria, Chosen, and Japan. In Persia small-pox incidence was considerably lower in 1933 than in 1932, and in 1934 than in 1933.

In Europe the most important foci, as in the previous year, were Soviet Russia, where the disease was of a severe type, but showed a lower incidence in 1933 than in 1932; Spain, where there was a marked fall in the morbidity in 1933 as compared with previous years, and the disease is mainly of the mild type; Portugal, where the mortality rate was 29.4 per cent. in 1933; and England and Wales, where only 631 cases were recorded in 1933, and 174 in the first six months of 1934. With the exception of an outbreak of variola major originating abroad, which caused twenty-four cases and three deaths at Blackburn between January and March, 1934, all the cases in England and Wales were of the mild type. As in the previous year, there were no cases in Australia, New Zealand, and the Pacific Islands in 1933 and the first half of 1934.

British Medical Journal

SATURDAY, OCTOBER 6th, 1934

ANTE-NATAL CARE AND OBSTETRIC DIPLOMAS

The recent discussion at the Bournemouth Meeting of the British Medical Association, on the results of ante-natal care, held jointly by the Sections of Obstetrics and Gynaecology and of Public Health,¹ rendered a public service by focusing attention not only upon the failure of ante-natal work to reduce maternal mortality but also upon the lack of order and of uniformity in this branch of obstetric service. Throughout the discussion there appeared to be tacit acceptance of the view that public health workers as well as obstetricians are deeply concerned with the problems for which a solution must be found before a national midwifery service can be organized on a durable and practical basis. The ideal that the mother should be under the care of the same individual medical attendant throughout pregnancy, labour, and lying-in received general acceptance; nevertheless it is at present realized only in exceptional circumstances, apart from private practice. Even in teaching hospitals and in the chief maternity hospitals the ante-natal clinic is usually conducted by junior officers who are not in charge of wards. The municipal hospitals are mostly in similar case. The mother has passed through the hands of three medical attendants, or it may be three sets of attendants, when she finally reaches the combined infant welfare and post-natal clinic. It is clear that considerable rearrangement will be necessary if the ideal of continuous individual supervision is ever realized in hospital practice, and it is to be remembered that the number of women who enter hospital for their confinement is continually increasing.

Of equal importance to organization is the attitude and outlook of the medical attendant. During the Bournemouth discussion it was acutely observed by Dr. Ethel Cassie that "the obstetrician making himself responsible for ante-natal care should be as much a physician as a surgeon." The surgical bias which has in recent years been so much in evidence in obstetric teaching and practice is not an unalloyed benefit. Arising doubtless from the desire to apply surgical methods of antiseptics to midwifery, it has carried many of its adherents to the point of regarding the conduct of labour more and more as a surgical problem, to which surgical—that is, operative—methods can safely be applied. Herein lies apparently the most important cause of the great increase in recent years in the proportion of operative deliveries reported from all parts by obstetric writers. The too surgically minded obstetrician does not visualize midwifery as a branch of preventive medicine; believing that he can safely

cut his way through difficulties should they arise, the temptation to set little store by prevention is often irresistible. Nevertheless, it is undeniable that in ante-natal work a knowledge of medicine is of greater importance than the possession of surgical technique.

The ideal obstetrician, whether specialist or general practitioner, should be a man of wide and level outlook. There is something to be said for the view expressed at Bournemouth by Dr. G. F. Buchan that the obstetric service requires a new kind of specialist whose function would be "ante-natal care in its widest sense," the management of labour, and the "care of the mother and child for a period after birth." Specialists whose interest is divided, often very unequally, between gynaecology and midwifery, whose medicine has become rusty from disuse, and whose knowledge of the principles of infant care is elementary, are not fully equipped to take a controlling part in the ante-natal service of the country. This view was probably present in the minds of the advisers of the Society of Apothecaries of London when they established their mastership of midwifery, for they demanded evidence of post-graduate training not only in midwifery but also in infant management and in certain aspects of public health work; and, further, they obtained the assistance of representatives of public health and of paediatrics, as well as obstetricians, in conducting their examination. The Apothecaries' Society, in short, foresaw the need for the type of specialist which Dr. Buchan adumbrates. It is to be regretted that the two other obstetrical diplomas which have been launched since the mastership, of the Apothecaries depart more or less widely not only from their fore-runner but also from one another. It is a disservice to have three specialist examinations in midwifery based upon different views as to the training required of those who aspire to be entrusted with responsibility in the obstetric service of the country. If the three bodies concerned could agree upon basic requirements and formulate a joint scheme, the position would be greatly simplified for those who desire recognition, not as specialists, but as practitioners well equipped to deal with responsible obstetric work.

RESISTANCE TO INFECTIVE DISEASE

The science of genetics maintains a vigorous growth, and eugenics, as a social creed, does not lack prophets or disciples. No one, we may suppose, would seriously contemplate an attempt to deal with human disease in the foreseeable future by the elimination, along eugenic lines, of susceptible individuals, even if the laboratory worker had demonstrated beyond cavil that the adventure would be a hopeful one. But the same considerations do not hold in regard to our animal herds, from which man is so frequently infected. The breeding of a strain of cattle solidly immune to tuberculosis, or to bovine abortion, or to foot-and-mouth disease, might

¹ *British Medical Journal*, August 4th, pp. 193-201.

be a project well worth serious consideration, if it could be shown to have any reasonable chance of success; and the results already attained along these lines in the virus diseases of plants suggest that it would be unwise to dismiss such a line of attack as inherently impracticable. Whether we approach the problem from the purely scientific angle, or with utilitarian possibilities in view, the first step is clearly to consider the evidence, and, if it justifies no verdict one way or the other, to set about collecting data of a fuller and more reliable kind. An admirable monograph by Dr. A. Bradford Hill, published in the Special Report Series of the Medical Research Council,¹ goes far to fulfil the first of these requirements, and so to allow us to form a reasoned judgement on the problem as it now presents itself.

That one animal species differs from another in its resistance to a variety of pathogenic parasites has long been known, and there can be no reasonable doubt that individual differences in resistance within a single species are due, in some part at least, to differences in genetic make-up. The existence of heritable differences in immunity, and the possibility of developing by selective breeding a strain that has a resistance greater than the average to some particular bacterium or virus, may be safely assumed. The problems at issue, as Dr. Hill emphasizes, are to assess the degree of resistance attainable along these lines, to determine whether it operates specifically, so that each important infective disease must be regarded as a separate exercise in eugenics, or more widely, so that we might reasonably hope to develop strains that would be immune to many of the infections that plague their unselected fellows, and, in particular, to obtain some measure of the relative efficacy of genetic selection as compared with natural or artificial immunization.

To almost all the questions that he asks he has to return the verdict "non-proven." The experimental data, on which alone a sound judgement can be based, are in practice extremely difficult to obtain. The obvious experimental method is to infect an adequate sample of animals with the micro-organism under study and breed from the survivors, repeating this process in each succeeding generation; and this is the line of procedure that has most commonly been followed. But it overlooks the awkward fact that the breeding stock is in this way infected *ab initio* with the organism concerned, and that congenital transmission of passive immunity from the infected does, and active immunization of their offspring by infections of varying severity, will be operative to an unpredictable degree. Several workers have simply ignored this difficulty, so that their conclusions are invalid. Others have striven to overcome it, sometimes with considerable success. Dr. Hill concludes that the more carefully planned experiments leave little doubt that a true genetic immunity can be developed, though the possibility of active im-

munization can seldom be excluded with complete certainty.

The grade of resistance that can be developed by selective breeding is, however, very difficult to assess. Several workers have listed as "resistant" animals whose only claim to that title was that they took rather longer to die of the test infection than unselected controls. Where the test has been the survival over a reasonably long period of a proportion of the infected animals the difference between the selected and unselected groups has often been small, though in a few instances it has been very large. Another puzzling feature of some of the records is the absence of an increasing resistance as one passes from one generation to the next through a long series of matings. It would appear, so far as these particular experiments are concerned, that a considerable increase in resistance in the first or second selected generation may be followed by no further improvement when the selective breeding is continued. In other instances the records show a continually falling mortality rate with increasing selection over a number of generations; but there is no evidence that, by selective breeding, a strain can be developed that is uniformly resistant to infection, even when the test of resistance is a single injection of the bacterium under study in a dose that fails to kill 100 per cent. of the controls.

In regard to the question of specificity the evidence is still more conflicting. Certain observations have been interpreted as indicating a genetic immunity operating over so wide a range that it is effective against a pathogenic bacterium, such as the mouse-typhoid bacillus, and a poisonous metallic salt, such as mercuric chloride. But many other experiments have given results that accord ill with this view, and indeed it seems inherently improbable if it is generalized to include genetic immunity as a whole, though it is reasonable enough to suppose that some genetic factors may determine characters that increase resistance to a considerable variety of harmful agents. It is probable, as Dr. Hill points out, that a large number of factors are involved, and that some of these may act non-specifically while others may be specific in the strictest immunological sense. The determination of the genetic characteristics of an animal in relation to its susceptibility to infection is, indeed, never likely to be a simple problem, for the protective mechanisms employed by an animal host are multiple and diverse. But the fact that a problem is difficult does not mean that it is insoluble, or that its solution is not worth attempting, and the particular merit of Dr. Hill's review is that it points out clearly and in detail why it is that many workers have failed to get significant answers to the questions they have asked, or thought they were asking, and indicates the lines along which further experiments should proceed if significant data are to be obtained. The author and the Medical Research Council are to be congratulated on a valuable contribution to the literature of an intrinsically important subject.

¹ The Inheritance of Resistance to Bacterial Infection in Animal Species. Medical Research Council, Special Report Series, No. 196. London. H.M. Stationery Office. 1934. (1s. 3d. net.)

WHITHER MEDICINE?

Dr. Josef Loebel is of opinion that people complain that medicine is not progressing simply because it has progressed so rapidly that they themselves have been unable to keep pace. This is encouraging, and stimulates us to ask with him "Whither Medicine?" Can we learn from the past what the future of medicine is likely to be? This Dr. Loebel has attempted to do in a semi-popular style.

Though Hippocrates converted medicine from a magical cult to a method of observation, magic would keep "breaking through" again and again. Largely this is because the sick man craves for magic as his far-off ancestors did, but partly it is because up to the nineteenth century the doctor had so little apparatus to aid his observation. He must have depended mainly on mother wit and shrewd intuition. His cures must have emanated chiefly from his own personality, as indeed they still do in some degree. Osler used to ask students by what means a patient suffering from cancer of the stomach might be induced to gain 20 lb. in weight, and had to supply the answer himself: "The only way of working the miracle is to have an optimistic doctor." With the introduction of cellular pathology, humours and diatheses were relegated to the limbo of superstition. Virchow declared that "there is no such thing as a sick body that is disordered in all its parts. I maintain that no doctor can systematically think of a morbid process unless he is able to assign to it a place in the body." The part became for him greater than the whole. But with the discoveries of serology and endocrinology, humoral pathology and diatheses came creeping back, though with new and more scientific attributes. The individual again began to count for something. As Dr. Bernard Hart has said, he was no longer regarded as "the uninteresting vehicle of a fascinating disease process." Still more did this become true when "the breach was made in the Great Wall of psychology by doctors." One might claim, though the claim would be fiercely resisted in academic quarters, that psychology has gained as much from medicine as medicine has from psychology. Yet it is true that the dualism of mind and body has broken down under the assaults of psychologically minded physicians, and disease and unhappiness alike can be seen as the resultant of forces in the individual and his environment. The psychiatrist and the biochemist can find a common meeting ground in the fact—long suspected, but now, as a result of Sir Henry Dale's work, capable of being enunciated as a general law—that all nervous mechanisms produce their effect through the intermediary of chemical substances. This new synthesis of mind and body, this conception of the individual as a dynamic entity, is the outstanding achievement of twentieth century medicine, and will greatly influence its future.

These are reflections aroused by Dr. Loebel's book rather than a paraphrase of its contents, though we

have quoted some salient passages. The author has evidently enjoyed writing it, and succeeds in conveying that enjoyment to the reader. His enthusiasm for his subject makes one lenient towards the somewhat journalistic manner in which he presents his case; but it is a pity that he has allowed certain inaccuracies to creep in. Thus artificial pneumothorax is not an adaptation of war-time gassing, nor does a good climate depend on the air containing plenty of oxygen. The oestrogenic substance in coal did not get there thousands of years ago from the bodies of women—the coal measures are older than Eve. It is not correct to say that the importance of the parathyroid glands has not been discovered at all yet. Do any morphologists to-day regard the invertebrate nervous system as surviving in the sympathetic nervous system alone? Scrotal secretion is not a happy description of the treatment Brown-Séquard employed on himself, and one can hardly agree that St. Francis of Assisi was "gloomy by temperament." When Dr. Loebel quotes the late C. B. Lockwood as saying "that it was unnecessary for a surgeon to clean his nails before operation, because a gentleman does that sort of thing at home," we fear that he was misled by Lockwood's sardonic humour in taking this as evidence that he was opposed to antiseptics. For it is certain that he made a practice of having cultures taken from clippings of the nails of all those whose hands came into the operation area, and was a convinced advocate of a rigid aseptic technique.

RADIOLOGISTS AND HOSPITALS

In the *American Journal of Roentgenology* for July there is an important editorial article dealing with the position of radiologists, and incidentally with that of clinical pathologists, in relation to hospitals. It contains a clear statement of the principles that should govern those relationships, and may usefully be compared with the two appendices, G and H, in the Hospital Policy of the British Medical Association, which are concerned with the same matters. Hospital developments in America, and, in general, developments of what is called the "corporate practice of medicine," are not on exactly the same lines as those in this country; but there can be no difference in the principles in accordance with which progress should be guided and encouraged. The enunciation of these principles and the statement of the methods by which they should be carried into effect in connexion with radiology and chemical pathology were found by the Hospital Committee and the Council of the B.M.A. to be matters of great difficulty. Their consideration occupied much time over a period of several years, though ultimately the paragraphs of the appendices above mentioned were generally agreed to and have, in fact, so far as they have become operative, worked reasonably well. No doubt before very long they will be the subject of revision and may be found to require modification, and in this connexion a clear statement of the American position and a careful study of American experience will prove of value. The exploitation of service in the two fields under considera-

¹ *Whither Medicine?* By Dr. Med. Josef Loebel. Translated from the original German by L. Marie Sieveking and Ian Morrow. London: Sidgwick and Jackson Ltd. (7s. 6d. net.)

tion, whether as commercial ventures by business organizations, or by universities, hospital boards, and local authorities, is a real danger both to the legitimate development of private practice in these directions and to the independent and scientific status of radiologists and pathologists as members of the staffs of hospitals. As the article under notice says: "We have a right to expect the entire profession to uphold the pathologist and radiologist in their efforts to remain free practitioners of medicine. Any other course can result only in damage to both the profession and the public"; and again: "That other branches of the profession now feel comparatively safe is no reason why they should remain inert or actually assist hospital corporations to take over and control these particular specialties." Alarm is expressed in the article at a recent proposal to separate the technical aspects of radiology from its professional aspects, the hospital being responsible for all that pertains to technique and making an appropriate charge therefor, while the medical radiologist charges his fee for his professional services. Surely, however, as a financial arrangement there can be no fundamental objection to such a method. It is, of course, true that the technical part of the work is essential to the success both of the radiologist and of the pathologist, and that this has been brought to its present state of development only by constant interest and attention; but the essential thing to be safeguarded is that the professional standing of the head of the department should be fully recognized and his complete control over the working of his department guaranteed.

NEW DRUGS FOR OLD

The annual report of the American Medical Association's Council on Pharmacy and Chemistry,¹ to which we referred on August 4th (p. 217), is of interest, since it provides a convenient summary of recent advances in proprietary drugs. Advertisements of these drugs descend upon the doctor's breakfast table with the steady persistence of falling snow, and most of the recipients must wonder from time to time what real therapeutic advance is represented by all this activity. The A.M.A. publishes annually a volume entitled *New and Non-Official Remedies*, and preparations are only admitted to its pages if they comply with certain simple though searching requirements. Some of the chief specifications are that there must be no secrecy associated with the preparation; it must represent a genuine therapeutic advance, and the claims made for it must be reasonable and supported by adequate evidence. These rules are well known, and hence only preparations of a certain standing are likely to be submitted to the council which has the duty of deciding their fate. An analysis of the table of contents of the report makes interesting reading. It was decided to admit in future antipneumococcus sera containing Type II antibodies, which had been omitted in 1924, judgement was suspended on six articles, and about fifty others were declared non-acceptable. At the same time it was decided to omit ten articles that had been accepted in previous years. This summary suggests pessimistic conclusions regarding the probable value of new pro-

prietary preparations. It must be mentioned, however, that the group on which judgement was suspended is important, since it includes the oestrogenic hormones, dilaudid and fuadin. The A.M.A. report states the results of an impartial but critical estimate of the value of a large sample batch of new proprietary articles, and these findings suggest that the odds against such an article representing a serious therapeutic advance are somewhere about 100 to 1.

CEREBRAL CORTEX AND GASTRO-INTESTINAL MOTILITY

The localization of the cortical areas controlling peripheral functions and activities always presents a fascinating problem to the neurologist and physiologist. Whereas, however, our knowledge of the cortical representation of motor and sensory functions associated with the cerebro-spinal nervous system is very extensive, it is much less so in the matter of the autonomic system. Much has been done in tracing controlling centres of autonomic function in the region of the hypothalamus, but cortical representation is still only vaguely understood. The matter of cortical control of intestinal movements has recently been reopened by Watts and Fulton.¹ In their article these authors give a short but interesting account of former work in this field. As long ago as 1876 Bochefontaine found that electrical stimulation in the region of the dog's sigmoid gyrus usually diminished or completely inhibited gastric rhythm, but sometimes this inhibition was preceded by strong peristaltic movements. These results seem to indicate that there are both motor and inhibitory cortical points for the stomach. Later work by Hlasko also gave evidence of inhibitory points in the cortex, and, in addition, he obtained contraction of the stomach wall by stimulation in the region of the corpora quadrigemina. Several workers have found that decerebration posterior to the thalami produces very active peristalsis in the cat's intestine, again indicating the probable existence of inhibitory control in the cortical regions (the question of irritation through the section could be ruled out). In 1888 Pal and Berggrün observed that stimulation of the vagus produced contraction of the pylorus but only slight peristalsis of the small intestine; on cutting through the medulla and then stimulating the vagi, vigorous intestinal peristalsis occurred even when, as we now know, the irritation from the transection had certainly passed off; indeed, the authors state that stimulation of the vagi immediately after the transection did not lead to a positive result, which they interpreted as due to irritation of the inhibitory fibres. The inhibitory influences could also be removed by section through or anterior to the thalami or by extirpation of the sigmoid gyri. This and other work made it probable that the cortex was mainly concerned with inhibition of the gut movements. Watts and Fulton were led to a consideration of the problem from the fact that routine post-mortem examination of a series of monkeys which had been subjected to various brain operations revealed an usually high incidence of intussusception. Three healthy monkeys died with intussusception and obstruction after bilateral removal of the anterior portion of the pre-motor cortex: the incidence of intussusception in unoperated monkeys was

¹ American Medical Association, 535, North Dearborn Street, Chicago, 1934.

¹ *New England Journ. Med.*, Apri. 26th, 1934.

two out of 300 necropsies. Faradic stimulation of the pre-motor cortex led to active intestinal peristalsis, and in some cases to well-marked multiple intussusceptions. Intermittent stimulation of the same cortical region over a period of several hours also resulted in intussusception. Application of the stimulating electrodes to the motor cortex itself led, of course, to vigorous muscular responses but did not influence the intestinal movements, a common observation and one readily to be inferred from the fact that cortical centres for the gut have not been previously localized. The more or less reciprocal functions of the gut wall and the sphincters were demonstrated in that pre-motor stimulation at certain points relaxed the stomach sphincters. Section of the vagi prevented the formation of intussusception during pre-motor stimulation, but some increase in peristalsis still occurred—a point of very considerable interest. Thus these workers demonstrate that intussusception may result both from removal of the pre-motor cortex and from stimulation of this area. The conclusion seems justified, therefore, that the gut has autonomic representation in this part of the cortex, and that this representation includes both excitatory and inhibitory components. The pathways of excitation and inhibition have not yet been worked out, but the classical view of the vagi and the splanchnics is not likely to be assailed. What may accrue is the existence of additional pathways and possibly association paths between the higher centres and the intestinal centres. Perhaps even some explanation on anatomico-pathological grounds will be forthcoming of the extraordinary restriction of intussusception to children of less than 5 years and its much greater frequency in males.

WELFARE OF THE BLIND

The eleventh report of the Advisory Committee on the Welfare of the Blind to the Minister of Health deals with the year 1933-4.¹ The number of blind persons in receipt of pensions under the Act of 1920 shows a steady increase from year to year, and the cost of these pensions is now £553,000 per annum. Reference is again made to the need for securing, before a person's name is added to the register, an examination by a medical practitioner with special experience in ophthalmology, and by him certified to be blind within the meaning of the Blind Persons Act. So far, as a result of representations by the Minister, thirty county councils and sixty-seven county borough councils have made provision for expert examination before registration, and it is understood that thirty-eight others follow the same practice. The supervision of the work done for the blind is now in the hands of the local authorities under the Act of 1929. Before the coming into operation of that Act the inspectors of the Ministry were responsible for systematic inspection of the work of the voluntary associations. The local authorities must now satisfy themselves as to the efficiency of the services towards the cost of which they have to contribute. In many cases an officer of the local authority exercises the supervision. In the area of the Northern Counties Association a regional supervisor appointed by that body is acting for nearly all the local authorities. This officer is engaged upon a detailed inquiry

into the administration of the work of the voluntary associations, drawing attention to any defects and making recommendations for improvement to the appropriate local authority. By this means the local authorities of the area obtain the advice of a specialist in supervising their services for the welfare of the blind. The register of the blind showed a total on March 31st, 1932, of 62,079. At the same date 1933, the figure was 63,408, of whom 244 were under 5 years of age and 2,089 between the ages of 5 and 16 years. The increase is in the later adult years.

INDUSTRIAL HEALTH RESEARCH

The fourteenth annual report of the Industrial Health Research Board¹ indicates that steady progress is being made in most of the lines of investigation described in previous reports, but it is pointed out in the introduction that in the Board's work more stress is now being laid on problems of health and mental fatigue, while researches relating to the physical fatigue induced by the expenditure of excessive muscular energy in heavy industries are less prominent. In order to make adequate studies of the kind of ill-health to which the workers in various occupations are liable, it is important to obtain physiological data about the normal physical fitness of the population. This is by no means easy. The workers are apt to object to examination, as they are afraid that the discovery of physical unfitness may lead to dismissal or to reduction of compensation under the Workmen's Compensation Act. Again, the sickness-recording systems under the National Health Insurance Act leave much to be desired from the point of view of the scientific worker. The numerous approved societies frequently do not know the occupations of their members nor the factories where they are employed. Nevertheless, it has been found possible to get reliable data in certain specific instances in the cotton and printing industries, while inquiries are now in progress into the alleged high incidence of gastric disorders among bus drivers, and of the effect of dust inhalation on haematite ore workers. An extensive survey of the physique of women has already been published, and one on the height, weight, and strength of a group of 10,000 men—including a sample of unemployed—has now been completed. The investigations on mental fatigue include extensive inquiries into the factors producing contentment and efficiency in women engaged on repetition work, with special reference to the reactions of character and temperament to the boredom entailed by such work. A large number of workers engaged in continuous production on conveyors have been observed, and have been tested by individual interview. Boys leaving school, Royal Air Force apprentices, and men in the Royal Corps of Signals and other branches of the Defence Services have been examined from the point of view of vocational suitability, and it has been possible to collect much valuable knowledge concerning the effect of psychological reactions on occupational efficiency. The work previously done on accident proneness has led to requests being made for the application of the tests to motor drivers, who are now being

¹ London: H.M. Stationery Office. 1934. (4d.)

¹ Medical Research Council. Fourteenth Annual Report of the Industrial Health Research Board, to June 30th, 1934. London: H.M. Stationery Office. 1934. (9d. net.)

submitted to these tests in three large transport companies and in two branches of the Army employing lorry drivers. A study of environmental conditions shows that good lighting has a marked influence on the output even of workers engaged in occupations such as tile-pressing, which make little demand on visual capacity. The effects of noise have been investigated in two groups of weavers over a period of twelve months, and it was found that the performance of the group wearing ear-defenders was appreciably better than that of the control group. Work on the physiology of heating and ventilation includes determinations of the best methods for measuring skin temperature and radiant heat.

SUBCUTANEOUS HAEMOSTASIS IN OPERATIONS

J. Riese,¹ noticing that vessels in the skin and superficial fascia which have been divided in a surgical incision soon cease to bleed if left undisturbed, and that in such a case the healing of the wound is particularly good, recommends that these vessels should not be injured by the customary ligature, suture, or clamping. By such avoidance of tissue trauma he has reduced the percentage incidence of pus formation in the operation wound from 4 to 0.7 per cent. At the same time his proportion of post-operative haematomata increased from 4.5 to 5.5 per cent., but Riese regards haematoma formation as tending to prevent rather than favour infection. Severe bleeding after operation was noted only once in over 2,000 cases treated without artificial subcutaneous haemostasis, and in this instance came from the inferior epigastric artery. With the same purpose of avoiding injury to the tissues, Riese has abandoned the firm bandaging of wounds, and makes minimal use of drainage (except after pleural and thyroid operations). A large haematoma is punctured laterally to the suture line, or if it has opened spontaneously it is emptied and the surfaces at the place of perforation are resewn.

GORDON MEMORIAL COLLEGE, KHARTUM

The latest report of the manifold activities of the Gordon Memorial College at Khartum reflects the great progress made in 1933. Of more special medical interest is the account of the work carried on at the associated Wellcome Tropical Research Laboratories. Facilities granted to the bacteriological section for conducting all the post-mortem examinations in the Khartum Civil Hospital have resulted in further additions of valuable pathological material to the museum, the training potentialities of which have thus been enhanced. It will be recalled that the college is run on secondary school lines, with emphasis on medical and scientific training, and in co-ordination with the local medical curriculum. The museum has now a collection which is fairly representative of most of the tropical and other diseases occurring in the Sudan. The exhibits have been catalogued with descriptive clinical and pathological data, and are proving valuable for the teaching of pathology. Owing to financial stringency the malarial investigations in the Gezira had to be terminated last March. Work already done has established the danger of borrow pits in villages as primary breeding places

of the malaria-carrying mosquito during the rains, and its preference for the sunlit collections of waters in the Abu Isherin and Abu-Sitta canals, and less frequently in the dawrans at later periods of the year. Dissections of adult female mosquitos collected near native habitations showed 2 per cent. infected during the most malarious months. Children up to the age of 12 appear to be the main reservoirs of infection, and represent 75 per cent. of the gametocyte carriers in the district. Another series of tests, continued for a year, showed that there was a seasonal period of a few months for the presence of gametocytes in the blood. This important observation requires checking by future investigations, since it indicates a possible line of control by intensive gametocyte therapy during those few months. Sufficient data have also been collected for the publication of a paper on the epidemiology and endemology of bilharziasis in the Sudan. Ample proof was forthcoming that the canals in Egypt maintain their own constant supply of molluscs, and thus negative the view constantly expressed in the Egyptian press, that the Sudan is responsible for the spread of bilharziasis in Egypt. Berries of the tree *Balanites aegyptica* have been found useful for destroying these molluscs, which are carrier hosts of bilharzia; they can also be employed for the elimination of the water-flea cyclops, which is the carrier of guinea-worm. Other local trees and shrubs probably possess active principles of medicinal or commercial value. Chloramine in a strength of 2.6 parts per million killed bilharzia molluscs in twenty-four hours; a weaker solution of 1.3 parts per million destroyed cyclops in six hours. These dilutions had no effect on mosquito pupae. The College administration was altered during the year to improve the teaching and research from the lowest classes up to the allied Kitchener School of Medicine.

By an Order of the Committee of Privy Council, made after consultation with the Medical Research Council, and with the President of the Royal Society, Professor A. J. Clark, M.D., F.R.S. (Professor of Materia Medica in the University of Edinburgh), and Professor J. C. G. Ledingham, M.D., F.R.S. (Director of the Lister Institute of Preventive Medicine, and Professor of Bacteriology in the University of London), are appointed members of the Medical Research Council in succession to Sir Charles Sherrington, M.D., F.R.S., and Dr. A. J. Arkwright, F.R.S., who retired in rotation on September 30th.

Lord Macmillan of Aberfeldy has been appointed a trustee of the Beit Memorial Fellowships for Medical Research in place of the late Sir James Kingston Fowler. The other trustees are: Sir Alfred Beit, Bt., the Right Hon. W. Ormsby Gore, M.P., the Earl of Onslow, Lord Rayleigh, F.R.S., Dr. Edwin Deller, Principal of the University of London, and Sir John Rose Bradford, Bt., M.D.

The Annual Conference of Representatives of Local Medical and Panel Committees will be held on Thursday, October 18th (and, if necessary, Friday, the 19th), in the Great Hall of the British Medical Association's House, Tavistock Square, London.

¹ Zentralbl. f. Chir., June 9th, 1934, p. 1342.

OPENING OF NEW SESSION: AUTUMN DINNERS

ST. THOMAS'S HOSPITAL

About 150 past and present students of St. Thomas's Hospital and other guests attended the annual dinner at Dorchester Hotel on September 28th. The chair was taken by Dr. W. L. WAINWRIGHT, who, in proposing the health of the hospital and medical school, referred to the changing conditions of medical practice, and to the likelihood that in future no medical man would work as an independent unit, but only as a member of a group. He also commiserated present-day students on the complexity of medical training. When he himself was a student there were only about two textbooks on medicine: what they said was gospel, and what they did not say did not matter to anybody! To-day things were done much better scientifically, but the students did not have such a good time as their predecessors.

Sir ARTHUR STANLEY, treasurer of the hospital, referred to the reconstruction of the out-patient department, which, he said, was proceeding according to plan. Half of it had been completed, and in addition to the dispensary and the hall, the medical examination rooms had been opened during the past few months. The remainder of the work was going forward, and he hoped that by August of next year, or even before then, it would be possible to arrange a formal opening of the whole of the out-patient department, which, instead of being like the old department a disgrace to a modern hospital, would be an object of pride to all associated with St. Thomas's. This work had been made possible by a gift of £20,000 made many years ago by the father of the chairman. By the time it could be used the sum had been more than doubled, and then, the money having been invested in Local Loans, the Government conversion scheme enhanced its value by about 30 per cent., and it was possible to undertake the work without incurring further debt. The reconditioning of the wards was also being carried out, and only two blocks now remained to be done. Another important matter to which attention was being given was the improvement of the accommodation and comfort at College House.

Professor LEONARD S. DUDGEON, dean of the medical school, mentioned that a scheme had been mooted for building a new medical school for St. Thomas's on the other side of the road, together with a new out-patient department, at a cost of something like a million had the work been carried out in its entirety. Fortunately, in his view, the unsettled state of affairs generally had prevented that scheme from maturing, and the school remained where it was, and the improvements to the hospital had been carried out as indicated. St. Thomas's was benefiting from the liaison between the voluntary and municipal hospitals, and had arrangements with the council hospitals at Lambeth and at Wandsworth. Speaking of the losses by death which the school had sustained during the year, Professor Dudgeon referred specially to the death of Sir George Makins and to the memorial that had been installed in his memory. Some criticisms had been made of the bust, but he thought it succeeded in representing Sir George, as they wanted to remember him, exactly as he was in life. After referring to other bereavements and to changes due to more pleasant causes Professor Dudgeon went on to remark that one of the greatest achievements in the medical-school world of London for many years was the co-operation now taking effect between the great medical schools of Guy's, St. Bartholomew's, and St. Thomas's. There now existed an executive committee formed of five members from each school; co-operation on the clinical side was actually taking place between St. Bartholomew's and St. Thomas's, and probably within a year or a little longer Guy's would join in. He concluded by toasting the health of the guests, to which Mr. W. GIRLING BATT, dean of St. Bar-

tholomew's, responded, and remarked that the co-operation between the three medical schools referred to was bound to succeed in view of the personality of their respective deans. The health of the Chairman was proposed by Sir CUTHBERT WALLACE, and the Chairman's brief reply closed a very pleasant evening.

MIDDLESEX HOSPITAL

The annual dinner of the Middlesex Hospital Medical School was held at the Savoy Hotel on October 1st, when Dr. E. A. COCKAYNE presided over a company numbering three hundred. The Chairman gave some account of the rebuilding of the hospital and school. When the past and present students assembled a year ago, he said, the west wing of the building was built and occupied, but the site of the crosspiece and the east wing was a yawning pit surmounted by girders. The girders had now been clothed with stone, and the whole building had been roofed over. The completion of the rebuilding programme was in sight; it was expected to raise the outstanding sum of between £80,000 and £90,000 before the end of the year, the final contracts had been signed, and he hoped that his successor in the chair on the next occasion would be able to announce that the whole of the "new Middlesex" was functioning. A generous gift from Lord Woolavington had made it possible to proceed with the paying patients' block, for the accommodation of people unable to meet the heavy costs of a private nursing home and too well off to occupy fittingly the beds dedicated to the poor. This paying block was opened early in the present year, and had proved an unqualified success. Last year Mr. Collins had given the large sum of £30,000 for an x-ray diagnostic department. Plans for this new department had been carefully drawn up, and he believed that in equipment it would be second to none in this country, or perhaps the world. Then Mr. S. A. COURTAULD, who had been one of the great benefactors of Middlesex in the past, had crowned his long series of gifts by one of £15,000 for fitting up the first portion of the crosspiece of the new hospital as a unit for clinical research. This would be a new departure in hospital practice, and he believed that Middlesex would lead a way along which many others would follow. Here the professors of biochemistry and pathology would keep in close touch with members of the honorary staff. Another generous gift was that of Mr. MEYERSTEIN, who had given over £30,000 for the provision of a unit or department of x-ray therapy, to complement the diagnostic unit. The new clinical theatre, which would be of the greatest value to the school, would be completed early in the new year; the department of x-ray diagnosis would be ready by February or March, and the department of x-ray therapy before the summer.

Mr. S. A. COURTAULD, chairman of the school council, spoke of the admirable character of the lay-out in the paying patients' block. Two near relatives of his own had been patients, and had told him how delighted they were with what was provided. With regard to the research unit, for which he himself was partly responsible, the conception was not his own, but it appealed strongly to him because it would bring the actual personnel of the scientific staff of the medical school almost to the bedside of the patient. The clinic ought to be in operation this side of Christmas.

Dr. H. E. A. BOLDERO, dean of the school, said that the numbers entering were almost an embarrassment, and many would-be students had had to be disappointed this year. He added some further details about the clinical research unit, which would give Professors McIntosh, Dodds, and Wright a share in the treatment of certain patients, directly in co-operation with, and equal in

responsibility to, the staff of the hospital. The unit was laid out in six smallish wards, of a size that would be considered luxurious for one, comfortable for two, perhaps a little crowded for three, and it was thought that six such wards would allow of adaptation to future developments. The new clinical lecture theatre would have accommodation for 100, or, at a push, 120. He mentioned that more than fifty old Middlesex men had this year attended a refresher course.

A further response to the toast was made by Mr. P. H. NEWMAN, senior Broderip scholar; after which Mr. A. E. WEBB-JOHNSON proposed the health of the many guests, who included the mayors of Marylebone and St. Pancras, the Regius Professors of Oxford and Cambridge, and representatives of London University, of various medical services, and of the Press. Sir FARQUHAR BUZZARD made a brief reply in humorous vein, and the health of the Chairman was proposed by Dr. R. A. YOUNG.

CHARING CROSS HOSPITAL MEDICAL SCHOOL

The annual dinner of the Charing Cross Hospital Medical School was held at the Café Royal on September 29th, when Mr. J. BRIGHT BANISTER was in the chair. A pleasant informality of proceedings was observed throughout the evening, the absence of an official toast list, by the forethought of the dean, facilitating the digestion of an excellent dinner.

Mr. Bright Banister briefly recorded the events of the medical school during the past year. They had had the misfortune, he said, to lose two valued members of the staff in Dr. E. D. Macnamara and Dr. C. W. Hutt, whose death they deeply deplored. The ophthalmological department had been revived by the appointment to the staff of Mr. Montague Hine. Charing Cross has spread its fame abroad, for Dr. Gordon Holmes was at present lecturing in Canada, and Dr. Hickling had been on an educative mission to New York. Mr. Banister reminded his audience that this was the centenary year of the hospital, and to celebrate this the medical school had acquired a coat of arms. Mr. ERIC CROOK, the dean, said that he thought a big toast list prevented people from renewing old friendships, which was one of the chief reasons for holding an annual hospital dinner. After Mr. NORMAN LAKE had described the coat of arms in terms of gules and bezants, Dr. WATTS EDEN, Mr. CHARLES GIBBS, Dr. WILLIAM HUNTER, and Dr. DAVID FORSYTH were prevailed upon by a minority opposition to the "no speeches" decision to make a few remarks.

The reunion, so well begun, was continued into the early hours of the morning at the medical school, where dancing was in progress.

UNIVERSITY OF LONDON MEDICAL GRADUATES SOCIETY

The autumn extra-metropolitan dinner was held on September 28th at Queens' College, Cambridge, by kind permission of the President and Fellows of the College. The president of the society, Mr. W. MCADAM ECCLES, occupied the chair, and among others present were the President of Queens' and Mrs. Venn; the President of the Royal Society, Sir Gowland Hopkins; Sir Leonard Rogers, K.C.S.I.; Lady Barrett, Sir Charlton and Lady Briscoe, Dr. Vincent Dickinson, Dr. Dorothy Hare, Dr. Drummond Robinson, Dr. Kenneth Soltau, Miss Ida Mann, Dr. Harold Pritchard, and Mr. Musgrave Woodman.

The society, which was founded in 1928, has now 548 members, of whom fifty-four are over-seas. Mr. Eccles thought that the fact of a life subscription of only £1 was a distinct attraction. He hoped that members would

induce other medical graduates to join at an early date. He further said that in the world tour which he hoped to make next year in connexion with the British Medical Association Meeting in Melbourne he intended to try to see every medical graduate of the University of London at each of the ports at which he called.

In proposing the toast of "The Guests," Mr. McAdam Eccles alluded to the great honour which had recently been conferred on Sir Gowland Hopkins—that of the Albert Medal of the Royal Society of Arts, thus linking the name of the "President of the Royal Society" with such illustrious names as those of Faraday, Kelvin, Lister, Rayleigh, and Rutherford. Sir GOWLAND HOPKINS, in a very apt reply, pointed out that the laboratory worker should not be looked upon as one divorced from the clinician, and that as it was difficult in the ward to carry out control experiments the laboratory was of real value. All present enjoyed the sound sense coupled with the humour of his speech. The President of the society, in proposing the health of the President of Queens' College and Mrs. Venn, referred to the long and close connexion of the family of Dr. J. A. Venn with Cambridge and Queens', no fewer than three members having been Fellows of that College, and one a Fellow of Caius. Dr. VENN, in reply, pointed out that any one college having distinction in being associated more with one faculty than another was dying out, and that Queens' now had quite its share of medical graduates. A very pleasant evening closed by many present having the privilege of seeing the beautiful gallery in the President's lodge.

All communications relating to the society should be addressed to the honorary secretaries, U.L.M.G. Society, at 11, Chandos Street, Cavendish Square, W.1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL

The annual dinner of the past and present students of St. Mary's Hospital was held on September 29th in the library of the new medical school, with Dr. P. MONTAGUE SMITH, senior physician to the Princess Louise Kensington Hospital for Children, in the chair. Previous dinners had been held in restaurants, and the less formal and more intimate atmosphere of the function this year was warmly welcomed and reflected in the speeches. It was agreed that it was desirable to hold future dinners in the medical school.

After the loyal toasts Mr. DUNCAN FITZWILLIAMS, senior surgeon to the hospital, proposed the health of the Chairman in a racy biographical speech, which combined familiarity with esteem. In his reply Dr. MONTAGUE SMITH extended a welcome to the guests, who included the Vice-Chancellor of the University of London and the Mayor of Paddington, and recalled the names and fame of past celebrities of St. Mary's. He passed to an appreciation of more recent outstanding members and benefactors of the hospital, paying a warm tribute to the great services of Dr. C. M. Wilson, dean of the medical school, whose name he coupled with the toast of "Prosperity to the School." Dr. Wilson, responding, referred to the triumph of endeavour, which had been crowned when the King last autumn had opened the new medical school. He described how, since the war, increasing efforts had been made to secure that the entry to the medical school should become more and more selective, while the advantages to students, rendered possible by the rebuilding operations, should be intensified. Referring to the athletic triumphs of the previous year, including the winning of the two Rugby and two cricket cups, he concluded with a comment on the value of athletic achievement in the medical curriculum.

After the dinner visits were paid to the large swimming bath beneath the library, the squash court, and other parts of the premises. It was thus shown that a great amount of recreational facilities could be enjoyed by the students and resident medical staff of St. Mary's without leaving the precincts of the hospital.

CHARTERED SOCIETY OF MASSAGE AND MEDICAL GYMNASTICS

The sixth annual dinner of the Chartered Society of Massage and Medical Gymnastics was held at the Café Royal, London, on September 26th, when Mr. R. C. ELMSLIE presided over a very large attendance of members and guests.

Dr. A. H. DOUTHWAITE, in proposing the health of the Chartered Society, said that in its earlier years it was, though enthusiastic, small, and received very little support from outside. The war brought about an appreciation of the value of massage, the demand for masseurs and masseuses increased, and with it the supply, perhaps in excess of the demand. By 1920 the society had a membership of 3,000; it then amalgamated with the Manchester society, and at the present time its membership stood at 9,000. The medical profession, said Dr. Douthwaite, had not always recognized the value of the masseur and the masseuse in helping to restore patients to health, and one of the indirect results of what might be termed "the apathy of the medical profession in this matter" was that the osteopath and similar practitioners had flourished exceedingly. The position was now fast improving, and, thanks to the growing appreciation of the medical profession, there was an increasing demand for the services of the members of the society. In large measure the change was due to the president, Mr. Elmslie, who had worked with astonishing enthusiasm in its interests.

Mr. R. C. ELMSLIE, in responding, said that it was now becoming the custom for medical practitioners to have a list of names of members of the society whom they were ready to recommend to such of their patients as needed this service. A reference had been made at the dinner the previous year to the fact that, in conjunction with the British Medical Association, steps were being taken to form a register of all engaged in this class of work. Further discussion had shown that in order to establish such a register there must be powers to insist upon certain qualifications, and to remove names from the register following upon misbehaviour. A legal basis was therefore necessary, and with this object a memorandum and articles of association had been drawn up and submitted to the Board of Trade. The Board of Trade, however, had turned the scheme down, and had suggested that an attempt should be made to proceed without such legal authority and see what could be achieved. In their own view that was of no use; there must be legal authority if the scheme was to be made effective alike in the interests of the members of the society, the medical profession, and the public. It was essential that all who did this work should be fully qualified and certificated, and he was glad to hear from the Medical Secretary of the British Medical Association that the suggestion of the Board of Trade was not to be the end of the matter, and that further steps would be taken. The Chairman then referred to certain events of the year.

The toast "The Guests" was proposed by Miss S. GRAFTON, and in the course of his response Sir HOLBURN WARING, President of the Royal College of Surgeons of England, commented on the efforts that had been made to obtain a charter which would bring in other branches of treatment and embrace radiographers and others. This, he said, was a thorny subject. There were those who were desirous of obtaining a special Act of Parliament which would enable a registering body to be set up, with powers of examination, licensing, and discipline, but it appeared to him that the best course to pursue was to approach the General Medical Council and see whether some general legislation could be obtained which would bring in the ancillary branches under one control, the primary authority being exercised by the General Medical Council. Mrs. GILMOUR REID, president of the Australasian Massage Association, who also responded, spoke of the difficulties with regard to registration in Australia. Registration existed in South Australia and Victoria, but not in New South Wales. A registration scheme for the whole of Australia would result in a great improvement of the position.

Nota et Vetera

THE PICTURE OF HENRY VIII PRESENTING THE ACT OF UNION TO THE BARBERS AND SURGEONS IN THE POSSESSION OF THE ROYAL COLLEGE OF SURGEONS

The story of the picture of King Henry VIII presenting the Act of Union to the Barbers and Surgeons now in the collection at the Royal College of Surgeons of England, and how it came into possession of the Company of Surgeons in 1786, is one of interest, and is not perhaps generally known.

The account of its acquisition by the Company is thus recorded in the minutes of the Court on July 6th, 1786.

"The Master informed the Court that in a sale of pictures by Monsieur Desenfans, a large capital picture was exposed to sale being a cartoon painted by Hans Holbein representing King Henry VIII delivering the Charter to the Barber-Surgeons in the year 1535 and having examined the same and being satisfied of its undoubted authenticity and that it was the original picture of that subject, and Mr. Grindall having also examined it and being of the same opinion, and thinking such an opportunity of procuring the possession of such a picture should not be missed and being of opinion that the same might be procured for a reasonable price, they had treated for the purchase and having reduced the terms to fifty guineas they had purchased the same on the account and for the use of the Company, and the Court of Examiners had issued the price of it out of the Company's cash."

A later minute records: "Resolved, that the Court doth highly approve of the conduct of the Master and Mr. Grindall upon this occasion and returns them thanks for their attention to the concerns of the Company."

Soon after the picture was purchased the Company decided to have it cleaned and restored, and a Mr. Lloyd was engaged to carry out the work. He demanded £400, but was eventually beaten down to fifty guineas.

When the College of Surgeons was formed the picture was removed to the new building in Lincoln's Inn Fields in 1806, where it still remains part of the fine collection of pictures in the possession of the College. Some twenty years later William Clift, the Conservator of the Museum, being dissatisfied with its condition, decided to attempt to clean it himself, and in so doing discovered to the right of the background a casement with a view beyond it of a steeple, an embattled tower, and the roofs of gabled houses. He thought that the steeple was that of St. Bride's, Fleet Street, but a further examination revealed two steeples as well as the tower, and it was suggested that the taller of the two could be no other than the old wooden steeple of Old St. Paul's, which was struck by lightning and burnt down in 1561. If this be the case the view seen through the casement must have been painted before that date.

The Rev. E. G. O'Donoghue, who examined the picture in 1918, was of the opinion that the steeple was that of Old St. Paul's and the square tower St. Augustine's, which stood to the east of the cathedral at the junction of Old Change and Watling Street.

The building in which the ceremony took place was originally thought to be Bridewell, but it has been pointed out that the palace was not begun until 1522, and it was scarcely habitable in 1540. King Henry rarely visited it after 1529, and it is therefore probable that Baynard's Castle, which was used as a Royal Palace at the time, may have been the scene of the ceremony. According to Dr. Ganz, it is "the same chamber with the same hangings, probably the throne room at Whitehall as in a large picture at Hampton Court. It is possible that the King may have sat for the picture at Whitehall, and that Holbein made use of the surroundings at his hand, but the view from the

window seems to indicate that the room represented was in Bridewell."

It is in the window and other details that the picture in the possession of the Royal College of Surgeons differs from that still hanging at Barbers' Hall in Monkwell Street, attributed to Holbein. For a long period the latter picture was supposed to represent the granting of the Charter by the King to the Barber-Surgeons, but Mr. Sydney Young has shown this to be incorrect. In his opinion the picture exhibits a Charter with the Great Seal pendant. He points out that the King was but 21 years of age in 1512 and was 49 in 1540, which latter age accords with the picture. Moreover, Vicary, Ayleff, Harman, and the others represented, were members of the Court in the latter year, but not in 1512.

Vicary, who is depicted as receiving the instrument, was Master from September, 1541, to September, 1542. There is every probability that the painting was executed during his term of office, and that is why Holbein paid him the compliment of putting him in the chief position in the picture. These considerations are sufficient to demolish the Charter theory, and point to the hypothesis that it is the Union of the Barbers' Company with the Guild of Surgeons, accomplished by Act of Parliament in 1540, which is commemorated. "The King is represented as being about 50, and on the left are Dr. John Chambre, Dr. Butts, and behind him Thomas Alsop, the Royal Apothecary. The tablet on the wall with its inscription is said to be of a later date than Holbein's work, and is said to have painted over a window." The following is a translation of the Latin inscription:

"To Henry the Eighth, the best and greatest King of England, France, and Scotland. Defender of the Faith and next to Christ supreme head of the Church of England and Ireland, the Company of Surgeons dedicate these with their united prayers.

A grievous plague had ravaged the region of England,
Afflicting man's spirits and penetrating his frame,
God, pitying from on high this remarkable scourge
Commanded thee to perform the office of a good physician.

The light of the Gospel flies around on glowing wings,
This will be the balm to enfeeble minds;
Whilst the disciples of Galen meet to raise a monument to thee,
And all disease is swiftly dispelled by thy power.

We therefore, a suppliant band of thy physicians,
Solemnly dedicate this house to thee,
And mindful of the favour with which thou, O Henry,
hast blessed us,
Invoke the greatest blessings on thy rule."

Mr. R. H. Wornum, who was keeper of the National Pictures in the first half of the last century, states in his *Account of Life and Work of Hans Holbein*, 1867, that "the picture in possession of the Company of Barber-Surgeons was probably painted about 1541, and Holbein may have died before it was completed." He asserts that some parts were repainted and never touched by Holbein. We know from the references in Pepys's Diary that it was damaged in the Great Fire of London in 1666, for he tells us that when he saw it in 1662 he greatly admired it. Then in August 29th, 1668, he wrote:

"At noon comes by appointment Harris to dine with me and after dinner he and I to Chirurgeons' Hall where they are building it new, very fine, and there to see their theatre which stood all the fire, and which was our business, their great picture of Holbein's thinking to have bought it by the help of Mr. Pierce for a little money. I did think to give £200 for it, it being said to be worth £1,000, but it is so spoiled that I have no mind to it and is not a pleasant though a good picture."

Wornum suggests that after it was thus damaged it underwent restoration, and that the tablet on the wall with the inscription was introduced in place of the

original window still to be seen in the picture at the Royal College of Surgeons. Mr. Arthur B. Chamberlain, in his life of *Hans Holbein the Younger*, 1913, says that "the original background was the window" and that the large white tablet on the wall to the right which helps to spoil the general effect was a late addition. To return to the picture at the Royal College of Surgeons, the early history of which is obscure, he states:

"On January 13, 1618, James I wrote from Newmarket to the Company of Barber-Surgeons asking that their picture should be lent to him as he was anxious to have a copy made of it, and promising that this should be done expeditiously and the original redelivered safely. The copy then made is in all probability the one now in possession of the Royal College of Surgeons, which is smaller than the original, and an indifferent version of it on paper attached to canvas. The figure of Alsop is omitted and in place of the tablet with inscription is the window with a view of the church tower, proving that if it is not the copy ordered by James I, it is at least a very early version of it."

Sir D'Arcy Power, who had an opportunity of closely examining this picture a short time ago, says:

"The back row of figures on the left of the King are evidently by an inferior artist than those of the picture at Barbers' Hall, some of the heads being quite grotesque and more like caricatures than the faithful portraits of Holbein. It is painted upon four pieces of paper, which are joined together upon a canvas to form the picture."

The early history of the painting is still obscure, and if it is the copy made for James I we have been unable to trace it in the Royal Collections of the seventeenth century. Mr. C. H. Collins Baker, the late Surveyor of the King's pictures, has kindly made a search among the catalogues of the Royal Collections and finds that the picture did not pass into the collection of Charles I, nor does it occur in the list of his pictures sold by the Commonwealth. It is not included in the catalogue of the pictures in the time of Queen Anne, and it may therefore be assumed that it was disposed of privately, and eventually came into the possession of M. Noel Desenfans about the middle of the eighteenth century. Desenfans, whose name is linked with Dulwich Gallery, was Consul-General of Poland in Great Britain at this period. He was a well-known connoisseur and art collector, and bought many pictures to form a collection for the King of Poland. His own pictures were offered for sale in 1786, and the picture of Henry VIII and the Barber-Surgeons, now in the possession of the Royal College of Surgeons, was among them and purchased for the Company of Surgeons. If, as surmised, this picture is the copy of the original made for James I, it is especially interesting as showing the background of the Holbein at the Barbers' Hall in its original state. The Holbein picture is painted on panel and measures 10 ft. 3 in. by 6 ft., while the copy in the collection at the Royal College of Surgeons is 9 ft. 2 in. by 5 ft. 2 in. The former was engraved by Bernard Baron in 1736.

C. J. S. THOMPSON, M.B.E.,

Hon. Curator, Historical Collection of the
Royal College of Surgeons of England.

The *Klinische Wochenschrift* of September 15th is a special number with a semi-political significance. The nineteen articles which it contains are written by physicians and surgeons of the Saar area. In a preliminary note Dr. H. Dietlen, on behalf of the Saar practitioners, describes the contents as a contribution made in honour of the ninety-third meeting of the Society of German Scientists and Physicians by German doctors in the Saar who wish to express their unity—never lost in the spirit—with their colleagues in the Reich, and their gratitude for the participation of their German colleagues, during the separation, in the proceedings of scientific and medical bodies in the Saar.

Scotland

National Health Insurance Conference

The twenty-second annual Conference of the Scottish Association of Insurance Committees, held at Stranraer on September 28th and 29th, was attended by about 200 delegates from all parts of Scotland. After a civic welcome by Provost Murray of Stranraer, Mr. John Riddet, the president, in his address said that the British national health insurance scheme was a model to the world, but it must cause united concern to them in regard to the improvement of the services. The medical service was much better than it was when the scheme was instituted. In its scope, however, it was a general practitioner service, and it was desirable that it should be amplified by consultant, specialist, laboratory, and diagnostic aids, and that insured patients should have such institutional and nursing facilities as might be required. The clamant need of dependants for similar benefits was also generally recognized. Financial stringency at the moment appeared to hinder any great development, but they must continue to press for a full and complete medical service in the hope that the means would ultimately be found. The Conference unanimously resolved that the Government be urged to promote legislation to include within the scope of national health insurance young persons entering employment between the ages of 14 and 16. A resolution was also unanimously passed that, in the opinion of the Conference, the right to medical benefit lost by insured persons under the provisions of the Act of 1932 should be restored as soon as possible. It was remitted to the Executive Committee to consider how uniformity could be obtained as between insurance committees in Scotland in regard to making proprietary medicines available to insured persons; it was suggested that details should be discussed with the British Medical Association and the Pharmaceutical Society. Mr. A. B. Gilmour, reporting on the work of the Drug Accounts Committee, referred to a number of unusual and unsuitable prescriptions which had passed through his department. He suggested that in the matter of vitamins care should be taken to see that what could be provided from the kitchen was not provided from the drug fund. There had been some laxity and luxury in prescribing—for example, a proprietary brand of orange squash, a tin of health salts for a child of 3, a dozen safety razor blades, etc. One insured person, in the course of nine years, had received 8 cwt. of an ointment containing boric acid at a cost of £117, and was still receiving treatment. Dr. Kerr, Edinburgh, moved a resolution that unrestricted freedom of change of doctor should be restored to insured persons; this was unanimously approved.

At the meeting on September 29th Mr. John G. Highton, Secretary of the Department of Health for Scotland, in an address on the subject of a national health service, said that not nearly enough had been done in the past to resist the onset of disease, and it was along these lines that a great field of opportunity lay. Referring to the remarkable advances in public health measures in a comparatively brief period, he said that a medical officer of health had not been appointed for Glasgow until after 1860, and five and ten years respectively had elapsed before a fever hospital had been opened and a sanitary inspector appointed. Towards the end of the nineteenth century there had been a great development of health services, but there was no public provision, except in regard to infectious diseases, for medical and surgical treatment in the homes. In the year 1881 there were 9,000 families in the Bridgeton division of Glasgow, of

which only 882 had more than two rooms, and the death rate was 30 per 1,000. The quadrangles of the houses, which were a pleasant feature on the Continent, had an evil significance in Scotland, containing in their centres a privy midden. In school medical inspection there was not yet a complete system of co-ordination with the home, and there was a lack of co-ordination between the home and industry. Much still required to be done in linking up health measures with domiciliary treatment by the general practitioners. Some of the problems which our health service still solved only partially were those dealing with nutrition, environment, and open spaces for the physical development of the body and refreshment of the mind. Referring to a recent tour he had made of various housing operations in Germany, Holland, Austria, and France, the speaker said that he had been most impressed by the good environmental conditions of the working classes; there were gardens immediately opposite the houses, and not miles away in public parks, while every house he visited was very clean. Cleanliness was to a large extent alien in Scottish practice, but he thought this was largely an educational matter. Sir Henry S. Keith, in proposing a vote of thanks to Mr. Highton, said that personal considerations of health did not get all the attention they deserved—for example, in regard to the fever hospital of his town, it was a remarkable fact that at least 50 per cent. of the patients admitted were verminous. There was no reason nowadays why any child or adult should appear in hospital in a verminous condition. He thought that they were not sufficiently impressing upon the individual and the family the necessity of doing something themselves in the direction of health.

Edinburgh Public Medical Service

The proposal for a public medical service in Edinburgh was outlined in the *British Medical Journal* of June 30th last. The scheme has now been adopted, and about one hundred general practitioners in the city have joined it. The arrangements of the scheme follow the lines of the model scheme issued by the British Medical Association, and the area of the service is to be the city of Edinburgh. The first meeting of the practitioners who have joined the service was held on September 18th, in the British Medical Association House, Edinburgh, when Dr. F. K. Kerr was appointed chairman, Dr. A. F. Wilkie Millar honorary treasurer, and Dr. A. P. Robb honorary secretary. An office has been secured at 13, Heriot Row, Edinburgh, where Mr. R. Pairman Miller will act as general secretary. The subscriptions payable by members have been fixed at 4d. per week for one dependant, 8d. for two, 10d. for three, and 1s. for four or more (including medicines), and these will be gathered by collectors weekly or monthly. Canvassing is prohibited, and persons wishing to join the service must do so through their own doctor. There is free choice of doctor and chemist, as under the national health insurance scheme. Membership is limited to dependants of insured persons and others with incomes up to £250 per annum. The scheme has met with the approval of the Edinburgh Insurance Committee.

The Undesirable Tenant

A paper which Dr. A. K. Chalmers read before the Royal Philosophical Society of Glasgow, together with additional notes relating thereto by Sir John Mann, has been published by the Housing Committee of the Corporation of that city as a pamphlet under the title "Can the Undesirable Tenant be trained in Citizenship?" The authors review the progress of slum clearance and the progressive steps that have been taken to place upon local authorities the responsibility for rehousing, and indicate

the extent to which these responsibilities have been carried into actual effect, especially in Glasgow; but, as their title indicates, they are chiefly concerned with the problem which emerges from these activities—namely, what is to be done as regards that section of the displaced slum dwellers who do not respond in a satisfactorily social way to the opportunity for improvement which is afforded them? The first point is to discover the extent of this problem; what proportion of the population concerned are found to be quite “undesirable” or “incorrigible” tenants so that they constitute a “refractory group”? Here we have to deal with two sections: those affected by the clearance scheme who refuse to accept the alternative houses provided for them, and those who do accept but nevertheless fail to prove socially satisfactory in their new environment. It appears that experience indicates that some 20 to 25 per cent. of the displaced population will fall within the former class. Not all of these, however, are necessarily incorrigible. A number of them will be reasonably good tenants or lodgers who are able to provide for themselves by other means. Of those who are rehoused under such schemes it seems that about one-tenth soon prove to be undesirable tenants. It may thus be assumed that the statement commonly made that about one-quarter of present slum dwellers prove to be “slum-minded,” and so difficult to rehouse with good results, is approximately correct. Three ways of dealing with this residue are mentioned in the pamphlet. Clearly they ought not to be abandoned and removed from such educational influences as can be brought to bear upon them. Some schemes, especially in Holland, have placed them—under certain regulations for promoting cleanliness, respectable living, and punctual payment of rent—in a special simplified type of house or building isolated from the rest. Others provide such a simplified form of house, not in isolation, but intermingled with blocks of the normal type. In spite of the apparent success which has so far attended some such arrangements the objections to this method are obvious and important, especially as they affect the children in families so housed. It is probable that many social workers will agree with Dr. Chalmers that in most cases it is better to rely upon a continued educative supervision under a rehousing scheme of normal character, especially by selected and trained women managers and supervisors according to the methods initiated by Miss Octavia Hill. This, together with the continuance of the beneficial influence shown to be exerted by maternity and child welfare centres, by the school medical service, and by the elementary school, should, within a generation or two, reduce the problem to much smaller dimensions, and reveal whatever residue there may be in whom inherent and inherited traits resist the effects of improved environment.

Housing in Edinburgh

At a meeting of Edinburgh Town Council on September 27th a scheme for assisting in the erection, by private enterprise, of new houses for the working classes was considered. It had been estimated that 750 houses would be erected during the year from May, 1934, to May, 1935, and it was reported that 310 houses had already been completed and occupied. It is now proposed that the corporation should advance money directly to builders who erect houses for letting purposes, on the same terms and conditions as to building societies, while the rate of interest to be charged is to be that fixed by the Secretary for Scotland under the Small Dwellings Act of 1899. It was also agreed, on the recommendation of the Public Health Committee, that an endeavour should be made by the corporation to erect 250 additional houses to replace existing unfit ones during each year of the five-year housing programme, 1934-8. It was pointed out that

the corporation was still waiting for the Government's proposal regarding overcrowding before dealing with the question of building suburban bungalows, which would be far removed from working centres, and rehousing dispossessed slum-dwellers in new tenement houses erected upon central derelict areas.

England and Wales

Water Supplies and the Drought

The water situation of the country was further reviewed at a meeting of the Water Supplies Emergency Conference held at the Ministry of Health last week. The rainfall in August and the early part of September has improved supplies in a number of areas, but economy in consumption is still needed. Of 225 large water undertakings, 202 have reported no serious shortage, present or prospective, sixteen report present shortage in their supplies, and seven not at present suffering from shortage report that the position may worsen later, though measures have been prepared for dealing with the situation. Of 745 urban authorities with populations under 20,000, 705 have reported no serious shortage of water, present or prospective, thirty-two report serious shortage, and eight whose areas are not at present suffering from shortage fear it later if enough rain has not fallen by the end of September. Of 536 rural district councils 339 have reported no serious shortage, present or prospective, 156 report serious shortage now in some part or parts of their districts, and forty-eight report that they are not yet suffering from shortage, but may suffer later. Engineering inspectors of the Ministry continue to make special visits to districts where the position calls for investigation. A large number of schemes of permanent improvement of supplies are being carried out or are being prepared. So far forty-one applications have been received under the Water Shortage Act for special emergency powers, about half of which are for new sources of supply, and new powers have already been given in twenty-six cases. Applications for grant under the Rural Water Supplies Act have been received for schemes of permanent improvement at an estimated total cost of £2,900,000. Grant has already been promised to ninety-seven councils, covering 604 parishes, for schemes estimated to cost £1,650,000. The Metropolitan Water Board reports that rainfall in August and early September made it possible to abstract more water from the river and to increase the amount in storage. Reserves had, however, to be drawn on during the third week of September, and economy is still needed. The general rainfall over England and Wales during August was 3.18 in., compared with a normal fall of 3.35 in. Generally the deficiency during the four months ending in August was 26 per cent. Rainfall during the first three weeks of September was less than the normal in most areas, though in others there was an excess locally due to severe thunderstorms.

Paying Patients' Block at Guy's

The foundation stone of Nuffield House, the new building for paying patients at Guy's Hospital, was laid on October 3rd by Lord Nuffield, who in December 1st offered the governors of the hospital £45,000 for that purpose. Fifty years ago—in September, 1884—Guy's opened a ward for private paying patients, the first ward of the kind to be instituted in a general hospital. At first it contained twelve cubicles. Later the number was increased to twenty-three, and a resident medical officer

appointed to look after it. To-day thirty cubicles and one room are available for private patients, but the demand is so great that cases have to wait two or three weeks before they can be admitted. The new paying patients' block will accommodate seventy-three patients. Plans have been prepared, and have received the approval of the Court of Governors and of King Edward's Hospital Fund for London.

The block will contain fifty-three separate rooms and five four-bedded rooms, wherein each patient will have a cubicle space. It will have its own sister-in-charge, resident surgeon, and fully equipped operating theatre suite. There will be waiting and lounge rooms for visitors and patients, and a complete kitchen and food unit. Each of these units will be in direct service to all floors by duplicated electric lifts. Special accommodation is allocated for radiology. A feature of the building is the roof garden. The whole of the roof, approached by electric bed lifts, will be available for patients, and the central portion is to be enclosed with movable glass slides. After the ceremony of the stone-laying, Lord Nuffield presented prizes to the students of the Medical School.

British Spas Federation

The bi-annual meeting of the British Spas Federation was held at Leamington last week. Among the numerous matters discussed was the question of the recognition by the Government of the proved value of the British spas and its appreciation of the spas as an asset of national importance, as is the case on the Continent, where, incidentally, a number of the spas are State-owned and controlled. The adoption of a system of diets was also discussed. One or two of the spas have recently instituted an elaborate dieting scheme, and the remaining spas in the Federation are to consider the adoption of similar methods. The Federation, in conjunction with the British Medical Association, has completed a comprehensive training scheme for all candidates for posts as spa attendants. This scheme is to be adopted at once, and will ensure that all new members of spa staffs will be thoroughly conversant with the theory and practice of spa work. A few of the larger British spas have already training schemes in operation, and no one is allowed to give treatment to a patient there unless he or she has the necessary training and certificates, but the remaining spas will now adopt this stringent course.

Housing Policy

On October 1st the Minister of Health, Sir Hilton Young, started a tour of large towns in connexion with the housing policy of the Government. The object of the tour is to explain to the housing authorities the Government's proposals for dealing with the evil of overcrowding, and to enlist their interest in the work. The Minister will also take the opportunity of discussing with the housing authorities the work of slum clearance, and other interests of local government. The towns to be visited are: Plymouth, Birmingham, Sheffield, Wolverhampton, Stoke, Manchester, Liverpool, Rochdale, Norwich, and Bradford; and the tour, which will occupy the greater part of October, has been designed to cover the widest possible area and variety of housing conditions.

The Health and Cleanliness Council (5, Tavistock Square W.C.1) has recently produced a new poster in colours, "Health Insurance." Specimens of this poster will be sent to those interested by the secretary, Miss Norah March, and the council is prepared to consider supplying copies in bulk, free of charge, where these would be of substantial assistance to health education.

CORRESPONDENCE

R.M.B.F. Christmas Gifts

SIR,—It has been my privilege for many years to appeal to your readers for contributions to enable the Royal Medical Benevolent Fund to distribute Christmas gifts. I desire to express my personal gratitude to my many medical colleagues who have so generously responded to the appeal in recent years, and especially to the medical societies and Panel Committees who, together with Branches and Divisions of the British Medical Association, have arranged collections at their meetings in aid of this particular need.

It is impossible to give any details in a short letter of the sorrowful lives of those we endeavour to help; in a great many cases tragedy has befallen them. It may not be realized that in issuing this appeal I write on behalf of over 650 beneficiaries, for that is the number on our books, and I feel, therefore, a great personal responsibility as to whether my appeal will suffice to persuade your readers of the urgent need of a generous response.

One medical practitioner, a married man, wrote recently to the Fund that at the age of 66 he had suffered a complete breakdown in health and further work was out of the question. He had done all that was possible to keep going, and was still not in debt, as he had drawn on his endowment policies. But he had now come to the end of his resources, and had been forced to take his little girl, aged 14, away from school, as he could not meet the next term's fees, his income being £60 per annum.

The Fund is now helping this colleague with a yearly maintenance grant, but we want at Christmas to give him and many others the unlooked-for Christmas gift. We try to distribute 30s. to each. I ask your readers to help us to do so. Donations will be gratefully acknowledged by the honorary treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, London, W.1.—I am, etc.,

September 30th.

THOS. BARLOW,
President.

The Eichholz Clinic

SIR,—May I beg the hospitality of your columns to invite members of the medical profession to visit the Alfred Eichholz Memorial Clinic, which was opened in July by the Prince of Wales? It is unique among clinics, inasmuch as it is staffed by blind masseurs and masseuses, whose very blindness appears to be an aid rather than a disability in the development of tactile sensibility. There are sighted medical supervisors and fully qualified sighted sisters, and the very complete equipment for electrotherapy has been specially designed for the use of blind operators. Apart from its interest as a useful service to the medical profession, it has claims on all who would like to encourage a body of men and women whose otherwise sombre lives are being brightened by the opportunity of doing really useful work. The clinic is lodged at 204, Great Portland Street, W.1.—I am, etc.,

London, W.1, Oct. 1st.

MOYNIHAN,
Chairman of the Medical
Advisory Board.

Muco-purulent Tubo-tympanic Infections

SIR,—I was interested to read in your issue of September 22nd (p. 544) Dr. T. Ritchie Rodger's lucid and concise presentation of the above subject. It is a type of infection which at times gives one considerable trouble.

The advisability of searching for, and thoroughly eradicating, any source of infection in the nose or its

adnexa is clearly expressed by him, and is a "dictum" with which I am in thorough agreement. It is surprising how frequently an unsuspected, almost occult, nasal sinus infection, generally of the mucoid variety, is found, particularly in the maxillary sinus, in cases of catarrhal middle-ear deafness. Mere inspection of the nasal passages often fails to reveal this mild sinus infection. Transillumination and x-ray examination give some assistance, but in my opinion nothing short of puncture and aspiration of the maxillary sinus, in every doubtful case, completes the examination.

Subacute catarrhal middle-ear deafness which has proved resistant to other simpler remedies is often quickly relieved when the offending nasal sinusitis is discovered and treated. The earlier the nasal sinusitis is treated the better the prognosis, for there is a tendency, as I have shown elsewhere,¹ for the serous and mucoid exudation in the middle ear to become more and more fibrinous and difficult to evacuate as time progresses. Dr. Ritchie Rodger mentions the value of early evacuation of a serous or mucoid exudation in the middle ear by a paracentesis tympani and immediate inflation per the Eustachian catheter. It is a form of treatment which, following the practice of the late Sir William Milligan, I have adopted for many years with good results.

I feel convinced, however, that if natural resolution of the otitic exudation does not follow quickly other simpler remedies, the sooner it is evacuated the better the result. Paracentesis may have to be performed on more than one occasion, since there is a tendency for the incision to heal before the catarrhal condition in the Eustachian tube and middle ear has completely resolved.

Unlike Dr. Rodger, I rarely prescribe any astringent or solvent drops for use after the paracentesis, for fear of inducing a secondary infection. The external auditory canal is first thoroughly cleansed by syringing with carbolic lotion (1 in 80), paracentesis performed under a local anaesthetic, and the middle ear then inflated by means of the Eustachian catheter. Unless the fluid evacuated is copious I do not dry out the external canal. A pledget of cotton-wool is placed in the external meatus and the patient warned to reapply the wool should it become soiled, but on no account to leave the ear unprotected or to treat it in any way until I have inspected it in a week or ten days.

I feel certain that if more attention were given to the milder degrees of deafness and tinnitus which follow the milder forms of coryza, etc., one would avoid that troublesome form of deafness in later life—namely, the chronic catarrhal deafness, with its attendant intractable deafness and tinnitus.

Dr. Rodger advocates for the relief of a tubal mucopurulent discharge through an anterior perforation lavage of the Eustachian tube through a Eustachian catheter. The same treatment, of course, would apply to a tubal discharge after a radical mastoid operation. Success frequently follows this method of lavage, but it is at times somewhat irksome to the patient, and often the tube can be cleansed in the opposite direction—namely, by filling the external canal or radical mastoid cavity with the desired solution, allowing the patient to lie down with the affected ear uppermost, and, while in this position, to repeatedly perform "negative Valsalva" (that is, swallowing with the lips closed and nostrils occluded). Negative pressure is thus produced in the middle ear, and as the air is sucked out of the tube siphonage of the fluid takes place from the middle ear via the Eustachian tube into the nasopharynx.—I am, etc.,

Manchester, Sept. 26th.

F. HOLT DIGGLE, F.R.C.S.

¹ Clin. Journ., January 30th, 1929.

Evipan on a Full Stomach

SIR,—I was interested in the article on evipan anaesthesia in ophthalmic surgery by Mr. T. K. Lyle and Dr. F. G. Fenton in your issue for September 29 (p. 589). It appears to me, however, that their views on loaded stomachs require modification. They state that "evipan may be given without danger with a partially full stomach." Again, in reporting a case: "Inhalation anaesthesia would have been impossible owing to the fact that the patient had recently had a meal."

In the considerable literature which has now accumulated relating to evipan deaths there are fatalities which have undoubtedly been caused by syncope from an over loaded stomach. One author (E. A. Voss, *Deut. med. Woch.*, 1933, No. 25) specifically calls attention to this danger. On general principles there seems to be no reason why a full stomach should be less dangerous with sodium evipan than with any other type of general anaesthesia.—I am, etc.,

London, N.W.S. Sept. 28th.

C. LANGTON HEWER.

Preliminary Ligation in Toxic Goitre

SIR,—Although in favour of preliminary ligation of toxic goitre are such authorities as Sir Thomas Dunhill Professor Wilkie, Mr. Geoffrey Keynes, etc., I should like to outline briefly my opinion on the subject. I agree entirely with Mr. Philpotts (September 22nd, p. 569) that the preliminary ligation should never be practised in cases of toxic goitre. I think that such an operation as trivial as it may seem, is only leading to trouble, or at least worthless.

In the last few years in the surgical clinic of Professor Lobenhoffer—one of the recognized German authorities on goitre—about eighty to a hundred operations on goitres, most of them toxic, have been performed every year, and in no case has the preliminary ligation of the arteries been practised. The mortality due to the operative shock was less than half per cent. The only two fatal cases I witnessed in this clinic were one in which a preliminary ligation was tried, and the other in which only one lobe of the gland was removed. As Mr. Howe points out, for the good success of the operation it is imperative to remove at least three-quarters of the gland. Even the very toxic patients support the operation very well. The operative shock is always less when large portions of the lobes of the thyroid gland are removed than in cases in which only one lobe is resected, and I therefore believe that an operation in two stages is also unnecessary. I think that neither the preliminary ligation nor the resection of one lobe of the gland will reduce to any large extent the amount of active gland, and for this reason the intervention for toxic goitre should be in one stage, and the removed tissue, as said before, should be over three-quarters of the gland.

The preliminary use of iodine is extremely useful for the success of the operation, and gives excellent results when administered for a sufficient period of time. Regarding the other point—that preliminary ligation should be practised as a test for the susceptibility of the patient to surgical trauma—it is impossible to judge the degree of susceptibility through this operation. In many patients the post-operative shock is greater when this small operation is performed than in the ordinary partial thyroidectomy. On the other hand, I believe that the psychological effect produced on the patient by trying to obtain his permission for the operation is not different whether he is asked to agree to a preliminary ligation of the arteries or to a proper operation on the thyroid. In conclusion, basing myself on my own experience on toxic

goitres, which extends over 150 cases with no mortality. I should like to state that I have always been able to obtain the patient's consent, the operation being performed under local anaesthesia, and I have always practised the operation in one stage by partial removal of a little more than three-quarters of the gland, although among the patients there have been cases of a very high degree of thyrotoxicosis, advanced age, or very low general condition.—I am, etc.,

Manchester, Sept. 24th.

G. BANKOFF.

The Swab in Diphtheria Diagnosis

SIR,—I hesitate to prolong the already lengthy correspondence on this subject, but I think it would be a pity if the net result of it were to shatter the general practitioner's confidence in yet another accepted clinical procedure.

No one knows better than the general practitioner that scientific tests are rarely a substitute for clinical observation, and that a negative swab does not preclude the disease when clinical signs are suspicious. On the other hand, a positive report always means that the patient is a potential danger either to himself or to others, or to both. Practising in a district where diphtheria has been almost endemic for several years, I have found the swab of very great assistance in the diagnosis of doubtful cases and in the detection of carriers.

In my experience of "sore throats" in relation to diphtheria there are three classes of cases to be considered: (1) those in which the diagnosis of diphtheria is certain, or almost so; (2) those in which no question of diphtheria arises; and (3) those in which doubt exists.

1. These cases are immediately given an injection of antitoxin—8,000 to 20,000 units, according to the severity and duration of the infection—and a swab is taken and examined for organisms of diphtheria and Vincent's angina (the other condition most likely to cause confusion).

2. These cases are treated on the appropriate lines. It is impracticable in a busy practice (and I think unnecessary) to swab all cases of sore throat—which may be anything from mildly injected fauces to an acute streptococcal pharyngitis or a recurring quinsy. If, however, diphtheria is prevalent locally, or the relatives express any uneasiness, a swab is taken, but no specific treatment is given pending a report.

3. Each of these cases must be judged on its own merits. The public health arrangements in this district are so good that I can almost always obtain the result of a direct smear examination within three hours, and a cultural report within twenty-four, and often less. Where the probability is not very great I wait for the direct smear report: if negative, it may be permissible to wait for the cultural report; but most of these cases receive antitoxin before the final report is received.

In all cases when diphtheria has been diagnosed and confirmed I immediately swab all the other members of the household, children and adults, and inject 2,000 units of antitoxin intramuscularly. Since adopting this procedure I have not had one single second case occurring in the same household. It seems likely that, even if a person is actually incubating the disease, an injection at this period may completely abort the attack. Moreover, if two swabs at intervals of two days are negative, and the person has had antitoxin injected, he may be safely released from quarantine.

It seems scarcely fair to attribute the high mortality from diphtheria to the dilatoriness of the general practitioner. Other more important causes are the delay of the relatives in summoning their doctor, and the initial virulence of the infecting strain of the Klebs-Loeffler bacillus. The remedy lies, first, in the education of the public to get immediate advice on every sore throat, and secondly, the provision by all local authorities of

facilities for the rapid examination of swabs and the free and ample supply of antitoxin to practitioners for prophylaxis and treatment. If the public fails to learn the children will have to be immunized. If the practitioners fail to utilize the facilities provided for them then the "area specialists" will come. But they will not only give advice on diagnosis; they will make the diagnosis and administer the treatment, and another useful sphere of activity will be denied to succeeding generations of general practitioners.—I am, etc.,

Liverpool, Sept. 22nd. A. G. C. FFOLLIOTT, M.B., B.Ch.

Haemorrhage from Peritonsillar Abscess

SIR,—Knowledge of anatomy may be obtained first hand, by dissection; second hand, from anatomical textbooks; or third hand, from other books containing abstracts or extracts from anatomical works. Mr. T. G. Wilson makes use of the last method, and then allows himself to be led astray by an obvious misprint. Reference elsewhere, or even to neighbouring passages in the book he quotes (Irwin Moore: *The Tonsils and Adenoids and their Diseases*), would show that the descending palatine artery should have been described as a branch not of the internal carotid, but of the internal maxillary artery, and therefore from the external carotid artery. His argument for ligation of the internal carotid artery therefore fails.—I am, etc.,

Canterbury, Sept. 29th.

THOMAS A. CLARKE.

SIR,—Mr. T. G. Wilson goes one better than Dr. Watson, in that he refers to one book for a reference to another book; his faith unshaken by the omission of either to mention a vessel which he finds among the various tissues brought away by the guillotine. (See the article on "The Post-operative Complications and Results of Tonsil and Adenoid Operations in Children" by Miss Elizabeth Nesbitt in your issue of September 15th.) But I am pleased to see that he confirms the existence of a vein where the Holmesian reasoning has already suggested it. If this vein exists, then to explain the persistent bleeding which is the subject of this argument it is only necessary to suppose that it behaves as veins notoriously often do. The alternative is to produce an artery where none can be shown by dissection, and then get it to behave as no artery can be made to do experimentally.

Personally, I have never seen arterial spurting in the tonsillar fossa anywhere except from the facial branch, but I have only too often had obviously venous bleeding shown to me as arterial because of pulsations in its flow transmitted from the great vessels close below it. However, if there is in Dublin a preparation showing the textbook blood supply of the tonsil I am very willing to go across to see it; I am quite unable to find one in this country.—I am, etc.,

London, W.1, Oct. 1st.

DENIS BROWNE.

Injuries of the Knee-joint

SIR,—I confess to have only a limited knowledge of the surgery of the knee-joint, but I flatter myself I have just sufficient to understand when one writes sense or otherwise. It was not I who wrote "locking in extension, etc.": the phrase is Mr. Stewart Woodman's, and as it is contradictory in terms it is consequently meaningless. He is confusing method with the result, means with the end. What I did suggest was that the history gave me a right to claim that the cartilage could be torn in full extension, the locking resulting afterwards.

Since my communication of May 5th my notice has been drawn to a paper by Mr. C. H. Fagge. Mr. Stewart Woodman will there find that Mr. Martin's advocacy of 1911 has not settled this question finally, as this paper was written in July, 1927, and is to be seen in the *British Journal of Surgery*, vol. xv. He may be astonished to find that there are well-known London surgeons who question Mr. Martin's theory. If he has not already seen this paper I recommend it to him, as he will find a well-sustained argument, and a reasonable hypothesis as to how the cartilage is torn. Whether one agrees or not it compels one's respect, whereas a bald statement such as "rupture takes place *always* in flexion" leaves one cold. Mr. Stewart Woodman wishes me to explain the mechanism of rupture. I should like him to essay the task. If he will do that, and lay his assertiveness aside, he will earn our thanks and command our regards. —I am, etc.,

Leeds, Sept. 30th.

J. STEWART.

The Medical Profession in Hungary

SIR,—I have just returned from the Annual Conference of the Association Professionnelle Internationale des Médecins at Paris, and I wish to bring to the notice of our Association some facts about the situation in Hungary which should cause grave concern to every organized medical body.

The representative of Hungary gave us a detailed history of what has been happening to the profession there in the last few years. Briefly, for some years the country has been suffering from the effects of the financial crisis to an extent which we can hardly conceive. Wages and salaries have been cut all round on several occasions, and the medical profession has suffered with the rest of the population. The reduction in the remuneration of insurance doctors amounts to something between 40 and 50 per cent. The last cut was made when the Government made drastic economies in order to save the health insurance system from bankruptcy. The doctors naturally expected that as the balance sheet of the "caisses" began to improve, so would the position of the medical profession. But they were cruelly deceived. Though the financial position of the "caisses" is now sensibly improved, the Government has peremptorily refused to consider the position of the doctors. But that is not all. The Government now intends to destroy the system of "free choice," which the profession thought it had, after a long struggle, established, and the emphatic protests of the Hungarian Medical Association have just been met by a decree ordering all doctors who derive any kind of remuneration from the State to leave the association. This involves nearly every doctor in the country—all insurance doctors, hospital doctors, university professors and teachers, and, of course, all military and Civil Service doctors.

The A.P.I.M. received this news with consternation. We were amazed that at this time of day the Government of any civilized country should deny to professional men the right of combination which is commonly accorded to workers of every kind. Doubtless the International Labour Office of the League of Nations, with which Hungary is connected, will have something to say about this extraordinary action.

Our Hungarian colleagues, crushed by real poverty but still resolute to preserve their civic rights, deserve, and will, I am sure, receive, the sympathy of every British doctor, as they did that of the representatives of fourteen national medical organizations present in Paris. —I am, etc.,

London, W., Oct. 2nd.

ALFRED COX.

Death and the Survival of Rights of Action

SIR,—I am glad to see your leading article on the above subject (September 29th, p. 600), and I quite agree with the writer's statement that "this change in the law is fraught with grave consequences to the medical profession." Why then did the medical profession take no steps to prevent it? Before the change was made I called the attention of the London and Counties Medical Protection Society to the matter, but nothing was done. Did the British Medical Association do anything?

I may be wrong, but I think the recent change in the law makes the widow, or other representatives, of a deceased doctor liable for alleged negligence of the doctor during his life. If this is so the consequences are more than grave. In a large proportion of cases there will be no evidence (in his absence) on the doctor's behalf, and the opportunity for blackmailing will be simply appalling. Already, as some of the judges seem fortunately to recognize, the expert blackmailer quite realizes that the law affords an efficient and safe engine for his purposes. —I am, etc.,

Lingfield, Surrey, Sept. 29th.

HUGH WOODS, M.D.

"Port Sanitation and Common Sense"

SIR,—In your issue of August 25th a ship surgeon airs his "grouses" against the port sanitary authorities. Though my experience as port medical officer was a temporary one of only some months' duration I feel qualified to question the justice of some of his views.

Ship surgeons, I imagine, are no different from the rest of the profession, and they comprise men good, bad, and indifferent; men with much experience and with little. Can the port authorities be certain that the ship surgeon (not to speak of the skipper of a ship carrying no doctor) can be relied on *in every case* to differentiate between (1) mild cholera and acute food poisoning, (2) an ordinary femoral adenitis and plague with a septic wound of the leg as a coincidence just to put one off, (3) severe chicken-pox and mild small-pox modified by vaccination? Port authorities have more experience of these "snags" than the average individual ship surgeon, of whom how many have had much experience of plague and cholera? I have omitted the possibility that several deaths from "pneumonia" on board may have been due to *B. pestis* and not to the pneumococcus. Hence the question, "Have you had any cases of illness aboard infectious or not?" If circumstances seem suspicious the authorities can pursue the matter.

"Ship Surgeon" complains of having to fill up a form at both ends of Suez Canal. Assuming the last part of call to have been Aden, surely infectious disease may break out aboard between Suez and Port Said. I see no reason for this complaint. As to the question whether the ship has picked up anybody or anything during the voyage—the ship might have picked up the crew (with their belongings) of an Arab dhow drifting unmanageable in the Red Sea, the crew being stricken with cholera acquired from the pilgrimage. In this case surely the ship could give the approximate position. The authorities are not dealing only with the surgeons of crack British liners. Certainly the surgeons of some foreign ships cannot be relied upon too far, and most ships carry no doctor. There cannot be a multitude of forms—for example, (1) for ships not carrying doctors, (2) for foreign ships carrying a doctor, (3) for British ships carrying a doctor who is (a) good, (b) bad, (c) indifferent.

I once boarded a ship belonging to a famous British line carrying a British doctor who assured me that he had no illness on board. He was not a good liar, and his assurance

was too emphatic. A tour of the ship disclosed several cases of severe small-pox, which were being deliberately concealed from me. Naturally I visited the ship with the utmost rigour of my powers, which were considerable, and reported the facts to the Board of Trade. I fancy it cost the company some thousands of pounds and the doctor his job. A week or two later I boarded a foreign liner. The doctor informed me that he had two cases of small-pox which had been isolated to the best of his ability, and that every soul aboard had been vaccinated. Naturally I did my best for this ship, allowing the discharge of cargo and of passengers on condition that they gave the address of their destination and reported daily to the health authorities during the incubation period. The surgeon of another British liner informed me that he had lost a passenger from retention of urine. Inquiries revealed the fact that before sailing the surgeon had pawned the ship's case of catheters.

In conclusion, I may add that I have been hauled out of the Orient Express at Brigue and subjected to medical inspection merely because my passport showed that I had recently been in Egypt, where some cases of plague had occurred.—I am, etc.,

Alexandria, Sept. 2nd.

"M.D."

Obituary

BARRY KEYTE TENISON COLLINS

M.A., M.D.Cantab., F.R.C.S.Ed., F.C.O.G.

Obstetrician and Gynaecologist, Cardiff Royal Infirmary; Lecturer in Obstetrics and Gynaecology, Welsh National School of Medicine

The death of Dr. Barry Tenison Collins, which occurred on September 24th from cerebral haemorrhage at the early age of 47, removes a prominent figure from the medical life of Cardiff and from his specialty. His father, the late Mr. Edward Tenison Collins, was one of the first to specialize in gynaecology in South Wales: he died only eight years ago.

After a distinguished war service in Gallipoli, Egypt, and East Africa as a captain in the R.A.M.C.(T.), Barry Collins returned to Cardiff and devoted himself entirely to the study and practice of his twin specialty. He was soon appointed to the junior honorary obstetrical and gynaecological staff of Cardiff Royal Infirmary, and in 1931 he was promoted to the senior staff when Sir Ewen Maclean resigned. He was also lecturer in the subject in the Welsh National School of Medicine, and with these appointments his reputation and his practice grew rapidly, so that he came to occupy a leading position in South Wales. He was a sound clinician, an experienced operator, and a clear and concise teacher; while as a colleague his cheerful, breezy presence was always welcome in any professional gathering.

His outside interests were many, and chief among them was his love of sailing: every spare moment was spent in his motor boat in the Bristol Channel. He was also a keen gardener, with quite a specialized knowledge of roses. His mechanical knowledge and ability was most marked, and he was always happy when dealing with some such problem in professional or domestic life. That a life of such varied interests should be cut off so tragically and at so early an age appears indeed hard. He leaves a widow and a daughter, to whom has gone out much deep and sincere sympathy from a very wide circle of personal and professional friends. The memorial service, in the chapel of Cardiff Royal Infirmary on September 27th, was attended by a large gathering, which included practically the entire medical and nursing staff of the Infirmary.

THE LATE PROFESSOR J. A. MILROY

Professor E. B. C. MAYRS writes from Belfast:

Professor J. A. Milroy inspired to an unusual degree the affection and esteem of all who knew him. Kindly and unassuming, his profound knowledge of biochemistry was always at the service of his colleagues, and their problems often made considerable demands on his time. Those who sought his advice were impressed by his familiarity with complex reactions, and with the less known literature of his subject. But his knowledge of science and philosophy extended far beyond the limits of biochemistry. He was a very careful worker; his name is a guarantee of accuracy in his published work. It is hard to believe that his place can ever be filled. We have lost a good friend, and his modesty and charm will live in our memory.

Dr. THOMPSON CAMPBELL died on September 22nd in Leeds, after a short illness, at the age of 62. Born in Glasgow, he was educated at Hutchinson's Grammar School and Glasgow University, where he took honours in many of his classes, among them the Sir William Gairdner prize in clinical medicine. He graduated M.D., with distinction, in 1900, and subsequently held the appointments of house-physician and house-surgeon at the Western Infirmary, Glasgow. He made a voyage to India, and afterwards settled down to his life's work. He was superintendent at Quarriers' Homes, Bridge of Weir, where he did excellent work in organizing and introducing new methods in the treatment of tuberculous patients, and was afterwards appointed superintendent at Ochil Hills Sanatorium, Kinross. This was a new institution, built and equipped with all modern appliances. In 1912 he entered the service of the West Riding of Yorkshire as chief tuberculosis officer, and worked for seven years organizing dispensaries for the examination of tuberculous patients. In 1919 he was appointed medical superintendent at Middleton Sanatorium, Ilkley, Yorkshire. In 1931 he became one of the consultant tuberculosis officers for the West Riding. He travelled extensively in Switzerland, Germany, and America, studying all methods in the treatment of tuberculosis in the various sanatoria. A former colleague writes: Middleton-in-Wharfedale Sanatorium is one of the largest institutions of its kind in the country, having 300 beds for the treatment of male patients, and it was here that Campbell found scope for his energy, enthusiasm, and skill in his life's work. A man of unbounded energy, he could not bear fools gladly, and had no compromise with error or slackness in work. He did not spare himself. He knew every patient in his sanatorium, could tell you off-hand his name, condition of his chest, including x-ray examination, and whether his sputum was positive or negative. Campbell himself knew too well what it meant to have tuberculosis, and the more ill a patient was it only drew forth the best he could give. He was essentially a man who was never weary in well-doing. He cared little for the things of pleasure, and money he spent freely in helping and relieving patients whom he knew to be in distress. Now that he is gone he will be greatly missed by many throughout the West Riding of Yorkshire, where he was held in great respect and affection.

Dr. HENRY WILLIAM BEEDHAM, who died on July 31st at the age of 66, had been a member of the British Medical Association for exactly forty years. He studied medicine at Cambridge and the London Hospital, and graduated M.A., M.B., and B.Ch. in 1895, having taken the L.S.A. in 1893. He was engaged in general practice for some years, first at Norwich, then at West Hampstead and in Cricklewood. In 1914 he took up ophthalmic work only, and held appointments as clinical assistant at Moorfields, the Royal Eye Hospital, Southwark, and at King's College Hospital, Denmark Hill. He took the diploma D.O.M.S. soon after its institution. At the commencement of the Great War Dr. Beedham was the

first man in West Hampstead to enrol as a special constable. He went to France in 1915 under the Red Cross Society, and in 1916 became a temporary lieutenant in the R.A.M.C.; he was promoted captain, and in 1917 was invalided home. Dr. Beedham was a man greatly beloved by all who had the privilege of working with him. For fifteen years he was vicar's warden at Emmanuel Church, West Hampstead, and for six years had been chairman of the Medical Board of the Church Missionary Society. He will be much missed by a large circle of friends.

We regret to announce the death, on September 26th, of Dr. JOHN WILLIAM ENSOR. Dr. Ensor was educated at Epsom College and Guy's, and qualified in 1899. Soon afterwards he started practice in Birmingham. Ensor moved to the new district of Golder's Green in 1911, and saw Hendon develop from a rural village to a borough of over 100,000 inhabitants. In practice he was extremely successful, and on his retirement in March of this year, owing to ill-health, he received a remarkable demonstration of affection from his patients, who presented him with an illuminated address and a motor car to mark their appreciation of his services. After twenty-two years' membership of the British Medical Association he was made chairman of the Hendon Division in 1931. For many years he served on the medical staff of the King Edward Memorial Hospital, Hendon. His colleagues have a very deep and real sense of sorrow at his loss. He is survived by his wife and two children.

Universities and Colleges

UNIVERSITY OF LONDON

Lectures

A course of three lectures, entitled "Forty Years of Gynaecological Endocrinology," will be given by Professor Ludwig Fraenkel, late director of the Women's Clinic in the University of Breslau, at University College Hospital Medical School, on October 31st and November 2nd and 5th, at 5.30 p.m.

The Heath Clark Lectures, on "Malaria in Europe," will be given by Dr. L. W. Hackett, assistant director of the International Health Division of the Rockefeller Foundation, at the London School of Hygiene and Tropical Medicine, on December 3rd, 4th, 5th, 6th, and 7th, at 5 p.m.

A course of three lectures, on "Newer Aspects of Gastritis and its Consequences," will be given by Professor Knud Faber of the University of Copenhagen, at Guy's Hospital Medical School, on November 6th, 8th, and 9th, at 5 p.m. At the first lecture the chair will be taken by Dr. Arthur F. Hurst.

A course of three lectures, on "Some Chemical Problems related to Pharmacology," will be given by Professor G. Barger, D.Sc., F.R.S., of the University of Edinburgh, at the London (Royal Free Hospital) School of Medicine for Women, on November 1st, 2nd, and 9th, at 5.30 p.m.

A course of three lectures, on "Physiological Equilibrium," will be given by Professor L. J. Henderson of the Fatigue Laboratory, Harvard University, at University College, on October 16th, 17th, and 18th, at 5 p.m.

A lecture on "Inflammation of the Maxillary Antrum and other Accessory Sinuses (Some Clinical Manifestations of its Pathology)" will be given by Mr. Herbert Tilley, at the Royal Society of Medicine, on Thursday, November 1st, at 5 p.m.

A public lecture on "Hippocrates and the Hippocratic Tradition in Modern Medicine," by Dr. A. P. Cavadias, will be given at King's College, Strand, W.C., on Friday, October 19th, at 5.30 p.m.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B. (Part I). T. K. Cooke, F. A. Crossill, M. A. Kader, C. V. Light, O. Scarborough, F. A. Shackleton, Helene E. Sykes, J. D. F. Thornton, H. L. L. Wilson (Part II). F. B. Coates, G. M. Davies, R. S. Illingworth, B. Jackson, K. I. Johnstone, G. J. Kearney, E. Lodge, L. Rabinovitch, J. T. Rhodes, H. R. Rollin, L. A. Westwood (Part III): K. I. Johnstone (second-class honours), F. B. Coates, G. M. Davies, R. S. Illingworth, B. Jackson, G. J. Kearney, E. Lodge, J. T. Rhodes, L. A. Westwood, W. Zemsky.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—A. J. Bain, H. Burt, J. M. Frew.

D.P.H.—J. Fielding, G. P. Holderness, J. Q. Mountain.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

VARIATION OF THE PARTNERSHIP AGREEMENT

The Partnership Act, 1890 (Section 19), lays down that the mutual rights and duties of partners, whether they are set out in an agreement or left to be defined by the Act, may be varied by the consent of all the partners.

This consent need not be given expressly, but may be inferred from a course of dealing. The partners may, in fact, be quite unaware that they have consented to a variation, but if they have behaved as though they had consented, then the variation is binding on them. The court inquires in each case what the actual *de facto* rights and duties were, not how they appeared on paper.

The most usual form of variation to come before the courts is a failure to take the accounts at the intervals specified in the articles. The written agreement often lays down that the accounts shall be taken and signed yearly or half-yearly, and that if a partner dies a final account shall be taken as at the date of his death. When the accounts have not been taken as they should have been the court tries to do justice to the representatives of the deceased.

For instance, in *Simmons v. Leonard* (1844) the articles provided that an account should be taken every year. A partner died, and in the dissolution proceedings it appeared that the partners had never settled an account at all. The court ordered a general account to be taken down to the death of the deceased partner.

In *Pettyt v. Janeson* (1819) the accounts were to be taken every Lady Day. For the first few years they were so taken, but the settlements became irregular, and when a partner died in February, 1813, the last account was found to have been settled on November 5th, 1811. The court held that, as both parties had considered this a binding settlement, the next one ought to have been taken on November 5th, 1812, and awarded the deceased partner's estate a share of the profits up to that date.

Articles sometimes also provide for a periodical valuation, and disputes have arisen because the partners have not exactly carried out the provisions of the clause which governs it.

In *Coventry v. Barclay* (1863) an annual account and valuation had to be "made and fully finished" between the partners, and was binding on them when it was finished and signed by all. A partner died two months after the valuation had been taken; he had not been present, nor had he signed or expressly approved it, but it had been taken in the usual way, and there was nothing to show that he would probably not have accepted it. His executors claimed that it was an arbitrary valuation and he had not accepted it; they asked for a new valuation. Lord Westbury, Lord Chancellor, said that whether the method of taking the valuation agreed with the articles or not, yet, as it had always been followed without deviation or objection, it was valid and binding on the partners. If it was not the method prescribed in the articles, then it was evidence of a new agreement between the partners. The deceased partner had accepted and agreed to this valuation; it had been fully finished and settled between the partners, and if the deceased had not signed it he should have done so. As equity assumes that a thing is done when it ought to have been done, the deceased had, for the purposes of equity, signed the valuation, and it was as binding on him and his representatives as if he had.

It is not necessary for the partners to persist for a long time in a course of conduct inconsistent with the articles; it is only necessary that they shall all have clearly intended to supersede them. The court will not, however, assume that the articles have been varied merely because a provision has been waived once or for a short time only. Sometimes the partners seem to have observed a set of conditions not laid down in the articles but stricter than the existing provisions—such as taking a daily account in the management of the Covent Garden Opera House.

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), the fourth on July 21st (p. 141), and the fifth on September 22nd (p. 574).

(*Const v. Harris*, 1824). In this event one partner cannot claim as a right that this variation should be continued; the decision is one for the whole firm. Needless to say, many disputes would be avoided if all partners (1) kept in mind the main provisions of their articles, and (2) regularized every variation by putting it in writing and signing it, or, better still, by getting their solicitor to draft an appropriate amendment to the articles.

RELATIONS OF PARTNERS TO OUTSIDE PERSONS

For the purpose of the business of the partnership every partner is an agent of the firm. Anything he does in the ordinary course of the firm's business binds the firm and the other partners. If, for instance, he orders a supply of drugs or medical appliances in the name of the firm, the firm must pay for them. The only exception is a double one: when he has in fact no authority to act for the firm in the particular matter in hand, and the person with whom he is dealing either knows that he has no authority or does not know or believe him to be a partner. Both conditions must be fulfilled. Whether he has authority or not, he still binds the firm if the person with whom he is dealing thinks he has. If he has no authority, or has acted outside the scope of his authority, the firm can, of course, claim compensation from him for the expense to which he has put them. The firm is not bound if he pledges its credit without authority for a purpose apparently not connected with its ordinary course of business—for example, if he placed in its name a large order for wine for the third party is supposed to assume that he has no authority to do so. The principle is that the firm is not bound if the third party knows or has reason to know that the partner has no authority. If, for instance, the partners have agreed that one of them shall pledge the firm's credit only under certain conditions, a person who has notice of this agreement cannot claim against the firm if he gives credit in violation of those conditions.

Every partner is liable, jointly with the other partners, for all debts and obligations which the firm incurs while he is a partner. In Scotland the law is stricter, for each partner is severally liable—that is to say, he is responsible for the whole of the debts of the partnership and not only for his own share. After his death his estate is severally liable in England as well as in Scotland; in England his own creditors have priority over partnership creditors, but in Scotland the partnership debts and his separate debts rank together.

FIRM'S LIABILITY FOR NEGLIGENCE OF PARTNER

In a medical partnership a partner does not often have occasion to pledge the credit of the firm, and its work is so definitely limited to professional services that the question of whether a partner is acting in the course of its business or not hardly ever arises. A fact which concerns medical partners far more closely is that the whole firm and every member severally is liable for any damage caused by the wrongful act or omission of any partner acting in the ordinary course of its business, or with its authority. A patient dissatisfied by the treatment of one partner can sue the whole firm, and if he succeeds each and every partner is liable for the damages and costs, and the property of any one can be taken in execution of the judgement. The partner against whom the negligence is proved must indemnify the firm, but he may not be in a position to do so. Moreover, even if the patient loses his case he may have no money to pay the firm's costs, which will then fall on all the partners, because the partner whose conduct is complained of has done no wrong and therefore cannot be called on to indemnify the firm. Even if the patient does pay the costs, he does not reimburse the firm for the whole expense it has suffered, for a litigant, successful as well as unsuccessful, usually has to pay his own solicitor's costs.

Hence the vital necessity for every member of a medical partnership—even more vital, if possible, than for a solitary practitioner—to belong to a defence society. If an action is brought against a partnership for the alleged negligence or misconduct of a partner who is not a member of a defence society, the societies to which the other

partners belong would in all probability refuse to assist them. It is not necessary that all the partners should belong to the same society, for the two largest bodies have a reciprocal arrangement under which they act as one, but membership of the same society by all the partners has many obvious advantages and offers a ready means of settling any dispute between the partners without expense to them.

In the same way, any admission or representation made by any partner concerning the partnership affairs, and in the ordinary course of its business, is evidence against the firm. For this reason, if the conduct of any partner is being called in question by someone outside the partnership, the other partners should exercise the strictest discretion in speaking of the matter. A chance word spoken by any of them, even to a person who is not apparently interested, may have the most awkward consequences for them all.

Innocent partners cannot be fined or imprisoned for the criminal conduct of one of their number, but if some person is injured by that conduct, and it is in the ordinary course of their business, he can bring a civil action against any or all of them.

The Services

COMMISSIONS IN THE R.A.M.C.

The War Office announces that applications are invited* from medical men for appointment to commissions in the Royal Army Medical Corps.

Candidates will be selected for commissions without competitive examination, and will be required to present themselves in London for interview and physical examination on or about October 25th, 1934. They must be registered under the Medical Acts, and normally must not be over the age of 28 years.

Successful candidates will in the first instance be given short service commissions for five years, at the end of which period they may either retire with a gratuity of £1,000 or apply for a permanent commission. Permanent commissions will be given to officers selected from among those who wish to make the Army their permanent career.

Full particulars of the conditions of service and emoluments, also forms of application, may be obtained on application, either by letter or in person, to the Assistant Director-General, Army Medical Services, the War Office, London, S.W.1.

DEATHS IN THE SERVICES

Major-General Percy Carr-White, C.B.E., Madras Medical Service (ret.), died at Sedghill, Wilts, on August 6th, aged 69. He was born on June 20th, 1865, the son of William Alfred White, Esq., merchant, of Sydenham, and was educated at St. Thomas's and at Edinburgh, where he graduated M.B., C.M. in 1889, subsequently taking the F.R.C.S.Ed. in 1903 and the D.T.M. at Liverpool in 1909. Entering the I.M.S. as surgeon on March 31st, 1890, he became colonel on June 7th, 1916, and major-general on December 8th, 1919, retiring on October 18th, 1921. He served in the third Burmese War in 1891-2, with the Irrawaddy column (medal with clasp); on the North-West Frontier of India, in the Tachi campaign of 1897-8 (medal with clasp); and again on the North-West Frontier and in Afghanistan in 1919, when he was mentioned in dispatches in the *London Gazette* of August 3rd, 1920, and received the C.B.E. He was appointed honorary physician to the King on October 31st, 1918.

Colonel Alan Edmondson Tate, C.S.I., C.M.G., late R.A.M.C., died at Bexhill on September 3rd, aged 75. He was born at Ripley, Surrey, on July 5th, 1859, the son of the Rev. C. R. Tate, rector of Trent, Dorset, was educated at Merchant Taylors', at Bishop's Stortford School, and at the Middlesex Hospital, and took the M.R.C.S., and L.S.A. in 1882. Entering the Army as surgeon on August 4th, 1883, he reached the rank of colonel on December 31st, 1912, and retired on December 26th, 1917. He served in the Burma War in 1886-9 (frontier medal with two clasps); in the Chital campaign of 1895, with the relief force (medal with clasp); and in the South African War in 1899-1901, when he took part in operations in the Transvaal, the Orange Free

State, and Cape Colony, including the relief of Kimberley, the actions of Paardeberg, Poplar Grove, Karee Siding, Zand River, Johannesburg, Pretoria, Diamond Hill, Wittebergen, and Colesberg, receiving the Queen's medal with six clasps. In the war of 1914-18 he served as an A.D.M.S., was mentioned in dispatches in the *London Gazette* of October 19th, 1916, and received the C.M.G. in 1916 and the C.S.I. on September 9th, 1919. He was staff surgeon to Lord Kitchener, Commander-in-Chief in India, in 1903-7, and honorary surgeon to the Viceroy in 1912-17. In 1889 he married Zaidee, daughter of Frank White, Esq. She survives him, with one son, Lieut. Commander H. R. Tate, R.N., and one daughter, Mrs. Charles Jennings of Avisford, Arundel.

Lieut.-Colonel James Farquharson MacLaren, Bengal Medical Service (ret.), died suddenly at Allahabad on August 5th, aged 79. He was born on October 22nd, 1854, the son of the late Dr. MacLaren of Blairgowrie, and was educated at Edinburgh, where he graduated M.B., C.M. in 1877. Entering the I.M.S. as surgeon on April 2nd, 1881, he became lieutenant-colonel after twenty years' service, and retired on June 24th, 1911. He served in the Sudan campaign of 1885, in the Red Sea column, was present at the actions of Hashin and Tamai, and received the Egyptian medal, with a clasp, and the Khedive's bronze star. The rest of his service was spent in civil employ in the North-West, now the United Provinces, where he was for many years civil surgeon of Allahabad. After his retirement he remained there as surgeon to an Indian rajah. Some years ago he acquired the estate of Dalnabreck, Kirkmichael, Blairgowrie.

Lieut.-Colonel Winthrop Benjamin Browning, C.I.E., Madras Medical Service (ret.), died at Exmouth on September 15th, aged 79. He was born on July 6th, 1855, the son of the late Benjamin Winthrop Browning of Baggotstown, County Limerick, was educated at the City of Dublin Hospital, and took the L.R.C.S.I. and L.R.C.P. in 1879. Entering the I.M.S. on March 31st, 1880, he became lieutenant-colonel after twenty years' service, and retired on May 17th, 1910. After a couple of years' military duty the rest of his service was spent in civil employ in the Madras Presidency, almost entirely in the Madras General Hospital and Medical College. There he held the posts successively of professor of medical jurisprudence, assistant physician, second surgeon, and finally first surgeon and professor of surgery, and latterly also principal of Madras Medical College. He served as surgeon to three Governors of Madras in succession—Lord Wenlock, Sir Arthur Lawley, and Lord Amphil. He received the C.I.E. on December 31st, 1898. After retirement he settled at Fermoy, County Cork. In 1887 he married Annie Georgina, daughter of Colonel Kenlis-Fergus Stevenson, and had three sons.

Lieut.-Colonel Samuel Esmond Prall, Bombay Medical Service (ret.), died at Hythe on September 15th, aged 72. He was born on April 19th, 1862, the son of Dr. Samuel Prall of West Malling, was educated at Guy's Hospital, and took the M.R.C.S. in 1885, the L.R.C.P.Lond. in 1886, and the M.B., with honours, and the B.S.Lond. in 1887. Entering the I.M.S. as surgeon on September 29th, 1888, he became lieutenant-colonel after twenty years' service, and retired on March 26th, 1921. He served in the war of 1914-18, and was mentioned in dispatches in the *London Gazette* of March 7th, 1918.

Lieut.-Colonel Evelyn Charles Hepper, Indian Medical Service (ret.), died at Beaumont, Guernsey, on September 16th, aged 57. He was born on December 10th, 1876, was educated at Bart's, and took the M.R.C.S., L.R.C.P.Lond. in 1900. Entering the I.M.S. as lieutenant on June 27th, 1901, he became lieutenant-colonel on December 27th, 1920, and retired on September 1st, 1931. He served in the Zaka Khel campaign on the North-West Frontier of India in 1908, receiving the frontier medal with a clasp. In 1913 he got civil employ in the United Provinces, but in the following year was recalled to military duty to serve in the war of 1914-18. After the war he rejoined the United Provinces, and served there until his retirement.

Dr. Arthur Batoum Zorab, late I.M.S., died at Southampton on September 1st, aged 54. He was born on April 18th, 1880, the son of the late Lieut.-Colonel J. M. Zorab, I.M.S., was educated at Guy's, and took the M.B., B.S.Lond. and the M.R.C.S., L.R.C.P.Lond. in 1906. After serving as chief clinical assistant in the ophthalmic department at Guy's, he entered the I.M.S. as lieutenant on July 27th, 1907, but resigned two years later, on September 26th, 1909, and settled at Southampton, where he practised as an ophthalmic surgeon. He was honorary surgeon to the Free Eye Hospital, Southampton, and honorary ophthalmic surgeon to the Royal Hants County Hospital at Winchester.

Medical News

Four lectures on the rheumatic diseases will be delivered by Dr. J. Alison Glover at Gresham College, Basinghall Street, E.C., on October 9th, 10th, 11th, and 12th at 6 p.m. Admission free.

Dame Janet Campbell has been invited by the Canadian Council on Child and Family Welfare, with the approval of the Dominion Government, to visit Canada during October and November in the interest of maternity and child welfare, and she sails for Quebec to-day, Saturday, October 6th.

A meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine will be held on Tuesday, October 9th, at 5 p.m., when Professor J. H. Burn will deliver his presidential address on "The Control of the Blood Pressure." On October 12th, at 8.30 p.m., Mr. Ransom Pickard will give his presidential address before the Section of Ophthalmology, on "The Causation of Herpes Ophthalmicus."

A meeting of the Paddington Medical Society will be held at the Great Western Royal Hotel, Paddington, W., on Tuesday, October 9th, at 9 p.m., when Professor F. Langmead will deliver an address on "The Significance of High Blood Pressure."

The Harben Lectures will be delivered in the Lecture Hall of the Royal Institute of Public Health, 23, Queen Square, W.C., at 4 p.m. on October 8th, 9th, and 10th by Dr. W. J. Tulloch, professor of bacteriology, University of St. Andrews, on "The Diagnosis of Small-pox and the Investigation of Vaccinia by Laboratory Methods." No tickets of admission are required.

The opening meeting of the Illuminating Engineering Society will be held at the Lighting Service Bureau, 2, Savoy Hill, Strand, W.C., at 6 p.m. on Tuesday, October 9th. After the presidential address by Mr. H. Hepworth Thompson, a report on progress in illuminating engineering, prepared by the Technical Committee, will be presented, and various exhibits shown.

Two special lectures on "The Operative Treatment of Facial Palsy" (illustrated by cinema films) will be delivered at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Wednesday and Thursday, October 10th and 11th, at 5 p.m., by Dr. Arthur Baldwin Duel, F.A.C.S., senior surgeon-director of the Manhattan Eye, Ear, and Throat Hospital, New York.

The fifth winter post-graduate session at the Hampstead General and North-West London Hospital, Haverstock Hill, N.W.3, will open on Wednesday, October 17th, at 3 p.m., with an address by Sir Henry Brackenbury on "Patient and Doctor." Lectures will be given on Wednesday from October 24th to December 12th, at 4 p.m.

The annual meeting of the Société Française d'Orthopédie will be held at the Paris Faculty of Medicine on October 12th, when the following questions will be discussed: the funnel-shaped thorax, introduced by Dr. Garnier of Paris, and treatment of spastic paralysis, introduced by Drs. Roudel of Marseilles and Delchet of Brussels.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., at 2.30 p.m. on October 9th and 16th. Courses of instruction include a week-end course on diseases of the heart and lungs at the Royal Chest Hospital, occupying the whole of October 13th and 14th; medicine and surgery, at the Metropolitan General Hospital, from October 8th to 20th, 10.30 a.m. to 6.30 p.m.; cardiology at the National Hospital for Diseases of the Heart, October 8th to 20th, occupying the whole of each day; ophthalmology at the Royal Westminster Ophthalmic Hospital, October 15th to November 3rd, every afternoon; gynaecology at the Chelsea Hospital for Women, October 22nd to November 3rd; neurology at the West End Hospital for Nervous Diseases, October 29th to November 3rd; and two week-end courses, one on clinical surgery at the Royal Albert Dock Hospital, October 20th and 21st, and the second on chest diseases

at the Hospital for Consumption, Brompton, October 27th and 28th. These courses are open only to members and associates of the Fellowship.

The People's League of Health has arranged the following lectures in connexion with the Borough of South-west's health week: October 8th, "The Laws of Health," Dr. Leslie J. Harris; October 9th, "Eyes," Mr. A. F. MacCallan; October 10th, "Does it matter what we Eat?" Professor V. H. Mottram; October 11th, "Teeth—How They Come and Why They Go," Mr. Francis V. Macquire; October 12th, "Preventable Disease in the Home," Sir Bruce Bruce-Porter; October 13th, "Every Man His Own Doctor," Dr. Harry Campbell. The meetings will be held at the lecture hall, Manor Place Baths, S.E.17, at 8 p.m.

University College Hospital Medical School has arranged a programme of post-graduate demonstrations for the benefit of old students on Thursday and Friday, October 11th and 12th, from 10 a.m. to 4 p.m. At 4.15 p.m. on October 12th the annual general meeting of the Old Students' Club will be held in the Medical School, under the chairmanship of the president, Surgeon Vice-Admiral Sir Arthur Gaskell. At 7.30 p.m. the same day the annual dinner (12s. 6d. exclusive of wines) will be held in the library of the Medical School. The annual dinner of the University College Hospital Medical Women's Association will be held at the Piccadilly Hotel on Friday, October 12th, at 7.45 p.m., preceded by the annual general meeting at 7.15.

The National Hospital, Queen Square, W.C., has arranged a post-graduate course from Monday, October 8th, to Friday, December 7th. The course will include out-patient clinics each week-day, except Saturday, at 2 p.m., lectures and clinical demonstrations each week-day, except Saturday, at 3.30 p.m.; demonstrations on the pathology of the nervous system, on Wednesdays and Thursdays at 12 noon, on the anatomy of the nervous system, on Mondays at 12 noon, and on methods of clinical examination, on Thursdays at 5 p.m. The fee for the course is £10 10s.; for those who hold perpetual tickets, and for clinical clerks, £8 8s.

At a sessional meeting of the Royal Sanitary Institute at Sunderland on Friday, October 12th, a discussion on "Vermin and Slum Clearance" will be opened by Dr. A. S. Hebblethwaite, medical officer of health for Sunderland; and a discussion on "Anaemias and Preventive Medicine" will be introduced by Dr. H. A. Cookson. Mr. W. T. Creswell, K.C., will preside over the meeting, which begins at 5 p.m., in the Town Hall.

The third congress of the Latin Medical Press will be held in Paris under the presidency of Professor G. Etienne of Nancy, from October 17th to the 21st, when the following papers, among others, will be read by French, Belgian, Spanish, Portuguese, and Rumanian representatives: the relations of the medical press with pharmaceutical advertisements; the scientific and moral responsibility of the Latin medical press; and the technique and presentation of a medical journal. Further information can be had from the general secretary, Dr. L. M. Pierra, L'Hérmitage, Luxeuil, Haute Saône, France.

The fortieth Italian Congress of Internal Medicine will be held at Rome under the presidency of Professor Cesare Frugoni from October 17th to 20th, when the following papers will be read: "Meteorism," by Professors N. Pende and M. Bufano; "Vaccine and Non-specific Treatment of Infectious Diseases," by Professors A. Ferrata and G. Boeri; "Bronchiectasis" (in conjunction with the Italian Society of Surgery), by Professors A. Omodei Zorini, R. Alessandri, F. Lassagna, and A. Vallebona; and "Pleurisy in the Army," by Major R. D'Alessandro. Further information can be obtained from the general secretary, Professor Arnaldo Pozzi, R. Clinica Medica, Rome.

A committee consisting of ophthalmologists and otolaryngologists has been formed at Marseilles to commemorate the first operation performed under local cocaine anaesthesia in October, 1884. The ceremony will take place on October 27th. Further information can be obtained from Dr. Roche, Marseilles.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

Catarrhal Jaundice following T.A.B. Inoculation

Dr. ARTHUR D. SPENCE (London, E.C.1) writes: It would be interesting to know whether others have had the experience described below. I have given many hundreds of anti-typhoid inoculations, but have not had catarrhal jaundice occur before, though in the course of typhoid fever in the East we sometimes saw varying degrees of jaundice. A young assistant in a merchant firm in Bangkok had the usual 0.5 c.cm. first T.A.B. inoculation preparatory to his return to the East, on Thursday, August 9th. On Saturday night he had a severe rigor and vomiting, and later a temperature of 102° F. Next day he developed a typical catarrhal jaundice, with occasional vomiting. He later became deeply jaundiced and the itching of the skin was very marked. The jaundice ran a usual course, but I did not care to give him his second dose, and he left for the East on August 23rd. The vaccine was prepared at the Lister Institute of Preventive Medicine.

Treatment of Disseminated Sclerosis

"M.D., D.P.H." writes from Essex: Campolon has, I understand, been used with some success in subacute degeneration of the cord in cases of pernicious anaemia. I should be pleased to hear if any of your readers has tried this preparation in disseminated sclerosis and with what result. If success can be attained in the former case, why not in the latter?

Nail-biting

"M. P." writes from Cornwall: A man who was a persistent nail-biter in his boyhood and for long spells in later years found the habit impossible to control had gall-stones removed when over 50 and now for ten years has had no tendency whatever to resume the practice. I suggest that in many if not in all cases there is a centre of irritation which should be sought and treated. As the gall-bladder would appear to be the likeliest site for the irritation it may one day be accepted that nail-biting is a symptom of gall-stones!

Income Tax

Purchase of Additional Practice

"G.P." purchased the goodwill of a practice from "X," a retiring practitioner, the consideration being the payment to "X" of half the fees received from his patients for the following two years. The inspector of taxes insists on treating "G.P." as having commenced a new practice as from the date of the amalgamation. Is this legally correct?

Yes. The practice must be regarded as a new one, and "G.P." is assessable on his (presumably) increased profits as from the date of amalgamation of the practices. He cannot exclude the cash received and handed on to "X" because that represents the capital amount he is

paying for the additional connexion. The hardship so far as "G.P." is concerned is that he is in effect forced into the position of having to pay tax on income (that is, the fees due for work done after the amalgamation) before it is received, or if received, has partially been expended in capital payment.

Tax on Interest Paid

"J. C. C." is liable for payment to an insurance company of interest as follows: gross amount, £32, less-income tax, £8—net amount payable, £24. He asks why he should pay income tax every year, since the loan was received once only.

* The payment of tax by "J. C. C." has nothing to do with the receipt of the loan, which was a "capital" transaction, but is merely the way in which the tax due from the company on the £32 reaches the Revenue. If there were no tax "J. C. C." would pay the company £32; as it is, he pays the company £24 and the Revenue £8—that is, £32 in all. In other words, he does not ultimately bear the £8 tax; he is merely the channel by which it reaches the proper quarter.

LETTERS, NOTES, ETC.

Diagnosis of Endocrine Dysfunction

"A. G." (Bathford) writes: I venture to suggest that an observation in connexion with abnormal functioning of the endocrine glands may be of more extended interest than has perhaps been realized. The following passage occurs in *The Tides of Life* (R. G. Hoskins): "There is some evidence that the pancreas of the developing foetus may in a measure function in the latter part of pregnancy to correct the insulin deficiency in the diabetic mother. In experimental animals suffering from pancreatic deficiency events may progress fairly satisfactorily until the birth of the offspring, after which death of the mother from acute insulin deficiency may promptly take place (Carlson). In conformity with the foregoing, Mazer and Goldstein have recently noted indisputable evidence of over-production of insulin in an infant of a diabetic mother for several days after its birth." (Italics mine.) The phenomenon of amelioration of symptoms during pregnancy is not confined to diabetes alone, and this suggestion that a normal foetus may be supplying a glandular deficiency in the mother seems an interesting explanation of what may be occurring in all these cases. If this were so, and since the infant shows signs of over-activity of the crucial gland for a few days after birth, the question arises whether, by observing the newborn infants of mothers suffering from various complaints, it might not be possible to ascertain which gland in the mother is lacking in efficiency. The disease in which such an observation would perhaps be of the greatest interest is the primary form of rheumatoid arthritis. Of this complaint Dr. W. S. C. Copeman writes: "Symptoms will often clear up during a pregnancy which occurs in the course of the disease, but return in most cases with redoubled vigour after parturition." (*The Treatment of Rheumatism in General Practice*). If the offspring of such mothers were found to show signs of some glandular over-activity, that might prove quite a useful pointer in the study of the arthritis enigma. In other conditions also, such as epilepsy and allergy, where remission of symptoms occurs during pregnancy, it might be possible by the above means to learn something either of the aetiology of the disease or of the constitutional weakness of the particular patient.

Graham Lusk

The name of Graham Lusk is familiar to our readers through his book *Elements of the Science of Nutrition*. Those desiring to learn something of his career and personality may be recommended to turn to a comprehensive article by Amos E. Light in the *Yale Journal of Biology and Medicine* May, 1934, vi, 487, which is illustrated by a striking photograph and contains a full bibliography. The son of a distinguished obstetrician, Lusk was born in Bridgeport, Connecticut, in 1866. Deafness led him to take up chemistry rather than medicine as a career, and he began by studying chemical engineering at Columbia School of Mines. At Munich he had the good fortune to work under Carl von Voit, whom he never failed to visit when subsequently travelling in Europe. In 1895 he became professor of physiology at Yale, where his department consisted of one room only, which he cleaned himself. He later occupied the chairs of physiology at Bellevue Hospital Medical

College and at Cornell University, and in 1912 became director of the Russell-Sage Institute of Pathology at New York. He retired just before his death, which occurred on July 18th, 1932, at the age of 66. His more important contributions to physiology include his researches on clinical calorimetry, specific dynamic action of proteins, phlorhizin glycosuria, and diabetes mellitus. He was the founder and first president of the Harvey Society. Throughout his career he advocated the migration of directors and instructors from one school to another to lower the possibility of either becoming too self-centred.

Blood Pressure Risks

"L.R.C.P." writes from Co. Durham: With reference to the correspondence in the *Journal* of September 15th, under the headings "Is High Blood Pressure a Risk?" and "Is the Taking of Blood Pressure a Risk?" the answer is, in my experience, "Yes" to the first query, and "No" to the second. I have very little doubt that the fatalities mentioned by Dr. Hunter are coincidences such as have occurred during serum administration. I have taken several thousand blood pressure readings, including two hundred of a patient who died from angina pectoris. I took readings from the same patient during two attacks. He died a few hours later in another attack. There were no ill effects from my observations extending over a period of twenty years. In the second tragic occurrence the blood pressure reading was 140/120, too low a systolic pressure for a patient with such a high diastolic reading, and in my opinion means a weakened or degenerated myocardium. Confirmation may be obtained from the character of the breathing and the rhythm of the pulse. If the breathing is audible with or without separation of the lips and teeth and the lower intercostal spaces are indrawn, coupled with a poor exercise tolerance, and if on auscultating over the cardiac area for at least two minutes a silence is detected during a complete cardiac cycle, or an alteration in the rhythm, where two normal beats are followed rapidly by five or six small beats—then I believe the myocardium to be extensively degenerated, and sudden death may follow.

Substitute for Oiled Silk

Dr. W. WASHBOURN, C.B.E. (Blackfriars, Gloucester), writes: A patient has recently called my attention to the virtues of a substance named "gelaphane," as a substitute for oiled silk for fomentations, etc. I have given it a good trial and find it more efficient, and far cheaper, costing about 1s. 8d. a square yard, as against 3s. for oiled silk.

* We have made inquiries, and learn that the substance Dr. Washbourn mentions is manufactured by Gelaphane, Ltd., Severn Road, Gloucester.

Playfair's Probe as Pipe-cleaner

Dr. DOUGLAS SEATON (Leeds) writes: I should like to congratulate Dr. D. V. Latham (September 29th, p. 618) on his ingenuity in using pipe-cleaners in place of a Playfair's probe. I have not had any occasion to use this instrument for its original purpose for some years, but have found it a very efficient pipe-cleaner.

Disclaimer

Dr. A. M. VALERIE BONHOTE (Tadworth) writes: I am not in any way responsible for the publication, in lay newspapers, of an extract from my letter which was published in the *British Medical Journal* of last week on page 618.

* We sympathize with Dr. Bonhote: but she is not the first (and will not, we fear, be the last) to suffer from unsought publicity of this kind.

Corrigendum

Our attention has been drawn to a mistake in the article "Numbers of the Medical Profession," published on September 1st (p. 389). In the sentence beginning "According to statistics published last year by the International Labour Office the country with the most medical practitioners is England, with 1 doctor to every 822 inhabitants" the figure should have been 1,490. The reference is the *Quarterly Bulletin of the Health Organization of the League of Nations*, vol. ii, No. 4, December, 1933.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 51, 52, 53, 56, and 57 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 54 and 55. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 192.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, OCTOBER 13th, 1934

THE CLINICAL IMPORTANCE OF ACHLORHYDRIA*

BY

ARTHUR F. HURST, M.A., M.D. OXON., F.R.C.P.

SENIOR PHYSICIAN TO GUY'S HOSPITAL

So much has been written on achlorhydia during the last twelve years that it might be thought that very little more could be said about it. But I think there is still room to discuss it from a somewhat wider point of view than has been possible until recently, by considering how it arises and how it comes to be associated with such a remarkable variety of diseases, and, most important of all, how the latter can be prevented by preventing the development of achlorhydia, or, when this fails, by curing the underlying condition instead of merely treating it symptomatically by the substitution of artificial for natural gastric juice. In order to do this I shall have to begin by referring to some fundamental physiological facts concerning the functions of gastric juice.

Functions of the Gastric Juice

1. *Peptic Digestion.*—The glands of the body of the stomach contain two kinds of cells: chief cells, which secrete pepsin, and parietal or oxyntic cells, which secrete hydrochloric acid. The most obvious function of the hydrochloric acid is to activate the pepsin so that it can digest proteins. This is, however, not an essential function, as tryptic activity in the small intestines is so efficient that digestion of meat is unimpaired in complete achlorhydia and after gastrectomy.

2. *Antiseptic Action.*—The antiseptic action of the acid is more important. It destroys streptococci and other organisms which are swallowed with saliva from the mouth and with mucus from the nose and pharynx. It also helps to protect against infection with bacteria present in food and drink. There is a good deal of evidence to show that bacillary and amoebic dysentery occur much more commonly in people with achlorhydia or hypochlorhydia than in those with a normal secretion of acid (Camps, 1933), and the same probably holds good for typhoid and other enteric infections and for cholera. I am confident that the Services would save a great deal of invaliding if they took the precaution of giving test-meals to all men before sending them to the Tropics in order to eliminate those with achlorhydia.

Knott (1927) has shown that the increased alkalinity of the contents of the small intestine which results from achlorhydia favours its invasion with *B. coli* from the colon; this organism is consequently found in large numbers in the duodenum, which is normally quite sterile. The spread of *B. coli* occurs with extraordinary rapidity. The stomach and duodenum are infected within a few hours of the perforation of a gastric or duodenal ulcer and the consequent inhibition of the secretion and movements of the stomach (Löhr, 1924). This explains why the peritoneum is sterile if an operation is performed within six hours of perforation but after that becomes progressively more heavily infected.

Infection of the small intestine with streptococci from above and with *B. coli* from below, combined with the mechanical irritation of the mucous membrane by food which is insufficiently softened and broken up owing to the deficient quantity

and solvent activity of the gastric juice, is very apt to lead to chronic enteritis. Moreover, when the gastritis which caused the achlorhydia is a result of the action of some swallowed irritant, the small intestine is liable to be damaged at the same time as the stomach. The functions of the small intestine are difficult to investigate and consequently very little is known about their derangements, but we are gradually accumulating evidence that many symptoms ascribed to the stomach and colon are really due to disorders of the small intestine. Thus chronic diarrhoea is frequently associated with achlorhydia; though these cases, which are sometimes wrongly diagnosed as colitis, are now generally regarded as gastrogenous in origin because of the rapid disappearance of the diarrhoea with acid, true enteritis is often present as well.

Cholecystitis is frequently associated with achlorhydia, and is, I believe, generally due to an ascending *B. coli* infection from the duodenum (Hurst, 1932). Even when free acid is present in the stomach the symptoms often date from an attack of acute gastritis, in which achlorhydia may occur temporarily, as Beaumont (1833) demonstrated in his observations on the effect of a drinking bout on Alexis St. Martin, or from pregnancy, which is also often associated with temporary achlorhydia. On restoration of normal gastric secretion the infection dies out from the duodenum, leaving, however, the seeds for the development of inflammation and stone formation in the gall-bladder. The nausea which is sometimes associated with achlorhydia is probably often due to the accompanying cholecystitis.

3. *Haemopoiesis.* (a) *Absorption of Iron.*—The diet taken by most people contains amply sufficient iron to maintain the normal percentage of haemoglobin in the blood. When, however, the diet is deficient or excessive quantities of blood are lost in menstruation or from other sources, a microcytic anaemia results if an insufficient proportion of the iron in the food is absorbed. This may occur in achlorhydia, but it is uncertain whether it is due to there being no hydrochloric acid to convert the organic iron in the food to a form suitable for absorption, or to a failure of absorption by the small intestine, which is so frequently in an unhealthy condition when achlorhydia is present. The latter is probably the true cause, as the simple administration of hydrochloric acid has no effect on the anaemia in such cases, though when large doses of inorganic iron are given the intestines are still capable of absorbing a sufficient proportion for rapid recovery to take place. (b) *Production of Haemopoietin.*—Castle has proved that the gastric juice contains a substance, the "intrinsic factor," which acts on something present in protein food, the "extrinsic factor," to produce the normal stimulant for the formation of red corpuscles by the bone marrow, its absence leading to Addisonian (pernicious) anaemia. Wilkinson's (1933) investigations indicate that the intrinsic factor, which he calls "haemopoietin," is an enzyme. According to Meulengracht (1934) it is produced by the glands in the pyloric end of the stomach and probably the fundus, which contain none of the chief and parietal cells of the glands of the body of the stomach, which secrete respectively pepsin and hydrochloric acid.

4. *Production of Neuropoietin.*—The gastric juice contains an enzyme which is produced by the same glands and acts

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

in the same way as haemopoietin to form a substance which is essential for the normal nutrition of the central nervous system. This enzyme, which may be called "neuropoietin," is not identical with haemopoietin, as either may be absent from the gastric juice whilst the other is present. Its absence leads to degeneration of the posterior and lateral columns of the spinal cord. Though the resulting disease is generally associated sooner or later with Addison's anaemia, this is not invariably the case, and degeneration of the cord was found in only 85 per cent. of fatal cases of Addison's anaemia in the days before the introduction of treatment by liver. Salus and Reimann found haemopoietin in the gastric juice of five patients with subacute combined degeneration of the cord and achlorhydria whose blood picture was normal, though it was absent in seven other patients who had Addison's anaemia in addition to the spinal degeneration.

Pathogenesis of Achlorhydria

Out of every hundred normal people about ten secrete more and ten secrete less hydrochloric acid than the remaining eighty (Bennett and Ryle, 1920). The hyperchlorhydria and hypochlorhydria are expressions of what I have called respectively the hypersthenic and hyposthenic gastric constitutions, and both are often familial. They are compatible with perfect general health and good digestion, but whereas the 80 per cent. of people with the average type of stomach are likely to pass through life without developing any serious gastric disorder, most of those with hyperchlorhydria suffer sooner or later from gastric or duodenal ulcer, and most of those with hypochlorhydria develop achlorhydria with its many associated troubles. In both cases this is generally the result of the chronic gastritis which follows prolonged mechanical or chemical irritation of the gastric mucous membrane. Mechanical irritation may be caused by insufficient mastication when food is bolted or dentures are deficient, and by the consumption of excess of coarse vegetable material, including the roughage which is so widely and unwisely recommended for constipation.

The chief chemical irritants are alcohol, especially when taken undiluted on an empty stomach or mixed with other irritants in the form of cocktails; strong tea and coffee; excess of curry, pickles, pepper, and mustard; drugs such as bromide, iodide, mercury, digitalis, quinine, and salicylates, which are taken continuously for long periods; and the poisons which are swallowed when too many cigarettes are smoked. Chronic gastritis is also a common sequel of the acute gastritis caused by food poisoning and by the excretion of toxins by the gastric mucous membrane in acute infections such as gastric influenza, scarlet fever, and septicaemia. These exciting causes are so universal that very few of those predisposed by the hypersthenic or hyposthenic gastric constitution escape. Consequently 10 per cent. of people dying after the age of 40 are found to have an active gastric or duodenal ulcer or the scar of a healed ulcer (Stewart, 1929), and at least 10 per cent. of people over 40 have achlorhydria (Hartfall, 1932).

It is still uncertain whether achlorhydria is ever congenital and due to an inborn error of secretion. In their investigations on a hundred healthy students Bennett and Ryle found that four of the ten with deficient gastric secretion had complete achlorhydria. Combining their statistics with those of Baird, Campbell, and Hern (1924), Wright (1924), and Apperly and Semmins (1928), it is found that 3.4 per cent. of 497 healthy students and children had achlorhydria. But the achlorhydria may have been acquired as a result of acute gastro-enteritis or some general infection in infancy or early childhood. Achlorhydria is often familial; the associated abnormality of the gastric mucous membrane rather than any constitutional weakness of the bone marrow or spinal cord is the

cause of the frequent occurrence of Addison's anaemia and subacute combined degeneration of the spinal cord in more than one member of a family. Records have been published of about 140 families in which two or more members in one to four generations were affected with Addison's anaemia with or without subacute combined degeneration of the cord, and fifty-nine families in which one of these diseases occurred in one or more members of a family and achlorhydria in others, some of whom were young children (Hurst, 1927, Conner, 1930, Wilkinson and Brockbank, 1931). Ellis and Frank have both observed twins suffering from Addison's anaemia. All these facts point strongly to the achylia being constitutional. It is possible, however, that the constitutional condition was an extreme degree of hypochlorhydria, which would be likely to result in achlorhydria at an early age and in Addison's anaemia or combined degeneration of the cord in later life in several members of a family. That achlorhydria may be a sequel of familial hypochlorhydria was shown by two sisters under my care with achlorhydria; treatment of the gastritis led to restoration of the secretion of acid in one but not in the other. Moreover, Wilkinson and others have found that hypochlorhydria as well as achlorhydria is frequently present in other members of the family of patients with Addison's anaemia.

The strongest evidence in favour of the existence of a true constitutional achylia is the occasional discovery of normal, or almost normal, gastric mucous membrane in patients with Addison's anaemia. Passey (1922) found normal oxyntic cells and no evidence of inflammation in a fragment of gastric mucous membrane removed during an operation for appendicitis in a patient of mine with Addison's anaemia and achlorhydria.

Effect of Gastritis on the Gastric Juice

The gastric mucous membrane attempts to protect itself against mechanical and chemical irritants by the secretion of mucus. This mucus is probably produced by the tall columnar cells which line the whole surface of the stomach; it is independent of the dissolved mucus which is always present in normal gastric juice and is presumably secreted by some of the cells of the gastric glands. It is such a weak alkali that its buffer action is hardly appreciable, but it contains sufficient sodium bicarbonate to neutralize some of the acid of the gastric juice (Bonis, 1930). At the same time some of the tenacious mucus adheres to the surface of the mucous membrane and blocks the mouths of the secreting tubules, thus reducing the quantity of gastric juice which can gain access to the lumen of the stomach. The inflammation of the gastric mucous membrane depresses the functional activity of its glands. The oxyntic cells are the most delicate, so that the hydrochloric acid is the first constituent to be seriously affected. If the healthy stomach produced a gastric juice of average or more than average acidity, the reduction of acidity brought about in these three ways is of no importance. If, however, the healthy stomach secretes a gastric juice of less than average acidity, as occurs in individuals with the hyposthenic gastric constitution, achlorhydria results.

In about 60 per cent. of cases the excess of mucus is sufficient by itself to account for the achlorhydria, as on giving a second test-meal after washing the stomach with plain water so as to dislodge the mucus, free acid is found in some of the fractions. In an additional 20 per cent. of cases removal of the exciting causes of the gastritis and treatment of the inflamed mucous membrane by lavage are followed by restoration of normal secretory activity of the stomach.

In rare cases the initial inflammation is so intense that some or all of the oxyntic cells are at once destroyed.

In severe chronic gastritis with achlorhydria the mucous membrane is invaded by streptococci swallowed from the mouth, and progressive atrophy of the glands takes place. Restoration of secretion is then impossible, and the injection of histamine produces no response, even if all active inflammation is overcome by treatment, the condition being, in fact, a true achylia gastrica and not merely achlorhydria. In true achylia most of the cells secreting pepsin are also destroyed.

The production of haemopoietin and neuropoietin by the mucous membrane of the pyloric end and fundus of the stomach is very rarely diminished sufficiently to give rise to Addison's anaemia and subacute combined degeneration of the spinal cord, except in the severe cases of gastritis in which true achylia occurs. In exceptional cases of Addison's anaemia the damage to the mucous membrane is not irreparable. I have had three cases in which the secretion of hydrochloric acid returned as a result of treatment of the gastritis; in one of these, recorded by Shaw in 1926, the patient is still after eleven years completely well with normal gastric juice and normal blood, though he has never taken stomach extract or liver. In the other two cases the restoration of gastric acidity was not accompanied by any return of haemopoietin production, and the patients still require liver. Similar cases of restoration of acidity have since been recorded by McPeak and Neighbors, Wilkinson, Heeres, Seyderhelm and Opitz, and Davidson. In Davidson's case haemopoietin is now also secreted, so his patient can be classed with my first case as an example of complete recovery. In those cases in which the secretion of hydrochloric acid, but not of haemopoietin, returns, the glands in the pyloric end and fundus of the stomach, but not those of the body, are presumably degenerated, just as they must be in the 1 per cent. of patients with Addison's anaemia in whom free acid is present throughout. Hydrochloric acid continues to be secreted in subacute combined degeneration of the cord, though no neuropoietin is produced, in about the same proportion of cases.

Post-Operative Achlorhydria

1. *Gastro-jejunostomy*.—Partial neutralization by the alkaline duodenal secretions which enter the stomach through the stoma after gastro-jejunostomy, together with the increased rapidity of evacuating, reduces the quantity of free acid present. As, however, the operation is generally performed for duodenal ulcer, in which hyperchlorhydria is almost always present, it is rare for the fall to be sufficient to lead to achlorhydria. When achlorhydria is present after gastro-jejunostomy, the operation has generally been needlessly performed on a patient who already had achlorhydria, or on one with a chronic gastric ulcer in whom the original hyperchlorhydria had been replaced by hypochlorhydria as a result of chronic gastritis. In rare instances, however, the hyperchlorhydria of a duodenal ulcer may be followed by achlorhydria after gastro-jejunostomy. This appears to be due to exceptional severity of the chronic gastritis which always occurs when excess of bile enters the stomach, but which fortunately does not often give rise to symptoms.

Though the achlorhydria makes it impossible for an anastomotic ulcer to develop, it is not an unmixed blessing. Chronic enteritis with diarrhoea and chronic cholecystitis are occasional sequels. Simple achlorhydric anaemia may develop under the same conditions as those which lead to its occurrence in ordinary achlorhydria. I have seen one case of the kind in a man (Cosin and Hurst, 1930) and one in a woman, and one male and fifteen female cases have been recorded by Witts, Davies, and Meulen-

gracht, the haemoglobin varying between 24 and 70 per cent. and the interval after the operation between four and twenty-five years.

The gastritis following the operation may be of such severity that the gastric juice is not merely neutralized, but is no longer secreted, and the achylia may then be associated with absence of haemopoietin or neuropoietin. I know of nine cases in which these diseases followed gastro-jejunostomy; in the majority nothing was known about the gastric acidity before the operation, but one patient of mine had a duodenal ulcer with hyperchlorhydria and developed achylia with Addison's anaemia and subacute combined degeneration of the cord eighteen months after gastro-jejunostomy (Glanvill and Hurst, 1930), and Salus (1932) has recorded two fatal cases of subacute combined degeneration of the cord without anaemia which appeared fifteen years after gastro-jejunostomy, test-meals having shown that free acid was present before but absent after the operations.

2. *Complete and Partial Gastrectomy*.—One would expect the complete achylia which follows removal of the entire stomach to be followed before long by Addison's anaemia and subacute combined degeneration of the cord, owing to the loss of the glands which produce haemopoietin and neuropoietin. This occurred in cases described by Dennig, Hochrein, Poole and Foster, Ungley, and possibly in a patient of Moynihan's. On the other hand, Mr. H. B. Butler of Guildford tells me that a patient on whom he performed complete gastrectomy in 1926 has shown no signs of anaemia or nervous disorder since, although he has had neither stomach extract nor liver, and Walters (1933) described a similar case two years after operation.

Partial gastrectomy is frequently followed by simple achlorhydric anaemia. As the fundus probably secretes haemopoietin and neuropoietin, Addison's anaemia and subacute combined degeneration of the cord develop only in the exceptional cases in which severe atrophic chronic gastritis involves the remaining portion of the stomach. In 1931 I collected five cases of this kind, and since then at least seven others have been recorded. We always give a test-meal after operations on the stomach. If achlorhydria is present there is less need for prolonged care in diet than if hyperchlorhydria persists, as an anastomotic ulcer cannot develop, but in such cases we advise the patients to take 30 grains of iron and ammonium citrate three times a day for one week in every four, and some form of liver at least once a week for the rest of their lives, as a safeguard against the development of simple and Addisonian anaemia.

Achlorhydria and Carcinoma of the Stomach

Achlorhydria is present in about 65 per cent. of patients with carcinoma of the stomach. It was formerly believed that the achlorhydria was a result of the carcinoma, but in my Schorstein Lecture of 1929 I brought forward evidence to show that the achlorhydria is really caused by chronic gastritis which is present before the growth develops, the growth being a result of malignant degeneration of the chronically inflamed mucous membrane. All the evidence I have been able to collect since then confirms this theory. I know of no case in which free acid was found when a growth was first recognized and disappeared at a later date. The hyperchlorhydria remained unaltered in three patients with chronic ulcers which subsequently underwent malignant degeneration. In another case of ulcer-cancer, in which operation was refused, the acidity actually rose whilst the carcinoma was growing, presumably owing to the favourable effect on the associated gastritis of the diet and lavage which

kept the patient comparatively free from pain. A similar rise was observed by Pollard and Bloomfield (1931) in two cases of carcinoma after an interval of four and six months respectively. On the other hand, I have had four patients in whom achlorhydria was known to be present before the carcinoma developed, and I have found records of at least nineteen similar cases.

As carcinoma follows chronic achlorhydric gastritis, which may also cause simple anaemia, Addison's anaemia, and subacute combined degeneration of the cord, it is natural that these conditions sometimes occur with or precede the development of a growth. Thus carcinoma of the stomach developed in a patient of mine who had recovered from severe simple achlorhydric anaemia as a result of treatment with iron. The occasional association of carcinoma of the stomach with Addison's anaemia and subacute combined degeneration of the cord has long been recognized; I have myself seen five such cases, and at least twenty-two others have been recorded (Wilkinson). Now that most patients with Addison's anaemia can be kept free from recurrence indefinitely with stomach extract or liver, an increasing number of them will develop carcinoma of the stomach if my theory is correct. I have seen two such cases, in one of which carcinoma developed nine years after the onset and four years after the symptomatic cure of Addison's anaemia as a result of treatment with liver (Plummer, 1931). Dyke and Harvey (1933) found that three out of fifty-two patients with Addison's anaemia under treatment died in a period of five years from carcinoma of the stomach, and from inquiries I have made among physicians who have had many cases of Addison's anaemia under their care I find that a good many cases of this kind have now been observed.

The association of cancer and Addison's anaemia with achlorhydria was strikingly demonstrated in the history of a family described by Borovanská-Felklová, in which a man died of carcinoma of the stomach, his eldest son had Addison's anaemia and subsequently developed carcinoma of the stomach, two other sons had Addison's anaemia, and the fourth had achlorhydria alone.

In almost every undoubted case of ulcer-cancer in which a test-meal has been given free acid was present in spite of the fact that the history was often very long, whereas when the evidence pointed against the growth being secondary to a simple ulcer, achlorhydria was generally present, even if the test-meal was given at a very early stage of the disease (Orator, 1925, Stewart, 1931). Free hydrochloric acid was found in all but one of eleven cases of carcinoma of the stomach with more than eighteen months' history, whereas seventeen out of nineteen with a history of less than six months had achlorhydria; these statistics of my own (1931) are confirmed by those of Pantan and Tidy (1910), Orator, and Stewart. The chance of long survival after a successful gastrectomy is greater in patients with achlorhydria than in those with free acid (Hartman, 1921), although the reverse would be the case if achlorhydria was the result of the presence of a growth in a stomach which had hitherto produced free acid.

Cramer (1934) has shown that the total incidence of cancer is the same in all nations, both sexes, and in all classes, although there are wide differences in the relative frequency in which different organs are involved. This indicates that a constitutional tendency for cancer to develop exists in a certain proportion of human beings, and that the organ involved must depend upon local conditions. I have long believed that cancer never develops in a healthy stomach. In about 25 per cent. of cases malignant degeneration occurs in a simple ulcer and in the remainder it occurs in chronically inflamed mucous membrane, the former being always associated with the presence of free hydrochloric acid and the

latter generally with achlorhydria, though the free acid and the achlorhydria have, *per se*, nothing to do with it. It is the association of the constitutional tendency to cancer with one form of the hypersthenic gastric constitution on the one hand and with the hyposthenic gastric constitution on the other which results in cancer of the stomach. At present we have no knowledge of how the cancer constitution can be controlled, but it should be possible to prevent the development of cancer of the stomach by preventing chronic gastric ulcer and chronic gastritis, or, when this fails, recognizing and overcoming them at as early a stage as possible. Prophylaxis consists in preventing the various exciting causes of ulcer and gastritis which have already been described, and which, trivial as they may appear to be, are none the less of supreme importance.

Treatment

Until recently it was assumed that the discovery of achlorhydria was an indication for treatment with hydrochloric acid. It is true that many of the associated symptoms can be overcome by this means, but the underlying gastritis remains unaltered and may become progressively worse. It may finally affect the production of haemopoietin and neuropoietin, and the chronically inflamed mucous membrane may undergo malignant degeneration. It is therefore clear that the gastritis itself should always be treated. This has resulted in the return of secretion of acid in no less than 82 per cent. of our patients (Hartfall, 1932), who thus have the advantage of secreting their own gastric juice instead of having to buy it from their chemist, and the treatment may also prevent the development of Addison's anaemia, subacute combined degeneration of the cord, and carcinoma of the stomach.

Pyorrhoea must be completely overcome by conservative measures when possible, but otherwise by extraction; infected tonsils must be enucleated, and sinus infection must receive appropriate treatment. It is a good plan to give the patient nothing but milk or milky feeds for the first few days of treatment. In the severe cases in which blood is present in some of the fractions of a test-meal, or, as occurs more frequently, occult blood is found only in the stools, the strict diet should be continued till the blood has disappeared. As a rule, two or three weeks suffice, but in exceptional cases of hypertrophic or polypoid gastritis, in which the danger of malignant degeneration is probably considerable, a longer period may be required. The patient is subsequently given an un-irritating diet for six months, or, if the achlorhydria persists, for the rest of his life. He should be teetotal at first and later should confine his drinks to lunch and dinner or immediately after. He should never indulge in spirits or cocktails on an empty stomach. Smoking should be prohibited during the period of strict treatment; after that it may be allowed in moderation, preferably after meals, and the swallowing of irritating juice should be prevented by the use of clean pipes and of cigarettes with a wool plug in the mouthpiece.

The stomach should be washed out every morning with dilute hydrogen peroxide (1 drachm to the pint) until the washings are clear. The treatment should be continued until no mucus is brought away. It is then given on alternate days, later twice a week, and finally once a week for two or three months. In severe haemorrhagic cases 1/2 to 1 part per thousand silver nitrate solution should be used instead of hydrogen peroxide in the early stages. When the washings no longer contain mucus a second test-meal must be given, as it is only necessary to prescribe hydrochloric acid for the 20 per cent. of patients in whom achlorhydria is found to be still present.

From 1 to 2 drachms of the dilute acid (*British Pharmacopoeia*) are given in 5 to 10 ounces of water, to which the juice and pulp of an orange have been added. As in these residual cases the secretion of pepsin is generally reduced, a saltspoonful should be added to the mixture. The first dose should be taken fasting before breakfast, when its antiseptic action is not impaired by partial neutralization with alkaline food. The second is given as a beverage with lunch, and the third with dinner. Patients rapidly get accustomed to it, and should rarely have any difficulty in taking it regularly for the rest of their lives.

Conclusion

Thirty years ago Professor Knud Faber of Copenhagen came to the conclusion that achlorhydria is always secondary to gastritis, and he has maintained it ever since. When shortly after the war I first became interested in the subject I was so impressed with the constitutional factor that I was inclined to doubt whether gastritis was of any importance at all. I now realize that gastritis and constitutional factors are of equal importance. Without gastritis there is no achlorhydria, but gastritis does not cause achlorhydria unless the patient is predisposed by having the hyposthenic gastric constitution. Gastritis in the presence of the hypersthenic gastric constitution may lead to duodenal ulcer and gastric ulcer, and a gastric ulcer may become malignant, but achlorhydria does not develop. It is the conjunction of the apparently trivial causes of gastritis with the hyposthenic gastric constitution which leads to achlorhydria, and the conjunction of these with the constitutional predisposition to cancer which leads to carcinoma of the stomach.

I expect that this is the last time there will be a discussion on achlorhydria, for the problem has shifted, and we must in future discuss gastritis, its causation, early diagnosis, treatment, and prophylaxis, just as we discuss nephritis rather than albuminuria. It is gastritis which causes achlorhydria, and gastritis, not achlorhydria, which causes Addison's anaemia and subacute combined degeneration of the cord and predisposes to carcinoma of the stomach. The prophylaxis of gastritis is the prophylaxis of these diseases. We may therefore look forward to the time when the prevention of gastritis, and, when prevention fails, its early recognition and adequate treatment, will lead to the disappearance of cancer of the stomach, which every day of the year claims over forty victims in Great Britain.

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ACUTE AND CHRONIC SPRAINS*

BY

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I think the Section is wise to have selected for discussion "Acute and Chronic Sprains," so common in occurrence, but so little discussed, that it is well for us to review our ideas and be sure that they are based on sound principles. These conditions and their treatment did not attract us in our student days; they were not big enough. Who ever heard of an out-patient dresser, or even a house-surgeon, who was really interested in a sprained ankle? And yet when the doctor starts in practice it is the minor injury, far more than major surgery, which forms the bulk of the surgical side of his practice. His reputation as a good doctor will be made not by his knowledge and management of cerebral tumours, but by his handling of the sprained wrist and the Colles fracture. I would focus your attention on what passes as minor surgery, and would remind you that it is only "minor" within the shelter of the hospital walls, and assumes very different proportions when we are faced with the same problem in after-life.

We will consider the acute sprain and its management, and then pass on to the consideration of those sprains which fail to clear up and become chronic. But, before entering into a discussion on the diagnosis and treatment, certain points in the anatomy and physiology of joints must be recalled in order to be sure that our treatment is based on a clear appreciation of the underlying principles.

Physiology of Joint Movements

The essential factor to recognize is the importance of the muscles. Many complex structures go to form a joint—bones, cartilage, ligaments, and so on—but for any real understanding of the pathology of joints the role of the muscles must be emphasized.

Muscle is the first line of defence of a joint against injury, and protects it all the time against the repeated though small injuries which are met with in everyday life. If a false step is taken in walking and the balance momentarily lost, it is muscle action which prevents a strain or sprain of the ankle- or knee-joint if we are to avoid injury. If the force is too great, or is applied for too long a time, the muscle gives way; it can no longer protect the joint, and the force then falls on the second line of defence—namely, the ligaments. Here once again consequences depend on the degree of force. If the latter is slight, the ligament may withstand strain, and no ill effect will follow. If it is moderate, some fibres of the ligament will tear, generally from one or other attachment, and a sprained joint results. If the force be severe, a ligament may tear in its entirety, perhaps taking with it a small flake of bone from the point of its insertion or tearing away from its periosteal attachment, and a sprained joint results. Finally, if the force be very severe or prolonged, first the muscle, then the ligament, and finally the bone itself yields, resulting in a fracture.

This conception must be remembered, and we must guard against thinking of a fracture as a broken bone, or of a sprain as a torn ligament; we must not forget the all-important fact that it is on muscle that the first strain falls. Indeed, the fracture is often the least important part of the injury—that is, when considered from the point of view of solution of continuity in the bone. For example, a sprained back with fracture of the transverse

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process of a vertebra is, academically speaking, a fracture, but it is the muscle injury, the tearing of muscle attachment, the haematoma, and the effect on soft parts which should take precedence in determining the appropriate treatment.

Partial rupture of a ligament, the tearing of a few fibres, is far more common than a complete rupture. The determination of the degree of injury is essential to a rational treatment of that injury. A complete tearing away of the attachment of the internal lateral ligament of the knee—in my experience a rare event—will necessitate at least prolonged fixation and protection, or even operative repair. The far more common tearing of a few fibres at the femoral attachment of this ligament is ill suited to such prolonged fixation, and recovers more quickly if appropriate means are taken to aid and encourage early functional use of the joint.

Diagnosis

The diagnosis of the acute sprain is self-evident, and in practice it is only necessary to exclude fracture. Careful case-taking or history is of importance, and the clinical examination must be thorough. The ultimate diagnosis of fracture will be decided by x-ray examination, but the clinician should be able to form a fair idea whether the sprain is uncomplicated or whether a fracture without displacement coexists. The site of maximum tenderness on pressure will generally give the clue. Tenderness over a ligamentous attachment is strong presumptive evidence of sprain; localized tenderness over the bone, at some other point, suggests fracture.

It cannot be emphasized too strongly or repeated too often that x-ray examination is an essential part of the clinical investigation of every patient in whom the symptoms complained of follow injury. Failure to observe this rule may lead the practitioner into all kinds of trouble. It will not help him to say that the fracture found at some later examination is trivial, and that its earlier discovery would not have altered his treatment. He must foresee in every injury the possibility of a medico-legal action, and he must safeguard himself as well as his patient. The case in which an injury to the back has resulted in a crush fracture of the spine is within the experience of most of us. How often does this injury pass unrecognized, with what disastrous results, and yet how simple is the x-ray diagnosis. The split fracture of the fibula without displacement and the fracture of the carpal scaphoid are common examples of bone injury frequently undiagnosed because of the failure to have an x-ray examination.

A further word of warning is needed. An x-ray plate in itself will not suffice. The x-ray examination must be thorough. The radiographs must be taken in two planes, or, if need be, stereoscopically. In certain situations a radiograph of the equivalent joint on the uninjured side should be taken for comparison; this is useful in young patients in whom the epiphyses are still unjoined—for example, the child's elbow. And the x-ray plates must be interpreted by someone accustomed and experienced in such interpretation. He may be a radiologist or a surgeon; he must know what he is looking for, so that he reads neither too little nor too much in the picture.

Treatment of Acute Sprains

The line of treatment on which most of us were brought up in our hospital days leaves much to be desired and is rightly criticized. Hot lead lotion, evaporating lotion, a bandage, and rest sufficed for the bulk of patients in our casualty departments, and formed the recognized treatment of the textbooks. If we excluded a fracture by x-ray examination, we were content to let these patients work out their own salvation on these or similar lines.

The more general introduction of massage and physical treatment in our hospitals improved matters, but unfortunately these departments do not seem to attract the average medical student, who may well pass through his whole career without any very clear idea of what they accomplish, because he does not take the trouble to attend. Those of us who are called upon to lecture or to demonstrate to post-graduates must be struck by the interest and the eagerness to learn the modern treatment of these simple injuries which is shown by the practising doctor.

Now what should be the treatment of an acute sprain? As an example, let us imagine an acute inversion sprain of the ankle seen an hour or two after the injury. The region of the ankle is swollen and painful, and there is tenderness on pressure in front and to the outer side of the joint. The anterior fasciculus of the external lateral ligament is partly torn from its attachment. The principles of treatment can be described under three headings: (1) pressure to limit the swelling; (2) protection to limit and prevent further damage; and (3) encouragement of function to promote recovery.

PRESSURE

Pressure can be applied by firm bandaging over layers of cotton-wool, and in the example chosen the bandage should include the heel. The more usually applied figure-of-eight bandage omitting the heel is insufficient and fails to give support just where it is most needed. This pressure bandage, if applied early, limits the amount of the swelling; if the ankle is already swollen, it is useful in getting rid of such swelling.

PROTECTION

The firm bandaging protects for the first thirty-six hours, and then, if necessary, this should be replaced by adhesive plaster strapping. The strapping starts above the ankle on the inner side, passes down under the heel, and up on the outer side. The foot is held slightly everted to take strain off the injured ligament while this support is being applied. Many layers, each superimposing the other by about one-third, are used. The strapping does not interfere with function, but protects the early stages of repair from undue strain and further damage and gives the patient a sense of comfort and security.

If the sprain be only slight strapping may be dispensed with, and the support of the compression bandage will in itself suffice. It is all a question of degree. While a very slight strain will not need protection because the muscle recovery is rapid, the moderate or severe one will recover more quickly with support; the latter does not hamper movement, which is physiological and to be encouraged. Further protection may be provided by what is called "wedging the heel" and floating it out. This is seldom needed unless the sprain is a frequently recurring one, such as I see occasionally, generally in school-girls. These recurrent sprains may manifest other features, as will be described under chronic sprains, but they can be guarded against by a simple device—namely, raising the outer side of the heel some three-sixteenths of an inch and sometimes "floating out the heel" in addition.

ENCOURAGEMENT OF FUNCTION

By this term I mean that early use of the affected limb should be allowed. In the example we are considering—inversion sprain of the ankle—the patient is allowed to put weight on the limb and need not lay up. He is encouraged to use the foot. This does not mean that he is told to go for a five-mile walk. I should not play a round of golf if I had recently sprained my ankle and it was painful, but with some support and the muscles

appropriately treated I should expect to be able to walk about and do my work from the first.

At this point we must recall what has been already said about the all-important part that muscle plays in controlling joint function, since we must concentrate on restoring muscle tone and encouraging the muscle to recover. Faradic stimulation—a method which has been described as graduated contraction—is of the greatest service. This method, as I have already stated more than once, I learned from Mr. Morton Smart in 1910, and I have used it and advised it continually since then. Essentially it consists in making muscle contract by an electrical stimulus, and both the degree and the rate of contraction are controlled by varying the stimulus. I will not enter into details of the treatment, but would emphasize its importance. Concurrently with electrical treatment massage is useful. This aids in the removal of swelling, mechanically getting rid of oedema, and improving the circulation. We generally combine electrical stimulation and massage; the one complements the other, even though the alternate contraction and relaxation, which is electrically controlled, produces what one may term auto-massage. Massage should never cause pain; it should be gentle and sedative in effect, and the small area, the site of maximum tenderness over the ruptured fibres, can be avoided.

Treated in this way, but depending on the degree of severity, a simple uncomplicated sprain should rapidly improve. The muscle quickly recovers tone, the torn structures unite, the swelling disappears, and the all-too-common sequence, the chronic sprain, is prevented.

Rotation Sprain of the Knee

There are sprains, however, which take a long time to clear up; they cannot be hurried. The commonest example is rotation sprain of the knee, such as is caused in a ski-ing accident. These severe sprains of the knee are often mistaken for torn and displaced semilunar cartilages, largely from the fact that a protective muscle spasm limits movement some 10 degrees short of full extension. The same principles should guide us in our treatment, and we must be confident of our diagnosis, for these sprains take many weeks, or even months, to recover. Unless we are familiar with this syndrome, and are true to our principles, we shall have difficulty in persuading the patient that the long period of partial incapacity is unavoidable, and forced movements or operation may be advised under a mistaken conception of the pathology.

Chronic Sprains

A simple sprain which is neglected or inefficiently treated may clear up if the injury is only trivial, but if the degree of damage is more severe symptoms will persist or will recur, and a condition that may be called a chronic sprain follow. The most common sequelae of sprains are: (1) persistent pain; (2) muscle atrophy; (3) limitation of joint movement; and (4) recurrent synovitis.

If the acute sprain be correctly treated these sequelae will be avoided. We must remember the importance of the time factor, which has been emphasized in considering the rotation sprain of the knee. The chronic sprain has supplied the main field of work for the bone-setter and the osteopath, and, to a large extent, continues to do so, both in this country and in America. One is often asked what the irregular practitioner accomplishes; what it is he really does when he claims that "he is putting a bone back in place." It is clear that unless we believe in the occult, there must be some fairly simple explanation, and it is not, I think, far to seek. He forces joint movement; he breaks down adhesions; and, if he is

successful, restores the normal range. Any medical man can do the same thing, as well or better. It is not essential to be ignorant of anatomy in order to be able to put a joint through its full range, although it is necessary to be ignorant of both anatomy and physiology if one is to say with conviction that a small bone is "out" in a wrist or an ankle which is the site of pain caused by adhesions.

The position was admirably summarized by Sir Robert Jones when, in his Cavendish Lecture, he said:

"Let me emphasize the statement that there is nothing which the manipulator does which cannot be more safely undertaken by any practitioner who possesses a knowledge of the pathology and elementary anatomy of the joints. Let it be fully realized that there are no hidden or mystic rites in the art of bone-setting."

Adhesions

The direct effect of the injury—the tearing of fibres in the ligament or joint capsule—is an outpouring of blood and lymph about the site of the tear, followed by organization of the clot, and the formation of fibrous tissue. The fibrous tissue may form a band anchoring certain folds in the capsule or preventing normal mobility of the joint. The diminution of range may be great, as shown commonly in a shoulder which is stiff as the result of enforced rest following a dislocation, or it may be small as in the inferior radio-ulnar joint or the wrist. When the patient uses such a joint and attempts to perform an ordinary everyday action, the result is pain and a feeling of weakness, or, in a weight-bearing joint, of insecurity, because of the pull on this adventitious band.

The differential diagnosis between a joint stiff as the result of inflammation and one stiff as the result of limiting adhesions is often easy but sometimes difficult. The most useful clinical test is one which we owe to Robert Jones, who used to teach that a joint stiff because of inflammation had limitation of movement in all directions, but that adhesions limited movement in certain directions only.

Adhesions limit movement very commonly, and may give rise to considerable pain and disability even when the excursion of the joint is almost, but not quite, full. It is not uncommon to see a patient complaining of disability of the knee, and on examination to make out full mobility, except that external rotation in flexion is just limited and gives rise to pain. Any gross loss of movement is easy to see, but we must bear in mind that very slight limitation caused by an adventitious band, an adhesion, may cripple the patient. Indeed, we may fail to make out any loss of movement, any diminution in the normal range, in a joint which fails to recover following injury. If we can exclude disease, inflammatory or neoplastic, and the skiagram is normal, it often repays us, empirically, to move such a joint through its full range under anaesthesia. With a clear history I should not hesitate to advise or practise manipulation, even though I could not be sure that movement was limited. One may well break down an adhesion in a joint in which the diminished range was too small to be detected with certainty on clinical examination.

The principles, then, on which we rely in undertaking the treatment of the chronic sprain are:

1. To overcome limitation of movement by forcing movement, either gradually by exercises and repeated forcible manipulation up to the patient's tolerance, or by forcible manipulation under anaesthesia.

2. To build up the musculature. It is true that active exercise is the greatest stimulus to the building up of muscle, but it is here again that the treatment by graduated faradic stimulation is of great service.

When one member of a group of muscles—for example, vastus internus—is markedly atrophied, there is no exercise that I know which rebuilds it, makes it catch up with the remaining members of the quadriceps group, so well as graduated exercise electrically provoked. The same is true in the adductor strains, caused by small tears in the muscle, the so-called “riders’ strain.” In the early stages it is far easier and the result is obtained more rapidly by this electrical method than by exercises. In the later stages of recovery active exercise against resistance supplements and then supplants the electrical method.

Technique of Breaking Down Adhesions

This technique, which has been given the grand name “manipulative surgery,” is easily acquired. The bonc-setter of the old days, who had to work without anaesthesia, developed a technique for overcoming the resistance of the antagonistic muscles and catching them off their guard. He combined rotation with the movements of flexion and extension. Hutton used to say: “The twist is the thing.” But the practitioner has no need to possess any superlative or supernatural skill. Under anaesthesia he can put any joint through its full range, and, remembering that the range differs in different individuals, he can always compare it with that of the sound joint of the opposite side. Experience is of value, as, indeed, it is in all treatment, but it is not beyond the power of the ordinary doctor to acquire a working knowledge of the technique.

After-Treatment

The necessary after-treatment is to keep the parts moving, to restore function, and to prevent the re-formation of the limiting bands. The treatment conforms to that advised for the acute sprain, but the co-operation of the patient is needed. He must be encouraged to try and use the joint, assisted by the masseuse. Faradic stimulation is again a most useful part of treatment; some of us consider it an essential part.

Chronic Sprains Complicated by Sepsis or Disordered Body Chemistry

It is a fact that sprains and allied injuries in the young adult or the adolescent tend to recover more quickly than similar injuries in later life. There is, then, a second factor to bear in mind besides the injury. If a sprain in a man of 40 fails to get well we should be on the look out for a predisposing cause—for example, sepsis or disordered metabolism. There may be some apical infection about the root of a dead tooth, a septic tonsil, or there may be some chronic constipation or failure of elimination which is playing a part.

The physician should bear this in mind and examine the patient, and not focus his attention only on the injured joint. The knee which will stand ordinary use but shows signs of irritation on over-use is an instance, and, although not truly to be classed as a chronic strain, becomes painful and remains painful as the result of active use, and the trouble not infrequently clears up on removal of the underlying cause.

Sprains of Muscle and Muscle Attachments

There are certain occupational injuries which are classed as chronic sprains. The so-called “tennis-elbow” is one; this is an example of the over-use of a muscle group, and some tearing or periostitis about the attachment of the tendon into its bony insertion. The tearing of fibres in the adductors of the thigh, either in the substance of the muscle or at its attachment to the pubic ramus—the so-called riders’ strain—and the tearing of fibres in the calf

of the leg—erroneously described as a ruptured plantaris, but in fact caused probably by the rupture of some of the deep fibres of the soleus—are others. It is worthy of mention that the plantaris tendon is usually found intact when we are called upon to operate for suture of a ruptured tendo Achillis, so that it is unlikely that it ruptures in the lesser injury. The detailed methods used in the treatment of these injuries of muscle will vary, but the same underlying principles will guide us in our efforts to restore function.

Conclusion

In conclusion, I would urge that these minor injuries should be given a rather more prominent place than they at present occupy in the teaching of the medical student. An effort is being made in certain directions and in some medical schools to improve the teaching on fractures, and it would be wise if we could improve our teaching on the handling of sprains and allied injuries of muscles and joints at the same time. I know how fully occupied the medical student is, how his time is taken up, and how intensive the course has become, but still I would urge that we must attend to his teaching in these simple injuries, and must insist on his having some idea of what is being done in the physical treatment departments. He does not need to be a skilled masseur, but he should know something of massage and its possibilities for good and harm that he may know when it is to be advised. He should at least see the electrical methods in use, that he may know what we are talking of when we speak of faradic stimulation of muscles. He should realize the value of a properly applied bandage; he should appreciate that a supporting bandage to assist in stabilizing a wrist should be put on round the joint itself, and not half-way up the forearm; and that for a sprained ankle the bandage must include the heel.

It is by attention, or lack of it, to diagnosis and treatment in these minor injuries that many reputations have been made or lost.

Nosokomeion is the official organ of the International Hospital Association, and is published quarterly by W. Kohlhammer of Stuttgart (annual subscription R.M. 12, plus postage). It is of special value to all who are interested in hospitals, and the international character of its contents allows a comparative view to be taken on all branches of hospital activities. The articles are printed in English, French, or German, and are individually summarized in each language. No. 1 for 1934 was a special number on the small hospital of 100 to 300 beds, and contained eleven articles, of which the following are representative: G. von Deschwanden, “Was muss der leitende Arzt eines mittelgrossen Krankenhauses wissen?”; Raphael Jackson, “The Possibilities for Administration, Management, and Accounting of the Smaller and Rural Hospitals”; Ernst Balser, “The Small Hospital of the Future capable of being Enlarged”; Gustav Birch-Lindgren, “Some Points of View on Small Hospitals”; and Marcel Labbé, “L’Organisation du Service de Diététique dans un Hôpital de 300 Lits.” No. 2 contained the programme of the Fourth International Hospital Congress, to be held in Rome in May, 1935, and reports from national hospital associations and representatives of twelve nations. Other interesting articles were: B. Albert, “Fehler im Krankenhausbau” and E. M. Bluestone, “On Medical Organization in Hospitals.” No. 3 contains eleven papers from this year’s international post-graduate course on hospital technique, including: P. Manz, “Organisation, Technik und Einrichtung im Krankenhaus”; A. Rollier, “L’Organisation de la Cure de Travail dans la Clinique manufacture internationale de Laysin”; and Letitia Fairfield, “Ante-natal Care and Hospitals.”

PATHOLOGY AND TREATMENT OF SPRAINS*

BY

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As if it is customary to use the words strain and sprain somewhat indiscriminately, I would suggest that the word "strain" be used to denote injury to the muscle component of a joint, resulting from excessive stress, and "sprain" to denote injury to other structures of a joint as well as its muscles. A strain, therefore, may be defined as the state of a muscle the tissues of which have suffered damage because the normal strength of that muscle has not been sufficient to resist the stretching effect of the force at the moment of its application or because the fibres of the muscle have been taken unawares before they have had time to reach full contraction to resist the stress. A sprain may be defined as the state of a joint any of the structures of which, besides the muscles, have been injured as the result of a force applied to it. When the degree of violence is such that a muscle's power of contraction is overcome, the joint elements may sustain damage of varying degree; when the damage is limited to the muscle tissue alone a strain is produced, but when it extends to one or more of the component parts of a joint, other than the muscle, a sprain results.

How an Acute Sprain Is Caused

In considering injuries to joints which produce sprains certain mechanical features should be borne in mind. So far as the protection of a joint is concerned, there is an instinctive vigilance on the part of the muscles, and this constitutes a joint's first line of defence. The other structures of the joint cannot be injured unless this line of defence gives way from: (1) the stress applied to the muscles protecting the joint being powerful enough to overcome their power of resistance; (2) the muscles having been taken unawares at the moment of the application of the stress; (3) fatigue having slowed up the normal rate of the muscle's contractility; (4) loss of tone from previous injury or disease limiting the capacity of the muscles for quick reaction to a sudden increase in their tension.

In this way an acute sprain is produced, the effects of which and the time necessary for recovery vary in accordance with the extent of the injury to the tissues and the particular structures damaged. In cases in which the brunt of the strain and the main damage are chiefly referable to the muscles and the injury to other joint structures is only slight, the sprain may be looked upon justifiably as a slight acute one. While this is true, however, the result of the injury may not be so slight as it seems, and the condition is all too frequently neglected by the patient as regards treatment. This slight sprain may become serious, because the muscles lose their tone and undergo a varying amount of wasting, and the consequent loss of efficiency, which becomes greater as time goes on, ends in the joint becoming less able to perform its function efficiently and quickly, and therefore liable to further injury from causes which would be quite harmless were the muscles in their normal alert state.

In the severe forms of acute sprain one structure of a joint may suffer to a greater extent than others, but all may become affected to a more or less degree, either at the moment of the accident or following on the changes consequent to repair, so that structures not directly

affected at the time of the accident frequently become seriously implicated later.

To visualize clearly the possible results of an excessive stress applied to a joint it is worth recalling the main functions of each structure. The bones are mainly supporting, and are the levers upon which the muscles act; the ligaments aid in holding the ends of the bones together and limit their range of movement. The synovial membrane, by its secretion, helps to lessen the friction of movement and renders movement smooth; the cartilage lining the ends of the bones acts as a shock absorber.

Functional Importance of the Areolar Tissue

Filling up the interspaces round all the other structures, and carrying the arteries, arterioles, capillaries, veins, lymphatics, and nerves, is a most important joint structure—namely, the delicate areolar connective tissue. Damage to this tissue and its contained important structures is, owing to its situation and delicate nature, of frequent occurrence, and in my opinion is one of the main causes of continued loss of function of a joint after even a most trifling injury, and particularly when such injury is treated by prolonged rest. It is a somewhat soft substance possessing normally great tenacity and elasticity, and abundantly distributed throughout the body; by reason of the intercommunication of the areolar spaces effusion into this tissue is capable of travelling a long way from the seat of injury.

Areolar tissue, with its contained important structures, everywhere fills up crevices and spaces in the joints, and acts as padding between muscle groups and muscle fibres; in situations where free and easy movements are required the fibres of the supporting areolar tissue are loosely arranged; and where firm binding of parts together is necessary the fibres are densely arranged. Areolar tissue normally contains a small quantity of a translucent lymph-like fluid, sufficient to keep it moist and supple, and I suggest that the absence or diminution of this fluid, as may happen after injury, may be one of the contributory causes of the characteristic creaking sensation which takes place on movement of joints in the later stages of trauma.

By its normal moistness and suppleness and by its tenacity and elasticity areolar tissue is enabled to accommodate itself easily to the widest range of movements of the joint. When areolar tissue becomes soaked in lymph which has become stagnant after injury, unless this lymph is quickly removed it undergoes hardening changes leading to organization and adhesions, and its response to movement becomes inflexible and less pliable, resulting in a feeling of stiffness in the joint. In course of time this is followed by adaptive shortening of muscles controlling the joint, owing to similar loss of pliability and elasticity in the connective tissue of the muscle sheaths.

An important factor, therefore, producing chronic stiffness of injured joints, even after slight sprains when there is no very evident structural damage and no demonstrable adhesions, is the malnutrition of the areolar tissue due to interstitial oedema. The condition is really the outcome of imperfect repair, and is one of the most prolific causes of persistent discomfort and dysfunction in joints; it is very largely contributed to by over-rest.

Rest in the Treatment of Sprains

The advocacy of rest as the principal treatment of sprained joints almost certainly originated from the natural tendency of the possessor of a sprained joint volitionally to place that joint in the position of greatest ease, and on this fact the principle that pain is Nature's cry for rest is based. But the direct result of trauma and the processes leading to repair is a great increase of internal pressure in the surrounding tissues, due to bleeding and pouring out of

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

lymph, so that there is stretching and pressure on the tissues, particularly the nerve endings, and pain in injury is quite unavoidable. Pain, therefore, may be more truly described as the "cry of the injured tissues for active help." Limitation of movement of an injured joint is also encouraged by the increase of pain, which is due to the contracting muscles further increasing tension between the tissues, and it is this close association of pain and movement which, in the belief that the prevention of pain is essential to repair, produced the theory that all movement must be prevented. Hence treatment by rest became the recognized method.

The treatment by rest is only palliative, as it certainly relieves pain, but surely this is a small matter when the disastrous consequences are realized. Rest tends to diminish circulation; absorption is not sufficiently stimulated, and the various structures become stretched by the long-continued tension. They remain relaxed for a long time, and, when organization follows, muscles, tendons, and areolar tissue become matted together, causing varying degrees of stiffness and limitation of movement. Circulation of the blood and lymph becomes further interfered with by compression of the blood and lymph vessels, due to intercellular tension. Muscular wasting from disuse and other causes takes place rapidly after injury, and so further complicates joint activity.

When a joint has been injured, no matter to what degree the structures are damaged, the keynote of recovery is the rate of absorption of effusion and the completeness of the absorption, and it is mainly upon these two factors that the question of the ultimate sequel to the injury depends. Incomplete recovery causes a degree of impairment, which may extend from a feeling of slight weakness in the joint and a sensation of untrustworthiness to limitation of movements to any extent. Even if the result of an injury falls mainly on one structure of a joint, prolonged rest may cause any or all of the other structures to become affected. It is chiefly from this fact that even a slight sprain, if rested for too long a period, may develop into a serious injury likely to produce secondary complications, which, for a long time and even permanently, may interfere with the perfect function of the joint.

The Value of Muscle Action

As rest physiologically tends to reduce the rate and amount of circulating blood and lymph through any part, while, on the other hand, the physiological changes called into play by muscular action promote a very active circulation of blood and lymph, not only to the muscles themselves, but to all the neighbouring tissues, I submit that muscle action, as a means of assisting the natural processes of repair after injury, has not received the attention it deserves. Muscle is a highly sensitive structure, with power instantly to respond to a variety of stimuli when in a state of health; when for any reason it loses its tone wasting follows rapidly. The loss of tone and the loss of power fully and rapidly to contract is of obvious importance to the security of a joint, and no joint can be considered to have recovered completely from injury to any of its structures until the tone and contractility of its musculature have been successfully restored to normal.

Although the restoration of muscle function is of such importance the muscle condition passes too often almost unnoticed, in spite of the fact that a joint may be crippled for long periods owing to the faulty nutrition of the other structures as the immediate result of atrophy of muscles and the mechanical disability. Even when a muscle is not obviously wasted, loss of tone alone produces a partial loss of function, and it becomes incapable of full contraction, its time rate of contraction becomes slower, and its efficiency to act synchronously with others in group action

is diminished; thus the joint upon which it acts has its balanced action altered and the nutrition of its structures interfered with. The muscles which oppose wasted ones also suffer and further upset the balance of the joint because of the loss of the normal pull of the wasted and atonic muscles, and in time they become shortened from contraction of their fibres and interstitial tissue.

The interference with "muscle sense" which occurs when muscles are wasted upsets the power of the latter to carry out co-ordinated movements, and in consequence joint structures have to submit to harmful stresses, which would normally be countered by muscles in a state of fitness.

Such imperfect recovery of muscles following sprains of joints is so often met with that it would appear to be due to a general misunderstanding of the importance of the muscle changes, and a want of comprehension of the serious late results of these changes on the other structures of the joint if repair and full recovery of muscle function are delayed or incomplete. As a consequence of these muscle changes many chronic sprained joints, particularly of the knee and shoulder, come to be looked upon by the patient as the natural end-result of an injury and to be expected, whereas the disability, which may be slight or serious, is due to mechanical unbalance, and is easily curable.

The physical and chemical phenomena coincident with the normal activity of muscles are essential to their efficiency and sensation of well-being, and to maintain muscle in a healthy state the regular normal fulfilment of the functions of the arterial, venous, and lymphatic circulations is essential; this is even more so when tissues are injured. The benefit derived from the physiological changes consequent on painless muscular action, produced either naturally or by the correct type of electrical stimulation, cannot be too strongly stressed, and if painless muscular movements are instituted as soon as possible after a sprain the distressing complications leading to a chronic sprained joint with all its pain and disability can be prevented.

Effects of Treatment by Muscle Stimulation

Briefly summarized the effects of the treatment of injured muscles and joints by correct electrical muscle stimulation, which produces graduated and controlled contractions and relaxation, are:

1. Muscle elasticity, irritability, contractility, and tonicity are rapidly restored to normal.
2. A great increase of blood to the muscles and to the neighbouring tissues is produced, with all the attendant beneficial consequences.
3. Waste tissue products are rapidly cleared away and stagnation of lymph, with all its serious sequelae, is prevented.
4. A large supply of oxygen and nourishment is brought to the damaged part.
5. Rapid absorption of fluid and extravasated blood is actively promoted.
6. Beneficial chemical and physical changes following muscle activity take place.
7. The movements of muscles and tendons do not allow organization of lymph between their surfaces, and adhesions are thus prevented.
8. As the movements prevent stagnation of lymph in the areolar tissue in the joint interspaces, the danger of the areolar tissue losing its suppleness, pliability, and flexibility is diminished.
9. If, in later stages, adhesions have formed, the adherent surfaces are gently but effectively torn apart, by causing increasingly powerful contractions of the muscles separately.
10. Muscles are prevented from losing their tone and from wasting, muscles already wasted increase in bulk.

It should be noted that a recently injured and painful muscle can still be made to contract and relax, and the

degree of the contractions and relaxations can be so controlled that the origin and insertion of the muscle need not be approximated until desired; consequently, the beneficial physiological changes called into activity by muscle action are produced with the minimal amount of strain of its fibres, and the movements of the injured joint as a whole can be kept within minimal range. If treatment is based on these principles no uncomplicated acute sprain should become a chronic one.

ARSENIC IN ITS RELATION TO THE KERATIN TISSUES

BY

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The keratin tissues, hair, nails, and skin, are of considerable importance in connexion with arsenic poisoning from a physiological as well as from a medico-legal point of view. In many of the published cases the presence and distribution of arsenic in these tissues has been of major significance in the investigation, and it seemed worth while, therefore, to obtain further experimental information on certain points concerning the effects of arsenic on the keratin tissues.

It is obvious that a knowledge of the mechanism of arsenic fixation in hair may give an important insight into the body's defence against the poison, and that examination of hair in certain cases of arsenical poisoning may be expected to yield information of great value. From the medico-legal aspect it would seem that the finding of arsenic in the hair would be strong evidence of its administration; but before the analyses may be so interpreted it is necessary to inquire into a number of other possibilities. For example, is it possible for hair to absorb arsenic from fluid bathing the shaft; or does any arsenic present necessarily come from the body fluids bathing the hair root? The importance of such a question may be illustrated by reference to one or two cases.

In the Seddon case the victim died about fourteen days after the first dose of arsenic, and this element was found not only in the proximal parts (3 mg. per 100 grams hair), but also in the distal parts of the hair (2 mg. per 100 grams hair), which was about twelve inches long. The presence of arsenic in the distal three inches raised the presumption that arsenic had been administered more than a year before death. Willcox suggested, however, that the arsenic in the distal ends might have been absorbed from the blood-stained body fluid which had come into contact with the hair, and by *in vitro* experiment proved that this explanation was possible. *Per contra*, in the Hearn case, the presence of arsenic in the hair of Miss Everard was interpreted as indicating the administration of arsenic over a considerable period, whereas it may well have been due to contamination from water which had soaked into the coffin after percolation through the arsenic-containing soil. Thus from similar facts we have opposite deductions made on behalf of the Crown, and both to the disadvantage of the accused.

It is well known that arsenic may be found in the hair after all traces of it have disappeared from other organs of the body, but it is desirable to ascertain whether the quantity found indicates a preferential absorption of

arsenic by the keratin tissues or merely a trapping of arsenic in the non-vascular tissues. It seems further of interest to ascertain whether, if there is preferential absorption, it is a function of living pre-keratin tissues or whether keratin itself absorbs arsenic preferentially *in vitro*. It is also desirable to know if this absorption is due to chemical combination between arsenic and certain products of cellular activity, or if it is a case of simple absorption. Other problems include those of ascertaining whether or not arsenic can travel along the hair shaft; whether it is possible to ascertain from the distribution of the poison if it has been absorbed from the body or if it has resulted from external contamination; and whether any inferences of value can be drawn from the amount and distribution of arsenic as to the time when a dose of arsenic was administered, and the size of the dose. We are still able to answer very few of these questions, and the present paper must be looked upon as a preliminary report.

Preferential Absorption

If we consider the results of a series of cases dealt with in the report of the Royal Commission on Arsenic Poisoning (1904) we find that the keratin tissues do take up more arsenic, weight for weight, than the other tissues of the body. For example, a number of individuals were given 5 mg. of arsenic per day for two months; on examination the hair of these men was found to contain from 2 to 5 mg. of arsenic per 100 grams of hair. The total quantity of arsenic taken by each individual was approximately 300 mg., and if this amount, without allowing for excretion (which would account for the greater part of it), be supposed to be equally distributed over the body the concentration would be about 0.5 mg. per 100 grams of body weight—that is, about one-tenth of the quantity actually found in the hair. Similar figures can be shown for the nails and to a lesser extent for the skin.

(A) BY HAIR REMOVED FROM THE BODY

It is known, as has been mentioned, that hair soaked in an arsenical solution absorbs arsenic, but it is evidently desirable to place this observation on a quantitative basis and to ascertain whether, under such conditions, the hair can attain to, or surpass, the concentration of arsenic in the surrounding fluid. For this purpose a series of tubes were set up each containing 0.5 gram of hair or nail clippings and 10 c.cm. of a solution of sodium arsenite containing 0.01 mg. of arsenic per c.cm. The liquid was decanted from each at definite intervals, and an aliquot was analysed by the Marsh process. The hair in each case was removed and washed with six portions of water, and allowed to drain thoroughly after each washing. The organic matter was destroyed by the method of Wood-Smith¹ of boiling with equal parts of concentrated nitric and concentrated sulphuric acids. After complete removal of nitric acid the liquid was made up to a known volume, of which an aliquot was boiled with 0.5 gram of potassium metabisulphite to remove the last traces of nitric acid and reduce arsenate to arsenite. Arsenic was then determined by the electrolytic Marsh apparatus. The results of one typical experiment of the series are shown in Table I, where the density of human hair is taken as unity. Since, however, part of the absorbed arsenic might conceivably be due to swelling of the hair, a known weight of hair (0.3036 gram) was allowed to soak in water for seventy-two hours; at the end of this time it was removed and dried as thoroughly as possible with filter paper in the same way as the arsenic-containing hair (it still felt damp to the touch). The increase in weight was 0.0221 gram, or 7.3 per cent. When this hair was allowed to stand in

the balance case for half an hour the increase fell to 0.0040 gram, or 1.3 per cent. In other words, there was no simple imbibition of the fluid surrounding the hair, and the figures of Table I represent a true absorption of arsenic.

TABLE I

Length of Time of Soaking	Concentration of Arsenic in the Hair	Concentration of Arsenic Left in the Solution	Percentage of Arsenic Recovered
	mg. per c.cm.	mg. per c.cm.	
0 hours	0.00	0.010	
20 "	0.024	0.009	102
44 "	0.03	0.008	95
118 "	0.05	0.007	95
145 "	0.05	0.008	105
234 "	0.05	0.007	95

It is to be observed that the hair absorbs arsenic in increasing amounts, gradually attaining a concentration of arsenic about seven times that of the surrounding solution. Evidently, too, the final concentration is greater than the usual figure hitherto reported; it is unaltered by increasing the time of soaking above seventy-two hours; and generally, it is not increased when the hair is soaked in a stronger solution of arsenite. In the cases given in the Royal Commission Report, the level of arsenic in the hair runs fairly uniformly at about 2 to 3 mg. per 100 grams hair, not only in those cases where small doses have been given over a long period but also in those where the hair has been examined long periods after a single dose.

TABLE II

Quoted by	Reference	Mg. Arsenic per 100 grams Hair	Notes
Casper-Liman	<i>Gericht Med.</i> , 8th ed., II, 378	2.0	—
Bruardel ...	<i>Ann. d'Hyg.</i> , 1899, xxii, 137	1.0 2.5	Subacute
Knecht and Dearduin	<i>Lancet</i> , 1901, i, 824	1.0 3.0 3.0	Chronic
Heffter ...	<i>Arch. Inter. Pharm.</i> , 1905, xv, 399	1.0	59th day after one dose of about 1 gram
Althausen and Gunther	<i>Journ. Amer. Med. Assoc.</i> , 1929, 2002	1.5 2.7 1.8 (beard)	2.5 months after a single dose 3.5 " " 3.5 " "
Royal Commission Report on Arsenical Poisoning, 1904, 3-6		3.0 3.0 3.0 1.85 1.5 1.5 0.75 0.75 0.30	2 months after dose " " " " " " " " " " " " " " " "
Bannister ...	<i>British Medical Journal</i> , 1920, ii, 476	5.0	4 days after inhalation of arsine
Seddon case...		Proximal—3.0 Distal —0.2	Probably 13 days from the first dose
Armstrong case	—	0.45	Probably 8 days from the first dose
Hearn case: Mrs. Thomas	—	0.7	17 days after the first dose
Miss Everard	—	1.5 in. from scalp—2.3 1.5 in. " middle—1.5 1.1 in. " distal—1.0	Suggested 7 months from the first dose

In all the published cases of arsenic poisoning in which the hair has been analysed the level of arsenic concentration runs about the same figure. (Table II.)

(B) BY NAILS REMOVED FROM THE BODY

In the case of nails the original weight of 0.330 gram increased by 38.2 per cent. after 144 hours' soaking. After standing three hours in the balance case, this increase

was reduced to 17.6 per cent. Before soaking in arsenic solution the nails were scraped as free as possible from adhering skin, and before analysis the liquid was removed by filtration and thorough washing with distilled water. Results obtained are shown in Table III, where the density of human nail is taken to be 1.2. The last column represents the concentration of arsenic in the nails corrected for uptake of the medium on the assumption that 0.5 gram of nail takes up 0.19 c.cm. of the solution (that is, 0.0019 mg. of arsenic and 38 per cent. of its volume of the solution).

TABLE III

Length of Time of Soaking	Concentration of Arsenic in the Nails	Concentration of Arsenic left in the Solution	Percentage of Arsenic Recovered	Concentration of Arsenic in the Nails (corr.)
	mg. per c.cm.	mg. per c.cm.		mg. per c.cm.
0 hours	0.000	0.010	—	0.000
67 "	0.084	0.007	105	0.079
93 "	0.084	0.006	95	0.079
116 "	0.107	0.007	115	0.103
188 "	0.192	0.0018	98	0.185

It is a remarkable fact that nails in arsenical solution can take up arsenic to a concentration of about 100 times the final concentration of the surrounding solution, and in our experiments had not even then reached the maximum.

Evidently both nails and hair removed from the body and soaked in a solution containing arsenic (as sodium arsenite) can absorb that element until the concentration is far in excess of that of the surrounding medium. In other words, they exhibit preferential absorption. That this absorption is not merely a case of surface adsorption is shown by the fact that when hair is soaked in sodium arsenite solution, as in the above experiments, none of the arsenic is removed by thorough washing with dilute caustic soda before analysis. The importance of this observation can hardly be exaggerated, for it has been customary to consider a higher concentration of arsenic in the keratin tissues than in the viscera as proof that the arsenic was absorbed by those tissues during life; that assumption is proved to be false.

Absorption from the Living Body

Under the conditions of our experiments the arsenic is evenly distributed along the length of the hair, but if arsenic is being absorbed into growing hair or nails from living body fluids, a different distribution is to be expected. At first arsenic should be found only in the proximal end. As the hair grows either an arsenic-containing band grows with it (in the case of the poison being administered over a short period) and is followed by an arsenic-free proximal zone, or, in the case of long-continued administration or continued presence of arsenic in the blood owing to slow excretion, more and more of the hair contains arsenic until, eventually, through cutting or falling, the distribution becomes uniform.

In the majority of cases of poisoning one would expect to find more arsenic in the proximal end of the hair than in the distal, but, of course, for a variety of reasons, this distribution is not absolute. For one thing, the relative lengths of the arsenic-containing and arsenic-free parts will vary from case to case with the time of administration of the poison, the rate and amount of excretion in the vomitus, urine, and faeces, the rate of growth of the hair, and the time and frequency of hair-cutting. Moreover, as Willcox has pointed out, "sweat and sebaceous secretion contain arsenic, and as the whole length of the hair comes in contact with these secretions, the limitation of arsenic to the proximal portions of the hair is relative.

not absolute." However, in cases of absorption *in vivo* some such distribution may generally be expected, and the finding of more arsenic in the proximal parts than in the distal is strong evidence that the arsenic has been absorbed from body fluids—provided it can be shown that no external contamination can account for it. The expectation of a non-uniform distribution of arsenic in hair is in any case dependent on the supposition that the arsenic, once absorbed into the hair, remains fixed and can neither travel along the shaft nor be reabsorbed by the body, and experiments to justify this supposition have hitherto been lacking.

Methods of Absorption Determined

The following experiments were carried out *in vitro* to determine whether or not arsenic is capable of travelling along a hair fibre. A lock of human hair about 10 cm. long was placed so that the cut ends dipped to the extent of about 4 cm. into a solution of sodium arsenite containing 0.1 mg. of arsenic per c.cm. This solution was contained in a test tube and the hair was arranged round a tightly fitting cork so that 5 cm. of it was completely out of contact with the fluid. Within twenty-four hours it was observed that the hair above the stopper was damp for a length of 2 cm. It was allowed to stand thus for three weeks, and at the end of that period the hair projecting above the stopper was divided into five sections, and these were analysed without previous washing. The results of the analyses are shown in Table IV.

TABLE IV

Weight of the Section	Total Amount of Arsenic Present	Notes
0.144 gram	0.5 mg.	Section nearest the solution. Very wet
0.122 "	0.15 mg.	Hair damp
0.101 "	Trace	Slightly moist in one part
0.100 "	Nil	Hair quite dry
0.067 "	Nil	Section farthest from the solution. Dry

Two important points emerge from these results. First, the hair not immersed in the liquid but wetted with it by capillary action actually contains more arsenic than the hair in contact with the solution. This is due to evaporation of the arsenical fluid on the hair fibre. Secondly, local contamination at the proximal end has resulted in that gradual distribution which is to be expected if absorption takes place from the body fluids. But it is evident that it may equally occur after death if by any chance the hair is soaked in an arsenical solution at the proximal end only.

In order to prevent the solution travelling up the outside of the fibre, the experiments were repeated with a thin layer of paraffin wax laid round the top of the cork. The hair was allowed to stand for three weeks in a solution containing 0.1 mg. of arsenic per c.cm. No moisture was visible outside the tube and the volume of the solution did not apparently diminish; 3 cm. of the hair (weighing 0.164 gram) nearest the liquid contained no arsenic.

The experiments indicate beyond doubt that local wetting of the hair shaft with arsenite solution causes arsenic to be absorbed over a length of hair by "creeping" of the solution and absorption from outside. They show equally definitely that travel of the arsenic along the inside of the fibres does not take place; and that, therefore, the graduated distribution of arsenic is legitimately to be attributed to *in vivo* absorption only if contamination from some external liquid source can definitely be excluded.

Reabsorption by the Body

They also suggest that arsenic once deposited in hair or nails is finally lost to the body—a suggestion which is *a priori* indicated by the fact that hair shafts, the keratin layers of epidermis, and so on, are really dead tissues, and are, indeed, excretions. However, there appears to be a division of opinion on the subject, for whereas Willcox states that "it is probable that during the prolonged administration of arsenic a certain amount becomes deposited in the skin, hair, and nails, and this is gradually reabsorbed, being excreted by the urine and faeces," Althausen and Gunther,² on the basis of a study of excretion of arsenic before and after treatment with sodium thiosulphate, have shown that arsenic is not reabsorbed from the hair.

In our early experiments the fact that we were able to rinse arsenic-soaked hair several times with water and even with dilute caustic soda without appreciable loss of arsenic suggested that reabsorption of arsenic from hair to the living body was at any rate a slow and difficult process. Quantitative experiments on this point, however, showed that arsenic-soaked hair containing the maximum of 5 mg. per 100 grams could lose part of the arsenic after prolonged soaking in distilled water. After fifteen days' soaking in this manner, the water being changed every twenty-four hours, about 40 per cent. of the arsenic had been removed. Further soaking would not remove the other 60 per cent. Furthermore, it was found that the arsenic could not be removed to any appreciable extent from the hair of a person who had been receiving arsenical injections. This suggests a method of differentiating between arsenic absorbed *in vivo* and arsenic derived from some external source of contamination.

Summary

It has been shown that keratin tissues when soaked in arsenical solution exhibit the phenomenon of preferential absorption. The arsenic so absorbed can be partly removed by very prolonged soaking in distilled water, but rapid rinsing either with water or dilute alkali does not affect the arsenic content in any marked degree. By this method the maximum arsenic content of hair is found to be 5 mg. per 100 grams, and much higher values can be obtained in the case of nails. *In vitro* experiments have shown that arsenic can travel along a hair fibre only if "creeping" of the solution along the outside of the hair be possible. It has been demonstrated that arsenic absorbed into hair *in vivo* cannot be removed by prolonged soaking, and this fact is tentatively put forward as a basis for a method of distinguishing between arsenic absorbed *in vivo* and arsenic resulting from external contamination.

The expenses of the work were partly defrayed by a grant from the Moray Fund of this University.

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The *Transactions of the Twentieth Annual Conference of the National Association for the Prevention of Tuberculosis* have now been published. This conference was held last June, and was reported at the time in these columns. It was largely concerned with reviewing the progress made in the twenty-one years of the life of the National Association, and this volume of *Transactions* has consequently a definite historical interest. The National tuberculosis scheme is discussed from various points of view, and a comprehensive survey of the present position is thus given. The main trends in further development are indicated.

FATAL PERFORATION OF THE CAECUM
IN A CASE OF SPRUE

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Cases of perforation of the intestine in sprue are extremely rare, and those so far reported have been associated with ulcers in the small bowel. Faber (1904) reported a case of death from peritonitis following rupture of an ulcer in the small intestine. At necropsy sixteen small ulcers were found at various parts of the lesser bowel, but the large intestine was free. Fischer and von Hecker (1922) reported several small ulcers in the lower jejunum and ileum, and Mackie and Fairley (1929) described a superficial healing ulcer in one of their cases about half an inch in diameter, located two inches above the ileo-caecal valve. In two cases reported by Manson - Bahr (1924) perforation had occurred. One of these—a case of ten months' duration—showed a large ulcer in the ileum six feet from the ileo-caecal valve opposite the mesenteric attachment; it measured one inch in diameter, and had perforated in two places, producing a fatal peritonitis. In the other case twelve ulcers varying in size from 0.5 to 1 c.cm. were found in the ileum, the mucosa of which was acutely inflamed. One small ulcer 3 mm. in diameter was found in the upper part of the jejunum; multiple perforations had resulted in peritonitis and death. The present case is of special interest because no evidence of ulcers in the small or large bowel was found at necropsy, and the perforation involved the caecum. An epitomized history is recorded below.

Case Record

Mrs. S., aged 58 years, was admitted to the Hospital for Tropical Diseases on February 28th, 1934, seriously ill with tropical sprue.

Past History.—Born in England, she had gone to India in 1900, and had remained there until 1926, since when she had not been out of this country. There was a history of malaria in 1901, and of dysentery, without recurrence, in 1902.

Recent History.—The onset of the immediate trouble occurred in September, 1925, when the patient began to have large, pale, frothy stools and flatulence, having lost much weight. These symptoms persisted, and she returned to England in March, 1925. The tongue was then sore with ulcers and fissures, and intestinal symptoms were marked. In 1927 she received three months' treatment with milk diet and temporarily improved. Then in November, 1930, she became definitely worse, receiving treatment including injections of liver extract over a period of six months without any great

benefit; subsequently she returned home, improving up to a certain point. By June, 1933, she had begun to lose weight; the stools were bad, flatulence marked, and the tongue sore; in July an anal fissure developed. Since Christmas vomiting occurred infrequently and she had lost 3 stone 9 lb. in weight. Attacks of tetany had also been present for a considerable period, the last being about a fortnight before admission. The stools were pale, sometimes formed and sometimes fluid; flatulence was severe, and she could not retain solid food, vomiting it almost immediately.

Physical Examination (February 28th).—Inspection revealed a thin, elderly, much emaciated woman with pale mucous membranes and conjunctivae. She was edentulous; the tongue was smooth and pale with hyperaemic edges. She was very weak on admission, and a grave prognosis was given. There was an apical systolic murmur, but no cardiac enlargement, and the breath sounds, though harsh, were normal. Abdominal distension was present, the muscles were atonic and wasted, and peristaltic movements were visible through the thinned abdominal parietes. Some tenderness was noted on deep pressure over the appendix area. An anal fissure was found on the posterior aspect of the sphincter, and above this the rectum felt ballooned.

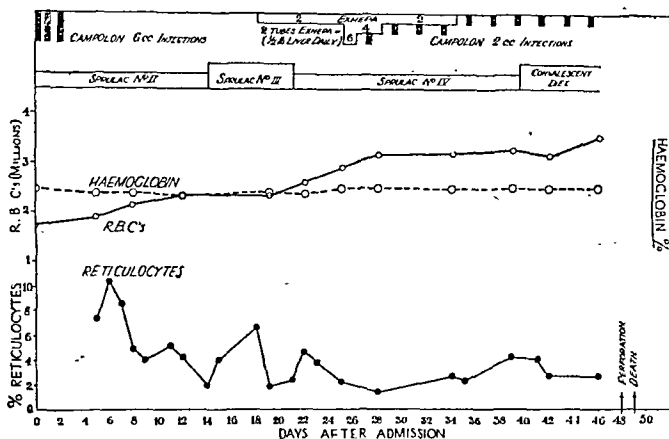
Laboratory Records

(March 1st).—Red blood counts, 1,700,000 per c.mm.; haemoglobin, 50 per cent. (Haldane); colour index, 1.3; average diameter of corpuscle, 8.6 μ (halometer). The blood 'picture' was typical of megalocytic anaemia; megalocytes were numerous; anisocytosis and poikilocytosis were marked; normoblasts were scanty. Biochemical examinations were postponed until March 5th, when the serum calcium was 8.7 mg. per 100 c.cm., the

serum phosphorus 2.5 mg. per 100 c.cm.; and the glucose tolerance curve showed a maximal rise of 54 mg. per 100 c.cm. one and a half hours after the administration of 50 grams of glucose.

Progress Notes.—The case ran an apyrexial course with normal pulse rate and respirations until the terminal crisis with sudden perforation and peritonitis. A high protein, low fat, low carbohydrate dietary in the form of "sprual" introduced by Fairley in 1932 was used, and initially three injections of campolon (each 6 c.cm.) were given; a sub-maximal reticulocytosis of 10.4 per cent. (see Graph) occurred on the sixth day, and subsequently fluctuations in the counts occurred throughout the course of the disease, the percentage, however, always remaining above the normal. Though there was improvement in the alimentary features of the case, looseness of the bowels persisted, and there was but little gain in weight; though the red corpuscles showed some increase in numbers the haemoglobin percentage remained stationary (see Graph). Analysis of the stools on March 16th showed: total fat, 19.2 per cent.; neutral fat, 2.6 per cent.; fatty acids, 16.6 per cent.

On March 19th the patient was put on two tubes of "exhepa" daily (equivalent to $\frac{1}{2}$ whole liver), and this later was increased; daily injections of campolon (2 c.cm.) were also given, as indicated in the Graph. Again an appreciable increase in the red cells occurred, but the haemoglobin showed no improvement. A convalescent mixed diet was allowed on April 9th, and though the patient was troubled with flatulence she put on 2 lb. in weight, and progressed satisfactorily during the next week. The red cells also increased, and on April 16th the count showed red blood cells, 3,585,000 per c.mm.; haemoglobin, 50 per cent., colour index, 0.7; average diameter of corpuscle, 8 μ ; megalocytes, microcytes, anisocytosis, and poikilocytosis still present.



Haematological response in a case of tropical sprue dying from perforation of the caecum with peritonitis.

On April 18th, at 5.15 p.m., the patient complained of a sudden severe abdominal pain, and vomited copiously. She was in great pain, lying with the knees drawn up, and exhibited a greyish pallor and drawn facies. The abdomen was very distended, definitely rigid, and pressure increased the pain. Perforation with peritonitis was diagnosed, and Mr. A. H. McIndoe did an immediate laparotomy.

Operation.—There was a gush of gas and faecal fluid when the peritoneum was incised, a diffuse generalized peritonitis with ileus being found. A small circular hole about 1.5 cm. in diameter was found posteriorly, situated at the junction of a mobile caecum and ascending colon some two and a half inches above the base of the appendix. The bowel wall was very thin in the vicinity, but no ulcer or growth was palpated.

Necropsy.—The caecum and adjacent ascending colon were distended and thinned, and a circular hole was found in the bowel as indicated above. There was no induration or thickening around the perforation, and no signs of surrounding inflammation suggesting that perforation had occurred at the site of a former ulcer. A vein draining the area was thrombosed. Further details of the necropsy will be published separately later.

Comment

Though the patient had definitely improved as a result of treatment and the red corpuscles had increased by 1,885,000 per c.mm., the haemoglobin failed to increase in the way the vast majority of sprue cases do. The patient, as already stated, was very weak on admission, and it appears probable that venous thrombosis in a thinned and over-distended bowel led to sudden bursting of a devitalized area of the caecal wall. In the light of subsequent happenings it would probably have been better if the convalescent diet had been of higher protein and lower carbohydrate composition. Iron therapy was withheld for fear of irritating the bowel and increasing the diarrhoea.

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The Christchurch Hospital, New Zealand, publishes a review of the work of the radium and deep therapy departments between 1924 and 1934, which has been compiled by Dr. P. Clennell Fenwick, F.R.C.S.Ed., who is in charge of the departments in question. In his introductory note he states that "during the last nine years every request for additional equipment has been granted at once, and we are now so well equipped that we are able to carry out the same methods of treatment that are in use in Europe and in America." In May, 1930, a special consultation clinic was organized, which meets weekly and is composed of all members of the honorary and departmental staff. Each patient is examined by the members, and re-examinations are made at regular intervals. Carefully worked out recording and "follow-up" systems are in routine use. The consultation clinic has been found to be especially useful in the case of persons who ask for examination under the impression that they have cancer; and the united assurance of an expert committee that such is not the case has done much not only to render the persons happier but to encourage people to come for advice. Since 1930 the clinic has examined 785 new patients, while the total attendances for examination and re-examination have been 2,004. Brief descriptions are given of the methods of treatment employed, together with summaries of the results obtained. There are also useful notes of the after-care of cancer patients and upon the mental aspect in carcinoma. A useful series of precautions to be observed in treatment appears at the close of the report.

Clinical Memoranda

TORSION OF HYDATID OF MORGAGNI SIMULATING ACUTE APPENDICITIS

The following case seems to merit report as illustrating one of the more uncommon conditions which may present the clinical picture of acute appendicitis.

A well-developed girl of 16 years was seen about five hours after the onset of abdominal pain, at first generalized, but later localized in the right iliac fossa, accompanied by vomiting. Temperature, 99°; pulse, 96. There was diminution of abdominal movement, some rigidity in the lower right quadrant, and tenderness just below McBurney's point. A fairly definite diagnosis of acute appendicitis was made. An hour later the abdomen was opened by Davis's incision: a considerable amount of sero-sanguineous fluid escaped from the abdomen. The appendix, which showed injection of its peritoneal coat, was removed. As the condition of the appendix seemed incompatible with such an amount of bloody fluid the pelvis was explored. The right ovary was polycystic. The uterus and left appendages were in all respects normal. The two right hydatids of Morgagni were larger than normal, and presented pedicles about 1.5 cm. long: the uppermost one resembled a ripe cherry in size and appearance. It was tense, and its pedicle was twisted on itself through 1½ turns in a counter-clockwise direction. The pedicle was ligated and the strangulated hydatid removed. The other hydatid was also removed, as the occurrence of a similar mishap seemed not unlikely in view of the abnormal length of its pedicle. A wedge-resection of the right ovary was done. The abdomen was closed without drainage. Convalescence was uneventful.

The points of interest in this case are: (1) the accurate simulation of acute appendicitis, and (2) the large amount of fluid poured out in six hours from a small strangulation.

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MYOIDEMA

Myoidema is a physical sign which seems to have been almost forgotten, as it is not mentioned in some of the recent textbooks of medicine, and is not known to the younger generation of doctors. It is a localized contraction of wasting muscle, produced by a sharp tap, and is most often seen in cases of pulmonary tuberculosis. It is readily obtained by striking the pectoralis over the second and third ribs with the end of the middle finger, as if percussing rather forcibly. In all cases where the tuberculosis is active a small lump of muscle will at once arise at the stricken point and quickly disappear. It may be seen in other diseases where there is loss of flesh with febrile temperature. One condition is, so far as I know, peculiar to pulmonary tuberculosis, and that is, the presence of myoidema on one side of the chest only; this happens when there is active disease at one apex, and that slight. In the more advanced cases there is often a difference on the two sides as to the readiness of myoidema to appear, the more ready contraction being produced on the more diseased side. In acute cases it can be got in every muscle of the body. A very fair estimate of the rate of progress of the disease at the time is given by this phenomenon—the more readily it is produced the more acute the case, and, if it cannot be obtained, the tuberculosis is quiescent.

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Reviews

THE CLINICAL SIGNIFICANCE OF THE ELECTROCARDIOGRAM

Experimental researches and clinical studies during the past five years have enlarged and, to some extent, modified the clinical significance of the electrocardiogram. The new (third) edition of Dr. HAROLD PARDEE'S *Clinical Aspects of the Electrocardiogram*¹ presents a full and balanced picture of modern conceptions. Earlier chapters are devoted to the common abnormalities and a consideration of the limits of the normal. It is customary at the present time to regard an electrocardiogram as normal when it shows none of the irregularities of rhythm or complex which are known to denote functional or pathological changes in the heart. It cannot be doubted that the great mass of normal electrocardiograms contain groups of less obvious deformities, perhaps representing pathological changes, but more likely related to dysfunction of endocrine and metabolic mechanisms in or controlling the heart. These have yet to be differentiated, and may constitute some of the new matter that will appear in further editions of Dr. Pardee's monograph.

In the present volume the new knowledge of localization of myocardial damage, bundle-branch block, and premature contractions is discussed and the modern views justified. There have been those who have discounted the value of instrumental methods in clinical medicine; it has been assumed by some that electrocardiography is employed as a short cut to prognosis. No orthodox physician would make such a contention, and Dr. Pardee has epitomized the matter as follows: "The only thing that can be discussed about the prognostic importance of the electrocardiogram is the part which it may contribute to the prognosis"—namely, by indicating the extent of the structural changes in the myocardium. The volume contains seventy-four illustrations, the reproductions of electrocardiograms being adequate, but not outstandingly good. The text is full and readable, its authority is unquestionable, and the monograph will prove highly valuable to clinicians, and particularly to cardiologists.

INFANTILE ECZEMA

That baffling disease, eczema of infancy, is the subject of an interesting monograph,² by Dr. PÉHU and Dr. AULAGNIER, both of Lyons. Although for long the subject of intensive study, it cannot be said that much is yet known either as to its real nature or that the treatment of the condition is in any way satisfactory. The authors have recapitulated thoroughly enough the various views held on the vexed questions associated with the subject, including its aetiology, and finally side themselves with those who are content to explain so many things by the employment of the blessed word "allergy." The exact signification of this very popular term still remains obscure. According to some it is merely a synonym for general hypersensitiveness to environment, while others limit it to the liability to the production of toxic symptoms from the action of various proteins. In the case of infantile eczema most authors lay the blame on different articles of diet, especially upon milk, the staple food of infancy, but some indict the egg albumen consumed by the mother during the pre-natal life of the patient. At one time it was thought that eczema seldom

or never occurred in breast-fed infants, but it seems that the incidence of the complaint is almost the same in these as in those who are bottle babies. In any case it is never wise to wean prematurely a breast-fed baby with the idea of benefiting the eczema. Toxins produced in the alimentary canal have also often been cited as an aetiological factor, but well-nourished infants with no symptoms of digestive trouble are usually much better if their alimentary systems are allowed to remain undisturbed by unnecessary medicines.

Our authors in their discussion of the important but difficult subject of treatment relegate local measures to a secondary place, but they are sufficiently wise to warn against the employment of any irritating application, which is only too prone to cause an exacerbation of the condition. Their primary object in treatment is to remove the allergic susceptibility of the patient, and for this purpose they find that the best method is the employment of vaccino-therapy in the shape of injections of an enterococcal vaccine. They appear not to aim at a specific desensitization, but at an alteration of the reactive tendencies of the patient—an object very much akin to the purpose proposed by the advocates of "protein shock." Among other matters, the authors devote considerable space to the discussion of sudden death in infantile eczema—that is to say, death occurring within a few hours in an infant previously healthy except for the presence of the eczematous eruption, and in which post-mortem examination discloses no sufficient cause. These tragedies, fortunately rare, they regard as examples of anaphylactic shock, supporting their contention by a comparison of the microscopic changes found in the central nervous system in such cases with those found in animals which have been the subjects of experimental anaphylaxis. It is a singular thing that these cases, rare enough in France, seem practically unknown in this country; we cannot remember one being published for many years. In conclusion we may say that this monograph is worthy of perusal by all dermatologists and paediatrists.

SEXUAL AND REPRODUCTIVE PHYSIOLOGY

Among the branches of medical science in which new knowledge is so rapidly multiplying few, if any, have been so prolific in hypotheses and potentialities as endocrinology, and in particular the *Recent Advances in Sex and Reproductive Physiology*,³ on which Dr. J. M. ROBSON of the active Institute of Genetics of the University of Edinburgh has provided a comprehensive summary. This review is obviously valuable at a time when published researches are constantly appearing, sometimes discordant and even confusing from the introduction of new names for the same hormone. The endocrine interdependence is complicated, and even now it is difficult to decide whether all the described hormones have a separate existence or whether the different reactions reported are due to variations in the conditions present in the reacting tissues.

As is well known, Zondek described two gonadotropic hormones, prolan A and prolan B, manufactured in the anterior lobe of the pituitary, and probably by the basophil cells, which control the hormone activities of the ovary. Subsequently Wiesner of the Edinburgh Institute of Genetics set forth a similar scheme under the name of the Rho factors. That the anterior pituitary provides a gonadotropic hormone there appears to be general agreement, but considerable doubt has been expressed, for example, by Collip and Dodds, about the separate exist-

¹ *Clinical Aspects of the Electrocardiogram, including the Cardiac Arrhythmias*. By Harold E. B. Pardee, M.D. Third edition, revised. New York: Paul B. Hoeber, Inc. 1933. (Pp. 295; 74 figures. 5.50 dollars)

² *L'Eczéma du Nourrisson*. Par Dr. M. Péhu et Dr. R. Aulagnier. Paris: Gauthier-Villars. 1934. (Pp. 174. 25 fr.)

³ *Recent Advances in Sex and Reproductive Physiology*. By J. M. Robson, M.D., B.Sc. With an Introduction by Professor F. A. E. Crew, M.D., D.Sc. London: J. and A. Churchill. 1934. (Pp. ix + 249; 47 figures 12s. 6d.)

ence of two—prolan A and B. Dr. Robson, who gives a wide review of the whole subject, concludes, from the evidence of different types of urine and of various pituitary preparations, that there apparently are two gonadotropic hormones. Another disputed point is whether or not there is a definite increase of eosinophil or other kind of cells in the anterior pituitary in pregnancy; the author quotes an observation to the effect that there is a preponderance of acidophil cells; but it may be noted that Rasmussen, from a long series of histological examinations, does not recognize the existence of what have been called the pregnancy cells.

The question of a gonadotropic hormone secreted by the human placenta is discussed and left open. Although there are admittedly some reasons for the suggestion that the foetus produces a hormone influencing the course of pregnancy, the author concludes that there is not any convincing proof of this.

ULTRA-VIOLET THERAPY IN EYE DISEASE

For some years there has been a physico-therapeutic department at Moorfields Eye Hospital—recently under the charge of Mr. Frank Law, who has compiled a review of the action of this and other forms of radiant energy under the title of *Ultra-Violet Therapy in Eye Disease*.¹ Full details of the type of radiant energy employed are dealt with in an introductory chapter. Ultra-violet light is used in treatment of disease of the eye in two ways: in general phototherapy, as a means of increasing the patient's general resistance and recuperative power; and in local phototherapy, by virtue of its local biological action upon the tissues. The potency of such light in its effect on the eye was shown by Birch-Hirschfeld and Duke-Elder. There was a definite abiotic reaction following exposure to the short unfiltered ultra-violet rays. The cornea swelled in all its parts, there was a cellular infiltration, and, if severe, the lesion might extend to the production of opacity. The lens might be similarly damaged, even to a tendency to the formation of cataract. There is also some evidence that the retina may suffer injury, and it is obvious that unskilled use of these rays may be highly injurious to the sight. In Mr. Law's work some 225 cases come under review, mainly those treated in 1932, and special pains were taken to secure a proper follow-up. The largest number of cases comprised those commonly associated with the appearance of pterygiae either on the conjunctiva or on the cornea. In weighing the value of the results Mr. Law confesses himself less enthusiastic than previous workers. He points out that besides the use of the rays there are other factors in the treatment—the cleansing of the eye by a skilled nursing staff, and, not least, the mere exposure to the air of the bodies of children, and the removal of clothes that are often actually sewn on! Nevertheless, he is convinced that there is a benefit derived in cases of blepharitis, pterygular disease, and conjunctivitis in children; diseases that are due to bad condition, debility, lack of nourishment, or even lack of cleanliness. This finding is strengthened by the observation that poor results were achieved in such cases as syphilitic iridocyclitis and tuberculous disease. General phototherapy is an adjunct in treatment—in many cases a useful adjunct—so that the sooner it is begun the better the chance of performing its part in expediting recovery. There is a section on the use of radium. The types of rays and the means of control adopted at the Radium Institute are described. It is held that the claims made for the therapeutic value

of radium in ophthalmic conditions, especially in America, are too diverse and too enthusiastic, but that it is of proved value in the treatment of epibulbar and orbital neoplasms, as also in the treatment of spring catarrh. There are no indications that it will supersede present methods of treatment of trachoma and senile cataract. The book includes also a chapter on the therapeutic use of x rays, wherein, on balance, the dangers seem to outweigh the advantages; and a chapter on the use of infra-red rays, which serve no therapeutic purpose in ophthalmology, and, in fact, offer definite dangers.

ACUTE AURAL INFECTIONS

In *Acute Otitis and Mastoiditis in General Practice* Mr. N. ASHERSON has made a determined attempt to produce a book which may help the practitioner, faced as he often is by the puzzling phenomena occurring in acute inflammatory conditions of the ear. Had the author been able to convey to his readers in clear, concise language the fruits of his experience, which is evidently wide, he might truly have been very helpful. Quite early in the book, however, in giving directions to the practitioner for so simple a matter as syringing, he says, "The nozzle of the syringe is inserted into and along the floor of the meatus," the italics being the author's. If this be the method which a practitioner should adopt perhaps it explains why many patients still prefer to visit an aural surgeon when the ears require syringing. Again, we read: "The tip of the mastoid process is subcutaneous, and its anterior, lateral, and posterior parts are palpable, but the actual tip itself is buried in the uppermost fibres of the sternomastoid muscle." Such loose writing makes every sentence suspect, and there is hardly a page on which some obscurity or ambiguity is not to be found. On page 160 it is stated that after an operation for acute mastoid the average period before the patient is fit for normal routine is six weeks, and on page 276 the average period is given as three months. When he reads that the mastoid antrum holds only a drachm of pus at the most the reader will wonder what the author really means. Spelling mistakes are not infrequent, but perhaps "Wylde's" incision conceals a delicate gesture which the father of Oscar would not have appreciated. If the author had submitted his book to independent and drastic revision good use could have been made of his excellent material.

BLOOD LYMPH AND IMMUNITY

Investigations of normal and pathological body processes are apt to be made in different institutions and published in different journals. It is therefore a great help to workers in both fields if a summary of the present state of knowledge in both directions is collected in one volume. This is attempted in the *Treatise on Physiology, Normal and Pathological*,² edited by Professors ROGER and BINET. The second edition of the volume of this treatise, which deals with blood lymph and immunity reactions, has recently appeared. The 730 pages cover a very wide range, including, for example, the chemical constituents of the blood, blood transfusion, and immunity reactions.

The book is divided into sections on various subjects by different authors. These sections are of very unequal quality. That dealing with the chemical constituents of the blood (Professor Laudet) is concise and nearly as

¹ *Ultra-Violet Therapy in Eye Disease. With a Review of the Action of Other Forms of Radiant Energy.* By Frank W. Law, M.A., M.D., B.Chir., F.R.C.S. Foreword by Sir Stewart Duke-Elder, M.A., D.Sc., M.D., Ph.D., F.R.C.S. London: John Murray. 1934. (Pp. 78. 5s. net.)

² *Acute Otitis and Mastoiditis in General Practice. A Manual for Practitioners and Students.* By N. Asherson, M.A., M.B., B.S., F.R.C.S. London: H. K. Lewis and Co. Ltd. 1934. (Pp. 317; 97 figures, 12 in colour. 10s. 6d. net.)

³ *Traité de Physiologie, normale et pathologique.* Tome vii, Sang et Lymphes Reactions d'Immunité. Publiée sous la direction de Professeur G. H. Roger et Professeur Léon Binet. Deuxième édition. By various authors. Paris: Masson et Cie. 1934. (Pp. 730; illustrated. Broché 100 fr., relié 120 fr.)

complete as is possible in sixty-eight pages, although practically nothing is said about the reaction of the blood. There is a thorough discussion of the coagulation of the blood by Professor Zunz. On the other hand, Professor Achard gives a vague and verbose discussion of theories of oedema, in which he does not appear to distinguish between osmotic pressure and hydration of proteins. Had he cleared his ideas and included more of the known facts (as, for example, those of Moore and van Slyke bearing on the relation of oedema to plasma proteins) he could have presented far more information in fewer pages. The single page given to the pathological physiology of blood platelets is most inadequate. Anaemias and leukaemias are not included. The section on respiratory pigments in invertebrates is very brief, while that on coagulation of the blood in invertebrates occupies less than a full page. The section on immunity, by Professor Bordet, is masterly, as far as it goes, but makes little mention of the great volume of work carried out in the last ten or so years. It entirely omits the work done by Landsteiner's school on the relation of specificity to chemical structure. In the section on anaphylaxis, by Professor Besredka, considerable attention is paid to the practical aspects of the subject. This is all to the good, for it maintains interest and counteracts a too academic outlook. But it appears inadvisable in a work of this nature to include a purely practical section on blood transfusion, particularly at the expense of other important matter.

In such a treatise full references are essential in order that the reader may be able to form his own opinion on the work which the author quotes and to look up details that the author has omitted. No references are given in some sections; in others the bibliography is most incomplete. In all the sections little work is quoted except that published in French journals. There is no index.

Notes on Books

An Introduction to Pharmacology and Therapeutics,¹ by Professor J. A. GUNN, was first published in 1929, but has already reached a fourth edition. The continued demand for this book is proof that there is a widely felt need for some short and simple exposition of the scientific facts which form the basis of rational therapy. The author modestly attributes the success of his book to a revival of interest in the treatment of disease, but its popularity is chiefly due to the fact that, while it is concise, it is also readable and accurate.

¹ *An Introduction to Pharmacology and Therapeutics*. By J. A. Gunn, M.A., M.D. Fourth edition. London: H. Milford, Oxford University Press, 1934. (Pp. 237. 5s. net.)

Murrell's handbook *What to Do in Cases of Poisoning*² has now reached its fourteenth edition, and for the last three Dr. PHILIP HAMILL has been responsible. The edition under review has been carefully revised, and many new poisons have been added. We find, for example, accounts of dinitrophenol intoxication, the use of strychnine in barbiturate poisoning, and antimony poisoning from enamel-ware glaze. The long-continued popularity of this pocket volume is the best proof of its merits. We suggest, however, that its utility might be increased by a somewhat fuller account of the commonest causes of poisoning, such as coal gas and lysol.

The first volume of the forty-fourth series of *International Clinics*³ is divided into four parts, devoted respectively to original articles on medicine, surgery, and paediatrics, and reviews of recent progress in medicine and surgery. The section on medicine contains instructive papers by Noel Fiesinger of Paris on hepatic insufficiency, by Lay Martin of Baltimore on jaundice, by Tinsley R. Harrison of Baltimore on enlargement of the heart, by William S. Lowe of Baltimore on so-called functional heart disease, by G. L. W. Gorham and K. E. Crouse of Albany on recent advances in the treatment of cardiac and renal oedema, by Henry M. Moses on the management of old-age conditions, and by Samuel Weiss and Vera L. Coles on the role of the vegetative nervous system in gastro-intestinal diseases. The section on surgery contains an interesting paper by I. A. Bigges and William B. Porter of Richmond, Va., with a record of seven personal cases and a review of the literature. The sections on paediatrics consist of a symposium on lead poisoning in its various aspects, including its occurrence in children, by H. B. Cushing and H. S. Mitchell, x-ray diagnosis by H. E. Childe, its biochemical aspects by I. M. Rabinowitch, the pathology by Lawrence J. Rhea, and treatment by S. G. Ross, all of Montreal. Recent progress in medicine is discussed by A. Cantarow of Philadelphia, and in abdominal surgery by Donald C. Balfour and James R. Watson of Rochester, Minnesota.

The British Social Hygiene Council (Carteret House, London, S.W.1) has published a thirty-four-page booklet entitled *Health Notes for Young Men Overseas*, which provides suitable information on venereal diseases, etc., intended for young employees of tea, rubber, and other firms going to the East. It has been prepared by Dr. T. DRUMMOND SHIELDS on the lines of the Ross Institute booklet on malaria, and can be obtained for 4d. Up to 25 per cent. of free copies are offered to firms placing an order for these booklets.

² *What to Do in Cases of Poisoning*. Edited by P. Hamill, M.D., D.Sc., F.R.C.P. Fourteenth edition. London: H. K. Lewis and Co. Ltd. 1934. (Pp. viii + 204. 5s. net.)

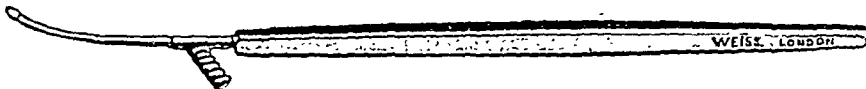
³ *International Clinics*. Vol. i, forty-fourth series, 1934. Edited by Louis Hamman, M.D. Philadelphia, Montreal, and London: J. B. Lippincott Company. 1934. (Four volumes quarterly. 50s.)

Preparations and Appliances

IRRIGATING REPOSITOR FOR CATARACT EXTRACTION

Mr. B. W. RYCROFT, F.R.C.S. (London, W.), writes: During the operation of cataract extraction it is frequently necessary to irrigate the anterior chamber in order to remove residual lens cortex after the nucleus has been extracted. Thereafter

point, and slightly curved on the flat. This is mounted on a handle, to which is fitted a small nozzle for attachment of a rubber tube, around which the whole shaft is balanced. The diameter of the tube is little more than that of an ordinary iris repositor, and can be inserted between the lips of the corneal section without causing the wound to gape. Further-



the iris is replaced and the edges of the wound cleared of capsule, etc. In order to complete this double manoeuvre by a single instrument an irrigating repositor has been constructed, and has proved satisfactory in practice.

The instrument (shown in the accompanying figure) consists of a fine bone hollow tube of silver tapered to a narrow

more, it may be easily passed to the lower limits of the anterior chamber in order to obtain a reverse flow and to dislodge stubborn masses of lens cortex. The rate of flow is controlled by either hand.

The instrument is constructed by John Weiss and Co., Oxford Street, London, W.

MANCHESTER MEDICAL SOCIETY CENTENARY

BY

E. M. BROCKBANK, M.D.

Manchester has been, is, and will be celebrating centenary anniversaries of important societies in the conception of all of which the medical profession had been more or less active. Last year the Statistical Society, the first of its kind in England, reached its hundred years of existence. One of its first four founders was Dr. James Phillips Kay, afterwards Sir James Kay-Shuttleworth (1804-77), a baronetcy being awarded for his national services to education. Presidents of the society were Dr. John Robertson (1844-7), Dr. Daniel Noble (1859-61), and Dr. James Niven (1905-7). I had the honour of giving the society an account of "A Medical Statistician of a Century and a Half Ago" (Dr. Thomas Percival) during its historical celebrations. This year the Manchester Medical Society became a centenarian on October 1st; and next year the Manchester Athenaeum—practically a similar institution, but for the commercial man in the street—reaches a similar age. In a *History of the Manchester Medical Society* it is suggested that the idea of both our own society and of the Athenaeum was conceived, and preliminary steps for their formation taken, by one man—John Walker—a surgeon of the town. As much as is known of Walker is recorded in the *History* of the society which has been prepared for the centenary. Before 1834 there was no medical library available for general reference, and no society confined to members of the profession at which medical questions could be ventilated.

FROM 1782 TO 1834

The Manchester Literary and Philosophical Society was conceived and really brought into being in 1782 by Dr. Thomas Percival of medical ethics fame, with the forceful assistance of Thomas Henry, F.R.S., apothecary to the Manchester Infirmary—that is, a general practitioner of the day—and the Rev. Thomas Barnes, Unitarian minister of the town. This society was mainly run by the profession for thirty or more years, half of the offices—presidents, treasurers, secretaries—being filled by our forebears. In its early days the doctors read papers before it, but they were mainly of general interest, and any member of the society could attend its meetings. The only method in which professional matters could then be discussed seemed to be by the public press, in pamphlets, and even in octavo volumes of considerable size. Our forefathers of the day were no milk-and-water controversialists; ink was no use to them—gall apparently flowed more naturally from their quill pens. The most important controversy of those times was over the justifiability of the Caesarean section operation, which Dr. John Hull defended against the scathing comments of William Simmons, backed up by Dr. John Ferriar. Then Charles White drew down the sneers of Ferriar upon his method of describing the anatomical distribution of the swelling in phlegmasia alba dolens puerperarum. All in public too, and no doubt spicy material for the general readers.

A HUNDRED YEARS OF ACHIEVEMENT

In spite of the evident need for one, there was no attempt to found a purely medical society until 1833, when a meeting was held and a decision made to canvass the practitioners of the district on the question. Two energetic young persons—John Walker and Joseph Peel Catlow—undertook this, and the result was the foundation next year of a society with the object of providing a library and reading room and place for meetings for discussing medical topics. Dr. John Hull, then the doyen of the profession, was elected first president.

The history of the society, with its ups and downs, hard work by some members, indifference by others, financial struggles, is probably that of other societies: but one outstanding feature was the acquisition of a very extensive and valuable library through the efforts of

Thomas Windsor, an ophthalmic surgeon of distinction in his day. For fifteen years he bought many thousands of second-hand books from home and abroad. Among them were some dozen incunabula, many examples of fine printing from the leading Continental presses, anatomical plates, biographical dictionaries, sets of periodicals—indeed, anything that might be of value for reference or research. So much was spent on these books that the committee got restive, and the end was Windsor's withdrawal from his library activities and transference of his help to Dr. Billings's library of the United States Surgeon-General at Washington.

The actual hundred years of achievement was reached on October 1st, on which date an exhibition of books, portraits, curios, and other objects bearing on the medical history of the town was opened in the new Central Library of the city, where it will remain for general inspection until October 20th. The president of the society for the year, Dr. E. Bosdin Leech, gave an address on October 3rd, the first Wednesday in the month, on which ordinary meetings of the society have invariably been held from October 1st, 1834. His subject was "Some Picturesque Episodes of Manchester Medical History." Before the address Dr. Leech presented, for the honorary membership of the society, the Earl of Crawford and Balcarres, Chancellor of the University, Sir Walter Moberly, Vice-Chancellor, Mr. Walter Cobbett, Chairman of the Board of Trustees of the Manchester Royal Infirmary, Percy Winstanley Hull, grandson of Dr. John Hull, the society's first president, Dr. J. M. Bligh, President of the Liverpool Medical Institution, and Professor J. A. Nixon of Bristol, who is to address the society next month on "Licence to Practise and Liberty to Teach Medicine in the English Provinces." A dinner followed on the same evening, at which many distinguished visitors were present. On Sunday, October 7th, there was a special service in the Cathedral, the preacher being the Right Reverend Cecil Wilson, Bishop of Middleton.

THE COMMEMORATIVE EXHIBITION

The exhibition is in the large hall of the new Central Library of the city, recently opened by the King, which has been designed for such a purpose. The display, mostly of objects illustrating the medical history of the town, is well worthy of the honour of being the first of its kind to appear in such a striking place. It is being visited daily, with great interest, by hundreds of the general public, for whom it was chiefly intended. The exhibits are disposed in handsome erect metal and glass cases, while for the larger articles and books horizontal cases are used. Of books there are samples of medical publications of the fifteenth and sixteenth centuries, from the most famous Continental presses, some in Greek characters. More modern books illustrate the writings of local doctors who have promoted the knowledge of medicine. Most of these exhibits are made more interesting by a portrait of the author displayed by the side of his book. Two cases contain books and pamphlets dealing with the vaccination controversy before 1816, and copies from burial registers of the town churches showing the ravages of small-pox, especially among children, of the period. One very interesting exhibit is a series of illustrations and portraits showing the growth of the Manchester Royal Infirmary from its foundation in 1752, and a group of its original large gallipots and poison bottles, the latter like large stone ginger-beer bottles of last century. Among other objects which attract attention is a carbolic acid spray, given by Lister to the late Mr. Edward Lund. The progress of the public health of the town is well illustrated by graphs, especially made for the purpose, with singular clarity of exposition.

A final note of personal interest is that the president for the centenary year is nephew of the late Dr. Daniel John Leech, professor of materia medica and therapeutics in the University of Manchester, who filled the same office in the jubilee of the society fifty years ago. Dr. D. J. Leech was keenly interested in the nitrite group, and was instrumental in having that very useful preparation liquor ethyl nitritus recognized in the official *Pharmacopoeia*, though it is no longer there.

LEWISHAM HOSPITAL EXTENSION

OPENING BY LORD DAWSON

A new ward block at Lewisham Hospital—one of the general hospitals of the London County Council—was opened on October 9th by Lord Dawson of Penn. The block consists of three wings, and comprises a maternity department with accommodation for sixty-three cases, a children's section with thirty-five cots, and two general wards containing sixty-six beds. The total additional accommodation provided in the extension is 164 beds. In the maternity unit the main wards are divided into three, and at the end is the babies' "crib ward," with toilet room. There are five labour rooms, a bathroom for newborn babies, and a room, specially heated and thermostatically controlled, for babies born prematurely. The children's section includes an admission bathroom, a milk room for the preparation of feeds and the sterilization of bottles, and a sun parlour. Glazed divisions between the sections give a less institutional appearance, and aid in the classification of patients. In addition to the ordinary examination lamps, there are plugs for use in connexion with x-ray examination by each bedside, and wireless earphone points for each patient. The new works, including equipment, are expected to cost £55,500, and will bring the total accommodation of the hospital, which had 5,635 in-patients last year, to 747.

The opening ceremony was largely attended by members and officers of the London County Council and by a number of consultants and specialists in its service. Mrs. Nellie Palmer, chairman of the Lewisham Hospital Committee, presided. Mr. Somerville Hastings, chairman of the Hospital and Medical Services Committee of the Council, in welcoming Lord Dawson, said that this new block was the biggest piece of constructive work that the Council had undertaken since it became responsible for municipal hospitals in 1930. It was believed, and hoped, that the wards were thoroughly up to date, and efficient in every way, and it was known how very necessary they were in a rapidly growing district. The available beds in connexion with L.C.C. hospitals were constantly being increased, and a few weeks' time another hospital would be taken over—namely, Heatherwood Hospital, with more than 100 beds, presented by the United Services Fund. Mr. Somerville Hastings pleaded for the development of after-care work, which must be of a voluntary nature, in connexion with the hospitals. He wanted to see efficient Samaritan committees formed at each institution.

Lord Dawson of Penn, who wore his gown as president of the Royal College of Physicians of London, said that he was present not only in his personal capacity, but as President of the College. The two Royal Colleges comprised in their Fellowship a large proportion of the members of staffs of the leading hospitals of the country, and had accumulated in the course of years a certain amount of knowledge and experience which they were only too anxious to place at the service of any forward movement which would improve hospital services in this country. He paid a tribute to Sir Frederick Menzies, the county medical officer of health, on whom, as the greatest medical administrator of our time, his College had conferred its honorary Fellowship. In addition to the vast amount of work imposed by the Local Government Act, 1928 there had fallen to Sir Frederick Menzies a very large share in the establishment of the Post-Graduate Hospital and School at Hammersmith, now

approaching completion. Lord Dawson sketched the wide compass of the medical services of the L.C.C., and referred to the increasing co-operation with the voluntary hospitals. The L.C.C., with great wisdom, had associated its new hospitals with the right conception of teaching. One practical issue was the linkage of municipal hospitals for teaching purposes to the teaching hospitals of London. Passing to the building which he was to open, Lord Dawson said that it was a great pleasure to be in a building in which such fastidious care had been spent on details of construction—on the proper provision of light and air, and on the width and height of wards. He congratulated the hospital on the fact that it stood in more than ten acres of grounds. It was elementary foresight on the part of any hospital or clinic, private or public, to acquire more ground than it could immediately use, for no one could say in what large direction hospital construction might make progress during the next fifty years. He praised, also, the provision for maternity cases, which would help to make child-bearing safe. He hoped that in course of time all the municipal health services of the district would be located within the hospital, instead of being scattered at various centres. Finally, he stressed the need for a department of physiotherapy in connexion with all hospitals.

By means of a microphone Lord Dawson addressed a few words of encouragement to the patients, who were listening-in, and then he and the general company proceeded to inspect the block.

ROYAL MEDICAL BENEVOLENT FUND

Subscriptions and donations are very urgently needed in order that the activities of the Fund may be maintained. Legacies are needed to support the annuity department. Cheques should be made payable to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

The committee at a recent meeting voted seventy-two grants amounting to £1,513 10s. The following are particulars of three out of the many cases helped.

M.S., F.R.C.S., aged 58, married, with three children, aged 16, 14, and 12. Joined up for the war, and was in France from 1915 to 1917, when he retired on account of ill-health. Then followed a long period of locums, with a growing family to educate. Two years ago he started in a practice of his own. In July, 1934, the applicant was admitted to hospital, and had an operation for pyloric stenosis. It was found that he had suffered from a duodenal ulcer for some years. It was clear that this man had been struggling to build up a practice to support his family while seriously ill. He will require a long holiday after his discharge from hospital. He has no savings to meet this, nor for the support and maintenance of his family, and there are some pressing debts. The Fund has given immediate assistance of £30, and help has been obtained from other societies amounting to £157. Total charitable gifts, £187.

Widow of L.R.C.P. and L.M. The husband died suddenly in 1923 from heart disease. The widow, aged 30, was left inadequately provided for with three young children. She has sought employment, and has worked as nurse and housekeeper, but was recently dismissed owing to breakdown in health. The eldest daughter has now reached the age for employment, and is earning £83 per annum; the two younger are at school. The Fund and Ladies' Guild are assisting with grants amounting to £56. The total income available for food and household needs for this family is £167, which has also to meet children's extras at school, fares, and outfit, but excluding school fees.

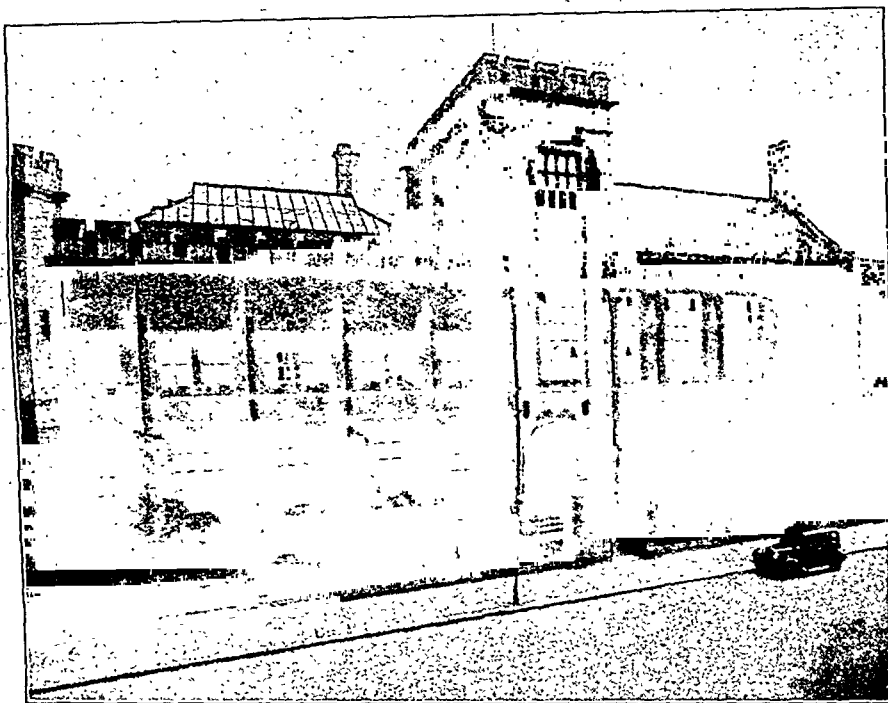
Widow of L.R.C.P. and S. The husband died in 1931, leaving his widow, aged 46, with a family of five children. Fortunately three were able to earn and contribute £147 to their mother towards their own maintenance. The Fund gives a yearly grant of £25 and the Ladies' Guild £19 10s. Total income is £197 10s.; rent and rates, £58, leaving £139 for the maintenance and household needs of six persons.

CENTENARY OF THE UNIVERSITY OF DURHAM COLLEGE OF MEDICINE

CELEBRATIONS IN NEWCASTLE AND DURHAM

On October 4th and 5th the Newcastle School of Medicine celebrated the hundredth anniversary of its foundation. Coeval with the federal University of which it is one of the most flourishing units, it began its work in 1834 in a humble fashion. The present building, dating back to 1888, is the third home of the school, and plans are already far advanced for the erection of a new College in close proximity to the Royal Victoria Infirmary, since for some years the number of applicants for admission has considerably exceeded the capacity of the laboratory accommodation in several departments, and even continued duplication of classes has failed to meet the needs

from other schools unable to send personal representatives, including a congratulatory cable from the Dean of the Faculty of New York. Dr. E. K. Le Fleming, Chairman of Council, personally represented the British Medical Association. The Chancellor of the University of Durham, Lord Londonderry, detained in London by urgent affairs, sent a message of congratulation and good wishes. The Visitor of the University, the Lord Bishop of Durham, and the chief officers of the sister colleges at Durham and Newcastle were present, together with the Lord Mayor of the city and a distinguished assemblage from the city and the counties of Northumberland and Durham.



UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, NEWCASTLE-UPON-TYNE: NORTH FRONT.

of students and permit all eligible candidates to enter the school. On Thursday, October 4th, the College was thrown open to visitors. The chief features of interest were historical exhibits by Professor Grey Turner, Dr. W. D. Arnison, and Mr. F. C. Pybus; and demonstrations in the departments of anatomy, biology, physiology, chemistry, and pathology.

OFFICIAL RECEPTION

The president, Sir Thomas Oliver, who has been associated with the College for fifty-five years since his appointment on the teaching staff in 1879, welcomed guests at the official reception in the evening. Congratulations were offered in person by the Presidents of the Royal College of Surgeons of England, the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, the Governor of the Apothecaries' Hall of Dublin, the President of the British College of Obstetricians and Gynaecologists, the Deans of the Faculties of Medicine of Aberdeen, Oxford, Leeds, and Sheffield, the Provost of the School of Medicine of the University of Wales; whilst messages were received

Among the many messages from old graduates unable to attend were notably those of Dr. Milner Moore (at the age of 95 years) and Dr. Alfred Cox. The scene in the Great Hall of the College was enlivened by the vivid colour of the academic costumes of graduates and the representative guests. Alternative attractions were provided in the way of a lantern lecture on the history of the College by Professor Grey Turner, an anatomical film demonstration by Professor Green and Dr. James Whillis, and a picturesque display of the local traditional sword-dancing by a team, whose age averaged 60 years, led by a veteran of 77 years. Later, guests and graduates and students danced till the early hours.

On Friday, October 5th, at Newcastle-upon-Tyne, old graduates, under the guidance of Dr. W. D. Arnison, visited the Old Infirmary, now manufacturers' premises, identifying where possible the scenes of their hospital life. Others visited the various hospitals associated with the school, the Bacteriological Department, and the Public Health Laboratories. Sir Francis Acland, Chairman of the Dental Board of the United Kingdom, and Sir Holburt Waring were among the visitors to the Sutherland Dental School of the College.

CONVOCATION FOR HONORARY DEGREES

Guests were then transported by private cars and omnibuses to Durham, where in the Great Hall of the Castle luncheon was served to over two hundred guests, including the Chancellor, who had flown from London, the Visitor, the Vice-Chancellor, the Minister of Health, Sir Francis Acland, Sir Holburt Waring, Dame Janet Campbell, and Lieut.-General Hartigan, Director-General of the Army Medical Services.

A special convocation followed in the Chapter House of Durham Cathedral, with the Chancellor presiding, when honorary degrees were conferred. Sir Hilton Young, the Minister of Health, was presented by Sir Robert Bolam, and Sir Holburt Waring, P.R.C.S., by Professor Grey Turner, for the degree of D.C.L. Sir Francis Dyke Acland, Chairman of the Dental Board, was presented by Sir Thomas Oliver, and Dame Janet Campbell, M.D., by Professor Ranken Lyle, for the Degree of Doctor of Hygiene. Lieut.-General J. A. Hartigan, D.G.A.M.S., and Dr. Joseph W. Leech, M.P., were presented by Professor Grey Turner for the degree of Doctor of Surgery, and Dr. William Robinson of Sunderland for the same degree by Professor Thomas Beattie. Lastly, Dr. W. D. Arnison, joint author with Professor Grey Turner of a commemorative volume, *The Newcastle-upon-Tyne School of Medicine, 1834-1934*, was presented for the honorary M.A. by Professor C. E. Whiting. This handsome book, with abundant pictures,¹ forms an interesting memento

¹ *The Newcastle-upon-Tyne School of Medicine, 1834-1934*. By G. Grey Turner, assisted by W. D. Arnison. Newcastle-upon-Tyne: Andrew Reid and Co., Ltd. 1934. (Pp. 221; illustrated. 10s. net)

THE LEAGUE AND TRAFFIC IN OPIUM

[FROM OUR GENEVA CORRESPONDENT]

The Council of the League of Nations, on September 24th, received the voluminous report of the permanent Central Opium Board—a document containing over a hundred foolscap pages of statistics. The drug traffic may not be controlled, but it is certainly fully analysed. The representative of Poland, M. Beck, in presenting the report to the Council, drew attention to what he considered the most important conclusion, that while in 1932 there was a general decrease in the manufacture of the three main drugs—morphine, diacetylmorphine, and cocaine—in 1933 there was a considerable increase in the manufacture of the first (11.52 per cent.), and a slight increase in the manufacture of the second and third. There had been, however, a marked decrease in the reported world consumption of diacetylmorphine (10 per cent.), and a less marked decrease in that of cocaine (4 per cent.).

INTERNATIONAL CONTROL OF NARCOTICS

M. Beck said that it was gratifying to learn that certain Governments whose countries are producers and exporters of large quantities of raw opium, such as Turkey and Persia, are showing an ever-increasing spirit of collaboration, and endeavouring to conform more and more with the methods of the Board; but he regretted that the international control over the raw materials for the manufacture of cocaine was seriously hampered by the fact that certain countries, including some of the main producers of coca leaves, do not send in statistics. He added that the Board was justifiably concerned at the considerable increase in its duties and responsibilities resulting from the application of the convention of 1931 for the limitation of the manufacture and regulation of the distribution of narcotic drugs.

From the battalions of statistics presented in the report it appears that the manufacture of morphine and of cocaine is diminishing in Germany and France, and that of morphine is increasing somewhat in Belgium and Italy. In the United Kingdom the manufacture of morphine in 1933 was to the extent of 1,873 kilograms, comparing with

for those who joined in the centenary proceedings; it is also a mine of information about the rise of a great medical school, with many biographical sidelights upon the leaders of the profession in Newcastle during the past hundred years.

THE BISHOP'S ADDRESS

The closing ceremony was a magnificent commemorative service in Durham Cathedral, at which the Visitor of the University, Dr. Hensley Henson, Bishop of Durham, gave an apt and inspiring address, thus rounding off the part he had played in a memorable occasion. "Perhaps we may distinguish," he said, "three main reasons why the College of Medicine, as it reviews the first complete century of its existence, may in its corporate capacity offer thanks to Almighty God. In the first place, there stands the continuance throughout the whole period of that settled civil order and complete liberty of thought and teaching which are indispensable conditions of scientific research and academic teaching. In the second place, you have to thank God for a succession of great teachers who have advanced medical and surgical science to its present amazing altitude. In the third place, you thank God for the continuing prosperity of the College. It has grown from small beginnings to a position of assured importance in the national system. Its students are found in every part of the Empire, exercising their noble and beneficent profession. In Newcastle itself the College has had to its hand a teaching instrument of the highest value in a famous hospital, which certainly takes a place among the greater hospitals of England."

1,292 in 1932. The manufacture of cocaine in this country is also rising slightly, reaching 427 kg. in 1933; having increased every year since 1929, when it stood at 238 kg. The largest manufacturer of morphine last year was the United States (7,459 kg.), and the largest manufacturer of cocaine was Japan (920 kg.). The greater part of the morphine produced in all countries is used in the manufacture of substances not covered by the convention. Thus, in the United Kingdom, out of the 1,873 kg. manufactured last year 111 was used in the manufacture of diacetylmorphine, 848 in the manufacture of non-convention substances, and 914 kg. remained as morphine. Some very curious facts are elicited by a glance at these tables. For example, Latvia and Esthonia are the largest consumers of galenical preparations of Indian hemp, each using 17 kg. per million inhabitants, whereas the United Kingdom consumes 9 kg. per million and France only 2 kg. The largest consumer of cocaine is Japan (14 kg. per million inhabitants), and in Europe, apart from an enormous consumption in Iceland, which may be disregarded, the largest consumer is France (nearly 9 kg.), followed closely by Belgium, Austria, and Latvia. The consumption in the United Kingdom is just upon 5 kg. per million.

MORPHINE FROM POPPY STRAW

In the discussion on dangerous drugs which took place in the Fifth Committee of the Assembly reference was made to the new Hungarian method of morphine extraction from poppy straw.¹ The Hungarian Government has the right to use this process, which enables it to assist the Hungarian peasants, and results in a reduction in the price of morphine. The representative of Poland said that his country also was interested in this new method, and would take it into consideration for the manufacture of codeine. If the process proved satisfactory from the economic standpoint it would be adopted, for it also carried advantages from the agricultural point of view. If several countries adopted the process smuggling would be reduced to zero, as every country would become quasi-independent of opium imports; on the other hand, correspondingly greater attention would have to be paid to internal supervision.

¹ *British Medical Journal*, September 29th, 1934, p. 604.

British Medical Journal

SATURDAY, OCTOBER 13th, 1934

ADVANCES IN TREATMENT OF TROPICAL DISEASE

A review of the work of the Calcutta School of Tropical Medicine since 1920 has been written by the Director, Lieut.-Colonel R. Knowles, I.M.S., and this appears as a supplement to the annual report for 1933. The review shows a record of useful and important activities in all branches of tropical medicine, but it is of particular interest in that it demonstrates what remarkable therapeutic advances have been made in recent years in tropical diseases, and what an important part the Calcutta school has played in these advances. The treatment of kala-azar is perhaps the most sensational of the successes. This disease invaded India some centuries ago, and spread over Bengal and Assam during the latter years of the nineteenth century. No cure was known, and the mortality was not less than 70 per cent. In 1915 treatment by antimony tartrate was discovered in Italy, and Sir Leonard Rogers introduced it into India. This treatment was brilliantly successful, but was prolonged, since thirty injections spread over three months were required, and a mortality of 10 to 20 per cent. still occurred. Since 1920 intensive investigations have been carried out with organic pentavalent antimonials, and now it is possible to cure kala-azar with eight injections, and the mortality is less than 5 per cent. As a result of these advances mass treatment properly carried out leads to the eradication of the disease in an infected area.

In the case of malarial therapy the advances, although not sensational, have been extremely important. In 1920 quinine was regarded as the sole remedy. Since then the Calcutta school has demonstrated that the total alkaloids of cinchona bark constitute an equally efficient and cheaper remedy, and has helped to establish the value of plasmoquine for destroying sexual forms of the parasite and thus rendering the patient non-infective to mosquitos. Atebrin, a synthetic compound which is a possible rival to quinine in the treatment of malaria, was tested fully in the school before being released for sale, and the most recent reports show that the drug is superior to quinine in cases of malignant tertian, and is indicated in special conditions, such as quinine idiosyncrasy, blackwater fever, and pregnancy. The school has also performed a most important service in discovering a form of monkey malaria. This should prove of great value in the experimental study of malarial therapy.

Hookworm infection is another disease of considerable economic importance in the therapy of which great progress has been made in the period under review. In 1922 the use of carbon tetrachloride was introduced into India, but the drug was found to be undesirably

toxic to Indian populations, and from 1924 onwards investigations have been pursued on the use of carbon tetrachloride combined with oil of chenopodium. Experimental work during the last year has shown that carbon tetrachlorethylene is less toxic than carbon tetrachloride, and a combination of carbon tetrachlorethylene with oil of chenopodium is recommended as the best treatment for hookworm infection. These researches on intestinal helminths have led to advances in the treatment of a variety of infections. It has been shown that Indian santonin is just as effective as the very expensive Russian santonin in ascaris infections, and hexyl-resorcinol and carbon tetrachloride have both been found to be efficacious against tapeworm.

In the case of amoebic dysentery the outstanding advance in treatment was the introduction of emetine injections by Sir Leonard Rogers in 1912. This drug has been very successful in acute cases, but in chronic cases and in carriers it is much less satisfactory. The alkaloids of kurchi bark, when first investigated, gave excellent results, but later results were disappointing owing to errors in the preparation of the remedy. Last year, however, the drug carbarsone was found to be of great value in this condition. This organic arsenical was originally produced by Ehrlich in 1909, and Leake demonstrated its amoebicidal action a few years ago. The results obtained in Calcutta have been very satisfactory, and Colonel Knowles believes that its introduction may prove one of the most notable of recent advances in tropical medicine.

The therapeutic advances we have mentioned represent only a small proportion of the valuable work carried out by the Calcutta School of Tropical Medicine, but they show clearly enough the remarkable rate of progress in the treatment of tropical diseases. The outstanding feature of the last fifteen years has been the introduction of synthetic chemotherapeutic agents. For example, this report contains an account of the successful use of the following: neostibosan, plasmoquine, atebrin, carbarsone, and hexyl-resorcinol. We have to acknowledge with regret that not one of these compounds was discovered in this country. The Calcutta school is doing splendid experimental therapeutic work, and it is a pity that it should be forced to obtain so many of its weapons from outside the British Empire.

INHIBITORY HORMONES

The number of active hormones which are nowadays considered to be present in the circulating blood must often seem not a little bewildering. The blood is by far the most complex fluid we know, and the co-existence in it of hormones, enzymes, antibodies, proteins, carbohydrates, lipoids, salts, cells, and metabolic products presents a picture which is well-nigh impossible to grasp in its entirety. Each of these substances, whether it exists in chemically large quantities or only in pharmacologically or histologically recognizable amounts, reaches its appointed place and exercises its specific function apparently unaffected by

the presence of the others. By what remarkable circumstances this is made possible it is hard to conjecture. Are the physico-chemical conditions of the blood such that no important interaction can occur between the hormones and other physiologically active principles, or are the structures of all these bodies such that they cannot interact chemically? The latter seems the less likely view, but as we are yet ignorant of the chemical structure of the greater number of hormones we cannot be certain. Of course, important chemical reactions do occur in the blood, as, for example, the mechanism of transference of oxygen and carbon dioxide, and the buffering of the blood; but even in these cases there is no important change in the basal structure of the interacting bodies; indeed, the value of these reactions lies in their ability to maintain the *status quo*.

This tendency to keep the state of the blood within relatively very narrow limits of variation is one of the most remarkable of biological phenomena. Not only is this the case for the familiar chemical constants, but it is even more striking as regards the bacterial antibodies. With the latter we are dealing with a type of reaction of the organism which is not usually considered from the physiological point of view as an instance of what is called "homeiostasis." We think, however, that it should be so regarded, and some recent work of Collip¹ would appear to make it necessary to extend the conception of homeiostasis even further. Collip points out that evidence is accumulating which shows that substances are produced in the body exercising an inhibitory action on certain hormones. Of the antagonistic action of certain hormones some knowledge has already been gained. The familiar antagonisms of insulin and adrenaline, of insulin and the diabetogenic component of the anterior pituitary, are well known. Less generally recognized is the resistance of certain animals (the rabbit, for example) to parathormone, but every clinician is familiar with the high tolerance of certain subjects to thyroid. The increased resistance of subjects with a high temperature to insulin is also appreciated, though not explained. These examples engender a suspicion that the body in certain circumstances can oppose the action of a hormone. Collip has shown that long-continued administration of the thyreotropic hormone of the anterior pituitary led to a condition of resistance and non-reactivity, and—a most important point—that the serum of the resistant animal when injected into a normal animal produced a similar condition of resistance in the latter. It was further shown that the serum of a horse treated for some months with the growth factor of the pituitary can inhibit the effect of the latter on the hypophysectomized rat.

Other instances of the presence of inhibitory hormones have been described, and Professor Collip considers two ways of regarding the phenomenon. Either the administered hormone and inhibitory substance are related as antigen and antibody, or else the inhibitory substance is a normal constituent of the blood which

is normally and physiologically balanced against the corresponding hormone so that it is masked. Collip takes the latter view and shows that it is borne out by clinical and laboratory experience. The repeated injection of hormone extracts will call forth the production of more and more inhibitory substances, so that each succeeding administration of hormone becomes proportionately less effective. There emerges from these considerations what Collip has called the "principle of inverse response"; this he defines as follows: "The responsiveness of an individual to administered hormone varies inversely with the hormone content or production of the individual's own gland." The author is careful to restrict his theory as yet to certain hormones. Nevertheless, it offers to over-energetic therapeutists a salutary warning of the need for caution in treating hypoglandular states, for the stimulation of the production of inhibitory bodies may defeat the very object sought for. The possibility of inhibitory sera in the treatment of hyperglandular states opens up a fascinating field of research. Particularly important will be the determination whether in any given functional endocrine imbalance we are dealing with an excess of inhibitory substance (hypoglandular state) or a failure to produce adequate amounts of inhibitory substance (hyperglandular state). No evidence is as yet available as to the nature of the antagonism of the inhibitory hormones, but it is clear that the sum of the constituents in the blood has not yet been reached.

ARTIFICIAL RADIOACTIVITY

During the last two years a series of remarkable discoveries has greatly changed the aspect of physical science. The growth of scientific knowledge is, of course, a connected process, and the new discoveries are an outcome of the direction of previous research. But the observer of the progress of physical science finds it easier to comprehend if he can recognize some outstanding points. One of these was the discovery of the neutron in 1932. Rutherford and his colleagues had searched for the neutron before 1920, and in his Bakerian Lecture of that year Rutherford forecast the properties of the neutron in one of the most remarkable passages in contemporary physics. Thus the idea of a neutron was not strange, but the recognition of its existence in 1932 had a stimulating effect on the imagination of scientists. Soon afterwards the electro-mechanical method of disintegrating atoms was discovered, and in America Anderson published the first experimental evidence for the existence of the positive electron. Then, early in 1934, M. and Mme Curie-Joliot demonstrated the possibility of manufacturing radioactive substances. This striking result arose out of their researches on methods of producing positive electrons. They found that when boron and other substances were bombarded with the swift alpha particles, or nuclei of helium atoms, emitted from the naturally radioactive substance polonium, they emitted positive electrons. The investigators were inspired to test whether the emission of the positive electrons from the boron continued after the polonium source of bom-

¹ Ann. Int. Med., July, 1934, p. 10.

bombarding particles had been removed. They found that the boron continued to emit positive electrons for a considerable period after the removal of the polonium, and that the number of positive electrons decreased with the time, according to the same law as that describing the decay of a radioactive substance. They concluded that atoms of boron had been transmuted by the bombarding particles from polonium into radioactive atoms. Chemical treatment of the boron showed that the radioactive atoms produced in it consisted of a form of nitrogen. They named this synthetic radioactive nitrogen "radio-nitrogen." A few weeks later, Cockcroft and Walton demonstrated that radio-nitrogen could be manufactured in their electrical apparatus by bombarding carbon with protons, or nuclei of hydrogen atoms. The production of a radioactive substance by shooting hydrogen atoms at a piece of carbon in an electrical apparatus is remarkable, as radioactivity is produced out of two of the commonest substances in nature, merely with the assistance of an electrical apparatus. These results provoke a multitude of ideas and suggestions. But some more details of the experiments must be appreciated before they can be seen in proper perspective. It is important to realize that the sort of radioactivity discovered by the Curie-Joliot is rather different from natural radioactivity. Their radio-nitrogen emits positive electrons when it disintegrates. Now natural radioactive substances emit wave radiations, the nuclei of helium atoms, and negative electrons. (Blackett and others have recently shown that some of the natural radioactive substances emit positive electrons, but in relatively small numbers.) No one as yet knows what the medical effects of rays consisting of positive electrons may be. So the old knowledge of the effect of radioactive rays may apply only partially to the new sort of radioactivity. Also, the Cockcroft and Walton apparatus, and similar machinery, is not as yet efficient in the physical sense; and it is far from being a commercially economical machine. Artificial radioactivity is only a few months old, and so far the chief results of its discovery lie in the stimulus to experimental research, and in the reformulations of the conceptions of the structure of matter. Following Rutherford's suggestion of 1920—that neutrons might be expected to penetrate the nuclei of atoms with special ease, and produce various transmutations—Professor Enrico Fermi of Rome has recently obtained spectacular experimental results. Physicists are particularly fascinated by this event, as Fermi, who is only 33 years of age, is considered to be among the leading half-dozen theoretical physicists in the world. His sudden appearance as a brilliant experimenter is dramatic. Fermi has found that the atoms of thirty or forty of the chemical elements can be transmuted into radioactive atoms by bombardment with neutrons. The wholesale character of the effect stretches the imagination beyond its normal limit. Fermi finds that heavy atoms as well as light atoms are transmuted. If uranium is bombarded with neutrons its atoms appear to be transmuted into atoms of an entirely new type. Fermi suggests that the new element has an atomic number of ninety-three. There is some chemical evidence that the atoms have the properties to be expected of an element of atomic number ninety-three. If this research is confirmed Fermi will be the first man, not to discover a chemical element, but to synthesize a new one.

X-RAY AND RADIUM PROTECTION

With the object of arresting the sequence of casualties to x-ray and radium workers, the British X-Ray and Radium Protection Committee was formed in 1921, as the result of joint action between the Royal Society of Medicine, the Röntgen Society, the British Association for the Advancement of Radiology and Physiotherapy (now the British Institute of Radiology, incorporated with the Röntgen Society), the Institute of Physics, the Radium Institute, London, and the National Physical Laboratory. The personnel of the committee was afterwards widened to include representatives from the provincial schools. The committee issued its first recommendations in July, 1921. Successive revised reports followed in December, 1923, and May, 1927. At the instance of the British committee, international recommendations for x-ray and radium protection were adopted at Stockholm in 1928 by the second International Congress of Radiology. These were largely based on the British proposals. The problem of adequate protection for the x-ray worker has been substantially eased by the introduction of the self-protected tube and more recently by the "shock-proof" tube and equipment. Account is taken of this in the latest (fourth) report of the British committee, which follows in the main the form of the international recommendations, and contains a number of changes and additions based on the experience of the committee and of the National Physical Laboratory in its inspection and testing work carried out in association with the committee. Copies of the report may be had from the honorary secretaries of the Protection Committee at 32, Welbeck Street, W.1, or the director, National Physical Laboratory, Teddington, Middlesex.

CHEST INJURIES AND PULMONARY TUBERCULOSIS

In view of the legislation providing for war pensions and workmen's compensation, the determination of the exact part played by trauma in the development of a relatively common disease like pulmonary tuberculosis assumes great practical importance. In a recent review of the subject N. N. Stoichitza¹ states that trauma as the direct cause of phthisis was considered not at all rare until quite modern times, but that owing to the absence of bacteriological confirmation all accounts dating anteriorly to 1882 must clearly be interpreted with caution. The Great War provided ample material for further study. It was shown that, in this connexion, two types of injury of the thorax had to be differentiated. Thus, penetrating wounds probably never gave rise to phthisis, perhaps because they generally involve important vessels and result in death within a short time. Non-fatal injuries of this type may, however, be followed by pulmonary tuberculosis after a long interval, and this is accounted for by lowering of the general resistance caused by continued suppuration and the prolonged stay in hospital. Contusions of the chest, on the other hand, are rarely directly responsible for the development of pulmonary tuberculosis. Stoichitza mentions the various theories put forward to explain the mechanism. The most logical explanation would appear to be as follows. The shock at the moment of impact causes reflex

¹ *Presse Méd.*, June 30th, 1934, p. 1051.

closure of the glottis, so that rupture of the distended lung tissue occurs at the level of the blow, causing haemoptysis immediately or soon afterwards. If this rupture takes place in the neighbourhood of a latent tuberculous focus (most commonly situated in the hilar region) the injured area provides an excellent breeding ground for the tubercle bacilli already present. To establish direct cause and effect in these cases certain conditions must be fulfilled. The patient should have been in good health before the accident, and an x-ray photograph taken immediately before or after must show no evidence of active tuberculous disease. Apyrexial haemoptysis, indicating rupture of lung, should have occurred immediately or soon after the injury, and there should be a continuity of symptoms from that time onwards. The tuberculous lesions, which are generally severe and of poor prognosis, should develop at the level of the injury and within six months at the most from the date of the accident. Still further to exclude the possibility of coincidence, the patient should not have been exposed to massive contagion or to conditions which may have so lowered his general resistance as to be in themselves the cause of endogenous reinfection. The author then describes two cases—that of a man, aged 57, who received a blow under the clavicle with a block of wood, and of another, aged 44, with a knife wound in the same region—which appear to have fulfilled these conditions: the evidence submitted indicates that in each patient the injury was the direct cause of the phthisis which followed. The paper does not deal with the possibility of aggravation by trauma of already existing disease—obviously a problem much more difficult of solution. But one important practical point emerges—the need, for record purposes, of a clinical and x-ray examination of the lungs (not merely of the ribs) immediately after an injury to the chest in all individuals in relation to whom the question of compensation may subsequently arise.

CLINICAL RESEARCH AT GUY'S HOSPITAL

The Governors of Guy's Hospital and the Governors of Guy's Hospital Medical School have accepted an invitation from the Medical Research Council to co-operate in the establishment of a new "unit" for scientific research work in clinical medicine. It has been agreed that the Council will provide the salary of a whole-time director and of his assistants, with the cost of all apparatus and research material used by the unit. For its part, the hospital will provide suitable laboratory accommodation free of charge, and will place and maintain beds at the disposal of the director: the latter is to be *ex officio* a member of the visiting staff, with a seat on the Medical Committee and the committees of the medical school. These arrangements are to be effective for a period of five years in the first instance. Dr. Ronald T. Grant, F.R.S., hitherto working in the service of the Council in the department of clinical research at University College Hospital, London, has been appointed director of the new unit. The invitation was issued to Guy's Hospital by the Medical Research Council in accordance with its general policy of improving the facilities available in this country for the scientific study of disease in the human subject, and, with this end in view, of increasing the number of

higher appointments for whole-time workers in this field. The financial resources the Council is able to apply to the purpose are those which were released when the senior post, formerly maintained by it at University College Hospital, and held by Sir Thomas Lewis, F.R.S., received permanent endowment through the generous action of the Rockefeller Foundation.

PROBLEMS OF DRUG ADDICTION

In his Norman Kerr Memorial Lecture last week on "Some International Aspects of the Problem of Drug Addiction," Sir Malcolm Delevingne began by drawing a distinction between the universal and the local forms of this evil. Practices such as opium smoking, the use of Indian hemp, coca-leaf chewing, and perhaps opium eating in India, are mainly confined to certain countries and races, and show no tendency to spread. These, though they have had significant international aspects in the past, are now matters of local rather than of general importance: the contrary is the case, because of their universality, with morphine, heroin, and cocaine addiction. From the international aspect, the newer addiction drugs (prominent examples of which are dicodid, eukodol, and dilaudid) may also be included in this category. Drug addiction, the lecturer insisted, is at bottom a matter of supply. The habit is facilitated and encouraged by drug traffickers, who are attracted by the enormous profits of this illicit trade. Hence the problem is not merely a national but an international one, because only by international co-operation can the machinations of the traffickers be defeated, and because all countries have the same problems to deal with in connexion with the causation, effects, and treatment of addiction. Sir Malcolm then proceeded to give an interesting sketch of the history of various efforts at international co-operation from 1921—when the League of Nations began the work entrusted to it, and the international obligations under the Hague Convention came into being—to the coming into full operation at the beginning of the present year of the Limitation Convention. As a result of these efforts the position to-day has improved greatly. There has been, during the past few years, a steady diminution in the amounts of morphine, heroin, and cocaine manufactured in the legitimate trade, while an efficient international machinery exists for the control over the export and import trade in these drugs. In the Permanent Central Board, in the Supervisory Body, and in the League's Advisory Committee a real international administration exists. Public opinion throughout the world has also been awakened as to the serious dangers of drug abuse, and interchange of information between various countries—especially as concerns the drug traffic—has been extended and made more effective. There is, however, a darker side, which forbids complacency. The illicit traffic still flourishes. Many individuals and gangs have been put out of action, but *primo avulso non deficit alter*! The situation in Europe, though not everywhere satisfactory, is clearing, but sinister development is on foot in the clandestine manufacture in the Far East. The recent production at low cost of morphine from poppy straw may call for

¹ The Fifteenth Norman Kerr Memorial Lecture of the Society for the Study of Inebriety, October 2nd, 1934. President, Dr. Humphry Rolleston, Bart.

careful study by the League. In conclusion, Sir Malcolm Delevingne indicated a number of questions which urgently needed solving; these, he contended, could only be satisfactorily dealt with by international co-operation. As examples of such problems he cited opium smoking, the treatment and "after-care" of addicts, the possibility of replacing heroin and cocaine by other drugs, the widely different consumptions of the different drugs in countries where conditions appear similar, and questions relating to the habit- or non-habit-forming properties of the newer narcotic drugs which are from time to time placed on the market.

TWO MEDICAL CENTENARIES

The British Medical Association, now in its 103rd year, and going so strong that it can jump 11,000 miles to Melbourne next summer for the Annual Meeting, looks with a benevolent eye upon the centenary festivals of younger medical bodies. To-day we print a brief account of the impressive ceremonies on October 4th and 5th with which the University of Durham College of Medicine, Newcastle-upon-Tyne, celebrated the hundredth anniversary of the founding of the Newcastle Medical School. A former Chairman of Council of our Association, Sir Robert Bolam, played a leading part in these ceremonies, and the Association was officially represented by the reigning Chairman of Council, Dr. Le Fleming. We publish also a historical note, by Dr. E. M. Brockbank, on the centenary of the Manchester Medical Society, and in this he refers to the exhibition which has been arranged as part of last week's commemorative proceedings to illustrate the history of medicine in Manchester. On that matter we would like to add one sentence, in praise of the valuable work of the author's son, Dr. William Brockbank, to whom is due much of the success of the exhibition now open at the Central Library, St. Peter's Square, Manchester.

A HEALTH EXHORTATION FROM SCOTLAND

Sir Godfrey Collins, M.P., Secretary of State for Scotland, spoke last week at Dumbarton, and devoted his remarks entirely to the importance of the local authorities of Scotland giving persistent attention to matters of health. He was probably speaking to the converted, but it was wise to indicate the need for consideration by those authorities of the evidence they wish to give before the recently appointed Departmental Committee on Scottish Health Services, and of preparation for action in the interests of public health when the report of that committee is published. Sir Godfrey Collins pointed out that in the sphere of health, as in that of economics, Scotland started out with certain initial advantages over some Continental countries, but that these countries were devoting very great attention just now to the health of youth and the cultivation of a healthy race, and so were rapidly overcoming the disadvantages of their initial lag. Our methods are not the same as theirs, and national characteristics are different; but neither the innate virtues of the Scottish race, nor the multiplicity of health services, nor the fact that there has been an immense improvement already in the health of the people, especially in the physique and well-being of the children, will suffice to maintain our advantage unless

all those responsible are constantly seeking to do even better. Sir Godfrey mentioned national mortality and tuberculosis as matters in which a further advance is particularly needed. All this is true, and probably the Scottish local authorities will gladly take the exhortation to heart. But Sir Godfrey cannot be allowed to claim Lord Lister as one of "the natural products of the Scottish race." He was born in Essex, came of Yorkshire stock, and received his medical education in London.

THE A B C OF BIBLIOGRAPHY

Though most journals have their own conventions in the matter of literary form and of references, and authors' preferences are suffered only within narrow limits, every writer on scientific topics ought to be familiar with the technique of bibliography. As formal instruction in this subject is rare, beginners must learn either from their mistakes or from occasional papers treating of this difficult art. A cordial welcome may therefore be extended to an important article entitled "The Principles of Bibliographical Citation" (*Bulletin of the Medical Library Association*, 1934, N.S. xxii, 183), from the pen of Dr. John F. Fulton, Sterling professor of physiology at Yale, who is well known to British readers as a distinguished historian and bibliographer. Described as "an informal discourse addressed to writers of scientific papers," it is full of sound advice and written in an engagingly light and humorous vein. Insisting that references should never be taken from a secondary source, the author quotes the laconic reply of President Routh of Magdalen College, Oxford, to a younger man asking for some precept which represented the experience of his long and scholarly career: "Always verify your references." Dr. Fulton has much that is wise to say on the question of footnotes, split dates in references, and pagination. His own preference is to draw attention to papers with useful and accurate bibliographies by putting in square brackets after the formal reference a short phrase like "exhaustive bibliography." "Once it has become a habit bibliography is never irksome." Yet its technique is sometimes far from simple if we remember that in the case of the thirty-one John Adamsons in the *General Catalogue of Printed Books* (British Museum, 1932, vol. 2) accuracy demands the inclusion of the dates of birth and death.

The Manchester Lloyd Roberts Lecture on "Medicine and the Further Evolution of Society" will be given by Professor F. A. E. Crew at the Royal Infirmary on Tuesday, November 6th, at 4.15 p.m.

The Prince of Wales will lay the foundation stone of the Birmingham Hospital Centre on Tuesday, October 23rd. The first instalment, for occupation three years hence, will provide 500 beds; when the whole scheme is completed there will be 740 beds in the main buildings, with 100 more in a separate wing for paying patients.

The veteran Italian surgeon Senator Francesco Durante, emeritus professor of clinical surgery in the Royal University of Rome, died on October 3rd, at the age of 90. He was elected an honorary Fellow of the Royal College of Surgeons of England in July, 1900.

MOTOR CARS FOR 1935

THE OLYMPIA SHOW

[FROM OUR MOTORING CORRESPONDENT]

Once again the time has come round for the annual inspection of the new models of cars which manufacturers are producing for the 1935 season. The Show, which is the twenty-eighth organized by the Society of Motor Manufacturers and Traders, opened its doors at Olympia on Thursday, October 11th, and will continue until Saturday, October 20th. Although there are fifty-four firms showing cars—six more than a year ago—a feature of the industry is the concentration of car manufacture into fewer but larger concerns, evidence of this being afforded by the fact that at the 1928 Show there were no fewer than ninety-eight car exhibitors. The international character of the exhibition is, however, again fully maintained, for in addition to about thirty concerns displaying British cars, twenty-four are showing foreign productions—that is, eleven American and Canadian, five French, an equal number of Italian, two Belgian, and one German. As during last year's exhibition, the car exhibits are located on the ground floor of the old Main Hall, while the special coach-builders' section will be found in the adjoining National Hall.

LOWER CAR TAXES IN 1935

When in his 1934-5 Budget the Chancellor of the Exchequer announced a reduction in the annual car tax of from £1 to 15s. per horse-power, to become operative on January 1st next, it was thought that this would lead British car manufacturers to pay more attention to cars with engines of greater horse-power than hitherto. So far, however, there appears, generally speaking, to be no marked tendency in this direction, for all the large British manufacturers appear to have decided that the lower taxes are more likely to result in a large increase in the number of users of small- and medium-power cars of from 7 to 15-h.p., and of an extension of the "two cars per family" movement, and that consequently there is more business to be done in these markets than is likely to arise from existing motorists purchasing cars of greater horse-power than hitherto. On the other hand, doubtless anticipating that the reduced taxes will induce a certain section of the motoring public to use vehicles of higher horse-power, there is a slight increase in the number of American cars displayed. By agreement between the members of the society, no announcements of new models were made before about the middle of August, but since that date the motoring press has revealed the main lines of the programmes of the principal makers. A new feature has made itself evident this year, that of a few makers announcing only part of their new models, having kept in reserve one or more "surprises" for the exhibition, reference to which, if they materialize, will be made later.

Price being an important matter in these difficult days, it may be said at once that while prices are higher in a few cases they are on the whole unchanged. Even, however, where the latter term applies, in view of the numerous detail improvements and added conveniences, cars, if not actually cheaper, are certainly "better value for money" than ever. As usual, the Show has an appeal to motorists of all classes—from those to whom the £100 car is attractive, as well in respect of cost as intended use, to the luxurious road Pullman, the price of which may be anything from £2,000 to £3,000. The plan of offering buyers a choice of cars with two sizes of engine at the same price appears to be meeting with increased favour. Thus the Austin Twelve can have either a 13.9-h.p. or 15.9-h.p. engine; the Standard Sixteen and one of the Hillman models offer the choice of a 16-h.p. or 20-h.p. engine; the Morris Oxford can be either 16-h.p. or 20-h.p.; and one of the Rileys 12-h.p. or 15-h.p.

MECHANICAL TENDENCIES

Though there are still many motorists interested in the technical characteristics of cars, it is probably true

to say that to-day the majority of car users are content to leave these matters to the manufacturers, taking it for granted that no maker will turn out cars which, mechanically, are not thoroughly up to date in design and construction. In other words, the majority of users to-day are mainly concerned with the questions of first cost, running expenses, good appearance, reliability, and durability. Despite this, it is perhaps useful at Show time to undertake a brief survey of the progress that is being made in chassis as well as in bodywork design and construction.

While vehicles with eight-cylinder engines are to be found on many of the foreign vehicles, in this country cars with engines having either four or six cylinders continue to share the popular favour, the relative position of the two varieties being approximately unchanged. It is interesting to note, however, that two well-known makers, although continuing their 10-h.p. four-cylinder cars, have introduced similar chassis and bodywork, but with six-cylinder engines, to meet the demands of those users prepared to pay a little more for the extra flexibility of the "six." The modern engine, whether with four or six cylinders, has reached a point, as regards both reliability and efficiency, which leaves little room for further improvement. Some "cleaning up" in the arrangement of the various engine adjuncts has, however, been effected, but otherwise there are no striking departures to record. What may be regarded as a reversion to old practice is the adoption by the Lanchester Company of engines having combined cylinders and heads, instead of the now usual method of constructing these separately. The reason given for the change is that there is less liability to cylinder distortion and wear, and that, with modern methods, the question of decarbonizing piston heads and combustion chambers offers no increased difficulty.

THE BATTLE OF THE GEARS

In the majority of cars the more normal form of change-speed gear is still employed, but it will be found that gearboxes of what are known as the synchromesh variety, which greatly facilitates easy and silent changing, have been more generally adopted. In the Alvis, Hillman, and Humber cars synchromesh is now provided for all four speeds, while in the Austins and Standards three of the four speeds are of the latest type. Free-wheel devices to facilitate gear-changing, so arranged that they can be put out of action when desired, are also being more widely adopted, being now found on Humber, Rover, Triumph and certain of the Standard cars.

The fluid flywheel transmission with preselective self-changing gear continues to be used on the B.S.A., Daimler, and Lanchester cars, the first-named feature in a modified form being now also found on some of the Singers. The self-changing gear has been used on the Armstrong-Siddeley cars since 1928, and is, of course, retained; it has also been adopted on the Crossleys, while it is being offered as an extra on the A.C., Sunbeam, and some of the Standard cars. An interesting innovation is seen in the Sunbeams and Talbots, this taking the form of a special clutch working in conjunction with the self-changing gear, the purpose being to reduce wear on the gear bands and provide smoother operation. An interesting new gearbox is also to be found on the 12-h.p. six-cylinder Wolseley "Hornet," this combining a normally used clutch and a self-changing gearbox giving three speeds in both forward and reverse directions. Those interested in the details of these new types of change-speed gears and other improved technical points of motor vehicles will be glad to know that a small portion of the exhibition is again being set apart for a display of working models by various manufacturers.

FRAME CONSTRUCTION AND SUSPENSION

Some new ideas in chassis frame construction are to be seen on the new Lanchester 18-h.p. and the Riley 1½-litre cars. The feature of the Lanchester is the addition of lattice steel welded to the inside of the frame members to provide greater torsional stiffness. In the Riley the frame members are of box section, while the usual

X-shaped cross members are replaced by a bracing of steel wire cable. Independent road wheel springing, which has become very popular in France and the United States (in which latter country it is known as "knee-action" springing), does not as yet appear to have caught on with British car designers, it being found only on one of the Alvis and Sunbeam models, and certain of the Singers.

A FRONT-WHEEL-DRIVE CAR

There have been rumours that, following a Continental lead, cars with front-wheel drive would be introduced by British makers. The only vehicle having this feature—and an interesting one it is, for it has, in addition, independent wheel springing and novel bodywork construction which obviates the use of the usual chassis—is the Citroën Twelve, which is of French design, but largely manufactured in this country. Other new models to which special attention may be drawn include, for those whose price limits are between £100 and £150, the remodelled Austin Seven and the new Morris Eight. For motorists looking for medium-priced cars with six-cylinder engines there are the Austin, B.S.A., Morris, Lanchester, and Vauxhall, while higher up the scale new vehicles are to be found in the 17-h.p. Armstrong-Siddeley and the 18-h.p. Lanchester, both having six-cylinder engines and self-changing gears, the 12/55-h.p. British Salomon, the Riley 1½-litre car, and the Triumph "Gloria" models.

Minor new tendencies to which attention may be drawn include the provision of twin wipers on windscreens for the convenience of the passenger as well as the driver, arrangements for carrying luggage and spare wheel out of sight, and the general adoption of flush-fitting direction indicators, now made so that, when used, they automatically fall after a few seconds. Although tyre troubles are no longer the bugbear they were in the early motoring days, a growing practice much appreciated by the owner-driver is that of providing cars with built-in jacks, this feature being now found, among other vehicles, on some of the Armstrong-Siddeley, Humber, Standard, Triumph, and Talbot cars. A useful feature which one would like to see more generally adopted is to be found on one of the Triumph models—namely, a steering wheel which is adjustable as to both height and angle to suit drivers of different stature; while yet another innovation worth copying is that of the rust-proofing of all exposed metal parts on the Rover chassis.

BODYWORK DESIGN

There were many who anticipated that, following the American, and to some extent the Continental, lead, British manufacturers would produce cars fitted with the "streamline" types of body. Actually, however, while bodywork in design and finish continues to show steady improvement, it will be found that British makers have, in the majority of cases, decided, "to make haste slowly," the only British car at the time of writing of ultra-streamline design being the Singer Eleven. From the scientific aspect it seems to be agreed that streamlining has no material effect on speed until from 40 to 60 m.p.h. is reached. At the same time it must be remembered that there are always those who prefer to purchase a car which embodies something out of the ordinary.

For general use the saloon type of car continues far and away the most popular, and while not of *outré* design, its lines are gradually becoming more flowing. There is also a marked tendency to give the fronts of cars a more "rakish" appearance by the use of sloping radiator guards. Attention may further be drawn to the improvements which are being made in the methods adopted for the ventilation of the interior of saloons and other covered cars, a point which will be appreciated by those who have to make long journeys. Although not of great interest to medical men, a section of the car exhibits which has a strong appeal to the younger generation of motorists of both sexes is that of sports models, examples of which are to be found on the M.G., Singer, Riley, and other stands. Despite their popularity in the United States, the fitting of wireless receiving sets on British cars has not made any great headway. Although there are several

sets on the market which can readily be installed, only two manufacturers—Hillman and Standard—include wireless-equipped cars in their programme.

AMONG THE ACCESSORIES

A feature of the accessory section of the Exhibition, which as usual is to be found mainly in the galleries, is the introduction of a number of devices specially intended to meet the new conditions set up by the latest motoring regulations—particularly in connexion with the order prohibiting the use of motor horns in built-up areas during the night. It has been quickly discovered that a good method for motorists to indicate their approach to a road crossing is momentarily to switch on the head-lights. To facilitate this one firm has introduced a new lamp operated by an "on-off" switch, which can be conveniently mounted on the steering column. When it is desired to travel after lighting-up time until 11:30 p.m. with the head-lights on, the normal switch lever is pushed over to, and left at, the "on" position. For night signalling purposes, however, the normal switch is placed at the "off" position, the head-lights being then momentarily switched on and off as desired by a push-button on the top of the switch, just in the same way as the electric horn is operated. Still another firm has introduced a switch which by a simple movement can be made to operate the horn during the permitted hours and the head-lights during the night! This question of the non-use of the horn during the night is arousing considerable discussion in motoring circles, especially as the law of the land still requires all cars to be fitted with a horn or other means of giving audible warning.

A tour of the accessory section is always worth while, for it will reveal many new adjuncts to a car that add to the comfort of motoring during the cold, wintry months. Also to be seen are some new preparations for addition to the radiators of motor vehicles to prevent freezing up during the extremely cold nights of the winter months. The ignition on practically all modern cars is effected by coil and distributor, but it is noteworthy that one or two new designs of magneto have been introduced which can readily be substituted for the existing ignition equipment.

In next week's issue it is proposed to follow the usual plan of referring to some of the new car models, more particularly those which are likely to appeal to the majority of medical men from the points of view of cost and suitability. Finally, it may be mentioned that the Show is open daily (except Sunday) from 10 a.m. to 10 p.m. On Tuesday, October 16th, and Thursday, October 18th, the charge for admission is 5s. up to 5 p.m., and 2s. 6d. after that time, the entrance fee on all other days being 2s. 6d.

C. J. W.

At a meeting of the Empire Social Services Group of the Royal Empire Society, Lady Denham outlined the work of leprosy relief and cure in British Guiana. There were some eight hundred lepers in hospital in British Guiana when she and Sir Edward Denham arrived; and many children—the home closed because of parents in hospital; or in whom disease had been either arrested or cured—were housed in the same building; and even taught by lepers. To combat this ethically and financially unsound method they decided to build a "home" for such children, and to segregate them. They had already collected £2,854 and had drained the colony dry, but £800 was still needed before the building could be put up on land provided by Government. Contributions should be sent to: Lady Denham's Home Fund (for Leprosy Children), c/o Lloyds Bank, Ltd., 222, Strand, W.C.2. Sir Leonard Rogers, in supporting, emphasized that "children were the key to the whole problem of leprosy," because children were most susceptible to the disease, and, further, approximately 95 per cent. of the cases could be cured if tackled in the early stages. In India, under Lord Reading as Viceroy, they had raised £150,000 and made a survey of two million people. Leprosy could be eliminated within a very few decades if tackled boldly and systematically, as envisaged by Lady Denham's scheme.

Scotland

Glasgow Housing and Health Exhibition

Opening the twelfth housing and health exhibition, promoted by Glasgow Corporation, Lord Provost A. B. Swan said that Glasgow had been criticized in the past for her housing conditions. The city's Housing Committee, however, had been as energetic as any other in Great Britain, and had tried to make improvements every year. It had also been said that there was a sameness about Glasgow's houses which was almost sordid in character: it must be remembered that the Corporation had to work within limits of cost, and to provide as many simple houses as possible. Under the Housing Acts since 1923 Glasgow Corporation had itself built 36,000 houses, and with help 48,488 up to the end of August, 1934; this was not a bad record. The Government was now trying not only to eliminate slums, but also overcrowding, and in certain types of houses on view in the exhibition suggestions were made for the solution of this problem. Other exhibits illustrated the most hygienic ways and the best labour-saving devices for the home.

Four model houses constitute the principal part of the exhibition. The all-Scottish house, built by the Scottish National Development Council, is of modern design based on the Scottish traditional form of domestic architecture, and to meet present-day requirements in sunshine and ventilation the horizontal casement window has been introduced. Another model comprises two flats of a modern five-story Vienna tenement, the structure being fireproof and vermin-proof, with skeleton frame of steel standard units and concrete floors. A novel feature is the provision of a garbage chute made of asbestos cement, with openings on every floor, which conveys household refuse to a portable receptacle on the ground level. The Housing Department of Glasgow Corporation exhibits three- and four-apartment flats similar to those the department is now erecting for the rehousing of people from overcrowded conditions. These houses are built of brick and finished in roughcast, the cost for the four-apartment house being £210, with a rent of 12s. per week, and the cost of the two-apartment house £270, with a rental of 10s. 6d. per week.

Laboratory of the Royal College of Physicians

Sir Robert Philip, in his annual report as curator of the Laboratory of the Royal College of Physicians of Edinburgh, comments on the increasing co-operation between this institution and various public bodies, such as the Department of Health for Scotland, the Home Office, and the Health Section of the League of Nations. At the request of the Committee on Scottish Health Services the specific death rate for that country was investigated, but it was considered advisable to extend the inquiry to include those of England and Wales and Sweden. Certain remarkable and unsuspected regularities emerged, leading to the following conclusions. (1) In England and Wales and in Scotland the improvement attained at any particular time in the death rates of the various age groups depends primarily upon the date of birth of the individuals concerned, and only indirectly upon the particular year under consideration. An exception was noted in the case of the infantile death rates, which showed definite lags in their dates of improvement. (2) These results were shown to be consistent with the hypothesis that the important factor from the point of view of the health of the individual during his whole life was his environment up to the age of about 15 years, and that improved conditions at later ages had little direct effect. Improved

conditions appear to have brought about beneficial results primarily through their action on the children. (3) It is suggested that improvement in infantile mortality is dependent in large measure on improvement in maternal health. This would explain why the infantile mortality rates lagged in their fall. (4) The figures for Sweden did not show the same simple regularities. It would appear that in that country a disturbing force began to operate about 1850, adversely affecting adolescents and young adults. The work is being continued, and the figures for Holland are being studied. Taken as a whole the fundamental conclusion is that the death rate is a product of two factors: one depends only on the age of the group considered, and is presumably essentially physiological in significance; the other depends only on the year of birth, and is taken to be characteristic of the environment during childhood. More intricate calculations indicate that there is likely to be in the future a very considerable increase of persons between the age of 65 and 85. In association with the Home Office, the inquiry into the relative toxicities of the solvents toluene and benzene was continued and completed. It appeared that the former was the less toxic, a fact attributable mainly to its lower volatility. The study has now been extended to include an investigation of the effects of ventilation upon the incidence of benzene poisoning in factories, the blood picture (aplastic anaemia and agranulocytosis) being employed as an index. Antirabic treatment was investigated for the League of Nations. No definite evidence was obtained that any one of the eleven methods was definitely superior, nor that live vaccines were more efficient immunizing agents than dead vaccines under the conditions, such as dosage, in which they were employed in practice. Sociological factors were found to bring about such divergencies in different countries as to render impossible any definite comparative evaluation of the different therapeutic procedures.

Health of Glasgow

The annual report by Dr. A. S. M. Macgregor, medical officer of health for Glasgow, shows that last year both the death rate and the birth rate in Glasgow were the lowest on record. The death rate was 13.4 per 1,000, as against 14.7 in 1932; this comparatively low figure is attributed to the good weather conditions during the greater part of the year. The estimated population of the city was 1,103,357, and the natural increase—that is, the excess of births over deaths during the year—was 6,614. As a result of housing operations the population showed considerable thinning out in the central wards of the city, with increases in the outer wards and in the adjacent county areas. The birth rate, 19.36 per 1,000, was only one-half of the rate prevailing fifty years ago. The infant mortality rate was 96 per 1,000 births, as compared with 112 for the previous year, and was the second lowest recorded for the city. This decrease was attributable to a low incidence of measles, whooping-cough, and pneumonia associated with the favourable weather, contributory causes being improved sanitation, housing, nutrition, and education. The principal feature in regard to infectious diseases was the continued high incidence of scarlet fever, the total number of cases registered being 8,373, which, however, was lower than the 9,158 cases for the previous year. Of the patients suffering from scarlet fever, 22 per cent. were not removed from their homes owing to pressure on hospital accommodation. The position with regard to the provision of institutional treatment for tuberculosis remained unaltered. Efforts were being made towards securing appropriate treatment for those who required it most. Improved housing conditions were now enabling isolation at home to be carried out

more successfully in the chronic case after preliminary treatment in a sanatorium or hospital. Another feature of considerable value was the judicious measure of rehousing of families in which there was a member suffering from open tuberculosis.

England and Wales

Healthy London

The health activities of the London County Council have been so closely followed from week to week in these columns that the section of the Council's report for 1933, by Sir Frederick Menzies, dealing with 'public health' contains little that has not already been published. The birth rate continues to fall; for 1933 it was the lowest yet recorded, being 13.2 per thousand, as against 14.3 in 1932. The number of births was more than 14,000 below that for 1918, when the influence of the European War on the birth rate was at its height. The infant mortality, however (54 per thousand births), was also the lowest on record. It is a little invidious to analyse these figures for different London boroughs, whose boundaries shade into one another, but taking the years 1930-2 and comparing them with the years 1921-3 one finds that while the infant mortality rate decreased almost everywhere in London it increased in five boroughs, and in one of them—namely, Paddington—the increase was as much as 19.7 per cent. In all the boroughs which show an increase in infant mortality—the others being the City of Westminster, Hampstead, St. Marylebone, and Holborn—the illegitimacy rate is excessive, being (except in Hampstead, where it is 9.4) over 11 per hundred total births. On the other hand, in Bermondsey, where infant mortality has declined by one-third in the course of ten years, the illegitimacy rate is the lowest in London (2.1 per hundred births). The deaths from measles, whooping-cough, scarlet fever, and diphtheria in 1933 were respectively 0.02, 0.08, 0.02, and 0.08 per thousand of population. Deaths from puerperal fever in London numbered ninety-six, and from other accidents of childbirth 119, the total maternal mortality rate being 3.66 per thousand live births. It is remarkable that for the six-year period 1928-33 maternal mortality was lowest in the East End boroughs—namely, Shoreditch, Bethnal Green, Stepney, and Poplar—and in St. Pancras and Lambeth, in all of which the rate was below 3 per thousand births. Leaving on one side the City of London, where cradles are scarce, the highest rates recorded were in Westminster (6.1), Stoke Newington (5.8), and St. Marylebone (5.2). The death rate (all causes) in 1933 in London was 12.5 per thousand living, slightly above the average of the last ten years, but forty years ago the rate was about 19. It has steadily fallen for all the principal infectious diseases and for tuberculosis, pneumonia, and other respiratory diseases, has fluctuated for influenza, and has risen for heart disease, cancer, and diabetes. The report contains much useful information about the multifarious powers and duties of the Council in connexion with common lodging houses, slum clearance, milk sampling, and the tuberculosis and venereal diseases schemes, and includes also the results of an inquiry made at the request of the Board of Control into the mentality of children, one or both of whose parents had been certified as mental defectives. The number of children examined was 617, representing 336 families. Of this number 2.1 per cent. were found to be supernormal, 51 per cent. normal, 31 per cent. retarded, and 15.9 per cent. mentally defective.

¹ L.C.C. Annual Report, 1933, Vol. iii (Part I). Public Health. Report of the County Medical Officer of Health. P. S. King and Son, Ltd., Westminster. (1s.)

Cardiff Mental Hospital

The annual report for 1933 of the City of Cardiff Mental Hospital contains some statistics and notes of general interest. It is pointed out that while last year the percentage of voluntary admissions was the highest in the country, a further advance was recorded this year, the figure rising from 45.5 to 55.2. The percentage of admission of temporary patients also rose from 3.2 to 7; thus only 37.8 per cent. of the patients were admitted under certificates. The discharge rate also remained high, being 69.3 per cent., including those discharged as recovered or relieved. Of the patients discharged 70 per cent. had resided in the hospital for less than six months, and 26 per cent. left after a stay of less than two months. Factors which are believed to be shortening the stay of patients in this hospital are the granting of short leave of absence, the facilities for attendance at the out-patient clinic, and the activities of the social service department. Dr. P. K. McCowan, the medical superintendent, in his report states that in no circumstances is a voluntary patient certified at the institution; if such a patient insists on leaving when his mental condition necessitates continued observation arrangements are made for his transference to the local infirmary, where certification can be effected if necessary. In 1933 only two voluntary patients returned under certificate. On the male side a ward has been provided for voluntary patients only; this has been most welcome to the patients, who are reassured by learning that they will only be called upon to associate with voluntary patients' like themselves. Occupational therapy has proved most satisfactory. All sisters and male charge nurses continue to have a three months' course at the central classrooms, to enable them to supervise the daily classes held in the wards. The staff on each side consists of a head therapist with two assistants. In addition, on the female side there are four voluntary workers, whose services have proved very useful. During the year under review 277 females and 269 males passed through the classes. The average number of patients employed in useful tasks in the hospital, including the above, represent 78 per cent. of the male population, and 81 per cent. of the female. Classes in physical drill were restarted in 1933. While some improvement is manifest in the poorer type of patient, Dr. McCowan finds that the best results are obtained in the more educated, who have some genuine interest in the drill. The work of the out-patient clinic is also advancing, sessions being held twice each week. A routine ophthalmological examination has revealed interesting abnormalities in many instances, hypermetropia, with or without astigmatism, and presbyopia being notably common. Research work at this institution during 1933 included a study of infection of the nasal sinuses. Infection of the tonsils and nasal sinuses was found to be an important aetiological factor in a small minority of psychotics; its eradication in these cases led to cure or amelioration. Special emphasis is laid by Dr. McCowan on the connexion of these infections with the toxic exhaustive psychoses, where they appear to be comparatively common, and frequently causal factors. Another line of investigation revealed that a large proportion of the toxic symptoms accompanying prolonged somnifaine narcosis was due to disturbance of the carbohydrate metabolism of the liver and heart by the narcotic, resulting in ketosis, tachycardia, fall of blood pressure, and varying degrees of circulatory collapse. These symptoms could be largely obviated by the administration of insulin and glucose as an integral part of the narcotic treatment. Carotene was found to be effective in increasing the weight of patients convalescing from manic-depressive or confusional attacks, there being a corresponding improvement in the mental and physical conditions. An exceptionally high percentage of reactors to the tuberculin test

was discovered, and it is thought that among the patients there may be a certain number of open cases of the relatively chronic and symptomless type. A systematic investigation has been instituted in conjunction with the tuberculosis department of the Welsh National School of Medicine. The patients were for the most part old-standing cases of dementia praecox, and Dr. McCowan thinks this fact may be at least as important as questions of environment, for there is undoubtedly a close relation between the two diseases, possibly even of a hereditary nature.

The Radium Institute, London

The annual report of the Radium Institute (London) for 1933 continues to record satisfactory progress, and research work on massive dosage (radium beam therapy) from a unit of 5 grams of radium is in progress. A considerable number of beds have been allocated for this purpose, and, as they were previously used for the reception of paying patients, this public-spirited action has entailed considerable financial sacrifice. A high-voltage x-ray outfit has been installed at the Mount Vernon Hospital, Northwood, and will enable important research and therapeutic work to be carried out there. The medical report, which is drawn up by Drs. Roy Ward and Durden Smith, contains a valuable summary of past and present work, mainly arranged in tabular form. During the year contributions to the literature of the subject have been made by Dr. Roy Ward on the clinical side and by Dr. J. C. Mottram, the director of pathological research, on more purely scientific matters.

Nutrition of School Children in Hull

In the school medical service section of the annual report for 1933 of the City and County of Kingston-upon-Hull Dr. Nicolas Gebbie, medical officer of health, points out that, while there is a great deal of discussion at present about malnutrition among school children, the assessment of degrees of nutrition is difficult in the case of the individual, and even impracticable on a large scale. Statistical information based on average weights and heights is of little value, for well-nourished children may be below the average in weight and under-nourished children may be above it. Even an individual assessment after careful medical examination is fallible, and does not lead very far, for malnutrition may be due to such different factors as insufficiency or unsuitability of food, inability to assimilate fully the food which is eaten, and insufficiency of sleep, exercise, or fresh air. Errors of diet appear to be most common in children well above the poverty line, the child being allowed to choose the food it prefers, and to eat at irregular intervals. An investigation of the position as regards meals and sleep was made in May, 1933, in the children attending the open-air school in Hull, among whom there are many cases of malnutrition, due to various causes. These children received half a pint of milk on arrival at the school, and a substantial midday meal, which most of them enjoyed. No other food was allowed. The children returned home about 5 p.m. It was found that no fewer than 178 had two meals between then and bedtime, while ninety-nine had one meal. Most children from the age of 8 upwards went to bed between 8 and 10 p.m. This investigation arose from the discovery that many children came to the ordinary schools in the mornings without having had any breakfast, or very little, the reason being lack of appetite. In many cases it was clear that the child had got into a "vicious circle," having had the last meal of the day, and often an unsuitable one, at 8 or 9 p.m. As a result there was a condition of subacute gastritis, with the usual loss of appetite. Since the child had had no breakfast, the mother sent it to school with a most unsatisfactory

lunch to be eaten about 11 a.m. This prevented justice being done to the midday meal, which would probably have provided more satisfactory nutrition. The child becomes hungry about 4 p.m., and receives a meal on getting home. After this he plays for several hours, becomes hungry again, and receives another meal about 9 p.m. There is no doubt, the report continues, that it would be advantageous for children to receive only one substantial meal between their arrival home and going to bed, and for bedtime to be earlier in most cases. As one result of this investigation all children on entering the open-air school are supplied with a leaflet for their parents, which stresses the importance of regularity in the taking of food and of sufficiency of sleep. Dr. Gebbie reports that while ringworm on the scalp has reached the lowest level of incidence on record, and can possibly fall no further, scabies is far too prevalent. Inefficient home treatment with sulphur is cited as one of the causes, the parents not realizing the need for medical supervision to ensure the treatment of contacts and the full cleansing of clothing and beds. Reinfection is common. It is also noted that many parents have contended that the cost of transport of the whole family in these cases to the corporation sulphur baths is too high. An appeal is made in the report for a fully staffed child guidance clinic on a comprehensive basis, with home visitors specially trained in psychological work.

Estuary Muds at Southend-on-Sea

A small establishment for "medicinal mud baths" was opened by Councillor H. E. Frith, the mayor of Southend, on October 2nd. This venture is due to the initiative of Dr. Mary Nicol, who has made some study of the medical uses of estuary muds in Germany. The mineral analysis of the "schlick" at Wilhelmshaven and that of the Thames estuary appear to be similar, both being very rich in silica (60 per cent.), and in aluminium oxide and iron. The organic content and the biological properties of these muds have not yet been investigated. These marine deposits have a general resemblance to those of the well-known "limans" of the Crimea, which are now very largely used for rheumatism and other diseases, both in the fresh state on the coast and when dried and transported to the cities, especially for use in the winter months. At a reception in the Clifton Hotel, with Dr. J. F. Walker in the chair, Dr. Fortescue Fox in a short address congratulated the town of Southend and Dr. Nicol on the first attempt to organize the medical use of estuary muds in England. Southend, he said, had special advantages as a London health resort on the "Thames Riviera," with the east-and-south climate, which was very favourable to health, and especially to the fundamental function of breathing. The place possessed three good elements in its shelter and saltings, and a sunny and southern aspect, and also had the driest winter climate in Britain. There was great need for small treatment centres at the great holiday resorts, where natural remedies (air, light, heat, water, the peloids or natural semi-solid media and movement) could be scientifically applied under medical direction. Not all holiday makers were quite well, and their time at the seaside gave them a chance for some simple recuperative treatment, which might prevent many serious diseases and breakdown. Such a centre would be a boon to ailing people all the year round at Southend, but especially in the months of winter and spring. Those who were subject to catarrh and feeble circulation and to many nervous and rheumatic affections would all certainly benefit from a properly organized establishment. Dr. Nicol had done wisely in including not only the estuary mud, but also local arm and leg baths and tonic aerated hot sea-water baths in her scheme.

Reports of Societies

"MEDICINE AND MORALS"

LORD HORDER'S ADDRESS

The annual general meeting of the Medical Society of London was held on October 8th, the routine business being followed immediately by the address from the chair of the incoming president, Lord HORDER OF ASHFORD. The title given to the address was "Medicine and Morals."

Lord Horder began with the admission that the title had a certain spurious piquancy. The word "morals" had become closely attached to certain aspects of social behaviour, but he employed the word in an older and wider sense, meaning the sum of the criteria governing human conduct and thought at the time being—a kind of design for living, a pattern which it was considered well to follow, whether for the individual or for social groups. Morals in this sense must have begun very early in human history, and they had been constantly changing—in some eras slowly, in others swiftly. The pattern for the individual changed more quickly—and therefore sometimes more catastrophically—than for society in general, a circumstance which was fortunate for society. The individual could even afford to say, "I have no morals" (though by that admission he declared his morals, which were, in effect, that he was a law unto himself), but society could never be without morals, because in that event it would cease to exist. If morals were an art only, and not both an art and a science, no doubt the pattern of life would remain much the same for generations together, as, indeed, it did before science began. But science was born at last, though the travail was long, and with the birth of science medicine for the first time became a living thing.

THE PHYSICIAN AS THE NEW PRIEST

Medicine as an art, of course, was ancient. Yet if the litter of superstition and dogma which encumbered it even up to Harvey's time were swept away there was really very little left that could be called an art. Hippocrates laid down some excellent basic principles, but for two thousand years no edifice was built upon his foundation, for the simple reason that the bricks and mortar of science did not exist. Medicine, during all this time, enjoyed the companionship only of philosophy—a barren alliance so far as the patient was concerned, for he could get his mental comfort from the priest or from humanistic teachers, whereas for his body the physician had very little to offer him.

At first slowly, in face of opposition, and then more rapidly, as the new criteria became irresistible, science changed the pattern of life. It also activated medicine, which made life longer and better worth living. Men began to take control of life themselves, until to-day the danger was, not that they should be cramped by authority, but that they should be fatigued or even destroyed by their own freedom. Realizing that the causes of their unhappiness, as of their physical ills, lay in the biological sphere, they sought the physician rather than the priest. Bewildered by the prospect which their liberty opened out, and all unaccustomed to deal with the raw material of their natures as now revealed to them, they went to the doctor for guidance. To them he was the realist, the link between the fine abstraction which still beckoned and the particular application for which they still hoped. "He that sinneth before his Maker, let him fall into the hands of the physician." Why? Because to the physician the individual was not a metaphysical constant, but a physical variable, and this outlook enabled him to lift up many a weary head and comfort many a sorrowing heart. The patient might well go too far along the road of scientific economy, and place his trouble in a lower category than that to which it rightly belonged. It might be the loss of his aspirations and ideals from which he was suffering, not a mere failure to adjust his physiological or psychological balance, and thus the doctor must act as priest as well as physician.

It was an advantage, at any rate, that in these days the cards were on the table. Thirty years ago Maudsley complained of the hypocrisy which led people to condemn the plain speaking of their ancestors and practise a decent concealment of their sensualities. Were Maudsley living to-day he might be surprised at the frankness with which patients spoke on matters on which the patients of a former day were reticent—a frankness not always free from a suspicion of relish. Clifford Allbutt once said that there was as much harm done by talking about things as by suppressing things, and that to familiarize evil was to tolerate it, and Lord Horder considered the sentiment appropriate to much that happened in the consulting room, and that there was something psychopathic about the glib way in which some patients described their sex life.

THE PROBLEM OF BIRTH CONTROL

Entering the arena of social morals, where, he said, on some issues it behoved medicine to take a guiding hand, while with regard to others it was more appropriate that society should lead, medicine answering pertinent questions, and being prepared to give practical help, he spoke first on the subject of birth control. Here, in spite of the fact that lay interest and inquiry were both awake and pressing on this subject, medical opinion was strangely discordant and ill formed. The majority of medical men and women still began practice with no instruction in contraceptive methods—a startling anachronism when it was remembered that memorandums had been issued to public authorities by the Ministry of Health encouraging the formation of clinics and the giving of medical help to women when contraception was desirable for saving life or preserving health. In private practice patients not seldom complained that their doctors failed to give them the practical help they had a right to expect. This failure to help was not due to the doctor holding views that ran counter to the principle at stake, but to ignorance of methods and technique applicable to particular cases. The defect should be remedied without delay. It would be lamentable if the moral fabric of society became definitely formed in this matter, while medicine failed to give the guidance which it alone could give. Was it that medicine itself offered a resistance because it was still influenced by a certain body of religious doctrine? Or was it thought that such help might encourage extramarital sex relations? That pregnancy should be regarded as the chief or only deterrent to illicit intercourse was a terrible indictment against individual idealism on the one hand, and the aims of social reform on the other. Morality based upon fear of penalties was entirely a static affair, though doubtless of service at the beginning of human progress. Surely society was ready for a harder lesson than that. Increased control in the sphere of sex, like increased control elsewhere, was an inevitable result of the ceaseless probings of science, and that such increased control might be used for ill as well as good was a general, and not a particular, result of social development. Perhaps the profession was still awaiting the mandate of a completely convinced society. It ought not so to wait. It ought to be ready, with the fullest assistance so far provided by medical science, to answer in practical and positive fashion the questions put by those who, having emerged themselves from the thralldom of sex dominance, honestly and sincerely sought such expert help.

Inability to deal constructively with birth control brought in its wake the nemesis of the social evil of abortion. Here was another matter which cried out for full examination and advice. The anomaly which allowed the well-to-do to get rid of the unwanted child before it was born, without danger to life or reputation, yet denied such relief to the poor, was a stigma to which society was at last awakening.

EUTHANASIA

The subject of euthanasia was an old and recurring one, and more was likely to be heard of it in the immediate future. To many who discussed it the problem seemed simple, but to those who were brought into daily contact with the facts there was no problem more difficult.

Whose life should be terminated? And by whose decision? At what level of congenital defect, physical or mental, should the line be drawn? What diseases were to be regarded as incurable, and at what stages in them should the cup of Lethe be drunk? Was the patient's judgement to be relied upon, warped as it often was, whether by the malady or the treatment? How could it be known that his mood was permanent? How was the calculated decision of a man's intelligence to be distinguished from the cry of strained emotion for relief? It had to be recognized that the request to end suffering by ending life was not always the cry of a spirit stricken past endurance, but rather the dramatic demand of someone whose patience, never too good, was now exhausted. Finally, when the demand to end life was made on behalf of someone else, it was often not the patient, but the patient's friends who could not stand the strain. "Doctor, you must end this agony!" said a woman to him recently, and his reply, "Do you mean yours or your husband's?" brought home to her, rather sharply, the real position. The inalienable right of another person to live, if he so desired, had been entirely forgotten. "I am sure he does not want to live" might well mean, "I do not think I can possibly see him suffering any longer."

These were some of the considerations which must be advanced when they as medical men were approached by laymen who believed that the institution of euthanasia of the direct kind would be of benefit to humanity. In his judgement, this was the one subject upon which, though their experience should be available to guide the decisions of others, they ought not to express strong views. Their whole training and outlook were directed towards the prolongation of life and the relief of pain, and while they had to distinguish prolongation of life from prolongation of the act of dying, he thought the larger decision should be left to the developing good sense and judgement of the community, whose servants in such a matter they really were.

DUTY OF MEDICINE TO SOCIETY

After the briefest reference to other matters, including voluntary sterilization—the Brock report deserved the most careful study—the drink problem, food problems, industrial fatigue, and the campaign against unnecessary noise, Lord Horder went on to deprecate any aloofness of medicine from questions that affected social groups or society in general, and ultimately determined the general welfare and happiness. Morals, in the sense in which he had used the term, were constantly changing, and medicine could guide or even to some extent control those elements in the mosaic which concerned its own art and science, or it could remain detached and let society take care of itself. If, as he thought desirable, and indeed incumbent, the former alternative were adopted, then it was essential that the examination of these elements and guidance concerning them should be undertaken by representative bodies in medicine, rather than merely by individuals. Pooled opinion was much more useful than the expression of personal views. Moreover, the limitations imposed upon the individual by the traditions of medicine were severe, and rightly so. In the first place, no amount of publicity of itself conferred prestige upon the doctor, though it was perhaps wise to admit in these days that prestige could not be attained without some degree of publicity. Again, no medical man, however expert in his own sphere, could take upon himself the responsibility of standing for the general body of medical opinion; indeed, in respect of the things he had been considering, the very fact that a man was an expert might be a danger.

It was to his colleagues assembled in council that the individual, stirred to a protest or eager for a reform, should address himself in the first instance. Convinced himself, he was not likely to fail in convincing them if his case was a good one. He could thus secure the powerful aid of their corporate influence. So it should be with matters submitted by various sections of the public or by Government—for even Government sometimes, and quite sincerely, sought the way of salvation:

it was to representative and authoritative bodies inside medicine, and not to individuals, that these inquiries should be directed. But where were the representative and authoritative bodies? The Society he was addressing, like its vigorous offshoot, the Royal Society of Medicine, existed for academic discussions. The British Medical Association was a body most admirably suited to guard the status and amenities of its vast membership, but this function being apparent and accepted, it was reasonable that it should be suspect when matters of public interest were being ventilated. It was true that in the last analysis the public interest and the interest of the doctors were identical, but this last analysis must not be assumed as being made by those who were vitally concerned in the direction of social morals. Some would say that this was the sort of thing that might be adequately undertaken by certain health societies which had on their committees both doctors and laymen. But in the discussion of medical topics he distrusted such mixed bodies thoroughly. How could people confer with any expectation of a helpful issue if they did not speak the same language? There remained the Colleges, strong and representative bodies. Together the Colleges might voice a solidarity of opinion on any question arising within their walls or submitted to them from outside, and no impeachment on the ground of bias or parochialism could possibly be advanced. Against the Royal College of Physicians there was formerly lodged the reproach that it isolated itself from important outside affairs which cried aloud for the guidance of medicine, and the stigma was not unmerited. The present President of the College (Lord Dawson of Penn) was to be congratulated upon the efforts he had made to remove that reproach. His invitation to discuss certain matters of general interest to the public in comitia showed that he was alive to one of the chief functions of the College, and the setting up of a committee whose sole reference was to keep the College in touch with outside affairs which had medical bearings was a most laudable action. The recent decision of the Presidents of the two older Colleges to discuss disciplinary matters and penal cases in joint council was an advance in another and equally important direction. Whilst individually the Colleges were strong, they would more than treble their strength and their public influence if there were a closer liaison between them. Indeed, apart from acting in concert concerning examinations, the liaison scarcely existed. At present there were risks of divergence of opinion, and there was duplication of discussion. A closer union was much to be desired. Lord Horder closed by suggesting the idea of an Academy of Medicine in this country, of which the Colleges would be the main pillars. He again quoted Clifford Allbutt: "If a social discipline and fruition are to be renewed and enlarged, it must be upon a new synthesis as laborious and ardent as the former, and more true. . . . Swiftess and strength come of union of wills and singleness of heart rather than of wisdom."

At the close of the address a vote of thanks to Lord Horder was carried on the proposition of Mr. WARREN Low, seconded by Dr. WALTER CARR. Earlier in the evening the Society had taken leave of its retiring president, Sir John Thomson-Walker, to whom also a vote of thanks was passed. Some handsome new seating accommodation in the meeting room is Sir John Thomson-Walker's gift to the Society to mark his year of presidency.

F. Deak (*Thèse de Paris*, 1934, No. 535) states that in contrast with other districts in Rumania, in the delta of the Danube malaria is insignificant both in number and in gravity. The explanation for its infrequency is to be found partly in the preference shown by the anophelis for the cattle and partly in a relative immunity, combined with an excellent general condition of the population. The eastern part is almost entirely free from the disease, the average endemic incidence sometimes not exceeding 0.4 per cent. among 2,000 children up to the age of 15, as compared with 14 per cent. in the Tulcea area, at the apex of the delta.

CORRESPONDENCE

Publicity

SIR,—From time to time you publish in your correspondence columns and elsewhere indignant protests from practitioners whose articles have been quoted by the lay press, and who wish to repudiate any responsibility for their appearance. I wonder if there is any advantage in such disclaimers. Those who are familiar with the professional status of their colleagues require no such assurance. Others acquainted with the methods of journalism are perfectly well aware that no precautions can prevent these occurrences. And a tiny minority who might be willing to accuse your correspondents of seeking publicity or notoriety may even interpret the disclaimer as corroboration of the original intention! In any case nothing can prevent the lay journals from quoting from your columns, extracting the relatively dramatic, and unhappily, on occasion, misquoting and misrepresenting. For the author of the original article to protest is obviously useless. Is it too much to say that not only is it useless but it is quite unnecessary?

There is another aspect of this subject to which reference may not be inappropriate. The interests of medical men are not by any means restricted to their professional life, and there are certain outside activities upon which they are, rightly or wrongly, regarded as authorities, and upon which their opinion is considered to be correspondingly desirable. From their familiar association with the use of the telephone doctors are particularly fair game for attack through this convenient but highly dangerous medium. And once your ear is at the instrument and your arrival admitted, and you are inveigled into saying something, no matter what, the mischief is done. If, good-naturedly, you believe you may be doing a service to the public—and that really is the motive on most occasions—publicity is inevitable. The most fervent request to withhold your name is unlikely to be respected, since any news value attaching to the opinion of one who is being represented to be an authority depends entirely upon his name being mentioned. Alternatively, a curt refusal may rebound upon you to your subsequent discomfiture, and those who have once suffered in this way have learnt that it pays to be courteous.

At midnight a few weeks ago the news editor of one of the daily papers felt unable to rest until he had telephoned to take my opinion upon a "story" just to hand from South Africa: an indignant protest against holding Olympic Games for women because there was abundant evidence that some men had actually competed. It says something for my forbearance that my only observation, even at this hour, was that I knew absolutely nothing about it. Yet this became ingeniously interpreted as an authoritative denial of the rumour. A week later—again at the (apparently critical) hour of midnight—I was approached by another journal in reference to an inquest that had been held that afternoon, at which the coroner had expressed his opinion that the suicide of some unhappy young man was due to his "having lived too strenuously." "Did I think the coroner was right?" and "What did I suppose the coroner meant?"

It may be that some of us might succeed in fencing ourselves round by a complete secretarial inaccessibility (more appropriate, perhaps, to a Pope than to a medical man), and thus receive adequate protection from telephonic assault. But by the time we had acquired an eminence commensurate with such a state we should be "in the news" anyway.—I am, etc.,

London, W., Oct. 8th.

ADOLPHE ABRAHAMS.

Is High Blood Pressure a Risk?

SIR,—In your issue of August 25th "M.S., F.R.C.S." appears to call for a review of the vast amount of work written on high blood pressure. The cases to which he makes reference appear to cast a cynical doubt on the now recognized fact that, as a rule, high blood pressure certainly carries with it a risk which, to our shame it must be admitted, has been seriously overlooked since Clifford Allbutt drew attention to this disorder. The condition, according to Fahr, claims 10,000,000 afflicted in America, and 200,000 deaths a year—an incidence as common as cancer and tuberculosis together; according to Parkinson it is a "very common disease, which is responsible for so much suffering and mortality in late middle life and early old age." I can endorse Parkinson's observations even more strongly from my experience in this country, where the ravages of rheumatic fever are not so prevalent as in the West, and therefore show up hypertensive failures more readily.

One is tempted to ask: Has "M.S., F.R.C.S." met no other cases of high blood pressure? If he has not he is an extremely lucky medical man. If he has met many cases with such high systolic pressures, surely there must have been many with serious complications. I have had several friends and many patients with diastolic pressures of 170; very few indeed are alive. I have seen four cases which had systolic pressures of over 300. These could not be recorded, as the manometer only read up to this figure. The diastolic pressures in them were over 160. All these patients were over 60 years of age, and until a short time prior to a fatal issue had nothing more than the mildest general symptoms. One patient of mine, 68 years old, apparently in good health, had a systolic pressure of 210 and a diastolic of 95; another, a lady, a systolic of 300 and a diastolic of 90. These striking exceptions, and many more like them, have not made me cease to believe that high blood pressure, particularly when it occurs under 50 years of age and once any symptoms are manifested, is a danger to life of which some kind of notice should be taken.

An account of the numerous strokes which appear in these cases is given in my Sir Charles Hastings prize essay on "The Stroke in High Blood Pressure," published in the *British Medical Journal* of January 30th, 1932.—I am, etc.,

General Hospital, Colombo,
Ceylon, Sept. 22nd.

H. O. GUNewardene.

Preliminary Ligature in Toxic Goitre

SIR,—The correspondence concerning preliminary ligature in toxic goitre has probably continued long enough for adequate ventilation of the different opinions that are held. An excellent summary of the position was supplied in your issue of September 29th by Sir W. I. de Courcy Wheeler. I cannot, however, remain silent in view of the repetition by Mr. G. Bankoff in your last issue of the astonishing and dangerous fallacy that the degree of the reaction depends, not on the amount of thyroid tissue that is removed, but on how much is left behind. If this were true, the only logical inference would be that the lowest mortality rate would be obtained by performing a total thyroidectomy in all the worst cases. This is contrary to clinical experience, and the principle would be most dangerous if generally applied. I fully agree with Mr. Hawe and Mr. Bankoff that "for the good success of the operation it is imperative to remove at least three-quarters of the gland," and in fact I frequently remove more than this. In the great majority of patients it can be done in one operation, but in a

small minority it must be done in stages. The patient's reaction depends, in my opinion, on the amount of disturbance to which she is subjected, and that is why operation in stages, including preliminary ligature, is occasionally necessary. This procedure is reserved for those patients who are most seriously ill, so that it is no matter of surprise if sometimes one of them dies as the result even of the most cautious surgery. In some clinics patients who are as ill as this are not subjected to surgery at all, and perhaps some in consequence die who might have been saved. Their deaths then appear, however, in medical, not surgical, statistics. Unless we are shown both sides of the picture our data are really incomplete.—I am, etc.,

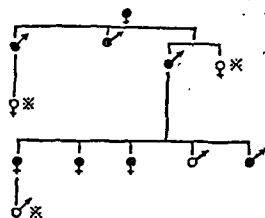
London, Oct. 8th.

GEOFFREY KEYNES.

* * This correspondence is now closed.—ED., B.M.J.

Female "Bleeders"

SIR,—The case of a female bleeder recorded by Drs. M. A. Foulis and J. W. Crawford in the *Journal* of September 29th (p. 594) prompts me to send you the genealogical tree of a very similar family, most of whom live in this town. I cannot trace it back any further than the grandmother of the present family, who is assumed by her descendants to have been a bleeder because she died from uterine haemorrhage the day after giving birth to the twins shown. I have put a star against three



members of the tree, because I have been unable to find out whether they are bleeders or not. One of these died as a child of 12, one lives far away, and the third, a sturdy boy of 14 months, has so far been preserved from cuts and scratches. My partner, Dr. Mary MacLaren, attended the eldest daughter at her confinement last year. She had previously dosed her liberally with calcium gluconate and laevulinate, and informs me that at the confinement there was a rather profuse loss, followed by a more severe haemorrhage three days later. Otherwise the women did well. One of her sisters had a very troublesome appendix two years ago. This we removed without untoward incident after a preliminary intensive treatment with calcium gluconate and a dose of haemoplastin.

The bleeding in this family is of a severe character. All the members marked with black dots suffer from fairly frequent epistaxis, which may last for several days. A cut or a tooth socket seldom stops bleeding within twenty-four hours, and several times haemorrhage has kept on for a full week. I cannot give the clotting time for the blood, partly because I seldom treat the family, and partly because the only attempt I have made to time it failed. The blood seemed to be quite fluid after standing for an hour, and then I had to leave it. My own blood, which I had put up as a control, had clotted within three minutes. According to the mother's statement the bleeding in her four children started in infancy. She makes a curious statement about her eldest daughter to the effect that she bled from the mouth about the same time every month until she was 2. While this is difficult to believe, she says that the periodicity was so marked that she could not mistake it.

The family tree I give is unfortunately very small, but, such as it is, it shows conclusively that in this family at least bleeding is not a sex-linked character, and suggests that it is almost a Mendelian dominant.—I am, etc.,

Winford, Cheshire, Oct. 6th.

W. N. LEAK.

Evipan on a Full Stomach

SIR,—With reference to the point raised by Dr. Langton Hewer, commenting on our recent paper on evipan anaesthesia, we entirely agree with him that the administration of evipan or any general anaesthetic when the stomach is overloaded may be a dangerous procedure.

We do not consider that any suggestion to the contrary was either made or implied in our article. Our statement was: "Evipan may be given without danger on a partially full stomach." In such circumstances, in a healthy subject the danger of syncope is remote, and, owing to the nature of the anaesthesia, there is practically no risk of stomach contents entering the respiratory passages. In the example quoted the patient had taken a light tea only, and had the wording of the text been "the patient recently had a light meal" instead of "the patient recently had a meal," perhaps our meaning would have been more evident.—We are, etc.,

Royal Westminster Ophthalmic
Hospital, W.C.2, Oct. 5th.

T. KEITH LYLE.

F. G. FENTON.

Control of Haemorrhage in Prostatectomy

SIR,—One serious complication of endoscopic resection of the prostate is haemorrhage and clot retention in the bladder. The haemorrhage cannot always be arrested by diathermy and fulguration at the time of the operation, nor can it always be controlled by the pressure of a retained large catheter. Irrigation with silver nitrate merely converts a soft clot in the bladder into a hard one, which often necessitates an open operation for its removal. To obviate the disadvantage of haemorrhage and clots I have recently in all cases tied in two catheters, one large and one small. Continuous irrigation is given, the inlet being the smaller catheter. The fluid used is 5 per cent. sodium citrate. This prevents clotting, and the catheters are seldom required after forty-eight hours. Instead of two separate catheters a double-channel catheter may be used. These are made by the Genito-Urinary Manufacturing Company. I strongly advise continuous irrigation as the initial after-treatment following endoscopic resection of the prostate.—I am, etc.,

London, W.1, Oct. 2nd.

F. MCG. LOUGHNAME.

Traumatic Rupture of the Lungs

SIR,—Dr. W. E. Cooke's paper (*Journal*, October 6th, p. 629) on traumatic rupture of the lungs without signs of trauma of the chest wall is of great interest to me, as it recalls a case which occurred in my own practice some years ago, and which has been puzzling me ever since. In the Southern Argentine, where I practised for a few years before the war, I was called one morning to see a policeman who had just been brought down from the country, having been in a rough-and-tumble the evening before with some prisoners he was escorting to the coast. When I saw him he was in a very serious condition, and I found on examination that there was an incised wound on the right chest in the mid-axillary line. There was complete dullness from the right clavicle downwards, and all the signs of a serious right haemothorax. I went back to my house to fetch some instruments, meaning to do a preliminary aspiration, but when I returned soon afterwards the man was dead. I did a necropsy by order of the local judge, and was surprised to find that, first, the wound had never penetrated the chest wall; secondly, that the ribs and the parietal pleura were perfectly intact; and, thirdly, that the whole of the right pleural cavity was filled with blood and broken lung debris. Nothing of the right lung remained except

a torn, jagged root; all the lung substance proper had vanished. The left lung, heart, and abdominal viscerae were intact.—I am, etc.,

Kirk Michael, Isle of Man, Oct. 9th.

E. G. FENTON.

Tuberculin

SIR,—A letter published in your issue of September 29th (p. 612), by "M.B., D.P.H.," is a most valuable and interesting human document. Might I suggest that this doctor reads an article written by Dr. J. R. Gillespie, tuberculosis officer for County Down, and published in the *Ulster Medical Society's Journal* of 1917, on a rational method of using tuberculin. Your correspondent will there see the reasons for the reactions which he obtained.

Experiments show that in about 95 per cent. of animals tested with tuberculin a positive reaction indicates the presence of living germs in the animal's body. Though x-ray examination may have failed to disclose any evidence of pulmonary tuberculosis in your correspondent's case, yet the reaction he obtained proves conclusively that he is harbouring living tubercle bacilli.—I am, etc.,

Nordrach-upon-Mendip, Oct. 2nd.

GORDON TIPPETT.

Minor Medical Problems

SIR,—I am venturing to write to you about two small but interesting matters.

First, I wish to draw attention to the bad results I have had recently after the administration of potassium iodide. In one case, that of a male aged about 35, perhaps of rather a "neurotic" disposition, only 3 grains of potassium iodide were given, but within twelve hours his face had become swollen and his eyelids were oedematous. A friend of mine, a member of the medical profession, noticed that after taking 5 grains three times a day his neck and cervical glands were so swollen that he could not put on his collar. My former house-surgeon at Guy's Hospital reports two severe cases of nasal discharge and septic eruptions following upon the administration of small doses of potassium iodide.

Secondly, I wish to draw your readers' attention to the rather anomalous nature of the so-called "boil" during the last twelve months. In all the cases that I have seen or heard of recently apparently no definite slough occurred. In two cases a purulent discharge lasted a very long time—namely, eight weeks or so—without any core being formed or extruded. One of these cases terminated fatally from meningitis.

Doubtless the action of drugs and the reaction to disease may vary from time to time, but potassium iodide is a drug which is frequently given, and the formation of a boil is a common condition: it would be interesting and instructive to know of other medical men's experiences.—I am, etc.,

RALPH THOMPSON, Ch.M., F.R.C.S.

London, W., Oct. 8th.

"Port Sanitation and Common Sense"

SIR,—The letter of "M.D." (*Journal*, October 6th, p. 658) calls for a reply, for which I would crave your space and tolerance.

The main purpose of my article was to draw attention to the anachronistic nature of present-day port sanitation procedures, especially those of the Latin countries. I did not for a moment claim that any ship surgeon should be regarded as endowed with medical omniscience, only that he should not be treated, as happens in many foreign ports, as an ignoramus in respect of medical knowledge.

The cases which "M.D." mentions are admittedly difficult, and I for one would be only too pleased to have assistance in their diagnosis; but they are exceptional cases, quite different from the everyday minor illnesses which occur among human beings everywhere, ashore or afloat.

His assertion that infectious disease might break out on board during the twelve hours' transit of the Suez Canal is so very improbable as to verge on the fantastic. The health authorities of the Panama Canal zone are experts at their job, yet they require a declaration only at one end of that canal—the Atlantic for west-bound ships, the Pacific for east-bound. The case which he mentions of concealment of small-pox must in itself be anachronistic. I feel perfectly certain that no British ship surgeon (still in his senses) would nowadays attempt to conceal a case of small-pox, or even one that remotely suggested it. He would be only too glad to have it removed from the ship.

There certainly cannot be a multitude of forms, but there can be a variation in the attitude of the port doctor. He need not necessarily treat every ship surgeon as a medical ignoramus, and probably a liar in addition.—I am, etc.,

October 6th.

SHIP SURGEON.

* * This correspondence is now closed.—ED., B.M.J.

The League and Peace

SIR,—Your annotation—"Cheese-paring at Geneva" (September 29th, p. 602)—cannot be read without arousing the deepest indignation at the indifference of the official mind to the common welfare. This indignation calls for expression; but how? Personal protest is useless, and political protest, because of the complexity of election programmes, is ineffective. There is, however, one course which should command the support of all. A way should be found for those who have the maintenance of peace at heart to unite to send an annual voluntary contribution directly to the League of Nations at Geneva. This would be additional to the sum of one penny and one farthing per head found with such difficulty by the British Government. Someone must take the initiative. Will the British Medical Association, as a professional body whose concern is our individual good health, therefore invite the representatives of other professional and also religious and social bodies to confer on the best means of making this proposal effective? In this you would have the earnest thanks of millions to whom one penny and one farthing is a tragically laughable price to pay annually for protection against war and for the encouragement of the arts of peace.—I am, etc.,

London, S.E.24, Oct. 2nd.

W. J. WISDOM.

The Services

NO. 14 STATIONARY HOSPITAL DINNER

The fifteenth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, December 7th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.45 p.m. Colonel C. R. Evans, D.S.O., will be in the chair. Price of dinner is 12s. 6d., exclusive of wines; evening dress or dinner jacket. The honorary secretaries are Colonel H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.1.

DEATHS IN THE SERVICES

Surgeon Commander Archibald Denize Spalding, R.N. (ret.), died in London on September 10th. He was educated at the London Hospital, taking the M.R.C.S., L.R.C.P.Lond. in 1901, after which he entered the Navy, becoming surgeon commander on February 2nd, 1916. He served throughout the war of 1914-18.

Obituary

J. P. A. GABB, M.D.

Consulting Medical Officer, Royal Surrey County Hospital,
Guildford

Dr. J. P. A. Gabb, who died on September 18th, was the son of Dr. John Gabb of Bewdley, Worcestershire, and was educated privately at Clifton and later at University College, London, where he graduated, taking the M.B.Lond., with honours, in 1879 and the M.D., with honours, in 1882—the year in which he went to Guildford. He had also obtained the M.R.C.S.Eng. in 1879, and was awarded the gold medal for surgery and the silver medal for medicine. Dr. Gabb held the following appointments: honorary consulting medical officer to the Royal Surrey County Hospital; honorary medical referee to the Royal National Hospital for Consumption at Ventnor. He was president of the Surrey Medical Benevolent Society, and a Fellow of the Medical Society of London. He had been resident medical officer of St. Marylebone General Dispensary, house-surgeon at Kidderminster Infirmary, and house-surgeon and house-physician at University College Hospital. He was a member of the British Medical Association for fifty-two years.

H. B. B. writes: Dr. J. P. A. Gabb's death is an irreparable loss to his many friends; none of us now left in practice can remember a time when he was not there to be consulted in case of need—for he practised in Guildford for more than fifty years. He was a tower of strength to his junior colleagues—who consulted him freely—not only in purely medical matters, but in almost every concern in life that can affect medical men. His advice was always inspired by wisdom, often spiced with humour, and was given in such a friendly spirit that even when it was the reverse of that hoped for by aspiring youth it was comforting: hall-marked by reason. He was a shy man, very quiet and reserved, but his illuminating smile was celebrated. I have heard it said, rather enviously, that he owed his enormous practice to this smile, and I am open to believe that it contained healing properties, as an adjuvant to his vast experience and distinguished medical acumen and knowledge. His general practice was of the best kind, and included every class of society—and both rich and poor. All his patients were his friends, and they all loved him. There must be a very large number of people who will never regard any other doctor, however good, as "the doctor" in the same sense as they regarded Dr. Gabb. They could always rely upon him, and his mood was always the right mood. He was both generous and charitable. Dr. Gabb was a tall, handsome man, very strong, and in his prime, which lasted nearly to old age, he was untirable. He had little time for sport or recreation, but he loved his garden and his pigeons.

JOHN MACAULAY BOWIE, M.D.

F.R.C.S. Ed., M.R.C.P. Ed.

The death took place suddenly in Edinburgh on October 5th of Dr. J. M. Bowie, a well-known medical practitioner of the city. He was taken ill while driving his car, but was able to draw in to the side of the road; when he was carried into an adjoining office life was found to be extinct. Dr. Bowie, who was born in 1874, took a medical course at Edinburgh University, where he graduated M.B., Ch.B. in 1898, proceeding to the M.D. in 1901. In 1902 he joined the Royal College of Physicians of Edinburgh as a Member, and took the Fellowship of the Royal College of Surgeons, Edinburgh, in 1903. After a period as resident physician with the late Sir Byrom Bramwell in the Royal Infirmary, Edinburgh, he acted as house-physician

at Monsall Fever Hospital, Manchester, and as clinical assistant in the nose and throat department of the Royal Infirmary, Edinburgh. He later began practice in the Grange district of Edinburgh, where he enjoyed the confidence of his wide circle of patients to an unusual degree. In his student days Dr. Bowie took a keen interest in the Royal Medical Society of Edinburgh, of which he was honorary secretary, and he continued to devote himself to various professional organizations in later life. He was thus an active member of the British Medical Association; on several occasions he was a representative at the Annual Representative Meeting, and in 1930-2 was chairman of the Edinburgh Division of the Association. At the time of his death he was chairman of the Edinburgh Panel Committee, a member of the Scottish Committee of the British Medical Association and of the Edinburgh Insurance Committee, and chairman of the Clinical Club, a social organization for general practitioners in the city. He assisted in the organization of the Public Medical Service for Edinburgh which has just been started. During the war Dr. Bowie was medical officer to the 9th Royal Scots, and served with the rank of major in the R.A.M.C.(T.) in France, where he was severely wounded. For his services in France he received the Croix de Guerre. After his return he limited his practice to some extent, and removed to 10, Walker Street, Edinburgh.

Dr. Bowie is survived by a widow, two sons, and two daughters. Mrs. Bowie is well known for her activities in the nursing world, being connected with several nursing publications and an Associate of the Institute of Journalism. A memorial service held on October 8th at St. Cuthbert's Parish Church, Edinburgh, where Dr. Bowie was an elder, was attended by many representatives of the medical profession. The interment took place in the Dean Cemetery, Edinburgh.

D. L. FISHER, D.S.O., M.B., C.M.

Lieutenant-Colonel R.A.M.C.(T.)

Dr. David Leonard Fisher, who died on October 3rd at Darlington, was born on May 23rd, 1870, in Belfast, and studied medicine at Edinburgh University. He graduated M.B., C.M. in 1897, and after holding the post of demonstrator in anatomy for a time, was appointed house-surgeon to the Mildmay Hospital, Bethnal Green. He then practised in Stockton, and met his wife, a daughter of the late Mr. George Mellor, a member of the Stockton Council, and, accompanied by her, he went to Manchuria to take charge of a mission hospital until the Boxer rising. Returning home, he established himself in practice in the rapidly growing north end of Darlington, and afterwards in partnership with Dr. C. J. Kirk, taking part in all progressive work—first aid, St. John Ambulance, Territorial training, and later, service to the municipality of Darlington as a councillor in 1909, chairman of the Library Committee, and alderman in 1926, when he was elected chairman of the Health Committee. In 1921 he was appointed a justice of the peace.

Dr. Fisher had a most distinguished military career. Amidst a very busy practice he found scope for his illimitable energies in the Territorial Service in 1908, and at the outbreak of war was a captain of the 2nd Northumbrian Field Ambulance. Mobilized in August, 1914, he went to France in December with the 30th Division, having been in the meantime promoted major whilst stationed in camp at Gateshead. At the end of 1915 he was transferred to Salonika, where his brilliant self-devoting services and organization of field hospitals in the Struma and Vardar won him his lieutenant-colonelcy in 1916. He continued to serve midst all the trials of malaria, dysentery, and cholera in the East until his return to

civil life in 1919 with the rank of lieutenant-colonel. His war honours included mention in dispatches three times, the award of the D.S.O., and the decoration of an Officer of the Legion of Honour from the hands of the President of the French Republic.

In 1933, following the distressing event of the loss of two mayors in four months, Dr. Fisher was unanimously elected mayor of Darlington, and though still feeling the strain of those past years, so typical of his life, he manfully accepted the responsibility, and guided the council through a most difficult period in its history. He also held the appointment of police surgeon and medical referee to the War Pensions Committee. Always progressive, he was largely instrumental in forcing the pace in Darlington in the fight against tuberculosis in 1912, in the conversion scheme from privy middens to water carriage, in founding a museum, in replacement of noisy clanking tramways with trackless rubber-tyred buses, in modernizing water supplies, and finally in the co-ordination of medical services under the Local Government Act, 1929, when the whole of the council's activities were centralized under practically one roof, convenient to the new Memorial Hospital. Dr. Fisher joined the British Medical Association in 1903, and was chairman of the Darlington Division in 1925-6. He never made it his aim to amass money, but rather set himself to help his fellow man in whatever way he best could use his talents. His criticisms of colleagues were of the kindest nature. Always patient, always eager to believe the best, a true sportsman, he endeared himself to his friends and soon won over his opponents—if he ever had any.

A public memorial service was held at St. Cuthbert's Parish Church on October 6th, when a large congregation, consisting of the mayor, corporation, chief officials, and representatives of many organizations, paid their last tribute to a gallant soldier and a very faithful citizen. He leaves a widow and four daughters, two of whom are married, one to Dr. John Clarke (Coventry), and the other to Dr. James Robertson (Hull).

We have to announce with regret the death of Dr. G. A. F. HEYWORTH of Belper, one of the best-known medical practitioners in Derbyshire. During a hockey match, while playing for Belper against Beeston, he suddenly collapsed and died soon after admission to the Nottingham General Hospital. George Alexander Frederick Heyworth was born in 1881. From Rugby he went to Trinity College, Cambridge, and continued his medical studies at the London Hospital, obtaining the M.R.C.S. and L.R.C.P. diplomas in 1907, and subsequently the degrees of M.A., M.B., B.Ch. at Cambridge. While a student he played hockey for Cambridge University, and later for Lancashire. After a period as house-surgeon to the Children's Infirmary, Liverpool, he began general practice at Belper in 1909. He was a member of the British Medical Association (late chairman of the Derby Division) and of the Derby Medical Society, and among other interests he identified himself with the work of the local ambulance corps and of the Derby Branch of the Church Missionary Society. Dr. Heyworth's standing among his colleagues was shown by his election to both the Derbyshire Insurance Committee and the Derbyshire Panel Committee, and of the latter body he was at the time of his death vice-chairman and honorary secretary; he was also chairman of the Derbyshire Health Week Committee. Dr. H. W. Pooler writes: "A modest, charming, unassuming personality, Dr. Heyworth will be much missed by his colleagues on the Panel Committee. As one of the honorary secretaries of the joint ante-natal committee of the Derbyshire Branch Council of the British Medical Association and the Panel Committee, he was conducting negotiations with the Derbyshire County Council for the greater co-operation of general practitioners in ante-natal work throughout the county." A London consultant

writes: "As a friend and companion of some forty years' standing I would esteem it a privilege to be permitted to add a few words of tribute to the fine character of the late Dr. George Heyworth. We were cousins, and great good friends together at Rugby School, Cambridge University, and the London Hospital, and everywhere we shared rooms and worked in intimate contact. There was never anything in his good clean life which could not be admired—his loyalty to his friends, his devotion, his keenness and enthusiasm for all forms of manly sport, his sincere and Christian character, and his very fervid interest in the profession of his choice. George Heyworth died as he would have wished to die—in the full vigour of his fruitful life—but he had not yet reached the zenith of his power, and, had he lived, a still broader vista would have been open to him. The companions of his youth and of his prime are grateful for an example so inspiring as that of the friend who has been snatched away."

We much regret to record the death, on September 22nd, of Dr. JAMES CRAWFORD MYERS KINNEAR of Wickham, Hants, after an illness lasting several months. James Kinnear was born at St. Cyrus, Kincardineshire, in 1867; and after studying medicine at Aberdeen University, graduated M.B., C.M. in 1889. He practised in Scotland for a few years, and then, in 1900, came south to Wickham. He soon made friends, and rapidly found himself in extensive country practice. He held the appointments of medical officer and public vaccinator for Southwick and Wickham, surgeon to the Post Office, and honorary surgeon to the Shedfield Cottage Hospital. Dr. Kinnear was a good shot, a rider to hounds, and a breeder of horses. In his early days he was always in the saddle, doing his rounds on horseback. In this way, although often overworked and seldom taking a holiday, he managed to keep fit. He was devoted to his patients, especially the poor: they were his friends, their troubles were his, and his generosity to them was proverbial. It is not too much to say that, although a man of strong constitution, his devotion to duty and his unselfishness shortened his life. Dr. Kinnear's passing has left a gap in the district which will be difficult to fill, and he will long be remembered as a wise physician, a kind friend, a lover of the countryside, and a keen sportsman. He married in 1911 Mary Laura Duncan of Curdridge—a most devoted wife and mother—and leaves three sons and two daughters.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

On the occasion of the visit of the King and Queen to Cambridge on October 22nd, when His Majesty will declare the new University Library open, it is proposed to confer the honorary degree of Doctor of Science upon Lawrence Joseph Henderson, M.D., professor of biological chemistry at Harvard University, and upon Karl Landsteiner, M.D., member of the Rockefeller Institute for Medical Research. The Vice-Chancellor, Mr. J. F. Cameron, Master of Gonville and Caius College, in his address to the Senate on October 1st, made detailed reference to the new University Library, with the opening of which a new chapter in the history of Cambridge begins. He recalled the part played by his predecessor, Sir Hugh Anderson, M.D., in securing for the University the great gift by the Rockefeller Foundation, and said that the Anderson Room would commemorate Sir Hugh's services.

UNIVERSITY OF LONDON

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE

The following candidates have been approved at the examination indicated:

ACADEMIC DIPLOMA IN PUBLIC HEALTH.—Hyacinth I. Lightbourne, F. G. Macdonald, I. A. MacDougall, I. I. Roberts.

LONDON HOSPITAL MEDICAL COLLEGE

The Second Open Entrance Scholarship of the value of £100 has been awarded to E. A. Pask (Downing College, Cambridge.)

UNIVERSITY COLLEGE HOSPITAL

Three lectures on the history of medicine will be delivered at University College Hospital Medical School, University Street, W.C., on Mondays, October 15th, 22nd, and 29th, at 4.15 p.m., by Professor Charles Singer. The first lecture will be on Hippocrates, the second on Galen, and the last on Boerhaave. The lectures are open to all medical students of the University.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—H. V. M. Jones, J. H. St. B. Crosby.

Medico-Legal

DEATH AFTER "CANCER CURE"

Inquest Jury's Rider

The Westminster coroner, Mr. Ingleby Oddie, sitting with a jury, concluded an inquest on October 1st on the body of Alice Bishop, aged 62, a Streatham woman, who died after having been under treatment for four and a half months in a home run by Mr. David Rees Evans of Finchley Road, Hampstead, a herbalist, who professed to have discovered a cure for cancer, the nature of which, however, he had not made public. It was stated that Miss Bishop had remained in the home until September 15th, when, on the advice of a qualified doctor, she was removed to a nursing home, where she died six days later, the cause of death being syncope following toxic absorption due to ulcerated carcinoma, an inoperable growth.

Evidence was given by a woman friend of the deceased as to the condition of the room in Evans's house in which Miss Bishop was a patient. She did not think it was all it might have been, and she did not consider it sufficient to change the bedclothes once a fortnight. A Hampstead medical man stated that he was called in in May to see Miss Bishop at the home of Evans, whom he did not know personally. She told him that she had been suffering from hiccup and pain, and he treated her, but she had suggested that she did not want any treatment for her cancer (of the breast) other than that given by Mr. Evans. The practitioner told her, after one or two visits, that he could not continue to see her in the house of an unqualified man.

Mr. Evans, who was cautioned by the coroner before giving evidence, said that he was 41 years of age, and a "healer of cancer." He had no medical training or knowledge of pathology. He had had four patient-boarders in his home at the same time; his charges were from two to three guineas a week for board and from two to six guineas a week for treatment. He had charged Miss Bishop seven guineas altogether. He met her first in April at a meeting where he lectured on cancer, and where six of his cured patients were present. He examined the growth on her breast, and concluded that it was an advanced case of cancer. She came to him every day for three weeks, and he painted a herbal preparation over the diseased area with a small brush. The object of the paint was to draw the cancerous growth to the surface, it was not a caustic or acid, but he refused to divulge its composition. Miss Bishop had shown some sign of improvement at first, but later lost the will to live. Mr. Evans was questioned concerning an action brought against him by a Mrs. Burrell in 1930, but he denied that the liquid on that occasion was analysed and found to be Venice turpentine.

After two women had given evidence on Mr. Evans's behalf, one of them stating that she had been cured by him of cancer of the breast, the coroner, in summing up, said that it was well that such persons as Mr. Rees Evans should know the risks they were running. Mr. Evans was completely ignorant of medicine and surgery, yet he held himself out as able to cure a disease which had baffled the whole world. If he had such a secret remedy, ought he not to hand it over to the numerous sufferers from this terrible disease? He did not do so; he kept it to himself. The result was to buoy up false hopes, and to intervene between the patients and surgical or deep-ray treatment, which were doing so much in these days.

The jury at first returned a verdict of manslaughter, but the coroner pointed out that for such a verdict to stand it would have to be proved that the treatment had either caused or accelerated death. The foreman replied that eight of the jury had said "manslaughter" and one "gross negligence." They had considered the evidence and the pain the deceased had suffered. The coroner said that pain did not necessarily shorten life. After further consultation the jury returned a verdict that death was due to cancer—that is, natural causes—accelerated by lack of treatment, and in a rider they condemned the interference and negligence of Rees Evans's treatment.

* * The case of Burrell v. Evans, to which reference was made in the above proceedings, was heard before Mr. Justice Charles and a jury in 1930. The jury were unable to agree on an answer to the question put to them as to whether there had been fraudulent misrepresentations and negligence by the defendant. The case was fully reported in the *British Medical Journal* (1930, i, 1024).

Medical News

The President (Dr. J. S. Fairbairn) and Council of the British College of Obstetricians and Gynaecologists have issued invitations to a dinner party to be held at Claridges' on Monday, November 5th.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, October 17th, at 5.30 p.m., when papers will be read by Dr. Edwin E. Jelley and Drs. G. M. Findlay and R. D. Mackenzie.

The annual dinner of the Chelsea Clinical Society will be held at Hotel Rembrandt, Thurloe Place, S.W., on Tuesday, October 16th, at 8 o'clock. The president will receive members and guests at 7.30 p.m.

The annual dinner of the Surgical Instrument Manufacturers' Association will be held at the Holborn Restaurant on Friday, October 26th, when the principal guest will be Dr. William H. Ogilvie.

The first part of a course of lectures to be given at the British Red Cross Society's Clinic for Rheumatism, Peto Place, Marylebone Road, N.W., commences on October 18th, and will be continued on alternate Thursdays at 8.30 p.m. to December 13th. The second part of the course will open on January 3rd, 1935, and will be continued on alternate Thursdays at 8.30 p.m. until April 4th (with the exception of February 14th). All inquiries regarding the lectures should be addressed to Dr. M. B. Ray at the Clinic.

A course of three public lectures will be given by Professor L. J. Henderson of Harvard University at University College, Gower Street, W.C., on October 16th, 17th, and 18th at 5 p.m. Professor Henderson's first lecture will be on "Physiological Equilibrium," and Professor A. V. Hill, F.R.S., will occupy the chair.

The British Institute of Philosophy (University Hall, 14, Gordon Square, W.C.) has arranged a course of four lectures on the importance of a philosophy of life for mental health, for the medical profession, on Thursdays at 5 p.m. from November 1st to 22nd. The first lecture, on "The Biology of Social Life," will be delivered by Professor W. Langdon Brown; the second by Dr. William Brown on "Health, Self-determination, and Free Will"; the third, on "Creative Activity and Mental Health," by Dr. Emanuel Miller; and the fourth by Dr. H. Crichton-Miller on "Belief and Adaptation." Applications to attend the course, the fee for which is 12s. 6d., should be made to the director of studies at the Institute.

Free demonstrations of the technique of contraceptive methods will be given at 108, Whitfield Street, W.1, on November 1st and December 6th, 1934, January 3rd, February 7th, March 7th, April 4th, May 2nd, and June 6th, 1935, from 2.30 to 6 p.m. Previous applications for tickets (which will be supplied to medical practitioners only) should be made in writing to the honorary secretary, C.B.C., at that address.

Dr. R. Veitch Clark, medical officer of health for Manchester, will deliver his presidential address to the annual meeting of the Society of Medical Officers of Health on Friday, October 19th, at 5 p.m., at 1, Upper Montague Street, W.C.

The South-West London Medical Society announces a new series of lectures beginning on October 17th, when Dr Russell J. Reynolds will speak on cineradiography. All medical men are welcome at this meeting. Other lectures will be given as follows: November 14th, Dr. L. J. Witts: "Diagnosis and Treatment of Anaemia." December 12th, Discussion on anaesthesia, "Ether is not Dead," to be opened by Dr. Z. Mennell and Dr. M. D. Nosworthy. January 9th, 1935, Mr. B. Whitchurch Howell: "Orthopaedic Cases in General Practice." February 13th, Dr. Donald Paterson: "So-called Acidosis Attacks." April 10th, Dr. G. E. S. Ward: "The Failing Heart." May 8th, Mr. Terence Millin: "The Obstructing Prostate." The session will conclude with the Bolingbroke Lecture, on June 12th, by Dr. Robert Hutchison, entitled "Constitutional Medicine." Meetings are held at the Bolingbroke Hospital, Wandsworth Common, S.W.

The fifth centenary of the foundation of the University of Catania will be celebrated from October 19th to 22nd.

A series of post-graduate lectures will be given at Ancoats Hospital, Manchester, on Thursdays at 4.15 p.m. from October 18th to December 13th inclusive.

The Fellowship of Medicine, 1, Wimpole Street, W.1, announces that lecture-demonstrations will be given at 11, Chandos Street, W., at 2.30 p.m. on October 16th and 23rd. Courses of instruction include week-end courses in clinical surgery at the Royal Albert Dock Hospital on October 20th and 21st; and in diseases of the chest at the Brompton Hospital, on October 27th and 28th; a fortnight's course in gynaecology at the Chelsea Hospital, October 22nd to November 3rd; a week's course in neurology at the West End Hospital for Nervous Diseases, October 29th to November 3rd. Cases will be demonstrated at the National Temperance Hospital, Hampstead Road, at 3 p.m. to-day (Saturday), October 13th. A course of lectures on diet and dietetics will take place on Wednesdays at 8.30 p.m. at 11, Chandos Street, W., from October 24th to December 12th. The first will deal with general principles of dietetics, and will be followed by diet of infants, of the diabetic, of the obese and thin, for convalescents and aged, in deficiency diseases, in the nephritic, and in gastric diseases. Courses and clinics are open only to members and associates of the Fellowship.

At a meeting of the Académie des Sciences in Paris on October 2nd, Dr. Nicolle, director of the Pasteur Institute of Tunis, gave an account of recent investigations by his collaborator, Dr. Joan Laigret, into the mechanism of immunization against yellow fever. In the course of three months more than 3,000 persons have been inoculated against yellow fever in French West Africa, and the results have been so satisfactory that the authorities have decided to make vaccination against yellow fever compulsory.

The Hanbury memorial gold medal of the Pharmaceutical Society of Great Britain has been awarded to Dr. George Barger, F.R.S., professor of chemistry in relation to medicine in the University of Edinburgh. This medal is for "high excellence in the prosecution or promotion of original research in chemistry and the natural history of drugs."

The second Italian Congress of Industrial Medicine will be held at Turin from October 20th to 23rd.

A new apparatus for the treatment of cancer by high-voltage x-rays has been given to the Birmingham General Hospital by Sir Herbert Austin, who has also provided the building which houses it, at a total cost of £4,000.

The issue of *Paris Médical* for September 22nd is devoted to psychiatry.

Professor P. Nobécourt has been elected president of the Société de Pédiatrie de Paris.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Barillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Localized Flushing

"H. H. B." writes from Lancashire: I should be much obliged if any of your readers could offer suggestions as to appropriate treatment in the following case. A young unmarried woman, aged about 20, suffers from patchy circumscribed areas of flushing on very slight provocation, chiefly on the face, neck, and upper chest. Her general health is good, her only complaint being a certain degree of simple anaemia, which responds readily to treatment with iron preparations. She is not a particularly nervous type either. I presume that the cause must be some disturbance of the vasomotor mechanism.

Treatment of Erythema Annulare

"S.Q.S." writes: I shall be most grateful for advice regarding a patient who gets frequent recurrent attacks of erythema annulare. The rings vary in size; they only come on the outside of the thigh (right); irritation is great, and treatment—external and internal—is a failure. A friend suggested to the lady to use a cloth soaked in hot water to slap the part. This she does, and it is the only application that gives temporary relief from the terrible itching. Calamine lotion with carbolic acid does help a little at times, but the rings return. A sister has had chilblains which nobody can cure. Another sister gets erythema nodosum, which has baffled doctors galore.

Diuresis in Case of Pituitary Tumour

Dr. T. MacCARTHY (Sherborne, Dorset) would like to know if an explanation can be given as to the source of the fluid excreted by a case of pituitary tumour in which the patient over a period of four months has passed an average of 240 ounces daily, her average intake not having been more than 80 ounces from all sources, and often less than 60 ounces daily. Meanwhile she has lost no weight. It appears to be a mystery where the fluid comes from. Does she absorb it from the air? I can think of no other answer. She is not very thirsty, and shows no signs of dehydration.

Income Tax

Retirement from Foreign Practice

"R. S." is carrying on a practice abroad, and proposes to sell it as from April, 1935, and return permanently to this country. His income then will consist of (1) dividends on investments, (2) war disability pension, and (3) probably proceeds of locumtenent work. On what basis will he be assessed?

(1) In so far as they are not taxed by deduction, on the basis of the yield of the investments in the previous year—or the current year for 1934-5. (2) No liability to tax. (3) On the current year's earnings, except that if

"R. S." does that sort of work for two or three years he will probably be assessed on the previous year's basis, except for the first year.

Compensation for Loss of Office

"HOPEFUL" is in receipt of compensation for loss of office paid quarterly. Is it liable for payment of income tax, and, if so, is it regarded as earned?

* A lump sum by way of compensation would not be liable to tax, even if by arrangement paid in instalments. But the sums received in this case are apparently quarterly payments for an indefinite period, and would seem to be more in the nature of a pension. In that case they are liable as earned income.

LETTERS, NOTES, ETC.

A Case of Erythroedema

Dr. J. A. MOORE HALL (Shotts, Lanarkshire) writes: I was recently called to see a female child, aged 13 months. For several weeks the mother noticed that the little patient was becoming very restless and irritable. Naturally, she attributed the condition to dentition. However, when the greater part of the night's rest was broken by the crying of the baby, she thought it time to consult the doctor. On examination the patient's hands and left foot were found to be swollen and red and cold to the touch. This was accompanied by profuse perspiration and marked photophobia. There was loss of appetite and weight, together with constipation. The pulse was accelerated, but the temperature was found to be, and remained, subnormal. The urine was free from albumin. There was no evidence of rickets. A day or two later a very irritable sweat rash appeared on the neck and body, but this condition was soon relieved by the application of a lead and tar lotion. With rest in a shaded room and sedative treatment, the above signs have improved, but there are still marked general asthenia and muscular hypotonia. In my opinion, the child is suffering from erythroedema, which is also known as pink disease on account of the curious pink or red colour of the hands and feet. I am led to write this communication regarding an uncommon disease found in general practice, as I feel sure that many of my fellow-practitioners have met with cases similar to the above, which have proved puzzling. The main signs of the fully developed condition have been aptly described by A. Victor Neale in an alliteration of the words beginning with "P": peevishness, pinkness, pallor, perspiration, papules, peeling, pulse, posture, photophobia, paraesthesia, paresis, pyuria. The disease usually attacks children from 3 months to 5 years of age, even those who are well nourished, and lasts from three to nine months. The cause of the condition is unknown, and there is no specific treatment. A peripheral neuritis mainly affecting the sensory nerves, and showing a secondary vasomotor disturbance of the extremities is the principal pathological finding. Violet-ray treatment and raw liver (1 to 2 oz. daily) are said to have a beneficial effect. Fresh air, warmth, subdued light, rest, wholesome food, together with a lotion for the troublesome rash, are essential. Convalescence is usually slow, but the prognosis is good.

The Swab in Diphtheria Diagnosis

Dr. JANET M. C. GRAY (Lewisham) writes: I have read with much interest the letters on diphtheria in the *Journal* of September 22nd and 29th. Most of the time I have been working in India, but was home on furlough in 1915, and for a short time was doing general practice. I had a fair number of cases of diphtheria in children: in each case, after taking a swab, I injected a full dose of the antitoxin, and all the cases recovered. As I never got an answer about the swab until the next day—it was a place in the country—I think the results might have been different had I waited. In India diphtheria is very rare, and, although I never had a case, I always kept antitoxin by me, because I felt so strongly there was no time to be lost.

Evipan Anaesthesia

Dr. J. T. SPIRIDION (Hankow) writes: I would like to add my own very satisfactory experiences with sodium evipan to those of Dr. Burke, published in the *Journal* of August 11th (p. 255). During the past three months I have used this anaesthetic on ten patients only—nine Europeans and one Chinese. It was given for the following minor operations: tooth extractions, four; opening deep abscesses, two; curettage, one; setting a fractured femur, one; repair of

perineum, one; repair of crushed toe, one. No premedication was given in any of the cases: in one only was the operation performed by myself. All the patients enjoyed good general health, although two were alcoholic subjects; one of these required 11 c.cm. before losing consciousness—an unusually large dose—and the other suffered from a severe rigor one hour after the operation. In all the other cases the anaesthetic proved perfectly satisfactory and pleasant for both surgeon and patient. The theatre temperatures during the operations varied from 85° to 99° F., the average temperature being 92.4°. Sodium evipan does not, therefore, appear to exert any harmful effect on the liver during its detoxication, although the liver functions are easily upset in such hot weather. I believe the drug to be a very suitable anaesthetic in tropical areas where nitrous oxide is unobtainable.

Bacteriological Warfare

"M.D." writes from Yorkshire: We have read many articles recently in the popular press about destroying vast populations by bacteria spread from aeroplanes so cunningly that they can even find their way down the moving stairs into the tube stations. How horrible! Unfortunately I am not a bacteriologist, and so I appeal for information as to what variety of coccus or bacillus might be the innocent agent of such a campaign. I could conceive of masses of bacilli of the typhoid group being thrown down on water supplies, but it would be easy to combat this by boiling our drinking water. Again, would showers of *B. pestis* produce plague in the towns powdered with them, as a flea is usually the agent which carries it, so that it would be necessary to breed huge quantities of infected fleas and broadcast these in order to affect the underlying population to any appreciable extent. Even throwing down influenza germs would probably cause more stir among the bacteriologists, who would be arguing about their exact nature, than among those contaminated. But seriously, it appears to an ordinary physician that many alarmist declarations have been made in the Press for which there is inadequate basis; or are there bacteria which are so infectious that masses of people who come in contact with them, as they would were the germs spread from aeroplanes?

Gonococcal Infection

Dr. R. V. STORER (London, W.1) writes with reference to the notice of his book *Gonococcal Infection: Recent Advances in Pathology, Diagnosis, and Treatment*, which appeared in our issue of September 29th (p. 595). My views on this disease may seem "frankly heretical" to your critic, according to his own standards, but they have been accepted by venereologists in this country and America as being "sound and rational." Mr. Kenneth Walker, in his foreword, pointed out that this book "was marked by originality of thought and freedom from conventional views," but also suggested that "the fact that some of the author's dicta will meet with opposition is surely no disadvantage." When a medical man presents the results of his private research and clinical experience to his fellow practitioners, especially if his methods depend on a new concept of the pathology of a disease, I suppose he must expect to be called a "heretic," even though he is able to report a maximum degree of success. Your reviewer complains that the book contains "far too many errors," yet he mentions a trivial one only—namely, a figure based on a simple mental calculation, the mistake in which would be obvious even to a schoolboy. It has not been my desire to pose as a pontiff, as your critic suggests, but to present in all humility, and with due appreciation of its shortcomings, a clear, concise account of recent advances in gonococcal infection, based not only on the published works of other authorities, but on an experience gained by the intensive personal study of over five hundred cases throughout their course.

On October 15th the Edinburgh Branch of Watson and Sons (Electro-Medical) Limited, is moving to more commodious premises at 86, George Street, where there will be improved facilities for service work, and a showroom for the demonstration of apparatus.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 49, 50, 51, 54, 55, and 56 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 204.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, OCTOBER 20th, 1934

The Harveian Oration

ON

"INVENTIONS AND THE OUTLOOK IN NEUROLOGY"

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON
ON OCTOBER 18TH, 1934

BY

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For us, his posterity, Harvey is the first to pick up the threads of experiment and observation begun by Galen in the correct deductions from his lesions of the spinal cord in frogs and rabbits, continued by Aristotle, and thereafter broken for 1,500 years, and he is styled the "Father of modern physiology." From the manner of his work in experiment and in observation of proofs he is the inventor of modern methods of research. From the law which he laid down of "Omne vivum ex ovo" he is the starting-point in the idea of evolution. From his inspired flight of thought expressed in the words "Epidemic, contagious, and pestilential diseases scatter their seeds and are propagated to a distance through the air and in hidden fashion silently multiply themselves by a kind of generation" he is the prophet of bacteriology to come. He is the discoverer of the circulation of the blood. To his colleagues and to his patients he was the "beloved physician," and in this College he receives homage upon each St. Luke's Day as its most illustrious fellow.

Harvey's exhortation to us is "To search out and discover the secrets of Nature by experiment and observation." The first experiment is in a flight of thought; a wandering of the mind which begets a sudden new idea, a flinging away for the moment of all we have taken on trust as gospel, or sometimes an attempt to explain in words to others what we ourselves do not understand, has brought discovery. No one ever made successful experiment but he had already conceived that something would happen from it, nor an invention without the idea as to how it would work. However much Harvey may have denounced mere speculation in others, yet guided by his careful observation it was his primary method of work. He had, surely, a firm conviction that the blood did circulate, and in a certain way before he put his experiment into being. He had surely conceived that the "to and fro," "ebb and flow" movements of the blood, which had been gospel since the time of Galen, could not be, and was driven by dissatisfaction to make his great discovery.

There is no method in discovery; sometimes there appears to be a high element of fortunate chance. Great knowledge is not always essential; at times it seems a hindrance to personal progress, for much of a very wide knowledge is of necessity taken on trust without even reasonable personal analysis. A castle builded in the air by a highly knowledgeable fancy in the course of a week-

end of leisure, and a lifelong plodding with microscope and stains, have both on occasion brought an equal advance in medicine, though the labour entailed in the two events is so unjustly different. It is remarkable that in former times, when knowledge of medicine was scant, the pioneers, in expressing their brief views upon physiology and disease, and particularly in teaching their pupils, gave explanations that would sum up in a nutshell our accepted knowledge of the present day after a century of discovery and proof. Such flights of thought, such lucky hits upon the real truth are, I submit, dismissed by posterity as dreams without discovery and without appreciation of their greatness. They are in reality potential discoveries not followed up, probably from lack of continuing interest, certainly from the lack of methods and of knowledge as to how to find proofs. In attempting to hold your interest upon inventions and their effect on the progress and present outlook in neurology, I shall draw your attention to several prophetic flights of thought, all of which were great, and some of which resulted in important advances in knowledge.

I have chosen the word "invention" as best fitting the bringing in of a new idea—an invention of the mind, which may prove to be a discovery of the truth or may fail as a false hypothesis—as well as the bringing in of a demonstrable fact or of a new method. Wonderful inventions for the study of the structure of the nervous system and tireless research have resulted in knowledge, practically complete, of the most intricate and marvellously beautiful network, with input paths leading from the outside world and output paths leading to the muscles for action, almost incredible in its extent, everywhere continuous, and so complicated that it is impossible to prove or to conceive how it works except in a few of its lower and grossly mechanical regions. This vast and solid edifice of proved knowledge of structure has added little to our knowledge of function and disease. But it is a very important little, for it is all we have, and it is concerned with the lower and more grossly mechanical regions of the spinal cord and brain stem. This quarry has been worked out, and labour in it has well-nigh ceased. Delving into the function of the nervous system by experiment has reached so high a refinement that the signals by which each part works can be made visible and audible. Always the same signals in every part alike, only more and more rapidly repeated as the message becomes stronger and more urgent, and the end-result of these fine labours is

some knowledge as to how the lower and simpler regions—namely, the spinal cord and the brain stem—work. To the greatest of living physiologists who has spent a long life in the experimental study of the nervous system, the Rede lecturer for last year, Sir Charles Sherrington, the highest and largest part of the nervous system, the brain, is still mainly a form and a series of events, and his ignorance of much of their relation bids him despair. Yet proclaiming himself an optimist, as opposed to a defeatist, he puts the question: "Will it ever be possible to understand the nervous system?"

In the recognition and distinction of the nervous diseases the past century has brought an ever-increasing and now almost complete knowledge, which does not yet, and will not, reach finality, for disease is subject to evolution and devolution and disappearance at least for a time. The causation of many of the diseases is now clear, and in recent years studies of biochemistry and virus infection have brought suggestions of what the future may discover in maladies of which we do not know the cause. Methods of treatment, though far behind those of diagnosis, are advancing, and at the moment we seem to be in possession of means of diagnosis and treatment which will surely remove the terrible diseases general paralysis and locomotor ataxia from the community. Yet the fact remains that the four most prevalent and relentless of the nervous diseases—disseminated sclerosis, progressive muscular atrophy, paralysis agitans, and most of the vascular diseases—come before us without any clue as to their cause, and without any means whatsoever of their prevention, nor even, as in the case of progressive muscular atrophy, of the slightest amelioration.

Cerebral Localization of Function

The means by which invention begins, the arousing of that lasting interest which does not rest until discovery is made, is often intangible and a thing per chance and of personality, but sometimes it has been recorded, and I may introduce the great discoveries in neurology with an instance. At the end of the eighteenth century a self-conscious lad pondered upon his disability promptly to answer in class the things he knew well, and concluded that it was because nature had not given him a fine forehead and prominent eyes. His interest in the brain and speech never thereafter left him. He became a very great anatomist of the nervous system, and he proved, by his dissection, the definite structural path from brain to muscle partly crossing in the medulla—the pyramidal path—and his proof was then and there accepted by the knowledgeable world for all time. Like Harvey, he was not the first to perceive this, but, like Harvey, he gave such proof of its truth that no one wished to deny it.

Gall's discovery of a definite pathway conveying movement from brain to muscle was the foundation of all subsequent work on the paths of function within the nervous system. In his early days he laid down the truest conception of the brain as the exclusive seat of the highest nervous functions only. By his conception of speech as a function of the forward part of the brain he was the originator of the idea of localization of function in the brain. It does not detract from the greatness of the discoveries of this remarkable man that he went over to phrenology and died discredited, torn from his high position by the prophetic denunciation of Flourens that there are no separate highest functions to be localized in the brain, but that all are interwoven. Round Gall's conception of cerebral localization such a war was waged during the nineteenth century—complete defeat at first, then, after years, complete triumph, and later, defeat not yet complete—as has stimulated more investigation and produced more useful discovery than any other event in

the history of neurology. At the moment the localization of function in the brain is presumed by our physiologists, but admittedly without means of scientific proof. The only proved localization of function is that of the conduction tracts—the input and output paths which connect the animal with the outside world.

Invention of Histological Technique

In 1835 Purkinje, an Austrian priest of gipsy family, became possessed of a microscope. In a short space of time he had discovered the nerve cell, and this discovery, added to that of Gall of the nerve tract, was the instigation of all later work. He had invented a hardening reagent, bichromate of potash, which would allow sections of soft tissue to be cut; a machine, the microtome, to cut the sections; a stain, carmine, which would bring out the details; a clarifying reagent, oil of cloves, which would make microscopical examination possible; and a method of making permanent preparations with Canada balsam. Purkinje's work was epoch-making in the progress it caused. As the fruits came at once the establishment of the cellular theory of tissues from Schleiden and Schwann, and the cellular pathology of Virchow. Rosenthal demonstrated that the nerve tract was made up of fibres springing from the nerve cell, and Schwann found the insulating sheath which protects the nerve fibres. Waller, by his methods of degeneration, commenced the tracing of the nerve tracts within the nervous system.

Thereafter, with the wonderful discoveries and patient work largely of the German School, in which the names of Weigert, Etinger, Cajal, and Golgi are prominent, the structure of the nervous system has been made known with such delicacy of detail, such intricacy of connexions, such enormity in amount, as to be altogether outside the possibilities of present-day comprehension of the relation of structure to function except in its lowest and least complicated regions. It is referred to nowadays as one entity, "the nervous network," just as it was first named the "sensorium commune" a century and a half ago.

Discovery of Reflex Action

In 1784 a professor of anatomy in Moravia wrote a very short account of the nervous system, and in attempting to explain how it worked said that "physical and mental stimuli acting upon ascending nerves are conveyed directly through the ganglia and network of nerve threads, to be reflected thence by means of descending nerves with a result in action." This wonderful discovery in thought of reflex action, arrived at so far as we know without definite experiment, is the foundation of most of what we now know concerning the way in which the nervous system works. I will ask you to compare these words of Prochaska with those of Sir Charles Sherrington in the Rede Lecture for last year: "Brain and nerve are but a skillfully laid train of powder between the muscles it fires and the restless world outside which fires it. The question, who pulls the trigger, is easily answered. It is the outside world." And again: "An animal's motor behaviour where the brain nets are large excels in variety and nicety, but it fails to offer anything radically different from reflex action elsewhere." By actual experiment Sir Charles Bell at the Middlesex Hospital, Magendie in Paris, and others discovered the function of the spinal roots as input and output paths by which reflex action is carried on, and Bell most importantly first conceived of the long reflex processes which went as high as the brain. Now all unconscious action is reflex action. The great Pavlov and others have shown us how large a part reflex action plays in conscious action and behaviour.

It is when we arrive at those processes in the brain which are not traceable to outside stimuli and cannot be reduced to the principle of reflex action that our knowledge of the working of the mechanism fails rapidly and finally. I may perhaps give you a simple example of the utter dependence of high cerebral function upon a reflex process. When I speak to you my speech does not flow out from well-trained speech centres in the brain as does water from a full cistern. I must have an immediate and delicate reflex return reaching me by my ears and by the sensation of movement of my lips, which keep me instantly informed as I go along that what I am saying is in correct pattern. If anything blocks the path of both those reflex actions I shall not be able to finish even a sentence, my speech, though long practised, will break down at once into an inarticulate jargon in which both words and pattern disappear. If through a faulty attention to my reflex signals I miss out an important word, my meaning tends to become unintelligible to my listeners and my speech an imperfect function.

The Hypothesis of Nervous Function

Hughlings Jackson, who is the pride of English neurology as Harvey is of English medicine, greatly influenced and moulded the present position of neurology. In method he was the ablest deducer from what seemed to be the minimum of observation, but his chief genius was that he was a relentless dreamer, who criticized with a positive inquisition all his flights of thought, and apparently only gave to the world those which survived this ordeal, for there is hardly a thing of his which has not borne the test of time. He conceived that Nature had builded the nervous system upon the same pattern of function in its several parts: that, at the lower stations, the local requirements of the individual segments of the body were looked after, but that, at higher levels, the requirements of everything below were subserved in increasingly compound proportion; and that, at the highest levels, the nervous system was concerned with the requirements of the animal as a whole—perhaps some of these concern some parts of the brain more than others.

This remarkable conception, which arose when popular belief was convinced that centres for separate functions in the several parts of the brain were ascertained facts, is substantially the proved knowledge of the present day. The supporters of the belief in local centres of function in the brain had forgotten their parent Gall, and the simple but emphatic statement by which he was overthrown: "There are no such separate functions for localization." I may perhaps put it like this: the functions of seeing, hearing, and feeling are clearly separate so far as the nerve terminations in the eye, ear, and skin are concerned, but when a stimulus from one of these organs reaches the nervous network it becomes modified by all the other stimuli which are in-coming at the moment, and the higher in the nervous system it spreads this modification increases, so that it becomes more and more difficult to think or to speak of it as a stimulus in one isolated function such as vision, hearing, or feeling. Hughlings Jackson wrote: "I cannot conceive any function of vision apart from the function of movement."

It seems clear that the local loss of function which one sees daily from lesions of the brain is the result of the blocking of the input and output paths, and I have arrived at the conclusion that when mental defect occurs from a not too extensive local lesion of the brain it results from a block upon those important tracts which put the several regions of the brain in touch with one another, and never from lesions of the higher regions of the brain, which were formerly supposed to subserve mental functions exclusively. Therefore we have now the

vast expansion of the brain, in the words of Sherrington, "as an input and output signalling system which is newly arisen as a gigantic combining mechanism for the signals from the outside world and as a dominant part of the nervous system which tends to deal with the requirement of the animal as a whole more than does any other part."

Locomotor Ataxy and Peripheral Neuritis

One of the most remarkable discoveries in the flight of thought, and one which became a proved principle a century later, came from the distinguished founder of King's College Hospital, Robert Bentley Todd, in an attempt to explain lead paralysis to his pupils. He said: "I believe that the muscles and nerves are early affected, and that at a later period the nerves centres may become implicated. The nervous system is thus first affected at its periphery in the muscles and nerves, and the poisonous influence, continuing the contamination, gradually advances towards the centre." Recently it has been shown by Aub and others that in lead paralysis accumulation of the lead occurs first in the affected muscles, and that the poison seeps up through the nerve endings into the nerves, and reaches the central nervous system. It is now generally accepted that the nerves are protected by their fatty sheaths against the advent of poisons and infections everywhere save where the nerve endings are exposed in the extreme periphery, and that it is only in these exposed terminals that noxious agents can gain access, and that they travel by a process of seepage along the nerve filament to gain the central nervous system. Viruses that affect the nervous tissues travel in the same way, and seemingly spread universally. As the only nerve terminals exposed to the outside world are the olfactory terminals in the nose, it follows that virus infections of the nervous system must be acquired by droplet infection of the nose or by wounds which expose the nerve filaments to infection.

Dr. Todd, who was by far the greatest clinical neurologist Britain had produced until the time of Hughlings Jackson, was the first to begin the breaking up of the spinal diseases, at that time all classed as "paraplegia," by his discovery of locomotor ataxy as a distinct clinical entity. He did this with his usual vivid imagination and his customary absolute faith in his own powers of clinical and post-mortem observation. He stated that the antero-lateral region of the cord was the path for common sensibility, and that the cerebellum was the organ commanding position and posture, and that the posterior columns were subservient to the cerebellum in conducting to it peripheral impressions of position for its guidance, and he made the separation for the first time between spinal paraplegia and spinal ataxy. Todd wrote this four years before Romberg wrote his work, eight years before Russell Reynolds described the disease as "muscular anaesthesia," and eleven years before Duchenne christened it "progressive locomotor ataxy."

Lumbar Puncture

In the year 1891, and in a quiet way, came an experiment which slowly led to the most astounding progress in our knowledge of nervous disease and of its diagnosis, differentiation, and treatment. No event in the history of neurology has brought so many assets as has the introduction of lumbar puncture. Quincke of Magdeburg conceived that he might relieve the symptoms of hydrocephalus by draining the cerebro-spinal fluid. Six years previously Corning in America had drained the fluid for the treatment of tuberculous meningitis, but Quincke was the first to make his work known throughout the world. The discovery of changes indicative or characteristic of certain diseases in this hitherto unimportant

fluid soon followed, and lumbar puncture has become a routine in diagnosis and treatment.

It has given us the means of speedy relief from the agonizing pain and danger of increased intracranial pressure, the cure of epidemic meningitis, of cerebral uraemia, of bromide and barbitone poisoning, and it has given us spinal anaesthesia. It has led to the discovery of the clinical features of meningeal haemorrhage and its common cause in leaking aneurysms, to the easy recognition of the many forms of meningitis, and gives definite indications of prognosis in the sugar, chloride, and cell content. Pressure upon the spinal cord and occlusion of the cerebro-spinal space are now easily ascertained by the increased protein in the stagnant fluid, and the exact site of the pressure can be made visible by the injection of lipiodol, which is opaque to x rays. By the constant discovery of changes in the protein content of the cerebro-spinal fluid and by the presence often of large numbers of cells therein, our whole conception of peripheral neuritis has been changed from that of an affection of the peripheral nerves to that of a malady creeping upwards along those nerves into the roots and central nervous system. Lumbar puncture has shown that spirochaetal infection of the nervous system occurs at quite an early stage, and this infection often dies out. Those subjects in whom signs of infection persist in the cerebro-spinal fluid are alone liable to the advent in after years of general paralysis and locomotor ataxy, and in the early treatment of such patients with malarial infection, mercury, and arsenic we have, we think, a certain means of stamping out altogether these terrible diseases from the community.

The "Encaged" Virus

Von Economo in 1921 conceived of a virus which, gaining access to the nervous system by the exposed olfactory terminals of the nose, becomes an "encaged" virus within the nervous system with no means of getting out, and which, if not conquered by the natural processes, might remain indefinitely to cause either recurrences of symptoms from time to time or, alternatively, progressive degeneration and death of the nerve elements. On this hypothesis he would explain the varying results of lethargic encephalitis—now a permanent cure, now a series of recurrences, and often again an advancing and resistless break up of nervous function long after the initial infection and when the primary symptoms had been slight. He would explain the absence of case-to-case infection in lethargic encephalitis and in poliomyelitis as due to the fact that the virus is encaged by the time the symptoms appear and cannot get out to infect others.

Infection can only occur from carriers and in the pre-symptomatic period of these diseases when the virus is a surface saprophyte in the nose. Nicolau and Galloway at the Pasteur Institute have shown how the viruses infecting the nervous system travel along the nerve threads to the remotest parts of the nervous system, and that any peripheral nerve twig, if dissected out and placed in the nervous system of another animal, will cause infection. In the course of the universal spreading of the virus the remarkable brightly staining "inclusion bodies" in the nerve cells and the lymphocyte exudations along the nerve fibrils remain as evidence of its passage. This complete invasion of the nervous system may occur without producing any symptoms at the time.

In the case of one encaged virus—that of herpes zoster—it seems clear that a local lowering of vitality of part of the nervous system by reason of injury, exposure to cold, arsenic administration, and other causes, breaks the encagement, and the virus discharges outwards along the debilitated nerve to flower upon the skin in the characteristic shingles, and that flowering upon the skin is the

only means of continuing the species and infecting other members of the community. After that flowering the virus within the nervous system dies as does the annual plant in the garden after its flowering. But it may happen that the debilitated nerve along which the virus is able to discharge is a motor nerve, in which case the virus is unable to flower. It may, however, give rise to much commotion with lymphocytic swelling in the nerve, and this is undoubtedly the cause of many of the motor nerve paralyses for which we have hitherto had no causal pathology, the commonest being Bell's facial paralysis from exposure to cold. Von Economo's principle of an infection encaged within the nervous system, existing and producing changes, without causing symptoms or alteration of function perhaps for years, and finally destroying, is likely to bring important developments in the future. As a clinical fact it has been known for long years in the end-results of spirochaetal infection, unrecognized at its advent and symptomless perhaps for half a lifetime.

That disseminated sclerosis never appears before the age of puberty means, I submit, that it takes fourteen years or more for the pathological process to run before symptoms occur. A single transient characteristic sign of this disease, lasting but a few days, often appears as long as twenty-five years before the progressive relentless disability begins, and I suggest that the process of demyelination is all over and irretrievable as soon as the progressive symptoms are present. We are faced with the inevitable scarring which long progressive and symptomless demyelination must entail. We must find some means of detecting the subjects of this disease during the symptomless stage if we are to treat them successfully. It is a remarkable fact that while disseminated sclerosis affects the central nervous system indifferently and everywhere, its destructive potentiality falls upon the younger elements of the nervous system only, those that have been recently acquired—namely, the pyramidal path, the co-ordinating mechanism for the upright stance and the finer movements of the hands, and for the recently acquired function of speech. The older functions of the special senses with touch, pain, and temperature are never progressively destroyed.

Louping-ill in Sheep and Benign Lymphocytic Meningitis in Man

Recently accident has revealed a principle which may have an important bearing upon neurological discovery in the near future. A virus expert was working at the Lister Institute upon the disease of sheep which is called "louping-ill" or "staggers." This is a virus disease, which, entering by the usual nasal route, passes along the nerve threads to the cerebellum, and there kills every nerve cell while leaving the rest of the nervous system entirely unharmed. One day this pathologist became severely ill with acute meningitis, which was supposed at first to be tuberculous, but from which, however, he made a complete and rapid recovery. He went to America to carry on his researches upon louping-ill. Shortly afterwards two of his co-workers and two of his laboratory assistants were seized with severe acute lymphocytic meningitis, from which they rapidly recovered, and it was proved from the serological reactions and by infection of animals that the recoverable meningitis in man was due to the same virus which caused destruction of the cerebellum in sheep.

The principle is that an infection in an animal which gives rise in that animal to a definite and incurable disease may produce in man an entirely different and curable disease. We already had this principle demonstrated in the opposite sense in the virus of herpes febrilis, which in man produces an insignificant event but

when introduced into the rabbit is apt to produce a fatal inflammation of the nervous system. Nervous diseases are common in animals, and it is to the closer association of veterinary and human neurology, and the wide investigation of the two together, that we look with hope to the discovery of cause and treatment in those common nervous diseases which are at present entirely mysterious.

Toxic Absorption and Neurology

The origin of disease and of tissue degeneration as the result of toxins from bacterial infection has entirely dropped out of neurology, except in the cases of the three exotoxins of tetanus, diphtheria, and botulism, which differ entirely from the elusive factor in what is commonly referred to as toxic absorption, in that they are real, they can be isolated and put in a bottle, and their effect proved by experiment. A few years ago the origin of pernicious anaemia and of subacute combined degeneration of the spinal cord in toxic absorption from intestinal infection seemed to have good foundation on clinical and experimental grounds, but subsequent discoveries in gastric and hepatic function have swept all such ideas away, and have introduced a deprivation origin for these diseases with highly successful means for their prevention and amelioration. Toxic absorption, at present much spoken of, will probably be similarly discarded from other realms of medicine within reasonable time.

It is highly interesting that the exotoxin of tetanus, by entering into combination with the protoplasm of the nervous system, does produce a train of events identical with that of the virus of hydrophobia, by living within the nerve protoplasm; in one case the highest degree of over-function in the fatal spasm, in another a complete loss of function in the toneless paralysis just like that of severe peripheral neuritis. It is probable that the many conditions of peripheral neuritis, at present without known cause and which seem to be increasingly common among us, may be due to virus infection, and the relapsing tendency after partial recovery is like the behaviour of an encaged virus. The difficulty in this investigation is the discovery of a susceptible animal, without which we cannot find or prove a virus as the cause of disease.

Deprivation conditions are likely to prove a fruitful field in the development of our knowledge of the causes of nervous disease. We have already established that tetany, subacute combined degeneration, beri-beri, and pellagra are due to known deprivations. The pigeon fed on polished rice, and therefore paralysed almost to death, which can be restored to complete strength and action in an hour by the administration of a few drops of infusion of rice husk, is a miracle of the effect that vitamin shortage and vitamin administration can make within the nervous system. It has recently been suggested that disseminated sclerosis may prove to be a deficiency disease.

The recent discovery of Sir Henry Dale that efferent stimuli in the vegetative nervous system produce their effect by the liberation of a chemical intermediary of the choline group, and that stimulation of the sympathetic in otherwise denervated skeletal muscle results in tonic contraction, seems to me to open up the possibilities of great advance in our very scant knowledge of the pathology of the myotonias, myasthenias, and myopathies.

In the progress of neurology the all-essential labours of the physiologist and of the anatomist have almost reached finality. Much addition to the wealth of their discoveries is not to be expected in the future. The bacteriologist, similarly, seems to have added all that is possible from his researches. Not even the absorption of hypothetical toxins troubles us as a factor in the causation of nervous

disease. The clinician and his inseparable pathologist have at the present time a fertile field where regional diagnosis has become well-nigh perfect in which to carry on the separation begun by Thomas Parkinson a century ago, and to show the easy recognition of new and distinct nervous diseases. Thus the thirty years of the present century have given us subacute combined degeneration, dystrophia myotonica, amyotonia congenita, epiloia, Schilder's disease, narcolepsy, the meningeal haemorrhages, the cerebral aneurysms, the many pituitary syndromes, and other distinct and easily recognizable maladies. It is astonishing how much more common a malady becomes when it has once been well described. There is scope for a rich harvest in the future, especially in the realms of peripheral neuritis, the muscular atrophies, and the vascular diseases. The virus worker and the biochemist have probably the greatest immediate future before them, heralded by their collection of the plums of the immediate past in their researches on poliomyelitis, tetany, pernicious anaemia, and insulin. The closer association between botanical, veterinary, and human medicine which has made a beginning will, I think, have an outcome in much advance, for nervous diseases are common in animals, and have not received sufficient attention.

The psychiatrist struggles with his most difficult burden of advance almost alone. The anatomist, physiologist, bacteriologist, virus worker, and biochemist have not, as yet, done anything material to clear the path for his progress as they have for the neurologist. Just as the highest functions of the nervous system allow of no physiological or anatomical analysis, so do its disorders at present admit no pathological and causal conception. The primeval forest of psychiatry, with no pathways cleared to look around, is hard beset with an ever-growing jungle of intricate terminology. The progress of neurology in my lifetime has been amazing, and its present position is highly advanced for a civilization which Sir Grafton Elliot-Smith insists is not yet sixty centuries removed from primitive man. And yet I doubt not that neurology has but made a highly successful beginning.

In his Harben Lecture on "The Diagnosis of Small-pox and the Investigation of Vaccinia by Laboratory Methods," delivered before the Royal Institute of Public Health on October 8th, Professor W. J. Tulloch, M.D., laid down five points which should be emphasized to members of the medical profession, and by them to the public. (1) Vaccination gives complete protection against both small-pox major and small-pox minor for several years, and partial protection for the greater part of the span of life. (2) The real value of the procedure as far as the individual is concerned is that it protects against small-pox major. So far as the community is concerned its value as a protection against small-pox minor is not unimportant; for the control of the minor malady is sometimes rather costly to local health authorities. (3) There is a potential danger at least that small-pox major may gain a footing at any time in this country. (4) We owe a debt of gratitude to the neighbouring countries which do enforce compulsory vaccination. It is significant that this measure is rigidly enforced in those European lands—Bulgaria, Czechoslovakia, Austria, and Hungary—whose geographical position is such that the disease may be introduced from the East. (5) The danger of grave complications following vaccination, notably encephalitis, is very slight when the procedure is performed early in life, but it is by no means negligible when primary vaccination has perforce to be carried out during the school years. In the absence of universal and compulsory vaccination, accurate methods of diagnosis in doubtful cases constitute a valuable addition to our armament for limiting the propagation of the disease.

IMMUNIZATION IN THE PREVENTION
OF SPECIFIC FEVERS*

BY

R. A. O'BRIEN, M.D., D.P.H.

From a recent paper I note with some, perhaps forgivable, tendency to a breach of the tenth commandment that when Dr. W. H. Park in New York wishes to compare the relative values of different methods of immunization—for example, by toxoid, given in different doses at different intervals, and with or without the addition of alum—he first investigates the problem, as we do, with laboratory animals, and then repeats the same investigation simultaneously on large groups of comparable children in schools—an opportunity which we in England can regard but with envy. Our English evidence has more of the "before taking" and "after taking" flavour.

Immunization in Diphtheria

Dudley recently recorded that before active immunization there were at the Greenwich School about forty-three cases of "diphtheria" each year, while in a comparable population, after immunization was adopted, the notified cases of diphtheria averaged eight each year for five years; of these cases only eight were clinically recognizable as diphtheria, and in six of them the boys were not yet inoculated. Our own endeavours enabled us to say that from 1921 to 1932 we had kept almost entirely free from diphtheria a school of about 600 children in which twenty cases had recently occurred. Similarly, it has been possible to keep the nursing staff of a large hospital almost entirely free from diphtheria for some five years, without causing any interruption of duty owing to reactions. Two years ago Dr. Parish showed that with toxoid he could produce within about six weeks a state of complete Schick-negativity in 95 per cent. of children in a home, and an appreciable immunity in another 5 per cent.: thanks to the Moloney-Fraser intradermal toxoid test immunization could be carried out without interference with school work. Those who wish to consider what has been done in England will find the details abundantly recorded in Dr. Forbes's book.

If we look at the recent past we find that reasonably good immunity was obtained by the "mixtures" toxin-antitoxin or toxoid-antitoxin, and the first sound evidence that immunization on the large scale was practicable was provided by these prophylactics. At present the "mixtures" are gradually losing favour, except toxoid-antitoxin floccules (T.A.F.), which apparently contains "pure" toxoid precipitated with serum globulin and is free of other "non-specific" substances. At all events, it very rarely causes "reaction," and is the antigen of choice for people who show a positive Moloney-Fraser reaction.

TOXOID AND ALUM-TOXOID

Toxoid alone is being more freely employed all over the world, and on the large scale in Canada. In Europe and the U.S.A. it has been found to make well over 90 per cent. of Schick-positive reactors negative when given in three, or even two, well-spaced doses. Toxoid is apt to cause troublesome local reaction, except in very young children, but this tendency is being circumvented in several ways. Some workers administer a full dose of 1 c.cm. to all children under 5, and at this age troublesome reaction is rare. For older children the Moloney-

Fraser intradermic test may be applied: the full dose of toxoid is injected into the Moloney-negative reactors and T.A.F. into the Moloney-positive. A good plan is to give what we have called the "universal" dose to all children—for example, 0.1 c.cm. or 0.05 c.cm. Dr. Chesney of Poole injects all children with a small "detector" dose to identify those likely to suffer reaction after inoculation. Toxoid combined with an immobilizing agent—for example, alum—is also being much used. Innocuous tapioca has been demonstrated by Ramon to have the same property—that is, of causing a retention of the toxoid locally over a long period. Glenny and Buttle showed that the tissue at the site of inoculation when excised some days later and injected into another animal immunized this second animal, and recent American evidence indicates that toxoid may be present in the local "lump" for a much longer period, during the whole of which it is being slowly absorbed and is producing immunity.

What of the future? Alum-toxoid—a discovery made by Glenny, Pope, Waddington, and Wallace—has recently attracted the deep interest of the medical public: the antigen has proved of remarkable service in animal immunization in the laboratory, but I am not yet wholly convinced that it will, for human immunization, displace formol-toxoid, which in two well-spaced doses immunizes rapidly. Apparently in certain "sensitive" children there is a liability to reaction due to the remaining non-specific materials present in the toxoid, as well as the tissue reaction or induration caused by the foreign body, alum, or a complex, alum-toxoid. In the U.S.A. special regulations have been framed for ensuring the potency and other requirements of alum-toxoid, but it is understood that the possibility of a reaction is giving the responsible authorities some concern. C. G. Pope has tested intradermally and subcutaneously in guinea-pigs a number of precipitated toxoids kindly supplied by American colleagues and in wide clinical use. While the tendency of different preparations to cause local reaction in the animal varies considerably, the evidence does not suggest that the American preparations provide better results in this test than some of our own, which seem to be attended by an undesirably high incidence of reaction in the limited number of human observations hitherto open to us. These persistent "lumps" and rare "sterile abscesses" still disturb the picture. C. G. Pope has recently carried out a long examination of the phenomena which happen when various percentages of alum are added to toxoid under different conditions, and has prepared precipitates with a minimal content of alum but a very high toxoid content. The work is promising, and is being pursued.

If we had clinical opportunities we should much like to test whether we can immobilize toxoid for a sufficient period in the tissue with substances less irritant and more absorbable than alum, which would slowly release the toxoid and maintain antigenic stimulation for a sufficient period.

SPECIFIC AND NON-SPECIFIC SUBSTANCES

What are our further aims? When the diphtheria bacillus grows in broth there are finally present at least three substances, or groups of substances, which must be dealt with before the ideal immunizing prophylactic can be prepared:

1. The first is specific toxin. This, as we know, can be turned into harmless but antigenic toxoid by various agencies, the most convenient of which is formalin, producing the well-known toxoid called "formol-toxoid," or, on the Continent, "anatoxine."

2. Secondly, there are a large number of "non-specific" substances—for example, various proteins, amino-acids, salts,

* Read in opening a discussion in the Section of Public Health at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

etc.—in the original broth, and also others of the kind produced by the metabolism of the growing diphtheria bacillus. Many attempts have been made to get rid of these substances. By precipitation, by dialysis, etc., most of the nitrogen can be removed. My colleagues, Mr. Pope and Miss Llewellyn Smith, made toxoid containing only 2 per cent. of the original nitrogen per Lf unit. By modification of the alum method of precipitation, elimination of nitrogen-containing bodies can be carried still further.

3. Thirdly, it almost appears as if the diphtheria bacillus, when building up molecules of specific toxin, gives rise to, as part of the same molecule, another substance undestroyed by heating, which in certain individuals causes the well-known "pseudo-reaction." If this supposition is correct we shall not entirely abolish the liability of unusually "sensitive" people to local and general reactions after the injection of any diphtheria prophylactic unless we can deprive the diphtheria toxin molecule of this "pseudo" constituent, for apparently the same substance, or complex, causes the "pseudo" reaction, the positive reaction in the Moloney-Fraser test, or the local reaction in the "anatoxi-reaction" described by Ramon, and the troublesome local and general reaction which may follow the injection of prophylactic. This supposition is reasonable, for the percentages of people showing these three phenomena are related.

When the chemist can make pure crystalline toxin as he now makes ferments and vitamins we can expect more rapid progress. The biochemist is making always "purer" toxin and toxoid. Jensen has prepared concentrated toxoid of high Lf value. C. G. Pope kindly allows me to say that by absorption methods he has recently prepared a toxin with a very much smaller nitrogen content per L+ or Lf than he has ever previously succeeded in doing. Further progress along these lines is eagerly awaited. I believe that until we can eliminate the "pseudo" constituent we shall not bid glad farewell to the local swelling and general malaise which may follow inoculation in certain people. Before leaving this aspect of the subject I may be pardoned for again calling attention to the efficiency of the method of dealing with an institutional epidemic which was described in 1923 (*Brit. Journ. Exper. Path.*, 1923, iv, 29)—that is, Schick-test and swab everyone; immunize immediately the Schick-positive children; and isolate and examine daily the Schick-positive and swab-positive children, for it is in this group that you will catch all the cases of diphtheria. (Within the past twelve months we have a record that diphtheria attacked more than one-quarter of the nursing staff of one moderately large hospital.)

TYPES OF DIPHTHERIA BACILLUS

The interesting investigation of the "gravis" and "intermediate" types by McLeod and his school suggests the question, Will our current methods of immunization secure immunity against all types of diphtheria? Robertson and Marshall in their Manchester work recorded eight cases of the throat affection long ago described by Harries as "tonsillitis in Schick-negative carriers"; they also recorded one "severe" and three "moderately severe" infections with gravis bacilli in people recorded as Schick-negative. (the full immunological data were not reported). Dudley's exhaustive work at Greenwich suggests that the Schick-negative condition produced by immunization with the ordinary prophylactics gives a slightly lower degree of immunity against gravis infections than against mitis, but his conclusion is that, even in infection of the throat of a Schick-negative child, the clinical result is usually trivial. Further, Parish injected a considerable number of gravis cultures, in fatal doses, into more than fifty guinea-pigs which had been rendered Schick-negative by the ordinary prophylactics of various kinds, and found that the animals

were immune. In "field trials" on huge numbers of human beings in America, Canada, and on the Continent, prophylactic made from the classical Park-Williams S strain seems to have given adequate protection. We are justified, therefore, in the absence of other evidence, in directing all our efforts at the moment towards an improvement of the type of prophylactic hitherto made from the Park S strain.

IMMUNIZATION AND THE CARRIER RATE

Has inoculation any remote effect on the uninoculated? Dudley has recently recorded that, following immunization of part of a group of boys in the Greenwich School, the "virulent carrier rate" rose, and therefore the risk of attacks of clinical diphtheria increased for those not yet inoculated. Dudley, with his characteristic caution, warns against assuming that this phenomenon would happen generally. I was naturally deeply interested in this suggestion. I believe I am right in saying that a similar argument was at one stage urged in opposition to the proposal to introduce antityphoid inoculation in India and elsewhere, and that experience provided no justification for the argument.

We had ourselves, in several instances, watched a small group of people during immunization, and had seen no indication of increased danger to those not yet immunized. I wrote to a number of leading authorities in the U.S.A. asking what their experience had been, and received permission from E. S. Godfrey and W. W. Lee and others to say that they were impressed with the fall which follows immunization, and that, so far as their experience and consideration of American figures formed a guide, they found no evidence that the morbidity or mortality rises even temporarily in a partly immunized community because of the suggested rise in carrier rate among the inoculated. I know that some other leading authorities in the U.S.A. hold the same view. I may here refer briefly to a recent review by Das. It has always been something of a mystery that clinical diphtheria is so rare in tropical countries. The Schick-negative rate is high and the virulent carrier rate seems to be substantial, yet diphtheria rarely occurs among either natives or introduced Europeans. There is no indication that by any laboratory test the bacilli existent in these regions differ in any way from those causing severe and fatal diphtheria in temperate countries. These still remain something to explain.

Scarlet Fever Immunization

In connexion with immunization against scarlet fever, there is, unfortunately, little new to report. Active immunization with a small series of doses of toxin gives high protection against scarlet fever. J. G. Fitzgerald (*Canadian Pub. Health Journ.*, 1933, xxiv, 455) found that, since all Dick-positive nurses at the Children's Hospital, Toronto, have been regularly immunized, the incidence of scarlet fever has been from 0.4 to 0.7 per cent., whereas previously it was from 5 to 6 per cent. It will be remembered that Harries and Benson in this country supplied similar satisfying evidence a few years ago.

Several workers have aimed at shortening the tedious course of four or five injections. In 1929 Ramon and Debré (*Compt. Rend. Soc. Biol.*, p. 1035) formalized toxin and injected children. The immunity obtained was moderately good, though the course could not be reduced to less than three injections, and reactions occurred in about half the children. From the absence of recent publications, it may be concluded that the method has not yet established itself. Ando and Ozaki, in the Dairen work, perhaps provide the clue. As the intensity of

formalinization is increased, the toxicity is reduced, but, unfortunately, so also is the immunizing efficiency. Veldee has studied the method extensively during the past few years. He inclines to the view that formalinization must not be carried too far; unless approximately 500 skin test doses of toxin per cubic centimetre are left, high immunity is not secured, even with three doses and with the addition of alum. Here again it must be pointed out that experience indicates that progress would be more rapid in England if opportunities for immunizing large comparable groups of children were available. R. A. Q. O'Meara and H. J. Parish kindly allow me to say that they have been working with toxin-antitoxin mixture and with floccules as immunizing agents, but the few results available do not yet warrant publication. G. A. H. Battle has been endeavouring to immunize rabbits rapidly by several modifications of the ordinary methods and by the use of the toxin of unusually high value described by O'Meara, but has not yet obtained results that satisfy him.

Whooping-cough

The work of Madsen in Scandinavia and Sauer in U.S.A. offers considerable hope. Madsen states that of 1,800 people vaccinated 25 per cent. escaped infection, whereas only 2 per cent. of 450 non-vaccinated people escaped. Sauer found that of 380 young children who were vaccinated and suffered exposure not one became infected. An odd feature is that, while Madsen finds that children rapidly become immune, Sauer does not expect adequate immunity to develop for about four months. Jundell in Sweden vaccinates adult volunteers who have had an attack in the past, and hopes in this way to raise the titre of the antibody in the blood, thus obtaining an equivalent of the invaluable "convalescent measles serum" for protection of groups of young children in contact with sufferers from the disease.

General Note

Two thoughts may occur to the practitioner who is interested in this field of work. Reflecting on the resistance of the average parent to vaccination in any form, he will perhaps conclude that if the enthusiast gets his way there will be too much immunization. He must then remember that diphtheria alone causes 40,000 to 60,000 cases a year in England and 2,000 to 3,000 deaths, and that if we adopt Dr. Glover's estimate of the loss of time due to infectious disease in large schools the lost educational time must cost the community a huge sum each year.

The second thought will probably be one of some regret that progress is so slow. The lag is almost wholly on the human side. The immunologist, in England at all events, is always far ahead of the clinical investigator; with greater opportunity of using, under proper safeguards, different antigens on large groups of children, we should progress faster.

G. Serdaris (*Thèse de Paris*, 1934, No. 64) describes the antimalarial campaign carried out in a period of six months in a small area (Rhododaphnia), of the Peloponnese under the auspices of the International Health Division of the Rockefeller Foundation and the School of Hygiene of the Athens Ministry of Health. Although a definite opinion cannot be expressed until the end of three years, the results hitherto obtained have been very good. The number of *A. maculipennis* and *A. superpictus* has considerably diminished, and the splenic index has decreased, while the haematological index has increased. Quinine salts only were used for treatment.

IRRADIATION TREATMENT OF MALIGNANT INTRATHORACIC TUMOURS

BY

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In September, 1927, one of us (F. G. C.), with Dr. Carlyle Potter, published a follow-up of cases of malignant intrathoracic tumour treated by x rays.¹ The results were most discouraging, for out of fifty-nine cases one alone survived. The result in this case, however, was so remarkable that it was impossible to do otherwise than encourage further trial and further development of the treatment. The patient, a young woman aged 25, was under the care of Lord Horder in St. Bartholomew's Hospital in 1923. She was desperately ill with a large mass in the mediastinum, many large glands in the neck, and bilateral pleural effusion. Microscopical examination of a cervical gland showed lymphosarcoma. She still survives in excellent health, and the skiagram is absolutely normal.

The authors of the article were unable to report any prolongation of life, apart from this one instance, and only temporary or no appreciable alleviation of symptoms. In the last few years, however, the results from treatment have seemed to the present authors to be better. Many impressive cases of relief of symptoms have been noted, and also the complete disappearance of the mass in the chest in several instances. It seemed desirable, therefore, to make another investigation into the results of treatment in a series of more recent cases.

Diagnostic Criteria

The first criterion is the proof positive—namely, microscopical examination of a section of the thoracic growth or of a metastasis. This must be accepted as the most convincing evidence, in spite of occasional difficulties of interpretation. The material for examination has been obtained by thoracotomy in seven cases, by bronchoscopy in seven cases (this excludes cases subsequently confirmed by post-mortem examination, otherwise the number would be larger), by removal of a metastasis in five cases, and from post-mortem material in nineteen cases.

The second criterion is clinical evidence: symptoms, signs, course of the disease, and exclusion of other conditions by special investigations. The third is radiological evidence.

It would occupy much space if we attempted to elaborate the last two criteria, nor is it perhaps quite within the scope of this paper. We can say, however, that no doubtful case has been included, and we are confident that the rigid criteria adopted would be accepted by all workers as adequate proof. The few difficult or doubtful cases are described in some detail later.

Our material consists of seventy cases from St. Bartholomew's Hospital, the Royal Chest Hospital, Victoria Park Chest Hospital, and private practice, from 1927 to 1932.

We are indebted to the following physicians and surgeons:

Dr. Geoffrey Bourne, Professor Langdon Brown, Drs. J. B. Christopherson, E. H. Colbeck, E. R. Cullinan, Geoffrey Evans, H. Morley Fletcher, Professor Fraser, Drs. E. A. Gow, G. Graham, Sir Percival Horton-Smith Hartley, Dr. R. Hilton, Lord Horder, Drs. C. M. Hinds Howell, D. Barty King, A. J. Scott Pinchin, Arnold W. Stott, H. E. Symes Thompson, F. E. S. Willis, W. B. Wood.

Sir Thomas Dunhill, Professor Gask, Sir Charles Gordon-Watson, Mr. L. B. Rawling, Mr. J. E. H. Roberts, Mr. H. G. B. Russell, Mr. R. M. Vick.

The cases presented are as follows:

	Cases
1. Bronchial carcinoma treated by x rays ...	44
2. Bronchial carcinoma treated by radium or radium emanation ...	12
3. Malignant tumours other than bronchial carcinoma treated by x rays:	
(a) Primary in the chest ...	2
(b) Secondary carcinoma ...	5
(c) Secondary sarcoma ...	2
4. Tumours of doubtful nature ...	5

In each of the cases treated by x rays at least ten applications were given. In a great number of other cases treatment was abandoned in the early stages of the course, and these have been excluded from this series.

Treatment by Irradiation

It must always be assumed in dealing with neoplasm of the lung that the glands of the mediastinum are involved or are likely to be involved, and must therefore be thoroughly treated. Lymphosarcoma requires a much smaller dosage than carcinoma and endothelioma. Occasionally the early treatments can only be applied from one or two directions owing to the patient being too ill to be moved. Later in the treatment, as the patient improves, other ports of entry can be used. The treatment is spread over two, three, four, or five weeks, and is given on five or six days each week.

Principles of Treatment

1. To give a sufficient dose to the whole growth and to the lymphatic glands likely to be affected.
2. Without restricting the dose on the growth, to give as small a volume dose to the general tissues of the patient as is consistent with efficient dosage to the tumour and lymphatic glands.
3. To damage the lung as little as possible. Lung which has been the site of old inflammation, tuberculous or otherwise, is very radio-sensitive, and exacerbation may result.
4. To cause no damage to the skin beyond a severe erythema, which ultimately clears up. With lymphosarcoma only a mild erythema will be necessary, but with carcinoma a severe erythema verging on blistering is usually required.
5. Some workers, including one of us (N. S. F.), consider lipiodol undesirable in a lung which is to be subjected to irradiation, on the ground that residual lipiodol gives out secondary radiations of long wave-length, which cause damage and necessitate curtailment of the requisite course of treatment.

Technique of Treatment

Various techniques have been used in our cases. As a rule a number of ports of entry are employed, but occasionally, with a very radio-sensitive tumour, only anterior and posterior fields are necessary. Various different plans have been used according to the situation of the growth: if in the anterior part of the mediastinum, a number of relatively small ports of entry are used converging on the

mediastinum; but, if the growth extends far into the lung, larger fields are usually employed—generally four—at an angle of 45 degrees to the direct anterior and direct posterior; taking in both the lung growth and the mediastinum, and decentred towards the side of the growth. In other cases, where the growth is almost entirely on one side and far into the lung, a direct anterior and posterior field is used, slightly to one side of the middle line, and this is supplemented by a lateral field on the affected side.

In most cases the filtration has been about 0.5 mm. of copper and 1 mm. of aluminium, and 180 kV continuous current on the tube, but in our later cases a Thoraeus filter has been used, which is equivalent to about 2.7 mm. of copper, with 200 kV continuous current, and at the present time we are using for our private cases an even higher voltage, up to 300 kV Villard circuit current with a filter of 0.6 mm. tin + 0.25 mm. copper + 1 mm. aluminium, equivalent, with the wall of the tube, to about 4 mm. or more of copper. With the increase in filtration the number of roentgens (r) to produce an erythema dose increases considerably, and the number of roentgens necessary on the growth also increases.

For a lymphosarcoma or a very radio-sensitive tumour it is necessary to give about 150 to 180 per cent. of an erythema dose, spread over a fortnight; a larger dosage must be given if it has to be spread over a longer period, owing to the patient not being able to tolerate the ordinary dose at first.

With a carcinoma of the lung or resistant growth, about 250 to 300 per cent. is given, spread over a month or six weeks.

The erythema dose we reckon with 0.5 mm. copper and 180 kV is 650 roentgens: the erythema dose with a filter equivalent to about 0.4 mm. of copper and 300 kV is approximately 1,000 roentgens.

Effects of Treatment

It is always difficult to reach a definite conclusion as to the results of any particular line of treatment, and care must be taken in assessing the results. This difficulty applies particularly in the case of bronchial carcinoma, because the criteria of improvement are difficult to define on account of the well-known spontaneous variation of symptoms. In the first place there may be obvious clinical relief of urgent pressure symptoms; secondly, the effect of treatment on the size of the tumour may be observed in serial skiagrams; and lastly, the result as regards the duration of life may be considered.

The first of these criteria is a matter of clinical observation. In calculating the size of the tumour on the x -ray film only very gross changes should be admitted, for the direction and penetration of the rays may cause minor apparent changes which are of no great significance. We therefore propose, in judging the effects of treatment on the size of the tumour, only to include cases in which the shadow has practically disappeared. Finally, the duration of life from the date of the beginning of treatment may be considered; the advantage of this is that it provides a fixed point from which calculation may be started, and it is thus more definite than calculations which are based on the total duration of symptoms, in which case no very definite point of commencement can usually be fixed.

The forty-four cases of bronchial carcinoma treated by x rays can be divided into the following groups:

1. *Cases which Showed Great Improvement.*—Twenty-three cases are included in this group; primarily on the ground of symptomatic benefit. In ten of these relief of pressure symptoms was rapid and the result dramatic. In eleven there was gradual improvement over a period

of weeks. In the remaining two cases the shadow in the x-ray film disappeared, but it is noteworthy that there was little or no improvement in the condition of the patient. Serial skiagrams showed almost complete disappearance of the shadow cast by the primary growth in nine cases, and complete re-expansion of a collapsed lung in two cases. The ultimate fate of the cases is as follows: five are known to be alive at the time of writing, thirty-two, thirty-one, twenty-four, six, and five months respectively after the commencement of treatment. In the first three of these cases it is probable that life has been greatly prolonged in addition to the symptoms being relieved; in one of these the diagnosis has been confirmed histologically. The remaining eighteen patients are all known to have died, and the average duration of life after beginning treatment was 9.7 months. Only three patients survived more than fifteen months, dying respectively in thirty-six, seventeen, and sixteen months.

2. Cases which Showed Slight Improvement.—In seven cases there was incomplete but definite relief of symptoms, and in this group the average duration of life was 8.6 months. The fact that the average duration of life in these two groups is about the same would appear to suggest that great symptomatic improvement or disappearance of the shadow in the skiagram does not necessarily indicate prolongation of life.

3. Cases which did not Respond to Treatment.—In fourteen cases there was no change in the condition of the patient after a course of treatment. In two, the date of death could not be ascertained; the average duration of life in the remainder was 5.4 months.

It does not seem that x-ray treatment has any great effect in prolonging life in this disease, except possibly in rare cases; it is quite definite, however, that this treatment can relieve the more urgent and distressing symptoms in about two-thirds of the cases, and can cause local disappearance of the tumour. In our opinion there is sufficient evidence of symptomatic improvement to justify the adoption of this line of treatment in all cases in which obstructive or irritative symptoms are present. The changes in the size of the tumour, as demonstrated, are sufficient to justify the hope that improvement in the technique of treatment will in the future yield greatly improved results.

4. Cases Treated by Radium.—In ten cases in which radium or radon was introduced directly into the growth through a bronchoscope the average duration of life after the operation was 2.4 months. In no case was any dramatic improvement recorded, and, in two, death resulted from haemorrhage shortly after the operation had been carried out. The results in this series are therefore definitely discouraging. In two further cases radium was inserted into the tumour through the chest wall. In one of these marked temporary diminution of the tumour occurred; in the other there was decided improvement in the general condition of the patient for a few months; death occurred eight months after the operation.

Other Intrathoracic Tumours.—Nine cases of malignant tumour other than bronchial carcinoma are included in this series. This group is composed as follows:

Secondary hypernephroma ...	...	...	2 cases
Primary sarcoma ...	...	...	1 case
Secondary sarcoma ? appendix ...	...	...	1 ..
Secondary sarcoma ? bladder ...	...	...	1 ..
Secondary carcinoma breast... ..	...	...	1 ..
Secondary sarcoma fibula ...	...	...	1 ..
Secondary carcinoma thyroid ...	...	...	1 ..
Endothelioma ? from thymus ...	...	...	1 ..

In four cases the treatment did not appear to have any effect. In two cases, secondary to hypernephroma and to carcinoma of the bladder, haemoptysis appeared to be controlled by irradiation; the intrathoracic deposits in the case of sarcoma of the fibula diminished greatly in

size under the treatment, and the cough was much relieved.

The remaining two cases are remarkable in that the patients are alive eleven and twenty-one years respectively after treatment.

The first was a patient under the care of Sir Thomas Dunhill and Dr. Thursfield. A mediastinal tumour was present, causing breathlessness, swelling of the neck, distended veins over the back and chest, shoulders, and arms, and a gland or prolongation of the tumour in the right supraclavicular region. A sternal flap was made and the tumour exposed. This was thought to be an infiltrating sarcoma, and nothing more was done. Microscopical examination of the portion removed revealed an endothelioma of apparent thymic origin. Courses of x-ray treatment were commenced in August, 1923. The tumour entirely disappeared, and the patient is alive and well at the present time.

The second was also a patient under the care of Sir Thomas Dunhill. She was first seen in November, 1913, when a nodular goitre on the right side was removed. Section suggested malignancy. In 1918 a small nodule was removed from the extreme right edge of the scar. Section showed an almost solid mass of epithelial cells, resembling thyroid cells. The patient remained well until 1927, when a haemoptysis occurred (half a cupful). The skiagram at this date showed rounded nodules in both lung fields. These increased rapidly, until there were many nodules of a perfectly rounded shape in both lungs. X-ray treatment was therefore commenced in March, 1928. The haemoptysis ceased and the patient remained in good health, and has done so until the present day, although the nodules have grown in size and number.

Finally, there are five cases to be considered in which both the clinical picture and the x-ray appearance suggested malignant tumour, in which either cure or great relief has occurred. Unfortunately, in none of these cases have we histological proof of the nature of the mass. They are of such interest that they are worth describing in detail.

The first was a case included in the original follow-up in 1926. The patient, E. M., was under the care of Dr. Robert Hutchison at the London Hospital in 1924, with swelling of face and neck, and a shadow in the skiagram suggestive of growth in the right upper lobe. The diagnosis was malignant growth. X-ray treatment was given, and the patient made a complete recovery. He was seen by one of us (F. G. C.) in 1926, when it was thought that the original diagnosis was probably mistaken, and that it was a case of dense fibrosis and not malignant disease. It fortunately happened, however, that we were able to keep in touch with the after-history of the case. He died in 1933 of intestinal obstruction, when a columnar-celled carcinoma of the descending colon was found post mortem, and, through the kindness of Dr. W. Smith, we were able to obtain the result of the examination. There was marked dilatation of the azygos vein, there were universal pleural adhesions on the right side, and a firm mass was present at the hilum of the right lung, about two by one and a half inches in size. Some fibrosis was present in the lung itself. Section of the mass showed merely much fibrosis with round-celled reaction. The pressure symptoms originally suggested malignant growth of the lung. We can make no further comment.

The second patient, a woman aged 34, was under the care of Lord Horder and one of us (N. S. F.) in 1930. The skiagram showed an enormous mediastinal mass, extending into and occupying most of the left lung field. This was treated by x rays, and the entire mass disappeared, and the patient is alive and well to this day. There must remain a doubt whether this was a primary mediastinal lymphadenoma or a lymphosarcoma.

Case number three was a man aged 57, seen by one of us in 1930, at the City of London Chest Hospital, Victoria Park. The patient complained of cough, shortness of breath, loss of weight, and haemoptysis. There was clubbing of the

* There has been a recurrence in this case in May, 1934. It has again been treated by x rays and the shadow has again disappeared, and there is now no evidence of disease.—N. S. F.

fingers. The skiagram showed a dense mass filling the whole of the right upper lobe. Exploratory thoracotomy was performed by Mr. Romanis, when a large inoperable "growth" was encountered. Unfortunately no piece was taken for section. It was assumed to be a carcinoma, and the operation was abandoned. He was then transferred to St. Bartholomew's Hospital, where he was given twenty applications of x rays. The mass almost entirely disappeared, leaving considerable fibrosis. The patient is still alive and well, but the nature of the mass remains in doubt.

The fourth case was that of a lady aged 55, seen privately (F. G. C.) first in July, 1932. There was pain in the back and shortness of breath and loss of weight. She had been fairly well until a year previously, when the symptoms commenced. When first seen the patient was extremely ill, with dyspnoea, stridor, and slight clubbing of the fingers. There was intense dullness over most of the left side, almost down to the base, where she was resonant, and where breath sounds were present. Over the dull area breath sounds were absent and vocal resonance diminished. There was a loud surging murmur to be heard in the second intercostal space. She was explored deeply on two or three occasions, when pure blood was obtained with great ease, the syringe rapidly filling. The heart was displaced away from the mass. She was so ill that an exploratory thoracotomy was considered to be unjustified by Mr. J. E. H. Roberts. The diagnosis was a large innocent tumour or a lymphosarcoma: Wassermann reaction negative. On going further into the history it was found that three years previously she had had severe pain in the left chest, which made her faint.

A full course of deep x-ray therapy was given, after which she made a most striking improvement, although the shadow remained unchanged. This improvement continued to December, 1933. The patient was able to take long walks and drive a car, and felt comfortable and almost free from symptoms. In December, however, she began to have choking attacks, and a further course of x-ray treatment was given. She was very ill both during and after this course, but is improving again, and able to lead an active life. The improvement in symptoms was most striking and dramatic, but again there was no change in the shadow. The nature of the tumour remains in doubt.

The fifth patient was a man aged 54, seen at Victoria Park Chest Hospital; he complained of pain in the right chest and axilla, much dyspnoea, loss of weight, and some cough. There was a large homogeneous shadow in the skiagram, occupying the middle zone of the right chest, and extending from the periphery inwards, almost touching, but not apparently involving, the hilum of the lung. The shadow looked like a localized pleural effusion. Several exploratory punctures were made, however, and no fluid was found. The Wassermann reaction was negative. It was regarded, therefore, as a malignant tumour, and twenty applications of deep x rays were given, from February to April, 1933. The tumour practically disappeared, and the patient is still alive and in reasonably good health. Within the last few weeks he has developed headache with papilloedema, almost certainly due to an intracranial metastasis.

Conclusion

There can be little doubt that since the publication mentioned at the beginning of this paper the results of x-ray treatment have improved very greatly. We have been able to quote many cases of great relief or complete disappearance of symptoms, and some where the undoubted malignant mass in the chest has entirely disappeared. While we cannot yet claim to have arrived at a cure, we have been able to quote two, and possibly three, cases in which this has apparently been obtained. In two instances, where the diagnosis has been proved beyond all manner of doubt, there has been a complete and lasting cure, but neither of these tumours was of bronchial origin.

In view of these conclusions we shall often be exercised, in making the decision, whether to advise this treatment to an individual patient or not. Relief from pressure symptoms can be expected in a certain proportion of cases, and if these are severe and distressing we can, hardly

deny the treatment if it is available. In other cases, in view of the unavoidable expense of the treatment or the inconvenience caused by moving the patient to an institution, and the impossibility of guaranteeing a result and the severe reaction that may be suffered during or shortly after the cessation of the treatment, we may find it very difficult to make up our minds. A decision may have to be left to the patient or to the relatives. This attitude will not hinder the progress and development of the treatment of carcinoma or other malignant tumours of the lung by radiation therapy, because there will always be a large number of patients who will demand active measures, and who, particularly in the early stages, will demand this or some other form of active treatment.

In conclusion, we must not forget the dramatic improvement in the individual case in surveying the final result of the treatment critically and dispassionately.

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SPECIAL CLINICS FOR DIABETICS (ORGANIZATION AND EXPERIENCES)

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The organization required for prolonged treatment of diabetes has become of special interest, since, through the discovery of insulin, even severe cases of diabetes may be kept in a good condition permanently. Yet in actual practice, although the average duration of life among diabetics has increased (Joslin¹), periodic examinations have often demonstrated the results to be disappointing. According to Loewenberg and Noah,² one year and a half after discharge from the hospital only 10 per cent. of the patients were without glycosuria, and a large number showed increased fasting blood sugar or even acidosis. On extending his investigations over a period of six years, Reinwein³ stated that about 40 per cent. of the patients had died; of the remainder, 42 per cent. did not carry out the insulin treatment properly, and 28 per cent. admitted that they had not strictly adhered to the diet which had been prescribed for them. As a consequence, the largest Berlin panel organization (Allgemeine Ortskrankenkasse) found that the incapacity present among diabetics in most age groups was on the average twice as great as was the case among patients suffering from other diseases (Pryll⁴).

Some Causes of Unsuccessful Treatment

There are different reasons for the fact that the ultimate results in ambulatory practice are so unsatisfactory as compared with the success obtained through hospital treatment. The patients may find a certain diet which, although suitable while at rest in hospital, is insufficient while they are at work. By taking inadequate food they lower their tolerance, and the condition becomes worse, though very often exercises have a favourable influence on carbohydrate metabolism.

This has been proved by experimental as well as by clinical observations. After partial extirpation of the pancreas in the dog physical work diminishes glycosuria, but has no influence on it when the gland has been removed completely (Seo,⁵ Allen⁶). Correspondingly, clinical workers have found that in suitable cases exercises could improve the carbohydrate tolerance of diabetics (Trousseau,⁷ v. Noorden,⁸ Buerger,⁹ Allen, Stillmann, and Fitz,¹⁰ Hetzel,¹¹ Lawrence,¹² Joslin¹³).

Further, the condition of a patient may deteriorate if he is prevented by his profession or for any other reason from having his meals at regular hours. Disappointing results over a long period may often be due to the financial difficulties of the patient, causing him to neglect the treatment. Statistics have shown that disablement among diabetics depends to a great extent on their financial condition, the average duration of disablement being inversely proportional to the income (Pryll⁴). Patients are as a rule prepared to adjust themselves to a diet and to the demands of insulin administration, but lack of money leads to neglect of the treatment, then to a decrease in the carbohydrate tolerance, and to complications which may even endanger life.

Such relapses compel diabetics to undergo repeatedly a strict regime in hospital, because at home only a small number of intelligent and self-controlled patients will allow the physician to carry out the measures necessary in severe acidosis or in the complicating infections. Diabetics therefore become in-patients, not only for short control examinations, but also for longer treatment in order to regain a bearable degree of carbohydrate tolerance.

According to Pryll's statistics, the average stay in hospital for these patients is a rather long one. Likewise, Loewenberg and Noah state that 37 per cent. of their cases were in-patients for from one to three months and 9.5 per cent. for over three months.

Apart from the high expenditure incurred by the long stays in hospitals, the costs for the insulin became very high. For instance, in 1931, 155,000 prescriptions, covering 57 million units of insulin, were issued by British insurance practitioners.¹⁴ Therefore, for all organizations having a large number of diabetics under their care, the problem was to find a way to keep these patients in a good condition and, at the same time, to diminish the costs of treatment.

Several proposals have been made in an attempt to find a solution for the problems raised above. Lyon,¹⁵ Earl,¹⁶ Lawrence,¹⁷ Taterka,¹⁸ Rostocki,¹⁹ Gottschalk,²⁰ and others have written on the subject of clinics for diabetics. Joslin²¹ suggested the foundation of diabetic centres and the education of nurses, each nurse having eventually to take care of a large number of patients. v. Noorden²² considered periodical in-patient treatment to be useful for purposes of control. In order to combine dietetic treatment with individually adapted muscular work, Katsch²³ established a home for diabetics.

Certain essential conditions must be fulfilled in order to achieve a permanent success that is to establish in the diabetics a balanced metabolic condition. It is necessary to have regular medical advice, the diet must be adapted to changing circumstances, and it must be impressed upon the patient that his co-operation and self-control alone can lead to lasting good health.

With these ends in view, and in order to diminish, if possible, the expenditure for the treatment of the unemployed diabetics, I, together with Dr. Liebenow, stellvertretender Stadtarzt (municipal officer of health), organized a consulting clinic for a Berlin district of about 360,000 inhabitants, about one-third of them receiving unemployment benefit. The organization and the experiences dealt with in this report are concerned with these 120,000 unemployed people.

Organization of a Consulting Clinic

About 500 diabetics regularly attended the clinic held by the writer and his collaborators in a hospital of the district during three mornings in the week. All analyses were made in the clinic itself. Qualitative and quantitative urinary examinations were carried out at once, but

when the blood sugar was examined patients either waited for the results or attended the following session of the clinic. Two to three technicians were occupied in performing the chemical examinations, in dispensing insulin, and in secretarial services. A registration card was kept for each patient which gave clinical dates, the results of the analyses, and the prescriptions issued. A rapid survey of the condition of the patients could thus be obtained.

Dangerous cases—for example, gangrene—were taken to the hospital to which the clinic was attached. Patients attended at least once a month, but if minor cases were continually in a good condition they only came about every two months; on neglecting to come for control examinations they were communicated with by post. The practitioners of the district were instructed to send their unemployed diabetics to the clinic, and they received written reports on the findings of the clinic and concerning the prescriptions and instructions given. The work of the clinic was strictly limited to the investigation and the treatment of the metabolic conditions of diabetics. The practitioners were in continual contact with the clinic, and attended the patients in connexion with all other aspects of their disease, and with any other complaints from which they might be suffering.

Consultations

Every patient had to bring a sample of urine which had been collected during the previous twenty-four hours; some of them were asked to come while fasting for blood sugar examination, or, if necessary, for a sugar tolerance test. The basis upon which diets for diabetics are prescribed will vary according to the outlook of the physician conducting the clinic. He may prefer a diet rich in carbohydrates, eventually to be combined with large doses of insulin (Adlersberg and Porges, cf. Joslin), or a diet containing much fat and a minimum of protein and carbohydrates (Naunyn, Petren). He may believe that a restricted diet is a chief principle in diabetes treatment (Allen). All these forms of treatment can be carried out among out-patients.

As the patients of the clinic were of the poorer classes, the economic side of dietary prescriptions had to be considered. It must be borne in mind that the actual prices in different seasons vary to a great degree, some types of food being cheap in summer and expensive in winter, and conversely. We had therefore to change the proposed dishes according to the fluctuation in the actual prices. The patients received detailed dietetic instructions through leaflets drafted for this purpose, and each patient obtained also a diet sheet suitably prepared according to the needs of that particular case. Forms were given them which contained equivalents of the different carbohydrate foods, as well as combinations suitable for single meals and for a whole day's menu. Moreover, the costs for these dishes were calculated according to the market rates.

It soon became evident that the expensive diabetic diet could only be made available for necessitous people through some financial aid. The municipality not only assisted them by giving free treatment and medicaments, but also by contributing towards the cost of suitable foodstuffs. The scale of assistance given was based on thorough statistical calculation of prices of the foods necessary, and on the degree of severity of the disease and the requirements of the case. Patients requiring insulin were taught how to disinfect and to use their syringes. They received simple printed instructions as to the time relation between insulin administration and carbohydrate intake, as well as information concerning the signs of hypoglycaemia and how this can be avoided. When patients were unable to inject insulin themselves

they were treated at home by nurses. Visiting nurses also attended them when confined to bed, reported to the clinic, and delivered those samples necessary for examination.

The consultations were supplemented by a series of popular lectures explaining in full the subjects which could only be briefly mentioned during the consultation hours—for instance, the character of the disease, the general treatment and hygienic measures, the different types of diet, hypoglycaemia, and the various complications. In the hospital kitchen patients had the opportunity of learning how to prepare their diet.

Experiences at the Clinic

Some forty to seventy patients attended the clinic during a single session. Most of them came for control examination without having been reminded, and this was particularly so among the severe cases. A considerable number of those attending for the first time were in an unsatisfactory condition. Though receiving large doses of insulin, they often showed high glycosuria or acetonuria. This was caused by neglect of diet for the reasons explained above, or through faulty or erratic insulin administration, as well as through failure to observe the time relation between insulin administration and carbohydrate intake—in fact, this last point often caused the greatest difficulties. Generally the insulin consumption was high, as the patients often continued to use the amount originally prescribed although the tolerance had changed. Some patients had utilized their insulin rather carelessly through lack of supervision. Most of them, when doing muscular work, found it intolerable, both physically and mentally, to take less than four ounces of bread daily. However, when patients became aware that insulin does not cure the disease, but controls it, they usually made the required effort to adhere strictly to their dietetic prescriptions.

Experience has shown that in a great number of patients the form of diet had to be varied. For instance, we often found it necessary to include vegetable days, or, especially in cases with a tendency towards acidosis, an oatmeal day followed by a vegetable day, in order to keep patients in good metabolic condition. A great demand for explanations was apparent at the lectures, usually attended by several hundred persons. These lectures likewise gave a good opportunity for the lecturer to expose the remedies of quacks, so numerous in connexion with diabetes mellitus.

After considering the results of the regular and uniform treatment given within the relatively short time that the clinic existed, I feel justified in concluding that the initial aim of the clinic had been accomplished. Relapses in metabolic conditions occurred but seldom, and the tolerance improved continuously in many cases. This was also proved by the fact that no patient developed coma, although about one-third of all the cases were severe. Consumption of insulin decreased considerably owing to the improvement in the patients' condition as a result of the described method of medical supervision. The first 200 patients treated had previously received about 100,000 units of insulin monthly, but only about the same amount was required by the clinic for about 500 patients. A considerable monthly saving, amounting to several hundred marks, was also made by the purchase of insulin in large quantities. For instance, the price which the clinic had to pay in February, 1933, varied from 45 to 60 pfennigs for 100 units, while previous to its existence insulin was purchased at retail prices (about double the cost). Even in severe cases the adjustment of the diet and of the doses of insulin was made while the patients attended as out-

patients, and only exceptional cases were taken to the hospital for this purpose. As all unemployed diabetics of this district, when requiring in-patient treatment, had to be sent to the hospital connected with the clinic, we were able to conclude accurately that the frequency of hospital treatment decreased among these patients. Again, as most patients were able to prepare the diet at home, the food supply of the hospital kitchen was necessary only in a few cases.

Collaboration with the practitioners proved to be both practical and effective, as the clinic worked exclusively on a consulting basis. Thus they considered the clinic as a welcome help, and practitioners from other districts also sent us cases. As regards the financial side, the additional allowance for extra diet distributed monthly was 10 marks in about 25 per cent. of the patients, 15 marks in about 35 per cent., and 20 marks in about 40 per cent. A few cases which did not require an expensive diet had no extra allowance granted to them. It may be added that we had intended to issue to all our patients a booklet containing, apart from personal data (name, age, address, occupation, membership of any panel or insurance organization), the patient's medical history and any important clinical particulars.

Summary

The organization of, and experiences with, a special clinic for diabetics are described. By suitable and regular supervision metabolic relapses were avoided, and, in general, the patients remained in a good condition permanently. For organizations having a large number of diabetics under their care such consulting clinics are practicable. Also, a considerable saving may be made by lessening in-patient treatment through the constant adjustment of both the diet and the dosage of insulin, and by buying insulin in large quantities at wholesale prices. In this last way alone the consulting clinic on which this report is based saved several hundred marks monthly.

It was proposed to issue a form for diabetics which would describe briefly the condition of the patient for the use of any physician in case of emergency.

I am greatly indebted to Dr. W. Susman for his assistance in translating this paper.

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A NOTE ON THE ANAEMIAS OF PREGNANCY

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Much has been learnt during the last few years about both pernicious anaemia and the simple achlorhydric microcytic anaemias described by Witts, but, although Whitby, in 1932, wrote a paper on "Anaemias in Pregnancy," the practical importance of these anaemias has been insufficiently realized. The reason for this is not far to seek, because the onset is so insidious and the symptoms are usually ascribed to the pregnancy. The result is that a really dangerous degree of anaemia, most frequently of the microcytic type, arises without its presence being even suspected, and if such a case comes untreated into labour the danger of obstetric shock, even in the absence of any blood loss, is very great.

Some slight diminution in the haemoglobin content and red cell count of the blood is physiological during pregnancy on account of hydraemia, but in addition to this there is very often a superadded true anaemia. The common anaemias of pregnancy are the simple types which may occur apart from pregnancy, but their onset is masked and their gravity accentuated by the drain of the foetus on the maternal organism, particularly in the latter third of gestation. They may thus be subdivided into five kinds: the common microcytic type, the more rare megalocytic or pernicious type, anaemia due to haemorrhage, anaemia due to haemolysis following sepsis, and lastly the rare acute idiopathic haemolytic anaemia of pregnancy.

Microcytic Anaemias

The microcytic anaemias arise from a break in the erythron, or chain of red cell development, at the level of the normoblast owing to lack of iron. This may be due to one or more of three factors—deficiency of iron in the food, deficient absorption, and excessive utilization. Deficient absorption is mainly due to the observed fact that throughout pregnancy there is a reduction of the secretions of the stomach, including the hydrochloric acid content. Strauss and Castle found that in 75 per cent. of cases there was hypochlorhydria during pregnancy with immediate recovery in the puerperium. The remaining 25 per cent., with normal stomach contents in pregnancy, showed a puerperal hyperchlorhydria. The effect of excessive utilization is seen in the last three months of pregnancy, when the red cell count falls rapidly owing to the fact that two-thirds of the iron make-up of the foetus is then supplied. The blood count is typical of the microcytic form of anaemia described by Witts, in that the haemoglobin is diminished out of proportion to the red cell count, giving a low colour index, and in the absence of signs of haemolysis or rapid blood regeneration. Dyspepsia, dysphagia, soreness of the tongue, and enlargement of the spleen are all sometimes present.

The Rarer Types

The megalocytic type of anaemia of pregnancy is less common and appears to be due, as in true pernicious anaemia, to a break in the erythron at the level of the megaloblast. It differs from the latter only in the fact that achlorhydria is not a necessary accompaniment, and that the condition arises during pregnancy and is spontaneously relieved by parturition. The blood picture

shows the usual high colour index and leucopenia, and cases generally react well to liver so long as neglect of treatment has not allowed them to fall into an aplastic phase.

There is no need to discuss here anaemia due to haemorrhage or haemolysis following haemolytic streptococcal or anaerobic infections, but a word may usefully be said about the acute idiopathic haemolytic anaemias, which are less rare during pregnancy but are probably related to the infrequently seen haemolytic anaemias occurring during other phases of life.

The symptoms of dyspnoea, oedema, syncope, transient amaurosis or paralysis, fever, haemorrhages, etc., are of sudden onset, usually becoming manifest in the latter two months of pregnancy, and are unaccompanied by any signs of infection or toxæmia. They may occur in primiparae or multiparae, they tend to recur in subsequent pregnancies, and the mortality is in the region of 30 per cent. The blood picture usually shows a megalocytic anaemia with active blood regeneration as evidenced by leucocytosis, and the presence of nucleated red cells and polychromasia. There is excessive haemolysis, causing a positive van den Bergh reaction, and the fragility of the red cells is temporarily increased. Examination of the gastric contents may show no abnormality, but the liver and spleen are sometimes enlarged. The cause of the anaemia is unknown, and treatment consists of blood transfusion, and, if the patient's condition warrants it, immediate induction of labour or Caesarean section. Liver treatment also seems to be of value in some cases.

Recognition and Treatment of Microcytic Anaemia

Although for the sake of completeness it has been necessary to mention the rarer types of anaemia of pregnancy it is the common microcytic type whose importance and frequency it is most necessary to realize. The onset is so insidious and the danger is so real if the patient be allowed to come into labour without previous treatment, that it would seem to make at least a haemoglobin estimation at the seventh month a reasonable routine precaution in ante-natal care. Moreover, the anaemia should be recognized early, as it is in this stage, before there is any tendency to aplasia, that a quick reaction to treatment is to be expected.

The best method of treatment is the administration of iron in large doses or liver, according to the microcytic or macrocytic nature of the anaemia, but the fact must not be lost sight of that both may be needed, and this is particularly obvious in the type of case in which there is originally a high colour index and under treatment with liver the cell count improves and the colour index falls, but the patient does not regain her full quota of red cells. In such a case a little iron will usually complete the recovery. If the patient reacts well to treatment the pregnancy should be allowed to go to term, but if the anaemia shows a tendency to aplasia then termination of the pregnancy must be considered whenever the patient appears to be in a fit condition to stand the shock of labour. In those cases in which severe anaemia is discovered only at term labour should be postponed as long as possible to allow of treatment, and, when it commences, Caesarean section with simultaneous transfusion probably affords the least risk of obstetrical shock.

Four Illustrative Cases

There are two points that it is particularly desired to stress: the frequency of a moderate degree of microcytic anaemia in pregnancy, and the consequent risk of obstetrical shock following delivery if the anaemia is not treated. These points, and also the insidious, occult nature of the anaemia, are well illustrated in the following case reports.

Case 1.—This demonstrated the real risk of obstetric shock in a megalocytic anaemia of pregnancy. Mrs. C., aged 42, a multipara of five, gave a history that for three weeks before her last pregnancy, nine years ago, she had severe vomiting, and that she was very ill for some months afterwards. For five years she apparently had had a recurrent urinary infection. Within a month of again becoming pregnant she began to feel ill and vomited. She was admitted to hospital seven months pregnant in a very serious condition, very pale, and with oedema of the feet and abdomen. The urine contained no albumin, the blood pressure was 130, and the blood urea was 22 mg. per cent. The blood count showed a haemoglobin of 30 per cent., red cells 1,300,000, colour index 1.1, and white count of 6,000. A film showed slight anisocytosis and polychromasia and a few nucleated red cells. The patient was treated with liver extract, iron, and transfusion, but after a week she had but little improved. The urine now contained albumin, and the blood count was unaltered. Two days later the patient came into labour, which was rapid and normal in every way, and gave birth to a live child weighing 4 lb. 10 oz. The total blood loss was estimated at under 10 oz. The patient, however, became very shocked and died four hours later.

Case 2.—Some of the difficulties of diagnosis, even in a very severe grade of anaemia, were shown in this case. Mrs. G., aged 25, a multipara of three, was admitted to hospital, seven months pregnant, for toxæmia of pregnancy. She gave a history that for the past month she had felt tired, had had frequent headaches, and had lately begun to "swell up." On admission there was gross oedema of the legs, abdominal wall, and vulva. She was pale, but the pallor was masked by telangiectases on the cheeks. The blood pressure was 120/80, temperature 99°, pulse 100-110. The urine was of 1020 specific gravity, and contained a trace of albumin. Blood urea was 18 mg. per cent. Blood count: haemoglobin 22 per cent., red cells 2,120,000, colour index 0.5, white cells 8,800. A film showed slight anisocytosis and few nucleated red cells. On treatment with massive doses of iron, within two weeks the patient felt quite well, all oedema had gone, and the haemoglobin was 50 per cent., with a colour index of 0.8. A test meal was performed and showed complete achlorhydria. The patient came into labour and had a normal delivery at term, the blood count then being—haemoglobin 80 per cent., red cells 4,000,000, colour index 1.

Case 3.—A typical case of microcytic anaemia of moderate degree. Mrs. H., aged 29, a one-para, gave a history of vomiting and giddy attacks since seven months pregnant. When seen at the eighth month a blood count showed a haemoglobin of 43 per cent., red cells 4,150,000, colour index 0.5, and white cells 4,600. On iron medication the haemoglobin rose to 55 per cent. during the next month, and three weeks later, after a normal delivery, it had risen to 78 per cent.

Case 4.—Another case of moderate degree of microcytic anaemia. Mrs. T., a multipara of two, was seen when seven and a half months pregnant, complaining of paroxysmal tachycardia. On examination the heart appeared normal and the mucous membranes were slightly pale. A blood count showed a haemoglobin of 68 per cent., red cells 3,860,000, colour index 0.88. On treatment with iron the haemoglobin rapidly rose to 79 per cent., the attacks ceased, and she had a normal delivery at term.

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A conference on "Youth and Health: What can we do to Help?" organized by the British Red Cross Society, was held in London last June, and among the speakers were Dr. Ralph Crowley and Dr. Margaret Lowenfeld. A full report of the discussions has now been published by the society at 14, Grosvenor Crescent, S.W.1, in pamphlet form, price 6d.

Clinical Memoranda

SUPERIOR MESENTERIC THROMBOSIS

In connexion with an article on the above subject by Mr. R. M. Sargent, published in the *Journal* of July 14th (p. 64), it may be of interest to report a case of spontaneous recovery from a superior mesenteric thrombosis which occurred at the Herefordshire General Hospital under the care of Mr. E. W. Du Buisson, who kindly allows me to report it.

A woman, aged 54, was admitted in November, 1916, with abdominal pain and vomiting—pulse 120. An old right femoral hernia was reduced by taxis, and the patient, relieved, insisted on going home. The next morning she was sent in by her doctor as a possible "reduction en masse" with acute abdominal pain and vomiting. The pulse was now 130. At operation the hernia was found properly reduced. The incision prolonged upwards, however, showed one and a half feet of small intestine near the caecum much dilated and rosy red in colour. There was lymph in the coils and a thrombosis of the mesenteric trunk. The contents were milked down, the hernial sac was removed, and peristalsis noted before the abdomen was closed. She recovered well, though enemata were necessary for some weeks.

B. E. W. STALLARD.

Hereford.

VARICELLA AND HERPES ZOSTER

The cases described below, which would appear to show a clear clinical relation between herpes zoster and varicella, seem worthy of record. The Barbara-Edith Convalescent Home for Children at Blechingley is staffed by a matron and a nurse. There are, in addition, three domestics. Apart from these people and myself, as honorary medical officer, the twelve children, admitted there as convalescents from London hospitals and associations, come into contact with no other persons (except their parents, who are allowed to visit them on one day only in a month), since the home is right in the country and some way from any neighbouring dwelling.

Margaret W., aged 3½ years, was one of a batch of children admitted to the home on May 14th, 1934. She had, on the day of admission, her first crop of herpes zoster, localized to the tenth dorsal segment on the left side. Except for her age, her attack of shingles was in all respects completely typical, and was well developed when she was first seen by me on May 24th, ten days after its beginning.

Betty H., aged 3½ years, was one of the same batch of children admitted on May 14th. On June 6th she developed a few vesicles, suspiciously like early varicella, but had no fever. In the light of the other cases, and because of the subsequent course of her rash, there is no doubt that she had an attack of varicella.

Poppy B., aged 4½ years, was also one of the same batch of children admitted to the home on May 14th. On June 7th—that is, on the twenty-fourth day following that of her admission—she developed a crop of vesicles in all respects like early varicella, and ran a temperature (up to 100° F.) for forty-eight hours. By the third day there was no doubt that she had this disease. Since their admission the above three children had come into contact with no outside persons, except on a visiting day, which happened on June 2nd, and which therefore allowed too short a period of incubation for them to have been infected on that day.

On June 22nd Sadie G., aged 4½ years, was seen with typical first-day varicella. She had no doubt been infected by one of the two preceding cases.

Unless the varicella took at least twenty-four days in incubating, which is exceedingly improbable, there seems little doubt that it must have been communicated from the child suffering from herpes zoster, who was a free contact with all the other inmates of the home.

Blechingley.

DOUGLAS ROBERTSON, B.M., M.R.C.P.

Reviews

DERMATOLOGY

For many years the handbook on *Diseases of the Skin* by the late Sir Malcolm Morris was one of the leading authorities on the subject in the English-speaking world, and its popularity may be estimated from the fact that no fewer than seven editions were needed within a little over twenty years. It was always kept thoroughly abreast of the modern developments of the specialty, and in preparation of the three last editions Sir Malcolm Morris was assisted by Dr. S. Ernest Dore. But the seventh and last edition has now been out of print for some years, and has necessarily fallen out of date. Dr. Dore felt that it should once more be brought abreast of the times, and began to revise it for that purpose. But as the revision progressed it was found that although the original structure and classification might be preserved, so much fresh matter had to be introduced that the book became practically a new one. Hence the volume now before us is the production of the joint authorship of Dr. Dore and of his colleague Dr. JOHN L. FRANKLIN.¹ Curiously enough it is somewhat smaller than the parent work, but it is extraordinarily concise, and contains all the essentials of the subject.

Although, necessarily and properly, greater space has been devoted to the dermatoses which are most frequently met with in clinical work, mention is made of very nearly every pathological change in the skin, however rare it may be. In our opinion it is doubtful whether this completeness is advisable in a book intended for students and practitioners. To some extent it tends to give the uninitiated a distorted view of the subject. The vast bulk of patients, both in hospital clinics and in general practice, suffer from a very limited number of diseases. There are, we believe, about three hundred and fifty skin diseases catalogued in nosological nomenclature. Of these at least two-thirds are so rare that they may well be omitted in a textbook intended for students and general practitioners. They interest the specialist alone, and him only as museum specimens; but when a student finds a considerable portion of a textbook occupied with these conditions which are all blessed with names of extraordinary length, he fancies that in order to deal with the skin troubles of daily life he must be familiar with *acanthosis nigricans* and *purpura telangiectodes*, although in all probability he will never see such a case in his lifetime. Hence he sometimes fights shy of the dermatological department altogether, and loses the opportunity of learning to manage the impetigo and dermatitis cases which will comprise 98 per cent. of the skin patients he will meet with in an ordinary practice. We do not for a moment suggest that the perusal of the present work will have this deplorable effect on the student mind, but possibly it would not have mattered if a few of the rarities had been omitted. It is a thoroughly good book, and the old bottles which have been taken over from its famous predecessor in the shape of structure and pattern turn out to be quite well adapted to contain the new wine of modern dermatology.

The illustrations are plentiful and good (some of them, too, we recognized at once as having been transferred from the parent volume), but the authors have not been seduced by the meretricious charms of coloured plates; those plates which one always expects to be so graphic, but which so often are unsatisfactory! Finally, we may add that the book is of convenient size and moderate price, and deserves to enjoy the same popularity as its forerunner.

¹ *Diseases of the Skin. A Handbook of Dermatology for Practitioners and Students.* By S. Ernest Dore, M.A., M.D., F.R.C.P., and John L. Franklin, M.A., M.D., M.R.C.P. London: Cassell and Co. Ltd. 1934. (Pp. 410; 46 plates. 10s. 6d. net.)

BLOOD TRANSFUSION

A monograph on Blood Transfusion in Medical Practice by Dr. R. LIÈGE² is in two parts, dealing respectively with indications for this procedure and the results to be expected from it, and with its possible dangers. The conditions in which blood transfusion may be indicated are placed in four main categories: blood diseases, hæmorrhage from the alimentary tract, typhoid fever, and a miscellaneous group described as infections and intoxications; it will be understood from this that the adjective "medical" in the title of the book is to be interpreted in its narrower sense, since no reference is made to surgical or obstetrical indications. The possible uses of blood transfusion in a number of conditions in which its value is perhaps not clearly established are stated fairly and with caution; the same attitude animates the section on immuno-transfusion, in which a clear distinction is drawn between three different procedures covered by this term. The dangers of blood transfusion are discussed at almost equal length with its indications, and the number of pages devoted to the accidental transmission of syphilis and malaria is perhaps disproportionately large; the remainder of this section is, of course, concerned chiefly with the effects of transfusing incompatible blood.

Alleged instances of a change in blood group which have been reported are discussed at some length, and the author is inclined to believe that such a change can occur. This most disturbing question is one which evidently calls for the fullest inquiry, although those more sceptically inclined will be content to declare that an inherited character must be a fixed one and to dismiss supposed examples of changed group as due to errors of technique. It is perhaps unfortunate that no emphasis is laid on the paramount importance of a direct test of compatibility; if the serum of all patients likely to require transfusions were obtained and kept available as a routine measure these accidents would not occur. Technique, however, is not dealt with in this book, except that a short section is devoted to the special difficulties of choosing a suitable vein in young children.

To physicians and others interested in the medical uses of transfusion this book affords an opportunity of comparing practice in France with that of this country. That the widespread use of transfusion is of somewhat recent development in Paris appears from the fact that the number of transfusions from donors belonging to an organized service has risen from only 220 as recently as in 1929 to 3,738 in 1932. There is a useful bibliography.

AN INTRODUCTION TO BIOCHEMISTRY

It is a matter of no small difficulty for an author of an introduction to a subject to determine precisely how he shall interpret the word introduction. Shall the book present the facts and interpretations in a manner calculated to attract the interest of the neophyte and stimulate him to proceed to a deeper study, or shall it place before the reader a mass of facts, formulae, and figures which may be readily memorized for examination purposes? There is, of course, a place for each of such works, and under present-day educational conditions the latter kind of book will probably have the wider public, provided it is well written and the facts are put in a pleasantly palatable form. If, in addition, the work is up to date and documented with nice selectivity, it is assured of an enthusiastic reception. Such a book is that of Dr. W. R. FEARON, now before us.³

² *Transfusion du Sang et Immuno-Transfusion en Pathologie Médicale. Indications, Résultats, Accidents.* Par R. Liège. Paris: Masson et Co. 1934. (Pp. 174; 16 figures. 22 fr.)

³ *An Introduction to Biochemistry.* By W. R. Fearon, M.A., Sc.D., M.B., F.R.C. London: William Heinemann (Medical Books) Ltd. 1934. (Pp. 313. 10s. 6d. net.)

Biochemistry is a young science, and the rapid increase in knowledge makes it very difficult to present a compendium of facts which will not, almost before publication, be superseded. The methods which are at our disposal in biochemical work are still crude in most branches, and the lack of some unitary biological theory makes our interpretation of experimental results often appear elementary and unconvincing in the face of the vast complexity of life phenomena.

Dr. Fearon deflects somewhat from the usual practice in works of this kind, in that he pays considerable attention to the inorganic elements, but the mode of presentation of this branch is dull, and not even the besprinkling of the text with quotations from the poets saves it. The sections dealing with the organic compounds of biochemical importance contain a peculiar mixture of what might be called theoretical biochemistry and practical tests. The theoretical discussions, classifications, and formulae are excellently done, but the value of the practical directions seems to us doubtful. This is emphatically not a book for the laboratory, and the biochemical tests, if they had to be included, might well have been done in a series of separate sections or in an appendix. As it is, the student will simply have to copy out these tests should he decide to use the book for laboratory work, and use them separately from the general text. Some peculiar remarks in the book must be noticed. For example, the author sees in the fact that muscle glycogen does not fall in starvation to so great an extent as does liver glycogen, evidence of a difference between "reserve" and "structural" glycogen. What "structural glycogen" is we do not know. Another peculiar statement is that the sympathetic constricts the muscular wall of the intestinal tract.

The chapters dealing with intermediate metabolism, reduction-oxidation systems, and the pyrral pigments are excellent, and contain a mine of valuable condensed information. Taken altogether this is definitely a book to have, and will prove invaluable to the student preparing for the higher examinations, as well as for the teacher who wishes to refresh his memory in fields other than his own.

FRACTURE OF THE NECK OF THE FEMUR

Dr. SVEN JOHANSSON, surgeon-in-chief to the Gothenburg Hospital, has published (in English) a monograph, with 157 illustrations, on *The Operative Treatment of Collum Femoris Fractures*.⁴ In short space he gives a good review of treatment from Royal Whitman's original work up to the present day when he is able to give the results of operation after his own method on fifty cases, and to refer in bulk to another 150 operated by the same method in Sweden by other surgeons. The author is a consistent and rational advocate of osteosynthesis with a stainless steel nail, but, unlike Smith-Petersen, he avoids exposure of the fracture.

There seems good ground on which to base acceptance of Dr. Johansson's conclusions—namely, that by his series of cases he has proved that by proper reposition and fixation osseous union and a fully satisfactory functional result may be obtained in the majority of cases, even in medial collum fractures, and even in very old patients; that it is possible to obtain the fixation necessary for good union by means of extra-articular osteosynthesis on the principle and by the method described in the present volume; that the method, in spite of its wider indications, probably reduces the mortality risk; that osseous union is effected in shorter time, and the after-treatment simplified; that the conservative treatment hitherto used,

as well as operative treatment with exposure of the fracture, should therefore be abandoned and replaced by extra-articular osteosynthesis as the standard method. We must not be taken to suggest that such a method can be placed in the hands of every surgeon. Special experience of orthopaedic measures, as well as of the apparatus employed, is necessary, and every step must be guided and checked by x-ray control. The object must be to provide enough centres to which patients can be brought for early treatment, rather than to attempt to place highly trained and experienced operators in every town.

HYGIENE FOR NURSES

To write briefly and well for nurses, who although not medically trained are so closely in touch with the affairs of medicine, is perhaps not very easy on any medical topic. In the case of hygiene it is especially difficult, since there is on the one hand so much to say because it is important, and on the other so much to omit lest it overweight the reader. In the fifth edition of Dr. WHURRY's handbook⁵ the essentials of the subject are well presented, and little appears that is superfluous, unless it be McKinnel's ventilator, with diagram, which is scarcely worthy of the space it occupies. Particular attention has been paid to infection, food, and personal hygiene. In the chapter on infection, preventive medicine is happily described as a practical large-scale application of the aseptic technique of the operating theatre. Immunity is well summarized, and what is said on the Schick test is sufficiently informative. The part played by milk in spreading typhoid fever nowadays might perhaps have been more emphasized. The advantage of the cresol derivatives in disinfection is properly indicated, but it would, we think, have been of service to lay more stress on the respective values of concurrent and terminal disinfection, since the former, which is mainly the nurse's duty, is now to be regarded as the more important of the two. In the chapter on food the canned tomato is noted as a good source of vitamins. Ptomaine poisoning is described as "of rare occurrence," which is a step in the right direction. In the chapter on personal hygiene an hour's tennis is preferred to stereotyped muscular exercises, which is good advice. The above remarks, where critical, merely reflect shades of difference of opinion. We have found no errors in the book, which is concise and lucid in style, and well adapted for reading by nurses. We commend it to their teachers also, who will find it a reliable guide in deciding not only what to say but how best to say it.

The State examination in hygiene for nurses now covers a field which in scope at least, though the standard of knowledge expected is different, is comparable with that professed by the student of medicine. With a view to helping the nurse to prepare herself for this ordeal the Sister Tutor of Middlesex Hospital has published a guide to the examination in the form of question and answer.⁶ The questions for the written examination appear to be well chosen. A number of them have doubtless already been set and the rest are such as might be. The answers given are of suitable length, and should satisfy the examiners. A useful feature is the inclusion of specimen oral examination questions, the answers to which are not expressly supplied, being contained in the text elsewhere.

⁴ *The Nurses' Handbook of Hygiene: An Elementary Text-Book*. By L. E. H. Whitty, M.A., M.D., F.R.C.P., D.P.H. Fifth edition. London: Faber and Faber Ltd. 1934. (Pp. 174; 23 figures. 4s. 6d. net.)

⁶ *Aids to Elementary Hygiene. A Guide to the Preliminary State Examination*. By Evelyn C. Pearce. London: Faber and Faber Ltd. 1934. (Pp. 163. 3s. net.)

⁵ *The Operative Treatment of Collum Femoris Fractures*. By Sven Johansson, M.D. Copenhagen: Levin and Munksgaards. 1934. (Pp. 148; 157 figures.)

Notes on Books

New editions of two large and well-illustrated textbooks of histology have reached us from America. One is a sixth edition* of a work by Dr. HARVEY ERNEST JORDAN, professor of histology and embryology in the University of Virginia; the other is a second edition,* reshaped typographically throughout, of the work by the late Professor ALEXANDER MAXIMOW and Dr. WILLIAM BLOOM, of the University of Chicago.

The *Cranio-cerebrale Schemata für die Roentgenographische Lokalisation*,* by Professor A. SCHÜLLER and Dr. H. URBAN, are intended to help the radiologist in localizing intercerebral disease and in determining the exact situation of foreign bodies. The method is simple, quick, and precise enough for practical purposes. It has none of the disadvantages attached to the various means of localization of intercerebral disease by contrast methods. The authors claim that endocranial foreign bodies—including projectiles and air pockets, abnormal calcification and ossification of the skull (so-called "cerebral stones"), calcified and ossified tumours of the brain, its membranes, and vascular system—can all be accurately localized, as can also traumatic defects. A detailed description is given of the radiographic technique, which is very easy to carry out. The radiologist will find the "Cranio-cerebrale Schemata" a valuable addition to the many methods of localization.

No. 13 of the medical pamphlets issued under the auspices of the Medical Society of Individual Psychology¹⁰ comprises two lectures by Dr. ALFRED ADLER and an address by the late Dr. F. G. CROOKSHANK, together with some miscellaneous matter. These pamphlets are now edited for the society by Dr. J. C. Young.

First Aid in Defence against Chemical Warfare, by Major-General D. J. COLLINS and Major H. STUART BLACKMORE, is a booklet issued by the British Red Cross Society.¹¹ It was first published in 1929, and a second edition has now appeared. The subject is one of considerable topical interest, for reports from the Continent show that great attention is being paid there to methods for protecting civilian populations in cities against aerial gas attacks. The book gives a short and clear account of the chief types of gas used in the Great War, and of the methods that were then elaborated for treating gas casualties. An intensive gas attack on a large city is a horror of which at present we have no experience, but medical men who had much to do with gas casualties in the Great War can visualize some of its probable effects. A chapter is devoted to the protection of the civilian population based on the recommendations of the International Red Cross Committee. The general idea appears to be to organize an ambulance service, adequately protected by masks and clothing, for the collection of casualties and to tell the rest of the population not to give way to panic. It may be appropriate to mention here a paper on "The Chemist and National Defence," which was read by Mr. J. Davidson Pratt before the Glasgow Section of the Society of Chemical Industry on October 5th, and has since appeared in *Chemistry and Industry*.

The 1934 edition of the Register of Members of the Chartered Society of Massage and Medical Gymnastics¹² covers the period July, 1920, to April, 1934. A new section has been made for those who are not practising.

* *A Textbook of Histology*. By Harvey Ernest Jordan, A.M., Ph.D. Sixth edition. London and New York: D. Appleton-Century Company Inc. 1934. (Pp. 738; 610 figures. 30s. net.)

* *A Textbook of Histology*. By Alexander A. Maximow and William Bloom. Second edition. Philadelphia and London: W. B. Saunders Company. 1934. (Pp. 662; 530 figures. 30s. net.)

* *Cranio-cerebrale Schemata für die Roentgenographische Lokalisation*. Von Professor A. Schüller und Dr. H. Urban. Leipzig and Vienna: F. Deuticke. 1934. (Pp. 8; 17 figures. M. 4; geb. M. 5.)

¹⁰ *Individual Psychology and Sexual Difficulties* (II). By Drs. Alfred Adler and F. G. Crookshank. London: The C. W. Daniel Company. 1934. (Pp. 55. 2s. 6d. net.)

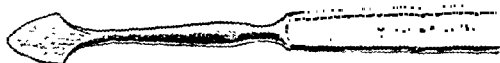
¹¹ London: Cassell and Co., Ltd. 1934. (Pp. 68. 6s. net.)
¹² London: Tavistock House (North), B.M.A. Building, Tavistock Square, W.C.1 (4s.)

or whose addresses have proved untraceable. Some inconvenience had been caused in the past by failure to distinguish these. In other respects the new issue resembles its predecessors, there being in addition to the main register of masseuses and masseurs a useful place index, which enables a medical practitioner in any part of the country to discover quickly those who are at work in his neighbourhood. Additional qualifications which are also noted include those for medical gymnastics, medical electricity, and medical hydrology. It may be recalled that these masseuses and masseurs undertake no case except under the direction of a medical practitioner; do not advertise except in recognized medical and nursing papers; and do not sell goods to patients in a professional capacity, nor accept secret commissions on the sale of goods. They merit, therefore, the strong support of the medical profession, which is thus safeguarded against the unregistered and uncontrolled practitioners of massage whose training has been less carefully regulated and whose work is not under supervision.

Preparations and Appliances

KNIFE FOR SUBMUCOUS RESECTION OF SEPTUM

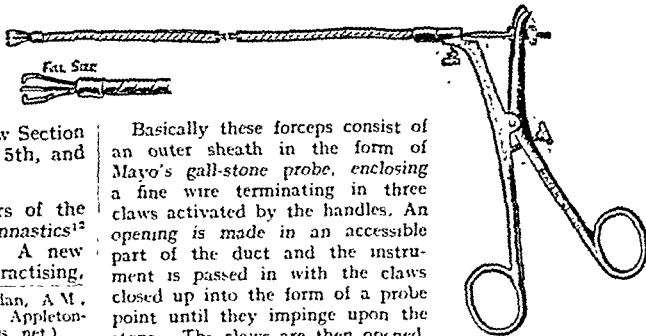
Mr. ARTHUR MILLER, F.R.C.S. (London, W.1), writes: The knife here illustrated has been designed and used by me for the submucous resection of the septum. It is double-edged at the sides and somewhat oval-shaped at its extremity. The incision in the mucosa begins in the uppermost angle of the nostril, and is continued in one sweep right down to the floor of the nose. The lower cutting edge starts the incision; about half-way down the septum the extremity of the knife



takes it up; then the upper cutting edge is engaged; and, finally, the extremity is again used to complete the incision on the floor of the nose. The advantages claimed are: facility of producing the incision with one single sweep right down to the floor of the nose; the impossibility of penetrating the septum; and the fact that it takes the place of a sharp dissector to detach the muco-perichondrium. Mayer and Phelps of 59-61, New Cavendish Street, W., are the makers of the instrument.

CALCULUS FORCEPS

Mr. CONAL CHARLSON, F.R.C.S.Ed., honorary surgeon, Perth Royal Infirmary, writes: The difficulty of removing certain calculi from the bile ducts and ureters has led me to devise the instrument shown in the accompanying illustration.



Basically these forceps consist of an outer sheath in the form of Mayo's gall-stone probe, enclosing a fine wire terminating in three claws activated by the handles. An opening is made in an accessible part of the duct and the instrument is passed in with the claws closed up into the form of a probe point until they impinge upon the stone. The claws are then opened, this action being synchronous with their advancement distally to grip the stone. The grip is tightened and the forceps withdrawn, carrying with them the calculus if all goes well.

The claws open sufficiently to grip strongly anything up to the size of a large pea, and are designed to cause the minimum of trauma to the mucosa of the duct on introduction or withdrawal.

I am indebted to Messrs Mayer and Phelps for carrying out the manufacture of this instrument with considerable skill.

British Medical Journal

SATURDAY, OCTOBER 20th, 1934

THE OUTLOOK IN NEUROLOGY

"A rare and precious gift," says Osler in one of his essays, "is the Art of Detachment by which a man may so separate himself from a lifelong environment as to take a panoramic view of the conditions under which he has lived and moved: it frees him from Plato's den long enough to see the realities as they are, the shadows as they appear. Could a physician attain to such an art he would find in the state of his profession a theme calling as well for the exercise of the highest faculties of description and imagination as for the deepest philosophic insight." Dr. James Collier's Harveian Oration on "Inventions and the Outlook in Neurology," which we publish to-day, is an outstanding example of this Art of Detachment, and exhibits to the full those powers of description, imagination, and philosophic insight of which he is a master. In his survey of neurology he brings a knowledge of the past to the illumination of the present, and seeks in both for those principles which must guide its future development.

The relationship of form and function in the nervous system is a problem which thrusts itself upon the attention of the neurologist and which most impresses with its difficulty those who have spent their lives in its study. The neurologist, as such, is always concerned with a damaged nervous system. He stands outside it and watches its attempts to carry on its functions in spite of its injury. He is like a geographer trying to draw a map of a country by observing the effect of an earthquake upon the arrival and departure of trains at the railway termini and by questioning the passengers. An injury of the nervous system, whether produced by experiment or by disease, will throw most light upon function in those regions where function is a rudimentary telegraphic conduction of impulses. Hence we know much about the functions of the peripheral nerves and of the spinal cord and practically nothing about the functions of those regions of the cerebral hemispheres which are concerned with thought, speech, and feeling. The conducting functions lend themselves to a high degree of localization, as, for example, in the tracts of the spinal cord. The psychical functions of the cerebral hemispheres are not amenable to localization in the same way. Nevertheless, although the early crude notion of localized centres for speech, sight, and hearing has been abandoned, a sublimated form of it can be found, at least as a working hypothesis in the equipment of many, if not most, neurologists. In part this is because the clinical effects of localized lesions of the

brain indicate that localization of function exists up to a point, though Dr. Collier believes that this is limited to "the input and output paths." In part the persistence of an outworn theory of cerebral localization is due to the difficulty of forming any clear conception of how the brain can function as a whole, and, indeed, of how a network of neurones can function at all to produce thought and feeling out of conducted impulses. To regard, let us say, the Harveian Oration as a manifestation of reflex action, however elaborate, is an act of faith, not a conclusion of science, and owes its plausibility, if plausible it be, to certain philosophical presuppositions. It is unlikely that any progress towards a solution of this problem will be made until it is recognized that form, which is three-dimensional, is incommensurable with function, which, since it involves time, is four-dimensional.

Some of Dr. Collier's views will encounter criticism. Although to him belongs the credit for suggesting that Bell's facial palsy might be due to the virus of herpes zoster, the researches of Drs. R. S. Aitken and R. T. Brain¹ have shown that this is true of less than 20 per cent. of cases. Few neurologists will accept Dr. Collier's contention that in disseminated sclerosis "the process of demyelination," itself symptomless, "is all over and irretrievable so soon as progressive symptoms are present." Nor will it be generally agreed that the recognition of deficiency diseases has made toxic absorption of no importance. The two may be closely related, as is demonstrated by Mellanby's² observation that vitamin A protects the organism against the toxin which causes convulsive ergotism. These, however, are unimportant details. The main implication of Dr. Collier's oration is that a new orientation of neurology is occurring. Applied anatomy and applied physiology, which proved so fruitful a field of research for many years, are becoming exhausted, but the new regions into which neurology must expand are in danger of being claimed by other departments of medicine and of becoming, in Dr. H. A. Riley's³ apt phrase, a "neurologia irredenta." Neurology is being encroached upon by general medicine, by biochemistry, and by bacteriology, as recent developments in the treatment of subacute combined degeneration and of poliomyelitis, for example, illustrate. These encroachments are in the interest neither of the patient nor of medicine as a whole, but they are inevitable unless, as the horizon of neurology becomes extended, the range of vision of the neurologist enlarges proportionately. The view of neurology which Dr. Collier presents is essentially biological. The nervous system can no longer be treated in isolation from the rest of the organism, nor the organism in isolation from its environment. Progress in neurology requires of the neurologist not only readiness to co-operate with workers in many other fields, but also the insight to perceive when such collaboration can be fruitfully undertaken.

¹ *Lancet*, 1933, i, 19.

² *Nutrition and Disease*, Oliver and Boyd, 1934, p. 129.

³ *Arch. Neurol. and Psychiat.*, 1933, xxix, 862.

NATURE AND TREATMENT OF PERNICIOUS ANAEMIA

Although liver therapy has altered entirely the outlook for cases of pernicious anaemia, speculation and experiment have not yet thrown light upon the essential nature of the disease. It is well that the state of our knowledge should be reviewed from time to time, and the memorandum¹ on the subject recently prepared by Dr. E. W. Adams gives an admirable account of the more important recent researches. Pernicious anaemia is characterized by a distinctive blood picture, achylia, and, in many cases, a combined degeneration of the spinal cord. That it is a deficiency disease is held by many. Castle has formed an interesting theory that there is a lack of a specific intrinsic factor which is present in normal human gastric juice and absent in that of pernicious anaemia. In the normal individual this intrinsic factor of the healthy gastric secretion interacts with an extrinsic factor present in the food to produce specific haemopoietic effects. That the extrinsic factor is allied to vitamin B₁₂ is suggested by the actively curative results of feeding with marmite in some cases. Wilkinson has brought forward evidence that the intrinsic factor is an enzyme-like body which, acting on a substance in the food, produces an active principle, and this active principle can be stored in the liver and stimulates the formation of red blood corpuscles. Since the stomach in pernicious anaemia has none of the intrinsic factor the normal stimulus to blood formation is absent.

Although these theoretical considerations leave much work to be done before a solution is obtained, there is no doubt that a new era in the treatment of pernicious anaemia was inaugurated by the discovery by Minot and Murphy of the efficacy of a diet with abundance of liver and muscle proteins in blood regeneration. This diet contained little fat, plenty of vegetables and fruits, and was especially rich in complete proteins and iron; and observations soon showed that in liver a really effective treatment for this hitherto intractable disease had been found. Further work demonstrated that the effective principle in liver was contained in the non-protein fraction of liver substance, and liver extracts were prepared which appeared to be as efficacious as whole liver and presented certain other advantages. These liver extracts are now prepared in solid and liquid forms, and are designed for both oral and parenteral administration. Patients can take them more easily. They can even be given by the intravenous or intramuscular route, and thus a much more rapid action is obtained by small amounts of material. This rapidity may be essential in the initial treatment of severe cases. While for a time attention was mainly directed to the use of liver and preparations derived from liver, other organs of the body were examined as to their content of

the pernicious anaemia factor. Tests indicated that desiccated stomach tissue is an agent at least as powerful as liver in combating pernicious anaemia; but it is interesting that the stomach of the hog or some other carnivorous animal must be used in making gastric preparations, the herbivorous animals, such as cow and sheep, not being suitable. The effective principle in hog's stomach appears to be less stable towards heat than that obtained from liver, so that in preparation it is not heated above 45° C. Two cases of food poisoning have recently occurred from the administration of stomach tissue preparation, presumably because the degree of heat for drying the preparation is insufficient to kill pathogenic organisms. Beef, calf, fish, chicken, and pork liver are all effective if taken in adequate amounts. It is not necessary to nauseate the patient by giving the liver raw. Since the active principle in liver is fairly stable towards heat, it may be given lightly cooked. The average daily dose of liver may be taken as half a pound, though more may be needed at the outset of treatment. When the blood count reaches normal the quantity may be reduced, and the average maintenance dose is about a quarter of a pound daily. The necessary daily amount may be taken either at once or in divided doses. There is evidence, too, that the response is quantitative, so that a single large dose may yield the same response over a period of days as the same quantity divided into several doses. The effectiveness of the liver principle is more powerful when injected intramuscularly or intravenously; smaller doses may produce the same effect, and much work has been done in preparing extracts suitable for parenteral administration.

Preceding the clinical improvement there is a temporary and often considerable increase in the number of young red blood corpuscles (reticulocytes) in the blood stream after feeding with liver or stomach preparations, and this reticulocyte response is a test of great value in confirming the diagnosis, foreshadowing the improvement, and showing the efficacy of the particular liver or stomach preparation that is being employed. At the present time the only way to test the efficacy of a new batch of liver extract or stomach preparation is by observing the reticulocyte response in a hitherto untreated case of pernicious anaemia. Formerly not all preparations were tested in this way, and some were placed on the market which were useless. Potent extracts, however, have a distinct place in treatment of desperate cases, where there is no time to wait for the slower action of oral ingestion; and some patients prefer the intravenous or intramuscular route to the daily ingestion of liver or stomach preparations. For maintenance, depending upon the particular brand of extract and the nature of the case, the amount necessary for each injection may vary between 2 and 5 c.cm.; and some patients may be kept well on a single injection at intervals of one to six weeks or more. Other measures are beneficial in treatment, but none can be substituted for liver or gastric preparation. Marmite has been found to be as satisfactory as liver

¹ Recent Researches on the Nature and Therapy of Pernicious Anaemia. By E. W. Adams, M.D. Ministry of Health, Reports on Public Health and Medical Subjects, No. 75. H.M. Stationery Office. (ed.)

in the treatment of the tropical macrocytic anaemias, but neither it nor other yeast preparations can replace liver, liver extracts, or stomach preparations in the treatment of pernicious anaemia. Iron is generally regarded as ineffective in this disease, but when certain complications are present the combination of liver and iron may be of great value. Iron is also of use in the presence of sepsis and arteriosclerosis, and in some rare cases in which, during treatment by stomach or liver, the red cell count outstrips the haemoglobin level.

RECENT WORK ON LEPTOSPIROSIS

In Holland Weil's disease has assumed considerable prominence, while the apparent immunity of England has been seriously questioned as a result of Dr. Hamilton Fairley's observations, published in the *Journal* of July 7th, 1934 (p. 10). During the last ten years 452 cases have been recognized in Holland, of which forty-six (10.2 per cent.) proved fatal. The disease, according to Professor Schüffner,¹ is commonest in the western coastal part of the country, and has its maximum incidence in the province of South Holland, where the case rate is 140 per million. The disease may appear in any month of the year, but the commonest time is July to October. During the hot summers of 1932 and 1933 the summer peak was very marked indeed, and was apparently associated with the increase in bathing. Infection may occur in a number of ways. Bathers in infected areas are exposed to serious risk. Persons who fall into canals, by accident or with suicidal intent, provide a number of cases. Bargemen, fishermen, and workers in slaughterhouses and other rat-infested premises contribute more than their due quota. Infection may also arise from dogs. Water becomes infected with *Leptospira icterohaemorrhagiae* from the urine of sewer rats. In Rotterdam, where cases of Weil's disease are fairly common, from 7 to 40 per cent. of all rats examined have been proved to be infected. The frequency depends largely, however, on the age of the rat. In young rats in Rotterdam no infections were found, while in Amsterdam only 3 per cent. of young rats proved positive. Adult rats, on the other hand, are infected up to a figure of 45 or even 60 per cent. The black rat rarely acts as a carrier. The survival of the leptospirae is determined to some extent by the salinity of the water. It was found that in alkaline water with not more than 40 mg. of chlorine per litre, the organisms survived for ten days or longer, in water with 1,700 mg. for three days, and in sea-water, with 17,000 mg., for only a few hours. Clinically, about 60 per cent. of cases show no jaundice. The true nature of the disease in these cases is suggested by the severe muscular pains at the onset, the heavily coated tongue, the albuminuria, meningeal symptoms, the shift to the left in the leucocyte formula, and, probably most striking of all, the flushed conjunctivae due to dilatation of the episcleral capillaries. Cases without jaundice are not fatal. The diagnosis has to be made finally by the bacteriologist. Though leptos-

pirae can almost invariably be found by dark-ground illumination in the freshly drawn blood of infected guinea-pigs, they are rarely found by this method in human cases. They may be sought for, however, by light centrifugation of the blood and examination of a thick layer of the supernatant plasma. Cultivation of the blood is much more successful, either directly or after preliminary passage through the guinea-pig. The organisms are commonest in the blood during the first three or four days, but they may be found as late as the tenth day, especially in severe cases. After that they may be sought for in the urine. The most generally useful method, however, is the agglutination test, which becomes positive as the patient recovers. It is carried out with living, or preferably with 0.2 per cent. formalized, cultures. The most important advantage of using killed organisms is that the reaction is not obscured by the occurrence of lysis in the lower dilutions, thus allowing absorption of agglutinin experiments to be carried out. The main type of leptospira causing Weil's disease in Holland is *L. icterohaemorrhagiae*, but a second type, *L. canicola*, has been found as a cause of infectious jaundice in dogs, and of at least one case of human disease. These two organisms, which differ in virulence for guinea-pigs and in serological behaviour, are both different from *L. grippityphosa*, the infecting agent in the swamp fever of Eastern Europe.

GOLD THERAPY IN PULMONARY TUBERCULOSIS

In the front rank of those attempting to consolidate the position of chrysotherapy by accurately determining indications, dosage, and results must be placed Professor Sayé, whose book¹ elaborates the account he gave at the International Tuberculosis Conference at The Hague in 1932. After mentioning the various gold preparations employed in therapeutics, he summarizes the work of other authors with sanocrysin and then describes his own experience, based on 434 patients treated between 1925 and 1931. Rest formed part of the treatment in 342, 40 per cent. being in hospital and the remainder in their own homes, and ninety-two received the sanocrysin as out-patients. The author maintains that his results are particularly demonstrative, as, owing to the lack of sanatorium accommodation in Barcelona and the poor economic circumstances of the patients, less than 15 per cent. were able to undergo a *cura climática* on completion of the course of sanocrysin. In 131 patients only was some form of collapse therapy also instituted. The results, very satisfactory as a whole, are critically examined from different aspects, but in view of the heterogeneous material dealt with very little would be conveyed by quoting the figures. Rather should the results be studied in the clear and concise notes of the fifty illustrative cases and their accompanying excellently reproduced skiagrams. The indication *par excellence* is the early exudative lesion, whatever its extent, and sanocrysin will produce a complete and lasting cure more rapidly (and more conveniently) than will an artificial pneumothorax, and, moreover, with no residual fibrosis. This *nettoyage radiologique* may be

¹ Schüffner, W.: *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1934, xxviii, 7.

¹ *Crisoterapia de la Tuberculosis*. Por el Dr. Luis Sayé. Barcelona: Salvat Editores, S.A. (34 pesetas unbound, 39 pesetas bound in cloth.)

seen even with large "acute" cavities. Relative indications, with surprising results sometimes, are moderately advanced caseous and ulcerative cases, but here, too, it is chiefly the "infiltration," the "fresh spreading disease" of Gravesen, that is most influenced, often preparing the ground for some form of collapse therapy. Old-standing cases with much fibrosis, profound toxæmia, and severe tuberculous lesions elsewhere are contraindications. It is in regard to dosage that Sayé differs considerably from other authors. While the initial and subsequent doses vary according to the weight and general condition of the patient and the type of disease, in nearly 50 per cent. of the bed cases a dose of 0.8 gram or more is reached; in 40 per cent. the total amount was over 8 grams, and sometimes 20 grams or more. He maintains that such dosage improves and hastens the result, and is rendered possible by regulating the size and interval of doses according to the following principles. Small or single rises of temperature, slight transient albuminuria, and fleeting erythemas must be regarded as focal reactions and the next dose given after disappearance of the symptoms. Gastro-enteritic disturbances, dermatitis, and persistent albuminuria indicate metallic intolerance, and call for an increased interval and a similar or smaller dose. Repetition or multiplicity of intolerance symptoms indicates metallic saturation and compels cessation of treatment. Sayé claims to have reduced the intolerance symptoms to 10 per cent. and rarely to experience saturation syndromes, the appearance of which has also a prognostic value. The importance of the effect on the early exudative lesion—which is in line with the work of Gravesen and Christensen—cannot be overestimated. Routine examination of contacts and the "supposed healthy" is becoming established in America and Germany, and will undoubtedly develop in England. In this way the "early cases" so eagerly clamoured for will be discovered and the problem of dealing with them bound to arise. While Sayé admits the possibility of a spontaneous cure in a number of these, clearly no method is yet available for distinguishing the two types, so that "ambulant" chrysotherapy may offer us the best and most convenient solution. Professor Sayé's book has a lesson to teach, and it is to be hoped that an English translation will soon make its Spanish contents available to English readers.

GEE'S DISEASE

Eponyms are of more historical than everyday value, and therefore often tend to die out when the nature of the disease, the sign, symptom, instrument, or what not becomes more definitely established. Some, however, appear to be permanent exceptions, such as Bright's disease, which has an umbrella-like character, covering a number of physical sins; Graves's disease, which is less committal than exophthalmic goitre; and Addison's disease. Samuel Gee, an outstanding clinical teacher and personality at St. Bartholomew's Hospital in the last quarter of the nineteenth century, is an example of one whose name is now but little known eponymously. It was not ever thus. At one time posterior non-tuberculous meningitis was known as Gee and Barlow's disease, from their description in 1878 of what Still subsequently showed to be a chronic form

of meningococcal meningitis. Gee's linctus was at the beginning of this century widely used for a mixture of equal parts of tinct. camphor. co., syrup of tolu, and oxymel of squill, the origin of which, according to tradition, was that a hospital patient mentioned the superior qualities and the miraculous cure obtained from the medicine given by the village lady bountiful, who on inquiry revealed its composition, and thus insured its further employment at St. Bartholomew's Hospital. A somewhat similar linctus at St. George's Hospital was once familiar as (J. W.) Ogle's drops. These are examples of how great clinicians may be best known on account of their least profound achievements. Addison's, or more correctly Baillie's, pill is another. In 1932 Izod Bennett, Donald Hunter, and Janet Vaughan¹ contributed a monographic and well-illustrated account of "idiopathic steatorrhœa (Gee's disease)," which Gee² described in children as coeliac disease in 1888, and C. A. Herter rediscovered twenty years later. The valuable article in 1932 was based on fifteen adult cases. In September last Izod Bennett³ published, under the sole title *La Maladie de Gee*, a shorter account of this complex metabolic disorder. Thus may be revived abroad, and in a country where Trousseau in the past generously introduced the eponyms "Graves's disease" and "Addison's disease," the memory of a great British physician whose name in this country should be kept green by the collection of "Gee's aphorisms" made by his pupil and follower Lord Horder.

CARBON DIOXIDE FOR THE NEWBORN

The introduction of carbon dioxide in oxygen in a proportion of 5 to 7 per cent. for the treatment of various types of respiratory failure has an obvious application in the newborn, and workers in various centres have not been slow in availing themselves of this method. There are, however, certain details to be observed, which are well set out in a recent article⁴ from Bordeaux by Drs. G. Péry, J. Cardus Llanas, and J. Duffour, the last-named being a "chemical engineer." The first step in the treatment of respiratory failure in the newborn, according to these authors, is to clear the respiratory passages of all obstruction, especially that by mucus. It is pointed out that excessive mucus provides a barrier through which carbon dioxide cannot penetrate, and it is also recognized that the pressures used in the insufflation of the carbon-dioxide-oxygen mixtures may well drive mucus still deeper into the pulmonary tissues unless it is first removed. While this principle is a most important one, it cannot be said that the method advised—nor any of those commonly employed—constitutes the ideal. The authors recommend that the baby be suspended by the feet and the back rubbed to encourage the passage of mucus to the pharynx, from which it is removed by means of a finger wrapped in gauze. Then a special insufflation tube is introduced into the trachea. It is obvious that, as such a measure appears to be necessary, a suction apparatus might well be then applied to extract mucus without such disturbance of the child as is indicated by the

¹ Bennett, T. I., Hunter, D., and Vaughan, J. M.: *Quart. Journ. Med.*, 1932, N.S., i, 603.

² Gee, S.: *St. Bart's Hosp. Rep.*, 1888, xxiv, 17.

³ Bennett, T. I.: *Presse Méd. Paris*, 1934, xlii, 1459.

⁴ *Journ. de Méd. de Bordeaux*, April 30th, 1934, p. 315.

manipulations referred to. To the insufflation tube is attached a neat metal device consisting of a tube with a side inlet connected to the supply of carbon dioxide and oxygen. There is a movable inner tube, open to the air and also with a side opening. When this is depressed by the finger or thumb the carbon dioxide mixture flows into the trachea; when released, a spring raises the inner tube and closes the inlet, and expired air escapes through the upper opening, from which the finger or thumb has been withdrawn. The supply of carbon dioxide and oxygen (5 to 7 per cent.) is contained in a rubber bag of five-litre capacity. During the inspiration phase the attendant presses down the metal tube with one hand and with the other squeezes the rubber bag with whatever pressure is deemed necessary for the individual child. During the expiratory phase the hand pressing on the metal tube releases this, while that used for the rubber bag is now transferred to the chest of the infant to compress the thorax. Artificial respiration is continued in this way until a satisfactory cry is produced. It is then recommended that the insufflation tube be removed and further carbon dioxide and oxygen given, by means of a mask if necessary. In the conclusions to the paper the authors also suggest that, if no response is obtained after artificial respiration in the manner described, lumbar puncture should be performed, followed by repeated measures to stimulate breathing. This would appear a drastic way of reducing intracranial pressure which, at such a period in neo-natal life, must be due to a large haemorrhage. The important points brought out by the authors are the absolute necessity of clearing all obstruction from the respiratory tract and the value of positive pressure insufflation into the trachea. The method recorded is certainly an advance towards the ideal when a combined suction and insufflation apparatus can be satisfactorily elaborated.

BILHARZIA DISEASE IN ENGLAND

Dr. J. B. Christopherson and Mr. R. Ogier Ward have lately published a note¹ on bilharzia disease in England, in which they describe the case of a young man who, on his return home to England from South Africa, suffered several attacks of haematuria and pain in the loins. Ova of *Schistosoma haematobium* were discovered in the urine by Dr. Cuthbert Dukes, and the authors give an account, with coloured illustrations, of the cystoscopic appearance of the bladder before and after intravenous injections of sodium antimony tartrate. The patient was kept under observation after treatment, and three years later, when last seen, he was in normal good health, and had been free from all urinary symptoms since the course of antimony. Bilharzia disease, though it not infrequently crops up in England, is always imported. There is on record nowhere a well-established case of the infection having been contracted in the British Isles. Biologically, the authors say, it would not appear impossible for the disease to thrive and to pass from one person to another in this country. "There are stretches of fresh water—for example, at Frensham and Fleet in Surrey, and in other localities—where soldiers bathe whilst at home from abroad in water which harbours species of snails which,

given the opportunity, might function as the necessary intermediate hosts; but there are few days in the year when the miracidium in the ovum would hatch out and survive in the free state and infect the snails. The British climate preserves the country from endemic bilharzia disease."

LET THERE BE LIGHT!

Directors of research laboratories are not commonly noted for powers of vivid expression either in the spoken or in the written word. Dr. Matthew Luckiesh is an exception to this generalization. Since 1915 he has written a series of books on lighting. Some have dealt with the technical aspects of the matter, in others he has sought to bring technical achievements in illumination to the notice of the public. His latest book, *Seeing and Human Welfare*,¹ is a typical piece of propaganda. His theme is the folly, the costliness, and the danger of working or allowing anyone to work in a poor light; and the wisdom, the economy, and the safety of providing a superabundance of light. In a former book his enthusiasm for artificial lighting led him to suggest its superiority over the variable natural light for interior illumination. Here his text might be the splendour of sunlight and the poverty of our common conception of artificial light. The intensity of illumination at midday in summer has been nearly as high as 10,000 foot-candles; even in the shade of a tree it is about 1,000 foot-candles. Daylight indoors is restricted by windows, and its distribution is often unsatisfactory; there may be 200 foot-candles near the window, and only 2 foot-candles ten feet away. A 100-watt lamp may give a light equivalent to 100 candles at a distance of one foot, but the intensity of illumination ten feet from it is about the same as that of one candle at a distance of one foot—a wholly inadequate light for detailed work. Dr. Luckiesh discusses the visibility of objects and the illumination required for various types of work. In all categories he demands standards about twice as high as are commonly accepted; and his standards, he says, are not ideal.

LEWISHAM HOSPITAL

Lord Dawson of Penn asks us to give him an opportunity—and we gladly do so—of amplifying his speech at the opening of the Lewisham Hospital extension on October 9th.² "To praise Dr. Nockolds, the medical superintendent," Lord Dawson says, "is no mere compliment; the Lewisham Hospital owes a large part of its attainments and reputation to his excellent administration. In my reference to the matron I wished to pay tribute to the admirable nursing school at the Lewisham Hospital and the educational reputation it has gained under her direction."

The fifth annual reports of the National Radium Trust and Radium Commission, for the year 1933-4, are published to-day by H.M. Stationery Office (Cmd. 4711. 9d.).

¹ *Seeing and Human Welfare*. By Matthew Luckiesh, D.Sc. Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. (11s. 6d.)

² *British Medical Journal*, October 13th, p. 684.

¹ *British Journal of Surgery*, 1934, xxi, No. 84.

ONE HUNDRED AND THIRD ANNUAL MEETING
of the
British Medical Association
MELBOURNE, 1935

THE British Medical Association will hold its 103rd Annual Meeting in Melbourne, Australia, during the week beginning September 9th, 1935, under the presidency of Sir Richard Stawell, K.B.E., M.D., consulting physician to the Melbourne Hospital. On three occasions—in 1897, 1906, and 1930—the Association has met outside the British Isles, and each time in a Canadian city. The Sectional sessions for scientific and clinical work will be held on Wednesday, Thursday, and Friday, September 11th, 12th, and 13th, the mornings being given up to discussions and the reading of papers, and the afternoons to demonstrations. The Annual Representative Meeting for the transaction of medico-political business will take place in London at the Association's House on Friday, July 19th, and following days.

Members travelling to Australia through the United States will sail for New York from Southampton on Saturday, July 27th; if travelling by the Canadian route to San Francisco, they will sail for Montreal from Liverpool on July 26th, or from Glasgow on July 27th. Particulars of the two routes were given in our *Supplement* of March 10th. All arrangements in connexion with the journey are in the hands of the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, London, W.C.1, to whom early application should be made for further details, and for reservation of places on steamers and trains and at hotels. Members who cannot afford to be away for the whole time of the "round-the-world" tour, but who wish to attend the meeting, may leave London on August 8th, travelling overland to Toulon and embarking there on a P. & O. liner which arrives at Fremantle on September 3rd. The journey on to Melbourne takes three days by rail, so that those who follow this route will reach their destination on September 6th, three days before the meeting opens. On the social side those responsible for organizing the Melbourne programme are making every effort to ensure that the event shall be worthy of the occasion, and a very warm welcome may be counted on from our Australian colleagues. During the outward and homeward journeys the official B.M.A. party from the British Isles hopes to establish personal contact with many other Branches of the Association.

The honorary local general secretary for next year's Annual Meeting is Dr. J. P. Major, Medical Society Hall, East Melbourne, Victoria. The names of the Presidents of the fourteen Scientific Sections were given in the *Supplement* of August 25th; and the full list of officers, with provisional programmes, etc., will appear in subsequent issues. We publish below the first of a series of descriptive and historical articles on the city of Melbourne and its medical institutions.

A HISTORICAL SKETCH OF THE CITY OF MELBOURNE

For forty-five years after the first settlement of Australia the fertile region which is now the State of Victoria remained practically unoccupied. Twice had an official outpost been established on its shores, only to be withdrawn again after a short period; and once, in 1824-5, an exploratory journey from the outlying settlements of New South Wales had revealed the country lying back from the coast as well fitted to carry the flocks and herds which were becoming the principal pre-occupation of enterprising settlers. From the island colony of Tasmania, where accessible sheep-lands were limited, longing eyes were being cast on the virgin pastures just across the straits; and at length, in November, 1834, the ice was broken by a bold adventurer, who planted himself on the shores of Portland Bay. A few months later several Tasmanian colonists visited Port Phillip to view the country, and in September, 1835, two rival parties, organized respectively by John Batman and John Pascoe Fawkner, camped side by side on the banks of the Yarra River at the head of Port Phillip Bay. From this encampment sprang up a small straggling village of turf huts and one or two weatherboard houses, which was the progenitor of the city of Melbourne.

It was the policy of the British Government at that time to discourage the dispersion of settlers beyond certain defined limits in New South Wales, and in duty bound the Governor of the Colony issued a notice warning off the intruders from the south. At the same time he wrote to the home authorities pointing out the impossibility of restraining the spread of pastoral occupation, and suggesting that he should be authorized to bring the new-

comers under official control by establishing a regular township on the southern coast. This suggestion was adopted, and in September, 1836, twelve months after that first encampment at Port Phillip, Sir Richard Bourke sent a police magistrate thither to take charge of affairs.

In March, 1837, the Governor himself journeyed south to decide upon the site of the new town. "I found on my arrival on the spot selected for a settlement . . . on the banks of the Yarra River," he reported to the Secretary of State, "an assembled population consisting of from sixty to seventy families. The situation appearing to be well chosen, I directed a town to be immediately laid out, which your Lordship will perceive from the map has received the name of Melbourne." Streets were pegged out without regard to existing habitations, and on June 1st, 1837, the first sale of building allotments was held. With the country round about it filling up with pastoralists from Tasmania and also from the older settlements of New South Wales, the new town made at first phenomenal progress. By the end of 1839 it must have had a population of something like 3,000, and in 1842 it was deemed of sufficient importance to be incorporated and to have a mayor and town council.

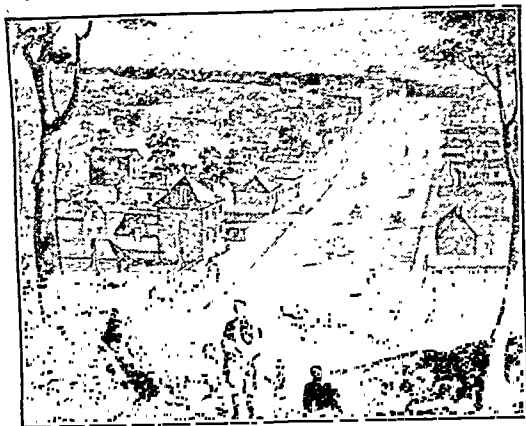
Notwithstanding the wave of financial depression which followed the "boom" of the early 'forties, Melbourne had by 1845 acquired several respectable places of worship, a theatre, and one or two substantial Government buildings. The official census of the following year showed a population of 10,000; and in 1848 the town was made the see of the bishop and raised to the dignity of a city.

Victoria Becomes an Independent Colony

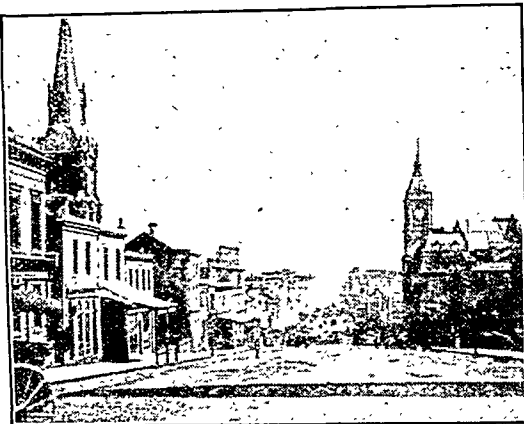
After several years of agitation the Port Phillip district was separated from New South Wales, and became the independent Colony of Victoria in 1851. Following hard on this event came the discovery of rich goldfields within

built, and extensive Government buildings, including stately Houses of Parliament, were begun.

By 1861 Melbourne and its suburbs, most of which now had municipal councils of their own, housed 140,000 people. The older city of Sydney was left far behind,



EARLY VIEW OF COLLINS STREET.



COLLINS STREET IN THE 'SEVENTIES

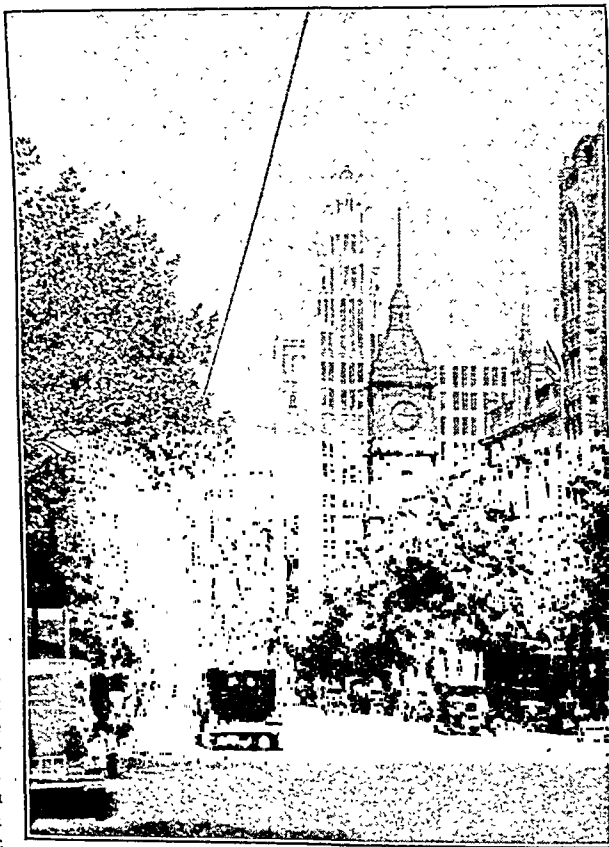
its boundaries and a rush of immigration, mainly from Great Britain, to the new Eldorado. From 1852 to 1854 the average number of oversea arrivals in Victoria was 90,000 per annum. Although Melbourne was now a city with 20,000 inhabitants, it could not cope for long with the demands made for accommodation by this horde of gold seekers. The result was the growth of a large camp on the waste lands to the south of the river, which at one time held nearly 5,000 people. "Canvas Town," as it was called, was under the control of the Crown Lands Commissioner, and was laid out in regular streets and lanes; but it was only a temporary expedient, and by 1854 it had begun to dwindle out of existence. Things were settling down, and the huge access of population was making itself felt by causing rapid suburban expansion and stimulating social developments generally.

The "Land Boom" and Its Effect on Melbourne

Between 1854 and 1859 Melbourne held its first exhibition, in a miniature "Crystal Palace" hastily erected in William Street. A suburban railway system was inaugurated, and a university and a public library were founded; a water-supply and gasworks were established; footpaths were paved and roadways macadamized; a volunteer fire brigade system was developed; the first town hall was erected—a remarkable record for a city little more than twenty years old. Three large theatres were also

and for a full forty years Melbourne was the leading centre of population. The 'sixties and 'seventies was a period of steady progress, with the growth of buildings, especially of churches, of an increasing dignity, but without

any spectacular developments. The great International Exhibition of 1880-1, however, ushered in an era of striking changes, surpassing even those of the "gold rush" period. Between 1881 and 1891 the population of Melbourne increased from 282,000 to 490,000. Capital was pouring into the country for investment, and speculation in land was feverish and extravagant. It was indeed a time of artificial prosperity, known to later generations as the "land boom"; but its permanent effects on the city were remarkable. From a fair-sized provincial town it was transformed into a modern metropolis. Buildings eight and nine stories high sprang up as if by magic. A cable tramway system was constructed, and electric light and telephones were introduced. The course of the river was widened and straightened, eliminating the danger of floods, which had been a recurring trouble in the past, and new and



COLLINS STREET, MELBOURNE, 1924.

handsome bridges were erected to connect the northern and southern portions of the metropolitan area. A Melbourne Metropolitan Board of Works was constituted, and the installation of a modern sewerage system was begun.

The "boom" was followed by a severe depression, fortunately mainly local and therefore temporary. In a few years there were signs of recovery, and with the inauguration of the Commonwealth in 1901 Melbourne again came into prominence as the temporary seat of the Federal Parliament, which met there for over a quarter of a century, pending the building of the Federal capital. In 1903 electric tramways were introduced, which have gradually replaced nearly the whole of the older cable ones, and between 1918 and 1925 the entire suburban railway system was electrified, providing a passenger service well able to stand comparison with that of any city in the Old World.

The Modern City

Greater Melbourne of to-day covers an area of 200 square miles, and includes some twenty-seven or twenty-eight independent cities, with a total population of nearly a million. It has 146 miles of tramways, and its parks and gardens have an area of over 8,000 acres. The latter include the beautiful Botanical Gardens, situated on the banks of the Yarra close to the city, and the Treasury and Fitzroy Gardens, which are on the confines of the business centre. A broad, leafy boulevard, the St. Kilda

Road, leads southward from the Prince's Bridge, adorned by numerous statues and monuments, and its vista closed in by the great War Memorial Shrine erected between 1928 and 1932. At the entrance to the city stands St. Paul's Cathedral, erected nearly fifty years ago, but its graceful spires only recently completed. The Town Hall and Elizabeth Street Post Office are both buildings worthy of a great metropolis, and the Public Library has a reading room similar in construction to that of the British Museum, but much loftier. The same building houses the National Gallery, one of the most richly endowed galleries of the British Empire.

At the east end of the city stand the Houses of Parliament and the principal Government offices, besides Melbourne's second cathedral, St. Patrick's. To the north lies the University, occupying, with its affiliated colleges, over 100 acres of ground, and attended by some 3,000 students. Beyond the spreading miles of suburban streets, one can glimpse a distant view of surrounding hills, and it is among these that the people of Melbourne build the week-end homes to which they retreat in the summer season; while southwards, along the eastern shores of Port Phillip Bay, stretches a long line of watering places equally favoured in the holiday season.

A. W. GREIG.

HEALTH AND HUMAN PROGRESS

A MEDICO-SOCIOLOGICAL SURVEY

*L'Economie Humaine par la Médecine Sociale*¹ by Dr. René Sand is a really remarkable book. The writer of this notice has had occasion to read, and to be grateful to, many books on medical sociology, but this book is in a class by itself. The previous work of Dr. Sand had made it clear that anything coming from him on a subject he has made his own was to be received with respect and gratitude, but into this particular volume he has poured all his great knowledge and his gift for attractive presentation in such measure that it may be regarded as the complete guide to all interested in citizenship and not least to the medical profession; and it is not only a guide, but an inspiration. M. Herriot, in a preface, says that Dr. Sand's programme may be summarized as a "demand that we make use of progress instead of being subjected by it." The thesis of the book is that human life could be so much richer for all than it is now if we would take the trouble to make it so; that much progress has been made but that much still remains to be done; and that medicine in its widest sense has been a very great factor in human progress and will be even more important in the future.

The difficulty about a book so rich in material is to select. Every chapter might well form the subject of an article. Dr. Sand sees in the widely spread reduction of the birth rate something which is forcing the politicians of the world to realize that preventable sickness and premature death are an intolerable waste of human material, and that social medicine is a factor in human economy which must be encouraged and organized far more than it has been. He shows with a wealth of illustration that "we can buy human life, and every country fixes for itself, within certain limits, its own death rate." He defines social medicine as the art of prevention and cure considered as "something which links the health of men to their condition as human beings." He classifies the elements of the populations of various countries according to their financial resources, and arrives at what he calls a balance sheet of sickness and death. He points out that the increase in deaths in certain categories is a sign of progress when the deaths occur at the more advanced ages.

¹ *L'Economie Humaine par la Médecine Sociale*. By René Sand. Preface by M. Edouard Herriot. Paris: Les Editions Rieder. 1934. (39 fr.)

In an interesting survey of the causes of death (in which great appreciation is shown of the returns of our Registrar-General) Dr. Sand shows that, after tuberculosis, the most frequent cause of death in young women is child-birth, and he suggests that the stationary or even increasing maternal mortality rate is probably due to the results of abortion, though he admits that it is difficult to secure figures to prove this. According to confidential medical reports received from certain German towns the number of abortions there exceeds that of accouchements. Contrary to what might have been expected, at any rate in this country and in New Zealand the deaths from external causes have not increased in spite of mechanization and the motor car, nor is urbanization tending to increase the death rate, the infantile rate in the towns in many countries being lower than that of the rural areas, though in the later ages the country has an advantage. In these matters as in all others the author's conclusions are supported by figures and illustrations taken from all countries.

HEALTH AND INCOME

On the financial cost of sickness he is very illuminating, and his discussion in Chapter V of the argument that the effects of natural selection are paralysed by hygienic measures is worth serious consideration. He is convinced that health depends mainly on income, and he goes into much detail regarding the physical differences at different ages of the various classes of population. His examinations in Chapter VI of "The Inequality of the Classes in Respect to Sickness and Death" and in Chapter VII of "Heredity and Environment," lead him to the conclusion that, "in general, heredity and selection are not the dominating factors in the biological inequalities ascertained as between the several classes." He discusses very fully the theories of the Karl Pearson school, and gives his reasons for dissenting from them.

There is a typically interesting footnote in Chapter VIII on "Heredity Factors," in which he says that the now widely spread opinion that unions between groups ethnically different (Nordic, Mediterranean, Alpine, etc.) are unfavourable from the hereditary point of view is not proved. "Each ethnical group has its own 'hereditary patrimony' which in total is different, but it has not been proved that any one of these patrimonies is in total superior from the biological point of view, and, besides, very few, if any, nations have a homogeneous ethnical population. The Jews were already a composite nation before

their dispersal." He estimates that the population of the world has quadrupled since the eighteenth century and doubled in the nineteenth, and gives figures showing the countries in which the population is increasing, stationary, or decreasing.

On the question of contraception he points out that in Holland, where for thirty years the teaching of contraceptive methods has been legalized and encouraged, the birth rate is 20 per cent. higher than in Belgium, where such teaching is prohibited, and suggests that from the point of view of morals Holland has no reason to fear comparison with its neighbour. Dr. Sand gives much information as to the various suggestions put into practice from the eugenic point of view, and is against family allowances, premiums for births, and assistance to large families, on the ground that these methods encourage the inferior as much as the superior.

Chapter X, on "Professional Factors," gives a full résumé of the rates of mortality in different callings, and figures relating to morbidity, where such are available. There is an interesting discussion whether the higher mortality rate of women workers is due to sex or to the economic factor which compels married women to work. The Baltimore inquiry, which he frequently quotes, showed that even in comparable economic groups the fact that a mother worked away from home had a detrimental effect on the health of the children, but he sees no reason why this need be so, given proper organization.

MEDICINE AND INDUSTRY

The section on the connexion of medicine with industry is very full, and the author points out that this is no new thing, for so far back as 1575 a book on this subject was published by a Spanish physician, Juan Huarte, which had no fewer than twenty-five Spanish and thirty-six other editions. After an acute analysis of the evils caused by industrialism to the individual and the family Dr. Sand concludes that it could easily be turned to the physical, mental, and moral advantage of those concerned, and he gives examples. He is convinced that the slum and unemployment are the two main barriers to the progress of human society. He emphasizes the necessity of promoting the dignity of labour, and points out that in New Zealand, which has done most in this direction, there is not only a lower death and sickness rate than in any other country, but less discontent. Dealing at considerable length with the housing question he concludes that a workman should not be obliged to pay more than one-sixth of the family income in rent.

In his later chapters he further emphasizes his doctrine that all our material existence is conditioned by income, which not only affects health and comfort but intellectual life and morality. Poverty is the enemy. In the long run the community pays for the deficiencies of the employer. Wages inferior to human needs cannot be justified, and, whereas up to the middle of the nineteenth century "neither the peasant nor the townworker could be assured of his daily bread, to-day whole nations are now so rich that all could be properly nourished, housed, clothed, and educated."

SOCIAL INSURANCE AND THE HEALTH SERVICES

He is strongly in favour of social insurance as a preventive of poverty, but believes that the ideal system is one which gives the insured person an interest in not making claims, so that he can make use of money which has been saved by his self-denial for other purposes. Discussing the part played by public and private effort he believes in both, but decides that the major role must be undertaken by the community. The example of the United States of America shows that private effort, however generously supported, cannot take the place of social insurance.

In Chapters XII, XIII, and XIV Dr. Sand makes many suggestions for further advances. He deprecates the waste of effort involved in the multiplication of agencies very imperfectly co-ordinated. He favours health centres, and

alludes to the proposals of Lord Dawson's Committee and the experiment of Drs. Scott-Williamson and Pearse, but thinks it is wasteful to dissociate preventive and curative medicine. The hospital should be the centre for all health work, and he urges the medical profession in this matter to be not only preventive and curative but constructive. Education, though invaluable, will not deliver the individual from his prejudices and weakness, as is shown by the "unpardonable hygienic misconduct of even the best-educated people." The teaching of hygiene in schools is absent in many countries and very imperfectly developed in all. "One becomes an engineer or an officer without having any conception of the role of hygiene in the workshop or the regiment; one founds a home knowing little or nothing of domestic hygiene or how to bring up children."

The book of 285 pages, with a bibliography and list of authors cited, ends in a chapter of sound reasoning and sober eloquence in which an optimistic note is struck, in spite of the sentence in which the author declares: "There are whole continents in which people live under the weight of poverty and disease; for many human beings life is still narrow and sordid; technique serves but dominates us; work is deprived of its joy; thirty million unemployed denounce the incapacity of their rulers; and the spectre of war is not yet laid. Is our task impossible or merely unfinished?" Dr. Sand leaves us in no doubt that in his opinion, given the necessary vision, good will, and organized capacity, the liberation of the world will go on, and that in the future as in the past the medical profession will play a great part, though it must realize far more than it does now the necessity for co-operation with other agencies.

The figures and examples given by Dr. Sand come from nearly all countries, but it is gratifying to find that the author frequently has reason to quote British practice, and his acknowledgements of Sir George Newman's work are frequent and handsome.

We have necessarily given a cursory view of a great book, full of information, practical suggestion, and inspiration. It calls urgently for an English translation, which should be brought to the notice of all who are interested in the important problems it discusses.

Researches conducted during 1933 at the South African Institute for Medical Research included the testing of the potency of concentrated anti-plague serum; this was found to correspond almost exactly with the degree of concentration, thus indicating that concentration up to four times the strength could be achieved. It is stated also, in the annual report of the Institute, that prophylactic pneumonia vaccine for native miners has continued to prove highly satisfactory. A publication embodying the results of the extensive experimental and other work performed in this connexion will be issued shortly. Studies of pneumonia on the Witwatersrand prove that in the native, at any rate, a pneumococcus of the heterogeneous Group IV can be responsible for acute respiratory conditions. All the meningococci recovered from patients during the year proved to be aberrant strains, showing no correspondence with agglutinating meningococcal sera of the recognized local or overseas groups. Rabies infection is assuming more serious proportions in South Africa, and now threatens households through the cat, the tame mercat, and, occasionally, the dog. It has been shown that the rabies vaccine used locally has some value in protecting rabbits against a fatal dose of South African rabies street virus. Attempts to secure early diagnosis of cancer, by various serological methods, proved unsuccessful. An inquiry into the causes of malnutrition has been inaugurated on a broad basis. Data are being collected as regards the heights and weights of children and young adults, and also on the lines recommended by the American Children's Health Association, which are based on comparison of the relations between height, chest width and depth, hip width, and arm circumference—discarding weight as being fallacious. This will pave the way for subsequent study to be undertaken of the values of various foods.

MOTOR CARS FOR 1935

THE OLYMPIA SHOW

[FROM OUR MOTORING CORRESPONDENT]

(Concluded from page 693)

Coupled with their efficiency for modern conditions of traffic, which render exceptionally high speed almost impossible, the existing economic stringency has resulted in cars of 10 horse-power continuing to form one of the most popular types, and, despite the reduction of 25 per cent. in the annual tax as from January 1st next, it would seem that manufacturers are anticipating a continuance of "Ten" popularity, inasmuch as such cars are now being built by no fewer than six makers—namely, Austin, Ford, Hillman, Morris, and Standard, with the Singer Company producing both 9- and 11-h.p. vehicles.

A PRICE ANALYSIS

An analysis of car prices tends to indicate that the vehicles most suitable for medical men fall in the £250-£350 category. Even below these figures there is a wide selection of cars which will fully meet the needs of many doctors and give satisfactory service. Thus up to £150 there is a choice of five covered cars—the remodelled Austin Seven, the 8-h.p. and 10-h.p. Fords, the new Morris Eight, and the Standard Nine. Between £150 and £200 there is a selection of nearly fifteen models, ranging from the Austin Ten at £158 to the Wolseley "Hornet" at £198 10s. Again, between £200 and £250 there are no fewer than sixteen different cars, from the Vauxhall Light Six at £205 to the new front-wheel-drive Citroën at £250. Noteworthy cars in the £250-£300 group are the 16- and 20-h.p. Hillmans at £269, and the 16- or 20-h.p. Morris Oxford at £285, all with six-cylinder engines. Finally, between £300 and £350 there are the Lanchester Ten and the B.S.A. Six, both with self-changing gear, and the Vauxhall Big Six.

INCREASING POPULARITY OF COUPÉS

As mentioned last week saloons continue the most popular in motor body designs. A walk round the Exhibition reveals, however, that it is now being closely pressed by the coupé type of vehicle, this being mostly of the foursome variety—that is to say, having accommodation for four people. As, however, this type is what is known as close-coupled, the leg room for the rear passengers is not usually so liberal as in a saloon. Much ingenuity has been shown in the design and construction of coupé drop-heads, which enable the car to be used either entirely or partially open, or completely closed.

In the following notes on the different makes of car on view reference is only made to those which, in design and cost, are likely to appeal to doctors.

ARMSTRONG-SIDDELEY AND AUSTIN

Only detail improvements have been found necessary in the range of Armstrong-Siddeley six-cylinder cars, which are notable for their preselective self-changing gear-box. The popular 12-h.p. saloon has been reduced from £300 to £295, or with special equipment £305, while for those requiring a more powerful car with greater passenger room there is a 15-h.p. saloon at £435 and a new 17-h.p. model at £465. The Austin Company is for the 1935 season retaining its range of cars from the "Seven" to the "Twenty," but with numerous improvements, including synchromesh gears on three of the four speeds, sloping radiator front, and a combined luggage carrier and spare wheel compartment. The popular "Baby" has been largely redesigned, and has been reduced in price, the saloon with fixed head being now listed at £112, or with sliding roof £128. Useful models for doctors' use are the Austin 10-h.p. saloon at £172 10s., or cabriolet at £178; the "Light Twelve-Four" and "Twelve-Six" at £218 and £235 respectively, the last-mentioned being available with either 13.9- or 15.9-h.p. engine at the same price, and the old but modernized 12.8-h.p. four-cylinder car, with five types of saloon body, costing from £275 to £325.

BRITISH SALMON, B.S.A., AND CITROËN CARS

An interesting newcomer is the British Salmon 12/55-h.p. four-cylinder car, which with saloon body is priced at £395. Continuing its distinction of being, with the Lanchester, the lowest-powered vehicle available with the Daimler fluid fly-wheel and preselective change-speed gear, the B.S.A. 10-h.p. car embodies only detail improvements, except that a model with a slightly longer wheel-base has been added. Prices of saloons range from £210 to £245. The chief B.S.A. innovation is the introduction of a 12-h.p. six-cylinder car embodying all the chief features of the "Ten," available in either saloon or fixed-head coupé from £315. Reference was made last week to the new Citroën 12-h.p. four-cylinder car with front-wheel drive and special body work contrived so as to obviate the employment of the usual chassis frame. Although a striking departure from the usual practice, the new vehicle has been subjected to exhaustive tests, and has become very popular in France. As a saloon it is listed at £250. Other Citroën cars of conventional construction and improved in detail include a "Ten" (11.8-h.p.) saloon at £225, a "Light Twelve" at £235, and a "Big Twelve" at £245, all with four-cylinder engines, and a six-cylinder "Light Twenty" at £285.

CROSSLEY, DAIMLER, AND FIAT

Of the four Crossley cars for the coming season the one which attracts attention is the 10-h.p. four-cylinder "Regis," which at £325 now embodies as standard a four-speed preselective self-changing gear-box, as well as detail improvements. The "Bailla" 11-h.p. car of the Fiat Company is continued, but with a slightly longer wheel-base, providing more room in the pillarless four-door saloon. The gear-box now also provides four speeds—two of which are synchromesh—instead of only three. The price is £210. There is also the 15-h.p. "Ardita" four-cylinder saloon, which has been reduced from £375 to £350. The Daimler 15-h.p. six-cylinder car, the price of which remains at £450, while subject to the same tax as hitherto, has been provided with a slightly longer stroke engine; the body work has also been improved in detail.

FORD AND HILLMAN

The 1935 range of Ford cars—not at Olympia, but at their own display at the Royal Albert Hall—is attractive. The Ford "V-8" is probably the cheapest eight-cylinder car on the market. Chief sales during the past year have, however, been of the popular little 8-h.p. four-cylinder car, which is being continued at reduced prices, while to the range has been added a similar car but with 10-h.p. engine, selling as a two-door saloon at only £135 and with four doors at £145. Numerous detail improvements have again been introduced in the popular Hillman "Minx" 10-h.p. cars, the prices of which in saloon form range from £159 to £185, or £225 for a foursome drop-head coupé. The principal innovation is a four-speed gear-box incorporating the synchromesh principle on all speeds. For medical men requiring a more powerful and more roomy car there is a family saloon with either 16-h.p. or 20-h.p. engine at £269, or in *de luxe* form at £295.

HUMBER, JOWETT, AND LANCHESTER

Although the Humber productions consist chiefly of cars of relatively high horse-power, the range includes a 12-h.p. four-cylinder, the price of which, in view of the many detail improvements in both chassis and body work, has been raised from £265 to £285. The gear-box of this car has now synchromesh gears on all four speeds. Despite the fact that the 7-h.p. Jowett continues as the only car having a two-cylinder engine, its reliability and low running costs have secured for it the support of many motorists. The standard sliding-roof saloon, which sells at £160, has been improved in detail, particularly as regards the mounting of the engine to obviate any vibration. There is also the "Kestrel" *de luxe* saloon at £175, in which a controllable free-wheel is provided in connexion with the four-speed gear-box, and a "Curlew" saloon at £185, which, in addition to the free-wheel, has a special centrifugal clutch. The chief innovation in the Lanchester programme is that, while continuing the four-cylinder "Ten," the makers have introduced a new 12-h.p. model on the same chassis but with six-cylinder engine. Both cars are of high-grade construction, and

embody the Daimler fluid fly-wheel and four-speed self-changing gear. Prices of the "Ten" saloons range from £310 to £335, and of the "Twelve" from £365 to £375.

MORRIS, RILEY, AND ROVER

The chief feature of the 1935 Morris programme is the introduction of an entirely new "Eight" four-cylinder car replacing the "Minor" of former years. Mounted on a special box-section frame, the saloon body has comfortable accommodation for four persons, while the fittings and accessories are as comprehensive as those on the larger cars. At £120 for the two-door and £130 for the four-door fixed-head saloons—sliding roofs costing an additional £12 10s.—it is a model that is bound to become very popular. The "Ten-Four" and the "Ten-Six," two noteworthy Morris productions, have only been improved in detail and provided with slightly larger tyres, a similar description applying to the two models hitherto known as the "Cowley," but now styled the "Twelve-Four" and the "Fifteen-Six." The Morris "Oxford," a very popular car with many medical men, is continued with but slight changes at £285 for the fixed-head saloon and £305 for a sliding-head coupé, a choice of either 16- or 20-h.p. engine being also given. A change in the Morris cars which may be briefly mentioned is that the accelerator pedal is now at the right of the brake pedal instead of central as hitherto. A wider choice of external body colours in either single or double tones is also now available. The Riley cars, which are mainly of the sports type, may appeal to many of the younger members of the medical profession. The "Nine" is being continued with detail improvements, and, known as the 14-litre model, there is a new 12-h.p. four-cylinder car with saloons at £335 and £345. For 1935 the Rover Company is producing two four-cylinder cars—10.8 and 11.9 h.p.—with saloons at £248 and £278, and two "Sixes," of 13.8 and 19.8 h.p. Such features as the clutchless gear-change and controlled free-wheel are being retained, while new points of merit include automatic chassis lubrication and the rust-proofing of all exposed metal parts of the chassis.

THE SINGER AND STANDARD CARS

The Singer Company has a very attractive range of cars for the 1935 season, notable, on certain models, for such innovations as the "fluidrive" transmission and independent front-wheel suspension. The "Nine" four-cylinder saloon costs either £162 10s. or £185 in *de luxe* form, and the 11-h.p. car £245 as a saloon or £275 as a drop-head coupé. There are also 14-h.p. and 16-h.p. six-cylinder models with saloons at £259 and £295 respectively. Mechanically, the Standard cars show but little change from last year, but the body work has been brought into line with modern tendencies. At the lower end of the scale is the "Nine," at saloon prices ranging from £145 to £175. Next are the "Ten," of which five types are available from £185 to £245, and the "Twelve" at £219 to £239. In addition to these four-cylinder cars there is a "Sixteen-Six" *de luxe* saloon at £285.

Vauxhall and Wolseley

The Vauxhall Company provided one of the Show surprises by the introduction of a new version of the "Light-Six" car, which has proved very popular during the past year. The chief innovation is the adoption of independent front-wheel or "knee-action" springing, which is claimed to result in much more comfortable riding, especially when travelling over bad roads. Other improvements comprise lower and roomier body work, a built-in luggage boot, and an easy jacking system. Retaining the "no draught" ventilation arrangement and synchronized easy gear-change, this 12-h.p. car is now priced as a standard saloon at £205, or in *de luxe* form with either 12-h.p. or 14-h.p. engine at £225. Another Vauxhall production which is proving very successful is the "Big Six," which, with either a 20-h.p. or 27-h.p. power unit, is priced at £325. The Wolseley Company is continuing its popular "Nine" four-cylinder car, which as a saloon costs £178, and the 12-h.p. six-cylinder "Horriet" at £198 10s. The latter is now fitted with a special preselective three-speed gear-box. New six-cylinder models are seen in a 14-h.p. four-speed saloon at £240 and an 18-h.p. at £340. A Crossley with engine at the rear is not being shown this year, the only

British car of this type being the 10-h.p. Trojan, a feature of which is the employment of a four-cylinder two-stroke power unit. Curiously enough, the only other rear-engined vehicle in the exhibition is located on the adjoining stand of the German Mercedes-Benz Company. This is a 12-h.p. four-cylinder vehicle with the engine, gear-box, and differential mounted as a unit behind the back axle, which latter is carried by two powerful spiral springs in place of the usual semi-elliptics.

TYRES AND CAR SERVICE

The tyre section, while revealing no startling departures, shows that the competition between the different manufacturers is such as to result in even better tyres than ever, as much as regards their non-skidding qualities as their long-wearing life. Once a prolific cause of trouble and worry, the modern tyre, when accorded a modicum of regular attention, especially as regards the maintenance of the recommended air pressure, may be depended upon for many thousands of miles of reliable service. The Avon Company is continuing its duo-tread tyre introduced a year ago, while the British Tyre and Rubber Company (formerly Goodrich) has introduced a tyre incorporating in the construction of the cover what is known as a "golden-ply" impregnated with rubber compound, which is said to be heat-resisting, and consequently ensures freedom from tyre bursts.

Although of interest chiefly to the trade, a visit to the garage and service station equipment section of the exhibition reveals the many noteworthy appliances which are now available for the rapid and efficient carrying out not only of chassis lubrication and tyre inflation, but for such renovation and repair work as cylinder boring, valve grinding, decarbonizing, brake testing and relining, etc., all of which should have their effect in keeping users' car maintenance costs down to the minimum.

ACCESSORIES

The galleries of the Show are always worth a visit, as they usually reveal a number of accessories which add to the comfort, and on this occasion the safety, of motoring. Space prevents any lengthy reference to this section of the exhibition; attention may, however, be drawn to a few of its features, such as the numerous anti-dazzle headlights and devices, radiator muffs for winter use, and the stoves, etc., for keeping the garage warm during the night in very cold weather. To the list of Price's "Zero" radiator glycerin and other anti-freezing preparations for addition to the water in radiators are now added the newcomers Smith's "Bluecol" and the County Chemical Company's "Stop-it-freezing." Each of the above-mentioned firms issues a chart showing the quantity to be added to the radiators of all the principal makes of cars. At the Schrader Company's stand there is shown a little device that should appeal to doctors who have to look after their own cars. All motorists know what a nuisance it is, to test the air pressure of or inflate the tyres, to have to remove the valve caps, two for each tyre. To obviate this time-occupying task the firm mentioned has introduced a device known as the "Dublchek" cap, which fits in place of the usual large and small valve caps. While so constructed as to be unaffected by dust or water, the device enables the pressure to be tested or the tyres inflated by direct application of the tester or pump. The lighting and starting battery is probably the most frequent cause of doctors' motoring troubles, especially in the winter months when engines are more difficult to start, causing a greater drain on the accumulator's charge than can be replaced in ordinary running. To overcome this difficulty the Westinghouse Brake Company has introduced a device known as the "Westric" battery charger, which can be readily fixed in any private garage in which a supply of electricity is available. The only addition to the car, usually to the instrument board, is a special socket supplied with the charger. With the "Westric" all that is necessary to keep the battery in a state of charge is to connect up the lead from the charger to the socket on the car when the latter is put away for the night, and then to switch on the current. Finally, mention may be made

of a simple yet very useful accessory for medical men discovered on the stand of Smith and Sons, and consisting of a small memo pad with pencil, adapted to be clipped to the rim of the steering wheel of a car. Not large enough to interfere with steering, it can be used as a visual reminder of the calls a doctor may have to make on his rounds. The pad is chromium-plated, and so arranged that refills may readily be inserted.

C. J. W.

Scotland

Vital Statistics of Scotland for 1933

The seventy-ninth annual report of the Registrar-General for Scotland, dealing with the year 1933, includes a statistical summary by Dr. Peter L. McKinlay, Superintendent of Statistics. The principal features of the year under review were a birth rate which was the lowest on record, a marriage rate which was the highest recorded during the last ten years, a death rate below the average of recent years, and an infantile mortality rate which was the lowest recorded in this country with the exception of that for the year 1923. There was a great reduction in deaths from measles extending over the whole year, as against an increase in those from scarlet fever, particularly during the winter months. The death rates from bronchitis and pneumonia were below the average of the preceding five years. The mortality from tuberculosis showed a continued improvement, but there was a further increase in the deaths attributed to malignant disease. The estimated population of Scotland at the middle of 1933 was 4,912,000, comprising 2,364,000 males and 2,548,000 females. This represents an increase of 29,000 in the total population since the middle of 1932, and is attributed partly to excess of births over deaths and partly to inward balance of migration. The number of births registered during 1933 was 44,767 males and 41,779 females, a total of 86,546. The highest birth rate recorded was in the year 1876, when it was 35.62 per 1,000 of the population, and this rate has steadily tended downwards, with the exception of the war years, until, in 1933, it reached 17.62 per 1,000. With regard to deaths, the number registered during the year was 64,848, giving a rate of 13.2 per 1,000 of the population. This rate was 0.32 below that for 1932, and 0.45 below the average of the five preceding years. The death rate is now almost one-half of that recorded half a century ago. It shows a direct relation with urbanization, for when the rates are adjusted for differences of age and sex constitution of the population, the large burghs show a rate of 14.21, as compared with 12.7 in the small burghs and 11.86 per 1,000 in the landward areas. In the counties, inclusive of burghs, the highest adjusted death rate was in Lanark with 14.6, and the lowest in Peebles with 9.8. In the large burghs the highest was in Greenock with 16.1, and the lowest in Arbroath with 11.9. In small burghs it ranged from 15.5 in Kilwinning down to 10.7 in Peebles, and in landward districts from 13.3 in Lanark and in Stirling to 9.1 in Peebles. There were five centenarians whose age was verified, all being females. Since the practice was introduced in 1910 of verifying the ages of reputed centenarians 171 instances have been verified out of 331 reported. The principal epidemic diseases were responsible for 4,072 deaths, as compared with 4,235 in 1932, and of these 2,027 were due to influenza, 762 to whooping-cough, 356 to diphtheria, 310 to scarlet fever, and 219 to cerebro-spinal meningitis. Measles, however, was responsible for only thirty-six deaths during the year, or 856 fewer than in the preceding year. Tuberculosis continued to show a reduction, the total deaths from this cause being 3,910, which was the lowest number yet recorded, and the rate 80 per 100,000.

This was in marked contrast to the rate of 382 per 100,000 which prevailed in 1870. Diabetes was responsible for 711 deaths, an increase of 45 as compared with the figure for 1932, and these deaths included 246 males and 465 females. There were 7,320 deaths from malignant disease, giving a rate of 153 per 100,000 of the population, and accounting for 11.6 per cent. of all deaths. These deaths numbered sixty-two more than in the preceding year, but the rate was the same. From other general diseases deaths were as follows: pernicious anaemia, 312; rheumatic fever, 171; chronic forms of rheumatism, 135; diseases of the nervous system, 8,983, of which 6,641 were due to various forms of apoplexy; general paralysis, 122; locomotor ataxia, 69; diseases of the circulatory system, 11,887—or 781 more than in the previous year—of which 10,489 were attributable to heart disease; of the respiratory system (excluding influenza and tuberculosis), 8,763—1,053 fewer than in 1932—of which 7,891 were due to bronchitis and pneumonia; of the digestive system, 3,771 (excluding malignant disease), of which 573 were attributed to gastric and duodenal ulcer; of the genito-urinary system, 2,629, of which 1,908 were due to diseases of the kidney; of pregnancy and childbirth collectively 512, or sixty-four fewer than in the previous year; puerperal sepsis, 212, or thirty-one fewer than in 1932. Deaths due kidney; of pregnancy and childbirth collectively 512, an increase of fourteen on the figure for the previous year, but a decrease of 85 as compared with 747 in 1930. The most important causes of death were: heart disease, malignant tumours, apoplexy, and pneumonia; and of these the first three showed increases as compared with the statistics for 1932. Among infants the most important causes of death were congenital defects, pneumonia, diarrhoea, whooping-cough, and convulsions. With regard to vaccination it is pointed out that before the passing of the Vaccination (Scotland) Act, 1907, by which conscientious objection became a valid reason for avoiding it, over 91 per cent. of the children were successfully vaccinated. Thereafter the numbers declined, except that in the year 1920, when there was an outbreak of small-pox in Glasgow, the rate rose to 71 per cent., but following this there was a steady decline, reaching in the year under review the lowest record of 49 per cent.

Psychiatry in Edinburgh

The annual report for 1933 of the Royal Edinburgh Hospital, Morningside, is the one hundred and twenty-first of this institution, and the first to be issued by Professor D. K. Henderson as physician-superintendent. His survey indicates that preventive and remedial measures have replaced the old-time custodial outlook, and he gives ample evidence for his statement that certification itself merely ensures continued treatment, whereby the patient is afforded a better chance of recovery than if he were ordering his own destiny. The large number of patients utilizing the out-patient departments, the nursing homes, the Jordanburn Hospital, and applying voluntarily for treatment in West House or Craig House, proves that the treatment of certain forms of nervous and mental disease can be conducted well on a co-operative basis. The psychological clinic under the direction of Professor Drever was established to study behaviour disorders in children, and to give advice regarding educational and vocational guidance. It is more specialized than the other departments, but its purpose of dealing essentially with children during the formative years of their development is of great importance. The clinics at the Royal Infirmary and the Jordanburn Hospital deal with the more medical aspects of psychiatry, whether applied to children or adults. Professor Henderson remarks that the association with the Royal Infirmary is particularly valuable, since it estab-

lishes a relation between psychiatry and general medicine which needs to be more firmly cemented. He considers that the chief benefit of out-patient departments for nervous and mental patients is the opportunity of seeing cases in their incipency, without the patients having to incur the stigma of attending a mental hospital. The out-patient departments, he adds, have familiarized medical practitioners and the public with the fact that many forms of nervous and mental disease are remediable, provided proper treatment is applied at the right time. Such departments are thus valuable outposts in the department of mental health, and safeguard the patient from contracting more flagrant and serious disorders. If more prolonged, continuous, or intensive therapy is required, this is available at the Jordanburn Hospital, or at one of the associated nursing homes, without the utilization of legal formalities. Illustrative cases are recorded in the report, showing how conditions of various aetiology can now be selected for appropriate treatment. With these preventive agencies is combined the treatment of more advanced and less hopeful cases, and occupational therapy is singled out as a method which has proved very valuable. Heredity is no longer regarded from a fatalistic viewpoint, but rather as something which can be modified and helped. Professor Henderson regrets that the medical profession and the public are still too complaisant regarding the huge social, economic, family, and racial burden which mental illness and defect entail. He condemns the German policy of sterilizing the socially inefficient as too drastic, of doubtful practicability, and much too far in advance of public opinion and scientific knowledge. Sterilization in certain individual cases can be used as a therapeutic rather than as a eugenic measure, but it is still too early to adopt it as a uniform procedure for groups of cases which may differ widely in causation. He considers deep psycho-analytic therapy of use in certain specialized cases, but in others the more tolerant elastic methods of a more eclectic school seem to him to offer greater possibilities. There are many obscure biochemical, toxic, and histopathological problems which require investigation and may shed more light in time on the cure of mental illness.

Glasgow Post-Graduate Courses

The winter session of the Glasgow Post-Graduate Medical Association opens next month. Special lectures will be given at the Royal Faculty of Physicians and Surgeons' Hall dealing with practical problems of medicine in the light of recent observations and research. The series of lectures starts on November 27th, when Dr. John M. Cowan will discuss the prognosis of chronic heart disease. They will be open free to all medical practitioners. A series of weekly demonstrations for practitioners on Wednesday afternoons will commence at the Royal Infirmary on November 7th, when Professor A. W. Harrington will deal with coronary thrombosis. The demonstrations, which will cover a wide range of subjects, have been arranged on similar lines to those of previous years. The fee for the course is three guineas. Courses have also been arranged at the Glasgow Eye Infirmary for those interested in ophthalmology, and facilities for the study of clinical obstetrics and ante-natal work are offered by the Royal Maternity and Women's Hospital. The staff of the Ear, Nose, and Throat Hospital has arranged demonstrations on ear, nose, and throat affections, and a course in radium therapy is offered at the Radium Institute of the Glasgow Royal Cancer Hospital. A limited number of clinical assistantships are available at most of the institutions taking part in the work of the Association during the winter months as well as at other times of the year. Full particulars can be obtained from the secretary, Post-Graduate Medical Association, the University, Glasgow.

England and Wales

Maternal Mortality: A Call to Action

The Minister of Health has reviewed the action taken throughout the country in response to the memorandum on maternal mortality, issued in December, 1930, and has now sent a circular (No. 1433) to maternity and child welfare authorities commenting on the results so far observed. He finds that the number of ante-natal clinics has increased from 1,048 in 1930 to 1,340 at the end of 1933; the proportion of expectant mothers availing themselves of the services thus afforded has increased from 27.3 to 42.2 per cent., and maternity beds provided or subsidized by local authorities rose in number from 7,070 to 7,245. A satisfactory feature of this service, he adds, has been the tendency in some areas to concentrate the maternity work at the institutions transferred to county and county borough councils under the Local Government Act of 1929, by modernizing the maternity wards and their equipment, and by strengthening the medical and nursing staff employed for this work. It was originally recommended that new maternity accommodation should, where practicable, be associated with general hospitals, and recent experience has shown that it is in general undesirable to provide small maternity homes as separate units. The Minister thinks that greater use might still be made by local authorities of their power to assist expectant and nursing mothers by the supply of milk.

In spite of what has been done to improve and develop the maternity services the maternal rate has not begun to fall; it has, indeed, shown a slight tendency to rise. There are still many areas in which the maternity service is neither complete nor satisfactory, and there are few in which there is not scope for further improvement. In all areas there is probably need of more intensive efforts to educate women as to the importance of ante-natal supervision, and to make use of the facilities provided for this purpose. The Minister therefore urges local authorities to review their position in the light of the suggestions contained in the memorandum, and to take such further steps as may be necessary to complete their organization and ensure its effective working. In particular, he commends this to areas in which the maternal mortality rate is persistently high, and in which further efforts should be made to reduce the avoidable risks of child-bearing. He suggests that it would be desirable in all such areas for the local authority to call for a special report on this subject from its medical officer of health, showing what has been done as regards: (1) improving the ante-natal service; (2) ensuring that the services of a trained midwife are available for all confinements; (3) securing the provision of maternity beds for complicated cases and for patients with unsuitable home conditions, such beds to be associated where practicable with general hospitals, preferably in small units readily supervised, and for which prompt specialist services for serious cases may be made available; (4) providing facilities for the adequate isolation and separate nursing of cases of puerperal sepsis; and (5) obtaining the services of a consultant for doctors needing assistance in difficult or complicated cases. In order to encourage a more intensive study of the problem in such areas the Minister proposes to instruct suitable medical officers to make special visits to them in the near future. He hopes, therefore, that the authorities concerned will call for the preparation of special local reports at once and inform him when they are available. Arrangements will then be made for the official visits, and it is hoped that therefrom may spring a plan of action which will assist the local authority in performing its duty effectively. The Minister concludes by reiterating the view that there is a clear case for development of the maternity

services on urgent grounds of health, and offering to place the services of his Department at the disposal of those authorities which could thereby be enabled to improve conditions in their own areas.

A Nutritional Investigation of School Children

In view of a statement by the head teacher of one of the schools in Middleton, that "lack of nourishing food" was the cause in the children of an inability to concentrate, a deterioration in physique, a lowered standard of work, and an absence of vitality and pluck, an investigation of 217 unselected children in various departments of that school was arranged by Dr. S. T. Beggs, medical officer of health. Weights and heights were correlated, and shown to be average on the whole, although there were several individual exceptions. Most of the children had too little sleep, however, and the foodstuffs they received were sometimes most unsuitable. The school conditions were not altogether satisfactory, there being too much noise from adjoining classes—an important factor in feebleness of concentration. This investigation led to an inquiry being made in other schools, a questionnaire being sent to head teachers. The number of children found to be under the average height and weight amounted to 34.45 per cent. The percentage of children not receiving properly prepared meals at home was 8.61, having no milk 11.26, and having an excessive amount of tea 12.58. In 62.26 per cent. there was insufficient sleep. Overcrowding was found in 31.79 per cent., unemployment was possibly concerned in 49.67 per cent., and various physical defects were present above the average. Suitable instructions were accordingly issued to parents. The average of thirty-two estimates by clinic mothers of the cost of an economy diet weekly for a family of mother, father, and one child aged 5 was 16s. 8d., as against the British Medical Association's figure of 13s. 8d. Current food prices were shown to be higher than those noted by the B.M.A. It is concluded that the causation of ill nutrition in growing children is complex in nature, but that sufficiency of sleep is a major factor in determining the growth and development of the school child. The excessive physical defects are to be related to the nutritional state. Home management in a number of cases requires drastic correction, but the school environment also needs improving sometimes. The amount of money expended on food in the homes of necessitous cases is below the minimum for the satisfactory growth and health of the children. The mothers' estimates as regards the food requirements of a family closely approximate the B.M.A. figure, but the local prices of foodstuffs are higher than those estimated by the B.M.A. in the proportion of 24s. to 20s.

Central Midwives Board

At the October meeting of the Central Midwives Board for England and Wales the business dealt with included a letter from the Ministry of Health, enclosing correspondence relating to the action of an approved teacher who had signed wrong dates on the certificate of a candidate for examination. It appeared that the teacher admitted the error, but stated that when she signed the schedule she was seriously ill and did not confirm the dates. The Board decided to instruct the appropriate subcommittee to consider the question of removal of the name of the teacher in question from the list, and that she be invited to attend to show cause why her name should not be so removed; and that pending the hearing of the case by the subcommittee the teacher be instructed not to engage any further pupils. A letter was read from Dr. Chisholm of the Jessop Hospital, Sheffield, asking that, owing to the

difficulty of obtaining a sufficient number of district cases for training the pupils of the hospital in accordance with the Board's rules, those pupils who were general trained nurses might be permitted to take less than the prescribed number of district cases and make up the required number of twenty by taking additional intern cases. The Board replied that it could not modify the rule in the way suggested, because the grant of its certificate to a woman entitles her to practise as a midwife, and before such a certificate is granted the Board must be satisfied, as far as it can be, that the recipient is fitted to practise as a midwife. The resolution added that a possible way of remedying the shortage of district cases at present available for the pupils in training at Sheffield would be to submit to the Board for approval as teachers the names of competent midwives in the Sheffield area who could, if approved, undertake district training. The Board recorded its deep sympathy with the relatives of the late Dr. W. W. King and the late Dr. Tenison Collins, and its appreciation of the valuable services rendered by them as examiners.

Treloar Hospital, Alton

A new policy has come into being at the Lord Mayor Treloar Cripples' Hospital and College at Alton. It was decided some time back to enlarge the scope of the work, and to consider any crippled child, using the word in its widest sense, eligible for admission. In his report for the twelve months ended March 31st, 1934, Sir Henry Gauvain remarks that this policy has now fully justified itself, and has given children who would not ordinarily be admitted for a long enough period into a specialized hospital a chance of receiving efficient and sufficient treatment. Among the 162 non-tuberculous cases dealt with during the year were two cases of arachnodactyly, a congenital condition in which the long, thin hands and feet are like those of the spider monkey in appearance, and there is imperfect muscular development, with abnormal movements at many joints. Owing to the weakness of the muscles the spine cannot be held erect, and becomes markedly curved, while the sternum is carinate, and the thorax narrow laterally. When the head is lifted the back straightens out, and therefore, if efficient treatment is given, the deformity is corrigible. One child who was unable to lift herself from the recumbent position when admitted can now stand erect, and with the aid of suitable appliances made in the hospital splint shop can walk a little. Another patient had hypertelorism characterized by curious facial abnormalities, and was unable to walk; when discharged there was complete unassisted walking power. Various rare myopathies were also admitted, including five cases of progressive muscular dystrophy, three being of the pseudo-hypertrophic type. Two unusual complications after scarlet fever were observed, one being a rheumatoid arthritis and spondylitis, the other a case of hemiplegia, which occurred four weeks after the rash. Treatment has consisted of the usual orthopaedic operations and appliances, massage, and remedial exercises. Four patients with rheumatoid arthritis received injections of gold salts, and glycerin treatment was given in some cases of muscular dystrophy. A new type of splinting has been evolved in the late treatment of tuberculous disease of one or both hips where there is a tendency to adduction of the leg. This adduction deformity, which so often arises when hip disease has healed but fibrous ankylosis remains, has been hitherto one of the most trying, disappointing, and unsightly sequels. It frequently leads to severe disability, and sometimes to secondary spinal deformity. The splint comprises a padded band of sheet iron encircling the pelvis; on the sound side three duralum

struts attached to this and supporting a concave chest-piece, fitted to the thoracic convexity when the patient is in the erect attitude; and on the affected side a similar chest-piece attached to a duralumin bar, which is pivoted to the pelvic band behind the hip-joint, and twisting round the buttock proceeds down the inner side of the thigh, being attached to a metal plaque on the inner condyle of the femur, and strapped round the limb above the knee-joint. When the chest-piece on the affected side is drawn towards the chest-piece on the sound side, the leg on the affected side is abducted, and must remain abducted. In tuberculous disease of both hips the splint made on the scissors principle is equally effective; adduction of the legs is impossible, and the so-called scissor-leg deformity cannot develop. The new wards of the hospital were finished and opened for use during the year; there is now also a winter playground for ambulant children, providing complete shelter, flooded with radiant heat and ultra-violet light, and open to the air along the whole front. In the branch at Hayling Island a bathing pool has been constructed, 53 ft. long and 20 ft. wide, with a gently sloping floor, and ranging in depth from 6 in. to 4 ft. Filled with fresh sea-water each day, it has the advantage over the open sea of safety, ready accessibility, independence of tidal and weather conditions, and permitting the patients to have balneotherapy at the time of day most suitable for them.

London Medical Exhibition

The large hall of the Royal Horticultural Society at Westminster was occupied during the first five days of this week by the London Medical Exhibition, which brought together about 160 stands, representing the products of almost as many firms. The great bulk of the exhibits fell into the categories of pharmacy and foods, but surgical instrument makers were represented, as were the manufacturers of x-ray and artificial sunlight apparatus, optical and aural appliances, and orthopaedic constructions. Amid the crowd of more commercialized products the eye turned gratefully towards a few choice book-stalls, on which were displayed the wares of medical publishers; and, after all, books are as necessary to the doctor's efficient practice of his profession as any of the other commodities. Three British spas—Bath, Buxton, and Harrogate—set forth their advantages. While it cannot be said that anything revolutionary made its appearance, there was at every turn material to appeal to the intelligence, and, incidentally, to charm the eye, for the manufacturers who serve the medical profession understand as well as any the psychology of the outside of the cup and platter. It would be invidious to mention the names of any exhibitors, but out of a hundred substances, preparations, or instruments, which, it was stated, had all been produced during the past year, a note may be made of a few. They included a chocolate-flavoured preparation of ferrous phosphate in granular form; a vitamin A concentrate in moulded chocolate tablets; other tablets each containing 5 mg. of pure crystalline vitamin C; a sterile, stable solution of the acetyl ester of choline; a bee venom for rheumatism, combined in a fatty base and employed as a salve; sugar-coated granules of the active principles of calf's liver; an adhesive plaster, spread on a suntan-coloured cloth, impervious to water or acids; a portable electrocardiograph, incorporating a cathode-ray oscillograph; a metal folding shield for placing over the patient's face in mastoid operations; a stethoscope chest-end with flexible rubber resonator to which a detachable metal diaphragm is fitted; an electric bone conduction aid for the deaf; a spirit-proof thermometer case, with spring shock absorber, toughened glass lining, and pocket clip; and finally, an enamelled case containing 117 dressings of different types for the surgery.

Ireland

Milk Regulations in Northern Ireland

Creameries will be required to furnish monthly returns to the Minister of Agriculture, setting out the quantities of milk received and from whom. Strict rules are laid down as to the surveillance of herds by producers, and officials will be empowered to inspect premises, equipment, and herds, and even to have milking tests carried out in their presence. The regulations dealing with the equalization payments from the Milk Fund in respect of all milk produced in Northern Ireland, delivered to a creamery, and used for the purpose of the extraction of cream or for manufacture into butter, provide that such payment in any month shall be made by the Ministry of Agriculture as soon as possible after the average price paid by all creameries for milk so used during the month has been ascertained. The Act provides that the equalization payment shall be a sum which will raise the average price of creamery milk to 5d. per gallon in the summer and 6d. per gallon in the winter. Concerning Grade A, Grade B, and Grade C milk—that is, milk to be sold for human consumption—the regulations provide that holders of producers' licences may not produce Grade D milk upon the premises in respect of which a producer's licence for Grade A, B, or C milk has been granted. The Ministry will not, save in exceptional circumstances and subject to such special conditions as it may impose, grant a Grade A producer's licence to any person in respect of any premises if that person holds a licence for the production and sale of Grade B and C milk on those premises. There is a similar proviso against granting a Grade B licence for premises in respect of which a Grade A or C licence is held, and against granting a Grade C licence for premises for which a Grade A or B licence is held.

National Maternity Hospital, Dublin

At the recent annual meeting of the governors of the National Maternity Hospital, Dublin, Dr. Myles Keogh, acting as chairman for the Lord Mayor of the city, stated that four years ago the governors were warned that the old hospital buildings were rapidly deteriorating, and they were advised to look for a site for a new building. As a result of the efforts of some of the governors about £6,000 was raised, and the adjoining houses between the present hospital and Merrion Square were bought up. With the money received from the first sweepstakes, work on a new wing on the site of the Merrion Square houses was begun, and this was now approaching completion. For the past three months there had not been an unoccupied bed in the existing hospital. In 1930 the total number of patients treated was 9,560; so far this year the total had been 10,076. In the medical report, which was read by Dr. Coffey, assistant master, it was stated that during the past year 1,745 patients were admitted, including 368 to the gynaecological department. In the out-patient department 7,503 women and infants attended and received treatment.

Medical Inspection of School Children

Dr. R. I. G. Reid, medical inspector of schools in the County Armagh, in his report for 1933, states that while the treatment of enlarged and diseased tonsils and adenoids is carried out by the Armagh, Lurgan, and Newry hospitals a considerable portion of these cases continue to be neglected. No provision has been made for the treatment of the other defects found during the course of medical inspection, apart from the assistance given to indigent parents towards the purchase of spectacles and the dressing by the school nurse of any sores or wounds met with actually in the course of a visit. The school medical officer, with the co-operation

of the county infirmary authorities, has, however, started a small dispensary on Saturday mornings at the Infirmary. During the year fifty-five cases of chronic ear discharge were seen—a higher number than in the previous year, due probably to a larger incidence of respiratory affections during the winter and spring. Among skin diseases scabies has decreased, while ringworm, of which there were previously so few cases that the condition was not separately classified, has increased. Impetigo contagiosa has also increased, and has been particularly prevalent in the Armagh City schools. The number of eye affections remains much the same as last year, with, however, a curious increase, for which there is no obvious explanation, in the number of cases of squint and a marked increase in those of corneal opacity. The increase in goitre, in which category are included all classes of thyroid enlargement, may be largely attributed to the dry weather of last summer, which had an adverse effect on the water supplies of most rural areas; the condition has been found most prevalent in the country districts. The number of cases of speech defects is about the same as before. The total number of children on the roll was 13,928; number examined, 11,881; scabies, four; ringworm, twenty; impetigo, sixty; other skin diseases, thirty; blepharitis, eighteen; conjunctivitis, twenty-two; corneal opacity, thirty; other eye conditions, fifty-five; serious defects of vision, 807; squint, 232; defective hearing, forty-six; otorrhoea, fifty-five; tonsils requiring removal, 396; adenoids requiring removal, 272; goitre, 136; defective, sixty-one; defective teeth, 8,839; heart disease, fifty-three; anaemia, 132; mental deficiency, eight.

Midwifery Nurses and General Nursing

The committee of the Irish Nurses' Union has written to the medical associations in the Free State calling their attention to, and asking assistance in, preventing, as far as possible, the growing practice of midwifery nurses undertaking general nursing without the necessary qualifications and training. The Department of Local Government and Public Health is strongly opposed to the employment of midwifery nurses for general nursing; there is too frequently the possibility that these nurses may attend patients suffering from infectious and contagious diseases, and thus expose maternity patients to considerable danger. The whole question is likely to come before the General Nursing Council and Central Midwives Board; meanwhile medical practitioners would be acting in their own interests if they refused to recognize midwifery nurses for other than maternity work.

The quarterly court of the directors of the Society for Relief of Widows and Orphans of Medical Men was held on October 10th, when the deaths of two members were reported and one new member was elected. Special grants amounting to £87 10s. were voted to orphans to enable them to continue their education; and £665 was voted as a Christmas present to the widows and orphans in receipt of grants, each widow over 75 years of age to receive £15, those under 75, £10, and each orphan £10. Two widows of members will shortly be coming on the funds and will receive a yearly grant of £60. The chairman of the Propaganda Committee reported that efforts were still being made to persuade newly qualified medical men to join the society. The great advantages of membership were illustrated by the case of the widow of a member whose death was reported. She came on the funds in 1919 and died in June last. Her late husband had paid in subscriptions £31 10s., and the widow received £1,170 in grants from the society. Relief is only given to the widows and orphans of deceased members. Membership is open to any medical man who, at the time of his election, is resident within a twenty-mile radius of Charing Cross. Full information may be obtained on application to the secretary, 11, Chandos Street, Cavendish Square, W.1.

Reports of Societies

CONTROL OF THE BLOOD PRESSURE

In the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on October 10th, the president, Professor J. H. BURN, M.D., devoted his address from the chair to the subject of "The Control of Blood Pressure."

Professor Burn said that present conceptions of the control of the general blood pressure were based on the view that the sympathetic nerves were only constrictor in action, and the circulating hormones, adrenaline and vasopressin, only pressor in effect. Surgical treatment of high blood pressure and allied conditions, which was increasing, had been directed accordingly to the removal of portions of the sympathetic system and of the suprarenal glands, or tumours connected with them. Some success had, in fact, been achieved in two directions. Jonnesco and Bruning had found that attacks of angina pectoris disappeared in patients from whom the left sympathetic chain (from below the superior cervical ganglion down to and including the inferior cervical or stellate ganglion) had been removed; and again various observers, following C. H. Mayo, had found that the crises of paroxysmal hypertension disappeared after removal of a chromaffin tumour from the neighbourhood of the suprarenal gland. It seemed quite clear that paroxysmal hypertension must be due to the sudden liberation of adrenaline in the blood. Apart from these two directions, however, surgical treatment had not been successful. Attempts had been made to treat continuous hypertension by removal of the suprarenal gland and by removal of portions of the sympathetic system, and both these methods seemed to have failed. The attempts had not stopped at removal of the second, third, and fourth lumbar sympathetic ganglia with adjacent branches on both sides, but had recently been extended by Adson and Brown to include bilateral section of the anterior roots of the spinal cord from the sixth thoracic to the second lumbar. Some lowering of the blood pressure appeared to have resulted from paralysis of the abdominal muscles.

VARIATION IN NORMAL PRESSURE

It was time, in Professor Burn's opinion, to reconsider the theoretical basis of such attempts. He showed graphs and gave a close description of the examination by Alvarez of 6,000 university students and graduates, from 16 to 40 years of age, with a view to determining the variation in normal blood pressure. The systolic blood pressure was found to range from 85 mm. to 190 mm., and if particular age groups were taken the variation was as extensive in such groups as in the men taken as a whole. Thus, among about 1,200 men of 18 years the blood pressure was found to vary from 85 mm. to 180 mm. When frequency distributions of these blood pressures were plotted it was evident that these were approximately normal, and that blood pressure showed continuous variation, just like body height. The average height of men was about 5 ft. 6 in., but heights of 5 ft. on the one hand and of 6 ft. on the other were not considered pathological. On the other hand, there was a disposition to expect that the pulse rate of any person should be about 72 per minute when at rest, the fact being overlooked that this was only the average resting rate. Similarly, it was expected that the normal blood pressure should be about 125 mm., but actually pressures of 85 mm. or of 180 mm. might be quite normal. The standard deviation calculated from Alvarez's figures showed that 20 per cent. of men had a blood pressure greater than 140 mm., and from 2 to 3 per cent. a pressure greater than 160 mm. The observation of a high figure on one occasion was not sufficient to justify a diagnosis of hypertension unless it was known that at an earlier examination the blood pressure was much lower. If twenty-two healthy people were examined,

one of them, on the average, would have a pressure of either less than 103 or greater than 157 mm., and by the law of averages, again, one man in about every forty-four must have a pressure greater than 157 mm., but a pressure which for him was just as normal as the colour of his eyes. How many unfortunate people were going about under the impression that they were suffering from high blood pressure when in fact their pressure merely showed an unusual deviation from the mean! Did the disease of hypertension really exist, or was it a figment of the imagination? One might doubt whether a high blood pressure should be classified as a disease unless there was evidence that the pressure was continuing to rise.

PRESSORS AND DEPRESSORS

Turning to the hormones and the nerves which were commonly regarded as vaso-constrictor in action—namely, the hormones adrenaline and vasopressin and the sympathetic nerve supply—Professor Burn said that as far back as 1900 adrenaline was shown to have a vaso-dilator as well as a vaso-constrictor action. In many conditions when the blood pressure was high the administration of adrenaline caused a fall. Probably this vaso-dilator component was present whenever adrenaline acted, and it should therefore be remembered that removal of the suprarenal glands, while taking away a pressor agent, was also taking away a depressor agent. Thus it was possible that the removal of the glands might be the worst treatment for patients with continuous hypertension. In the same way it had lately been shown that vasopressin exerted a depressor effect when injected into the ventricle of the brain. Harvey Cushing demonstrated that when vasopressin was so injected—certainly in large doses—there ensued, not the sickly pallor which followed intramuscular injection, but an intense flushing of the skin and sweating. The important fact emerged from Cushing's observations that when pituitary extract was injected in large doses—20 units—into the ventricle (which might be the normal means of entry) it caused vaso-dilatation and not vaso-constriction; from which it followed that pituitary extract, like adrenaline, might play a part normally in keeping the blood pressure low. Finally, it had been shown recently in the dog that the sympathetic supply to the muscles of the hind limbs contained a large vaso-dilator component. In the laboratory, indeed, it was much easier to observe the dilator than the constrictor effect. In this connexion he recalled Michell's observations at Cambridge that the blood pressure of rowing men was usually much less than the average. Hence all three mechanisms, hormonal and nervous, commonly thought of as pressor, might also be depressor, and it seemed more accurate to think of them as controlling the blood pressure by raising or lowering it than simply as factors which raised it. To remove suprarenal glands or portions of the sympathetic system might be a treatment calculated to worsen rather than to improve a patient's condition.

VASCULAR ACTION OF ETHER

As a kind of postscript to his address Professor Burn discussed some evidence concerning the vascular action of ether when used as an anaesthetic. Although ether was much weaker in this respect than chloroform, nevertheless it weakened the heart and lessened its output. Ether also caused vaso-constriction, and because of this the coronary flow was maintained. The vaso-constriction was caused by impulses passing down sympathetic nerves, for if the ganglia were first paralysed by nicotine to prevent the passage of such impulses, ether then caused a very large fall of blood pressure. Under ether anaesthesia the periphery must have a deficient blood supply, for a weakened heart pumping blood through constricted arteries could not maintain a normal circulation. If the peripheral circulation remained poor for very long it was clear that the patient must suffer. A recognition of the serious circulatory disturbances which ether might produce should encourage the use of some of the newer anaesthetics.

ADVANCES IN CARDIOLOGY

The opening meeting of the third session of the Mid-Staffordshire Medical Society was held at Stafford on October 2nd with Mr. F. M. BLUMER in the chair.

Dr. CRIGHTON BRAMWELL of Manchester, in an address on "Some Recent Advances in Cardiology," compared the teaching of cardiology to-day with that of twenty years ago. In the province of pathology important advances had been made in our knowledge of angina pectoris. It was now generally agreed that an insufficient supply of oxygen to the heart muscle was the causal factor in this condition. The pain of myocardial infarction was so similar to that of angina of effort that there could be no doubt that both were due to the same cause. Coronary occlusion was no longer regarded as a necessarily fatal lesion, and could often be diagnosed during life. It differed from angina of effort in many respects, but the most important diagnostic features were the persistence of the pain, the signs of shock, and the electrocardiographic findings. Neuro-circulatory asthenia had attracted much attention during the war, but also occurred in civil life as the result of acute infections and focal sepsis. It should be treated by graduated exercise and not by rest. Thyrotoxicosis was a common cause of auricular fibrillation, and in some cases this type of arrhythmia was the sole manifestation of the condition. Electrocardiography had come to stay. It often afforded objective evidence of degenerative or inflammatory lesions of the myocardium in cases where the ordinary methods of physical examination proved negative. It was especially helpful in patients with coronary arterial disease. A normal electrocardiogram did not signify a normal heart, and the electrocardiographic findings must always be considered in conjunction with the clinical evidence. Radiography was now being extensively employed in the diagnosis of cardiac lesions. A radiogram could provide all the information obtained from percussion, and could do so with a much greater degree of accuracy. It provided information as to which chambers of the heart were enlarged, and thereby provided a clue to the cause of the enlargement. It made possible an inspection of the thoracic aorta throughout its whole course, and the recognition not only of dilatation but also of calcification and atheromatous changes. It revealed dilatation of the pulmonary artery and its branches which could not be detected in any other way.

In the province of therapeutics the standardization of digitalis by biological assay had paved the way to the massive dose method of oral administration. Digitalis had almost entirely replaced strophanthus, and was more useful than quinidine in most cases of auricular fibrillation. Iodine therapy in Graves's disease had greatly reduced the operative mortality, and as a life-saving measure in acute cases was comparable to insulin in diabetic coma. Salyrgan given intravenously had established a well-merited reputation in the treatment of heart failure, and would generally produce a copious diuresis in patients with oedema. The continuous treatment of angina pectoris by nitrites had been discredited, though the drugs were useful when given at such times as an attack was likely to occur. The closed mask and nasal catheter methods for the administration of oxygen marked a striking advance over the old open method, but could only be expected to relieve dyspnoea, which depended on deficient oxygenation of the blood in the lungs. Complete thyroidectomy was now being practised with a view to reducing the metabolic rate, in patients with advanced heart failure, but the value of sympathectomy and other surgical procedures for the treatment of angina pectoris was still *sub judice*.

In conclusion, Dr. Crighton Bramwell reviewed the general outlook on cardiology at the present time. Aetiology was now regarded as the most important consideration in the diagnosis of a cardiac case. Most patients with symptoms suggestive of heart disease could be classified in three groups: those with structural lesions, those with some toxic affection of the myocardium, and those who were suffering from an anxiety neurosis. All three factors might, however, be present in some cases.

CORRESPONDENCE

L'Union Internationale Contre le Cancer

SIR,—Many of your readers will be aware that a preparatory conference took place in Paris last March which had for its purpose the formation of an international union, whose main objects will be to establish close liaison between organizations concerned in the study of cancer; to combat charlatanism; to propose criteria for a uniform international system of international records; to publish occasional bulletins on matters of international importance; and to organize future international congresses.

The preparatory conference, which was convened by Monsieur Justin Godart, former Minister of Health, and President d'Honneur of the last International Cancer Congress in Madrid in 1933, was extremely well attended. No fewer than thirty-two countries (twenty European and twelve extra-European) were represented by one or more delegates. The British delegation consisted of Colonel Smallman from the Ministry of Health; Mr. Richard Davis from the British Empire Cancer Campaign; Dr. Cramer from the Imperial Cancer Research Fund; Mr. Sampson Handley from the Middlesex Hospital; and Mr. Cecil Rowntree from the Cancer Hospital.

Agreement was reached upon certain general questions of principle, and statutes controlling the organization of the union were adopted. Of these, the ones relevant to the present purpose are:

1. That each country shall be represented by two delegates, who will collectively constitute the governing body (Le Conseil de Direction), which will meet annually, so far as possible in a different country each time.
2. That the Conseil de Direction shall have power to add to its numbers up to one-third of its total membership, by election of associate members from any country.
3. That each country shall be asked to arrange for the nomination of these national delegates.

A temporary executive committee was appointed, consisting of:

France	...	...	M. Justin Godart (President).
Germany	...	...	Professor Borst.
Belgium	...	...	Professor Maisin.
Italy	...	...	Professor Lustig.
Spain	...	...	Professor del Rio Hortega.
United States	...	...	Dr. Carter Wood.
Great Britain	...	...	Mr. Cecil Rowntree

They are to conduct any necessary business until such time as the Conseil de Direction is in being. This temporary committee met in Paris in July, and provisionally arranged that the annual subscription of Governments or cancer organizations desiring to join the Union Internationale shall be one thousand French francs.

Arrangements have been made for the preliminary work in connexion with the selection of British representatives for the Conseil de Direction to be undertaken by the British delegates to the preparatory conference held last March, and the object of this letter is to ask those organizations in Great Britain which were not represented at the preparatory conference, but which will, no doubt, desire to join the Union, to communicate with me, or with one of my fellow delegates, so that a meeting may be called for the purpose of electing the two British representatives.

I should add that the Ministry of Health and the Department of Health for Scotland are sympathetic towards the objects of the proposed Union.—I am, etc.,

CECIL ROWNTREE.

9, Upper Brook Street, W.1.
Oct. 15th.

Whither General Practice?

SIR,—Might I be granted the privilege of ventilating a grievance in your columns, in order to obtain the opinions of the large body of general practitioners whom it intimately concerns?

There is to-day an increasing tendency for ante-natal, welfare, and other auxiliary medical services to encroach on the functions of the doctor whose patients belong to the lower middle class. Two recent cases in my practice illustrate this, and are only typical, I believe, of thousands of others in all parts of the country.

Case 1.—I advised a patient, whose first confinement I attended and whose infant did not thrive on breast-feeding, to adopt "complementary feeds," and gave the necessary detailed instructions. A few days later, without my knowledge, a welfare worker called on the young mother and, in a most courteous and ingratiating manner, discussed the progress of the child, casting doubts on the accuracy of my instructions. After an interval of three days she repeated her visit, to inquire about the child, and remarked that, though she could not "interfere" while I was in attendance, she could give advice when I had "ceased to attend"! This, in effect, meant that the continuous individual supervision of the infant, which I look upon as one of the chief privileges and duties of the family doctor, was to be taken out of my hands and conducted by a welfare worker. The mother did not belong to any "clinic," nor had she expressed any wish to consult a welfare worker, being both anxious and able to pay for my services. When I complained to the medical officer of health of the district he not only justified the worker's action, but tacitly admitted that, under his instructions, members of his staff paid these uncalled-for visits to mothers when births had been notified to him.

Case 2.—A patient, whose confinement was conducted by a nurse, was strongly urged by a welfare worker to take her baby to the clinic. There the assistant medical officer of health, after examination, advised hospital, but the mother expressed the wish to consult her own doctor first. Since the patient was well able to afford a doctor the welfare worker was not, in my opinion, justified in urging a "clinic," nor the assistant medical officer of health a "hospital." For the benefit of such a patient both should have advised her to select a doctor if she had not already got one.

Having held an appointment of medical officer of health and, within the last two years, organized and directed a most successful welfare centre, I do not underrate the value of "clinics," but am convinced that an over-zealous staff is often too anxious to enrol, one might almost say "press-gang," members who are quite able to afford a private doctor. "General practice" becomes increasingly curtailed, largely because of the facilities given by hospitals and various clinics which, while complaining of "abuses," do not take the necessary steps to encourage, still less order, many of their patients to obtain the services of a family doctor. A great service would be rendered to the profession if any reader would suggest a remedy for this defective procedure, more especially where the authorities are opposed to any constructive action.—I am, etc.,

Bournemouth, Oct. 12th W. SAVILE HENDERSON, M.D.

Muco-purulent Tubo-tympanic Infections

SIR,—Mr. Holt Diggle's letter in the *Journal* of October 6th encourages me to send you some remarks which I made in closing the discussion at Bournemouth, on the subject of muco-purulent tubo-tympanic infections. I suggested this subject to Dr. Rodger because I had been remarkably unsuccessful in dealing with patients suffering from this condition.

Nasal obstruction (including removal of adenoids) and nasal accessory sinusitis, if present, should, of course, be dealt with, but even after this has been done many cases

continue to discharge. It is not uncommon to find that while a central mass of adenoids has been successfully removed there still remain adhesions in Rosenmüller's fossae—a difficult condition to cure. Some patients only suffer from muco-purulent otorrhoea for a short time whenever they have a cold in the head, and these are, of course, not difficult to deal with. In some of the clinics abroad these cases of muco-purulent otitis media are regarded as tuberculous, but I am not sure whether the discharge is considered to be due to tuberculous disease of the lining membrane of the Eustachian tube or whether the patient is thought to be a tuberculous subject, and therefore unable to recover from the muco-purulent otorrhoea.

It seems to me that the trouble probably lies in air cells in connexion with the Eustachian tube. During recent years it has been recognized that there are not infrequently cells in the apex of the petrous temporal above the cochlea. In severe cases of acute purulent otitis media infection in these cells gives rise to the condition known as "apicitis," associated with severe pain behind the eye on the corresponding side and paralysis of the homolateral sixth nerve. It seems quite probable that chronic infection of these cells may be the cause of many cases of apparently incurable muco-purulent tubo-tympanic catarrh.

I have tried many methods in attempting to cure the condition—for example, the internal administration of sodium iodide in large doses, combined with the local use of peroxide of hydrogen (Plannenstiel's method). In other cases "mucidan" in various dilutions was used in the form of ear drops, but the remedy is painful and not suitable for children. Nager of Zurich recommends intratympanic syringing, drying with cotton mops, and the insufflation of boric powder or "zeroform." The method I have most frequently employed is to syringe out the anterior part of the tympanum and the Eustachian tube from the external acoustic meatus by means of a metal syringe with a bulbous nozzle which tightly fits the external meatus. The patient sits holding a basin below his chin, and the fluid syringed into the meatus passes through the perforation, down the Eustachian tube, and drips from the corresponding side of the nose. Thereafter, the fistula bag is used, just as in cases in which one suspects erosion of the lateral semicircular canal (circumscribed labyrinthitis). After the tube has been dried out by the use of the fistula bag 10 per cent. argyrol is instilled into the meatus and forced down the Eustachian tube by further application of the fistula bag. In other words, one treats the condition somewhat like a case of gleet. Theoretically, this line of treatment would appear to be very satisfactory, but, unfortunately, although the discharge lessens or even ceases for a day or two, the trouble recurs.

May I, in conclusion, say that I regret that the discussions which followed the various papers at the Bournemouth meeting had to be reported in such an extremely abbreviated form. The discussion on July 26th, after Mr. Just's paper on "Allergic Factors in Rhinorrhoea," was one of the most interesting and informative that I have ever listened to.—I am, etc.,

Edinburgh, Oct. 10th.

J. S. FRASER.

Pre-natal Diagnosis of Congenital Heart

SIR.—In the literature available to me I can find no reference to a diagnosis of congenital heart having been made before birth. My search has not been exhaustive by any means, but that there is such a possibility the following case will illustrate.

The mother, a primipara aged 27, presented herself for the first time at the ante-natal clinic on September 12th, 1934. The presentation was a vertex, and normal foetal heart sounds were heard in the usual right occipito-anterior position.

The mother had a systolic murmur in the mitral area, which had been discovered previously—during a temporary illness some time before. She gave no history of rheumatism or any allied condition, and had never suffered any symptoms of heart disease. The murmur was regarded as a functional one.

From September 12th the patient was seen every month until the thirty-sixth week, and from that time weekly until labour. During this period the foetal heart was heard in the right occipito-anterior position at each visit, and no souffles or other deviation from the normal foetal heart sounds was heard at any time. On October 2nd, at what corresponded, according to the date of her expected confinement, to the thirty-ninth week, a murmur was heard in what is regarded as the right occipito-anterior position. This murmur was asynchronous with the mother's pulse, and presented a peculiar rough and somewhat prolonged crescendo sound. As I knew no way of timing a murmur in the foetal heart, and as its other characteristics were very similar, I recorded it as a presystolic murmur.

Labour commenced on October 4th, and was normal in every respect and unassisted, the second stage occupying only fifty minutes, and she was delivered of a live male child weighing 6 lb. 4 oz. The infant was cyanosed at birth, but showed no clubbing of the fingers or toes. A systolic murmur could be heard at the base, loudest in the pulmonary area. Considering that it had been heard through the mother's abdominal wall, it seemed that it had decreased in intensity. As the infant was cyanosed, in accordance with the usual practice at the Council's maternity home, where this child was born, Dr. D. M. Cunningham, the mother's private doctor, was called in to attend the child. He confirmed the diagnosis of congenital heart. The infant died on October 6th at 10.30 a.m.; unfortunately a post-mortem was not practicable. I am indebted to Dr. Cunningham for the privilege of examining the infant at the time it was under his care.

Although the case appears at first to be merely of clinical interest, I had hoped, if the infant had survived, to endeavour to watch the changes, if any, in the character of this murmur, with a view to learning, if possible, something of its relation to prognosis.—I am, etc.,

A. W. JOHNS,

Erith, Oct. 10th.

Medical Officer of Health.

Ether Convulsions

SIR.—Having had a case of ether convulsions a few days after the publication of Dr. Sykes's letter (September 29th, p. 610), I reread it with great interest, and think that perhaps a few details about my patient may be useful to those investigating this dangerous condition. In many respects it resembled Dr. Sykes's case.

The patient was a well-grown boy aged 14, sent in as an acute appendix. He was given morphine 1/12 grain on admission, and a further 1/12 grain with atropine 1/200 grain before operation. Induction, by a few drops of ethyl chloride with eau-de-Cologne, followed by ether and oxygen, was rather delayed, owing to the boy's intolerance of ether at first. I had to go slower than usual, as he tended to cough. The surgeon commented on his rapid respiration, and the boy phoned until he had definitely had more anaesthetic than the average for such a patient. Masses of tuberculous glands were found, and there was a strong suspicion of tuberculous enteritis also, but the operation, appendicectomy, was uneventful.

Just as the last sutures were being tied, the mask raised, and the ether turned off, twitching of the face began, exactly like a bad chorea. The colour throughout was bright pink.

As the condition did not spread to the limbs no further treatment was given, other than a supply of oxygen and attention to the airway. The head had been slightly raised the whole time to help relaxation. Twitching ceased after five or six minutes.

(1) In this case, and also in another which I had in May, 1933, the same oxygen cylinder was used for several other appendix cases without any convulsion. This seems to acquit the oxygen. (2) Both these cases were not

smooth from the start. Their respiration was uneven, they did not settle well, and caused me anxiety all the time, before anything happened. (3) Both had more ether than normal, and developed symptoms at the end of the operation—that is, just after absorbing "the little more," given for closure of the peritoneum. The amount of ether given was, to the boy of 14, four and a half ounces, and to the other case, a man of 31, nine ounces, both more than my average.

I would suggest that ether convulsions are due to the presence of more than one factor at the same time. I suggest that the unsatisfactory respiration is the danger signal that indicates the presence of one of the factors, and that when this occurs special care should be taken not to give any more anaesthetic than is absolutely required by the surgeon, as the excess of ether is also, I believe, often connected with the condition.—I am, etc.,

Doncaster, Oct. 12th.

B. E. COOK.

Control of Haemorrhage in Prostatectomy

SIR,—I am much interested in Mr. F. McG. Loughnane's letter in your issue of October 13th. His findings bear out my theory as propounded in the description of my two-way catheter and vacuum-flask retainer (irrigator), published in your issue of July 15th, 1933. My article "Complete Closure of the Urinary Bladder in Cystotomy Cases," published in the *Lancet* of January 13th, 1934, describes the method fully. For the past year I have used my apparatus for continuous irrigation in acute and chronic cystitis, pre-operative treatment of bladder operations, and in selected cases for complete closure of the bladder in cystotomy cases. In all cases that have been treated in this way haemorrhage, when occurring, has been completely controlled in twenty-four to forty-eight hours.—I am, etc.,

London, W.1, Oct. 15th.

MORTON WHITBY.

Female "Bleeders"

SIR,—I was interested in the cases reported by Drs. Foulis and Crawford in the *Journal* of September 29th (p. 594), and by Dr. Leak in the correspondence columns of October 13th. The authors of the first article do not seem to have been previously aware of the possibility of haemophilia occurring in the female. Dr. Leak mentions the possibility of haemophilia being a Mendelian characteristic, but is wrong in arguing that it is probably a dominant one because it happens to have occurred in consecutive generations.

The known recessive sex-limited factors in the human race, such as haemophilia and colour-blindness, are ordinarily confined to the male sex, but are transmitted through certain female members of the family. This is one of the reasons for believing that sex itself is a Mendelian characteristic, and that in the human species the male is the mixed dominant (DR) and the female the pure recessive (RR). Thus, if the normal constitution of male and female be DrRd and RdRd respectively (where r and d are factors concerned with haemophilia), the female carrying the factor for haemophilia, though not herself a bleeder, will be represented by RrRd. Mated with a normal male, the offspring might be DrRr, DrRd, RdRr, RdRd—in other words, one male bleeder, one normal male, one female carrier, and one normal female. The female carrier will produce male bleeders as before, but the male bleeder mated with a normal female (DrRr × RdRd) will produce normal males (DrRd), or female carriers (RrRd) only.

The rare cases in which female bleeders occur are accounted for only by the union of an affected male (DrRr) with a female carrier (RrRd), in which case the children will consist of one affected male (DrRr), one

normal male (DrRd), one affected female (RrRr), and one female carrier (RrRd). In haemophilia this is particularly uncommon because of the rarity of a male living long enough to marry and have children. It will be noticed that both the family trees referred to can be explained by this simple application of Mendelism.—I am, etc.,

Sheffield, October 15th. ROBERT PLATT, M.D., M.R.C.P.

SIR,—There have been two examples of familial bleeding recorded recently in the *Journal*, each of which shows several points of interest. The first, that of Dr. Foulis and Dr. Crawford (p. 594), claims the existence of two females suffering from haemophilia. The pedigree is characteristic of a Mendelian sex-linked defect, and may well be that of haemophilia, but it is interesting that two affected brothers should reach adult life and produce families. The authors state that "a haemophilic man rarely transmits the disease to his sons or the tendency to his daughters," but the reason for this is that the haemophilic man rarely reaches adult life. The existence of a haemophilic female can be satisfactorily explained if the father is haemophilic and at the same time the mother is a haemophilia carrier, and I suggest that the mother of the two affected females should be investigated from this point of view. The chance of this occurring must, of course, be extremely small. At the same time there have been many examples of female members of haemophilia families who, though not truly haemophilic, show an abnormal tendency to bleed.

The family recorded by Dr. Leak (p. 700) probably showed an entirely different defect. If all the affected members of this family are suffering from the same abnormality then the condition is certainly inherited as a Mendelian dominant. Dr. Leak states that all the affected members suffer from fairly frequent and prolonged epistaxis, and this feature alone makes it highly probable that the abnormality is hereditary telangiectasia. It sometimes happens in this disease that the lesions are scanty and not very obvious on the skin, but I suggest to Dr. Leak that he should examine the lips, tongue, buccal mucosa, nasal mucous membrane, and the conjunctivae for the presence of the characteristic small, bright red telangiectases.—I am, etc.,

Leeds, Oct. 15th.

HUGH G. GARLAND.

SIR,—I was greatly interested in the cases quoted by Drs. M. A. Foulis and J. W. Crawford, and by Dr. W. N. Leak.

The haemorrhagic diseases are as yet the most unsatisfactory section of haematology, because our knowledge of several of the factors is incomplete. We do not know, for instance, the full mechanism of the coagulation of normal blood. In diseased states there are many anomalies which cannot be explained. One of the greatest difficulties is the inconstancy of the phenomena which may be associated with thrombocytopenia. For example, blood from which the platelets have been removed will not clot unless it is taken at the height of digestion, whereas the blood from a thrombocytopenic patient will sometimes clot normally when taken fasting. Further, even if the coagulation time and bleeding time are normal it cannot be stated that a patient will not bleed excessively when exposed to injury.

Cases of female "bleeders" are usually examples of haemorrhagic diathesis. The females of haemophilic families occasionally bleed somewhat readily, but never to the extent that the males do. According to Bulloch and Fildes, cases of haemophilia apparently transmitted by males are explained by the wife being of bleeder stock. I should like to suggest, therefore, that the genealogies

quoted by your contributors are examples of the rare hereditary haemorrhagic diathesis, sometimes called constitutional haemogenia or hereditary pseudo-haemophilia. The latter is a bad name, because the condition has nothing to do with haemophilia. As its name implies, it is a hereditary disease, transmitted directly from generation to generation, affecting females as well as males.

In my view there are four simple tests which should be performed in the diagnosis of these blood states: (1) a platelet count, (2) the coagulation time, (3) the bleeding time, (4) the capillary resistance test. In haemophilia the coagulation time is greatly prolonged, the other tests being normal. In haemorrhagic states the coagulation time shows no gross change, though the clot may not retract normally, while the other three tests give abnormal findings, chief of which is the low platelet count, which may be found especially at the time of the occurrence of the haemorrhage.—I am, etc.,

Brighton, Oct. 14th.

L. IVAN M. CASTLEDEN.

Residual Infection of the Jaws

SIR,—The article on "Residual Infection of the Jaws" by Mr. R. S. Taylor (*Journal*, September 22nd, p. 553) recalls the fact that this condition was one of the problems that provoked Novitzky to devise his technique for removing teeth over twenty years ago in San Francisco. He was very frequently defeated and disappointed with his attempts to relieve patients' symptoms by the removal of infected teeth. These defeats and disappointments, he concluded, were due to the fact that infections still persisted in the jaws after tooth extraction by the ordinary pulling method, because the pathologic soft and hard tissues—the result of infected teeth and pyorrhoea—were not eliminated, and could not be eliminated, by the mere removal of the infected tooth. He then devised a new method of removing teeth. Suitable incisions were made, a flap of muco-periosteum was turned back, the outer plate of bone encasing the teeth was chiselled away, and then the teeth were removed. This gave visible and instrumental access to the region about the root ends, which then could be removed immediately and thoroughly by means of curettes or other instruments. The flap was restored to its former position and sutured in place.

Having employed this technique in my own practice for about eighteen years, I find that it accomplishes a great deal more than Novitzky anticipated. It accomplished more than any other technique devised for the elimination of infected teeth and for shaping a suitable bony base for artificial tooth plates to rest upon. It changed the status of those who employed it from that of "tooth pullers" and "tooth extractors" to that of surgeons. It is the technique employed in the Mayo Clinic by Gardner, in Chicago by Molt, and by the leading oral surgeons in the United States and Canada. When this technique is employed properly, under block anaesthesia with novocain, it eliminates all of those not infrequent catastrophes that follow the ordinary method of tooth pulling with a whiff of gas and oxygen.

Molt, in a paper on the elimination of oral foci of infection in the *British Journal of Dental Science* (1921, p. 179), states:

"Far from being infinitesimal [the percentage of edentulous areas showing radiolucency—presumably pathological] it is on the contrary large enough to be a vital argument in favour of thorough curettage and to explain many of the failures in clearing up systemic lesions, by extraction, when the operator has removed the teeth and ignored the adjacent infected tissue. During the last two years I have cultured about 3,000 granulomata removed under strict surgical asepsis with the open view procedure [the Novitzky technique], and practically no negative reports are shown. The predominating organism, as would be expected, is the streptococcus, mixed in many cases with staphylococcus, diplococcus, and micrococcus

catarrhalis. This holds true of bone specimens taken from areas radiographically disclosed when remaining pathology has been suspected, and in many of which we have been able to check our diagnosis with old radiograms. The assumption is justified, therefore, that since granulomata are themselves infected tissue, and since apparently regenerated bone, displacing uncuretted masses, retains that infection, only complete extirpation will avoid the pathogenetic possibilities, and any method that will achieve this result is good practice."

Again (*Dental Cosmos*, 1921, p. 1009) he writes that:

"Cases are on record of areas of residual infection found existing twenty-five years after the removal of diseased teeth without curettage, and their elimination has greatly benefited their host."

In another paper in the *Dental Cosmos* (1923-4):

"The author, in an examination of over 1,100 radiograms of areas, many of them giving a history of past infection, previous to extraction, found 40 per cent. showing evidence of remaining pathologic condition. Inasmuch as these areas found in the site of past extraction, where no curettage or inadequate curettage has been done, practically invariably yield cultures of the pathogenic micro-organisms, and the bony structure found in these areas simulates in every way necrotic bone, we can but consider this prima facie evidence of the fact that the surgery is incomplete."

Shearer (*Journ. Amer. Dent. Assoc.*, 1924, p. 272), in an examination of 1,800 patients during twelve years, found 527 cases in which knife-edges of bone persisted along the alveolar ridge.

The medical practitioner who appreciates the influence of dead teeth and pyorrhoea teeth and their contribution to systemic and organic disturbances, and advises their elimination, may profitably bear the previous observations in mind and consider the following. After the age of 40, nine out of ten persons have infected teeth, and four out of five have pyorrhoea of some degree or other. Pyorrhoea teeth are encircled with an infected pyogenic degenerated dental ligament. The encasing bone is infected—in extreme cases to a depth of a quarter of an inch. Teeth that are removed by the ordinary pulling method in most instances only stir up the infection, leaving this just mentioned infected bone and infected pyogenic membrane behind. This is most frequently sealed in by the healed covering gum, while the infecting process continues undisturbed. The literature reciting experiences similar to those of Molt, Shearer, and Gardner, and supporting the same observations, is extensive.—I am, etc.,

London, S.W.19, Oct. 12th.

ALONZO M. NODINE.

Medical Benevolence

SIR,—At the Royal Surrey County Hospital, when a death occurs in the person or the family of a member of the staff, we have recently adopted the practice of making a collection for a medical charity instead of sending a wreath, a notice to this effect being inserted in the report of the funeral in the local paper. This idea probably is not original, but hospitals which do not already carry it out might well do so, and benefit a deserving cause rather than the florist.—I am, etc.,

Guildford, Oct. 13th.

G. H. STEELE.

SIR,—I am sorry to strike a discordant note, but I must confess that the hardy annual appeal of Sir Thomas Barlow on behalf of the Royal Medical Benevolent Fund inspires me with a feeling more of irritation than of sympathy. I am irritated, not because Sir Thomas rattles his begging bowl under my nose so regularly, but because he should have to do so. Why in the name of all that is charitable, if the cause is a good one, should it have to be laboured so? As there is not a vestige of a doubt that the cause is a good one, why cannot the unfortunate of the profession be provided for with decency and comfort

once and for all, and we ourselves be spared this continual harrowing of our feelings with tales of want and distress?

It may seem rather ungracious to carp at the British Medical Association for the part it has played, but I cannot help thinking that if the cause of the infirm and the needy had been fought with half the zeal of the fight for the odd sixpence on the capitation fee, this wretched tale of destitution would have drawn to a close long ago. If it is the desire of the profession to provide decently for its own poor—and there can hardly be any doubt of that—the problem is simply one of organization and the technique of money collecting. If results are anything to go by the present technique seems to fall lamentably short of perfection.

I have been a little surprised that in eighteen years' qualified life I have never once been personally approached and asked to subscribe to the fund. Postal appeals, circulars, and notices in the *British Medical Journal* there have been in abundance. But these are not much use. They have to compete on our breakfast tables with a heap of other more or less deserving appeals, and do nothing to secure a settled permanent income for the fund. It is the personal touch that gets the money.

I was once rash enough to think that, when some time ago panel practitioners agreed to a regular deduction from their pay, we could at last go to bed with easy minds. But no. Along come Sir Thomas Barlow and other kind-hearted people, cap in hand, disturbing our rest with the same tale of unrelieved distress as before. The technique I should suggest would be something as follows.

Subscriptions should be in the nature of a levy on the whole profession. It should be a fair levy. And to be fair it should be universal and in proportion to means, and as compulsory as public opinion can make it. The voluntary levy to which panel practitioners at present submit should be abolished. It is not quite fair, as those with small panels or no panels at all are not uncommonly better off than those with big panels. Then an undertaking, written if need be, should be obtained from every medical man in the country to contribute, say, one-fifth of 1 per cent. of his assessable income to the headquarters of the fund. In every Divisional area of the British Medical Association one representative of the fund should be appointed—a person who should combine the savvy of an archdeacon with the persistence of a commercial traveller. He would be notified when a subscription was in arrears, and it would be his particular duty to see that it was paid. The task of winning over any residuum of obdurate or recalcitrant non-subscribers might be left to the persuasive eloquence of volunteers from that distinguished section of the profession, retired or otherwise, whose good fortune it is to have plenty of leisure. And I think I should make Sir Thomas Barlow tormentor-in-chief.

I cannot believe that anyone would object to this or some similar scheme. The amount raised, if everybody contributed, could be calculated to meet all needs; the present excellent but somewhat exasperating mendicancy could be silenced for ever, and yet the individual contribution would be so modest that not one of us need smoke a cigar the less. The medical profession, in spite of our many complaints, as a whole is well-to-do. The financial crash which beggared so many of our own social rank has turned none of us on the streets. It is a shame and a reproach on us that our colleagues in misfortune, who have the justest claim on our purses, should be dependent for their barest necessities on spasmodic appeals for our bounty.

Sir Thomas wants to give thirty shillings to each for Christmas! Surely this can be bettered. For any sake let some new scheme be set going so that we, the fortunate, who have never known want, can at least sit down to our own comfortable dinners without getting the taste of the orphans' boots and the widows' coals in the soup.—I am, etc.,

A. J. HAWES.

The Swab in Diphtheria Diagnosis

SIR,—Your correspondent Dr. E. James (*Journal*, August 4th, p. 230) asks: "How much longer is the swab to be relied upon in the diagnosis of faucial diphtheria?" After twenty-five years of experience as a pathologist in private practice I maintain that the following is sound advice in regard to the above question.

To begin with, everything depends on how the swab is taken. The swab itself must be made *secundum artem*. The wool must be tightly rolled on the stick, and the distal end should be fairly pointed. To use a loosely rolled plug of wool, to merely touch the suspected spot with the broad distal end thereof, is almost useless, because when attempting to inoculate the medium in the test tube that spread-out distal end most likely will not come into contact with the medium at all. With a properly made swab it is the side, not the tip, which is laid on to the suspicious spot; then the stick is given a vigorous twist whereby the entire lateral surface is brought into contact with the infected spot. Similarly, when the swab is brought into contact with the medium, the side of the swab (not the tip) is laid on at the bottom end of the tube, when, by means of a twist, and while dragging the swab along the surface of the medium, the entire lateral surface of the swab makes an intimate contact with it. Another fallacy lies in the fact that a certain amount of pluck and skill is required to touch the spot on the fauces, say, of a spluttering and coughing child. To turn one's head away, and to shut one's eyes for fear of being bombarded with the patient's splutterings does not lead to the obtaining of a satisfactory swab.

Another essential lies in the conveniences offered by the laboratory undertaking the examinations. The laboratory of a clinical pathologist, in private practice, must be open day and night, like the surgery of the general practitioner. If a throat swabbing arrives at 11 p.m., or any other time, somebody must be on the premises who has been trained to apply the swab correctly to the medium. A prompt report is then the next essential. The general practitioner must receive his report before 9 o'clock the following morning, before he starts his rounds, and this must include Sundays and holidays. Working under this scheme I have been able to give the following very definite advice to general practitioners. Any patient clinically seriously ill with a suspicion of diphtheria must be given antitoxin at once. When not seriously ill neither patient nor a household should be alarmed before the pathologist's report has been received.

In these days of keen competition and of general depression nothing damages a general practitioner's reputation more than to become known as an alarmist, apart from putting patients to the extra expense for antitoxin injections and causing the associated mental anxiety of the household concerned—especially if the patient happens to make a complete recovery within a day or two of the first symptoms.—I am, etc.,

Sydney, N.S.W., Sept. 12th.

ALFRED E. FINCKH.

SIR,—The recent lengthy correspondence in your columns on "The Swab in Diphtheria Diagnosis" has dealt with many problems of the disease: two interesting points in particular were mentioned but not elaborated—namely, virulence and immunity. Dr. James suggests that carriers of organisms morphologically resembling the Klebs-Löffler bacillus may help to immunize the susceptible population; but what guarantee is there that such organisms, whilst being apparently harmless to their host, may not prove fatal to a person with less immunity or resistance? At the bedside of an "acute sore throat" it is important to assess three factors before prescribing any treatment:

(a) The type and virulence of the infecting organism, which only the swab can identify.

(b) The resistance and/or immunity of the patient, which may be indicated by his history. It seems scarcely necessary to emphasize the importance of the pulse rate in assessing the balance between this and the virulence of (a).

(c) The time factor, which may vary with differences of (a) and (b). We have all seen the fulminating cases, and also those which are moribund before the relatives send for a doctor. Incidentally I agree with Dr. Stollott that these two types of case form the majority of fatalities, admitted to hospital or not.

These, then, are the primary criteria for the administration of antitoxin, and not the swab. The latter will be the only guide in cases where (a) appears to be low, (b) to be high, and (c) short. No harm will be done if antitoxin is given to streptococcal or spirochaetal (Vincent's) throat; on the contrary, it has been my experience that this form of non-specific therapy is often followed by immediate and dramatic improvement in such cases.—I am, etc.,

Greenford, Oct. 14th.

ALISTAIR R. FRENCH.

*. This correspondence is now closed.—ED., B.M.J.

Publicity

SIR,—Where are we? When will any one of us, not of the shrinking dove type, find ourselves confronted with a charge of "advertising"? Dr. Abrahams has put his thumb down on a sore spot which is liable to become very sore indeed. . . .

Some of us, whether or not we are regarded as authorities, do get quoted in the lay Press. And why not? So far as I am aware, it does nobody any harm. Once upon a time I wrote you a very nice truthful letter. It was quoted in several lay newspapers, whereupon a raw carrot and onion juice practitioner made a most violent attack upon me. It was all very amusing: I got a lot of publicity; and no one was a ha'porth the worse. . . .

In my time I have been something of an authority on Regional Medical Officers, concerning whom I have written freely. My remarks have been referred to in the lay Press. And why not? The subject is a professional one; but also it is of considerable interest to that part of the public which is insured. I submit that my efforts were wholly beneficial. I am still friendly with R.M.O.'s, who, so far as I can make out, have become better, if not noticeably more humble, men.

I suggest that our Authorities should do a little fresh thinking, and consider once more the question of "advertising." We are all guilty of it. Every brass plate is an advertisement. Every hospital report contains advertisement. Most bulletins of the Great are advertisements. And they are all completely harmless. Are the matters to which Dr. Abrahams refers really harmful? I submit that they are not. Doctor affairs are "news"; and news will be printed whether we like it or whether we don't. Surely, then, it is desirable that it shall be presented truly instead of, as too often, in a garbled form. Professional methods have progressed; professional manners seem to have changed little since the days when Ambroise Paré was a young man. We still are over-much hampered by the Gentlemen of the Long Robe!—I am, etc.,

Walsall, Oct. 14th.

FRANK G. LAYTON.

SIR,—With the excellent advice given by Dr. Adolphe Abrahams in last week's *Journal* (p. 699) there will surely be general agreement. As we needs must suffer, let us suffer with dignity and in silence. Equally, Dr. Abrahams commands our sympathy in the irritating telephonic inquiries thrust upon him

by enterprising journalists. Occasionally it is possible to make an effective protest against these intrusions. Here are two personal experiences. Voice: "I am speaking on behalf of newspaper so-and-so, and in view of a recent inquest on a man who died while taking a hot bath after a full meal I want to know whether the medical profession considers such a practice dangerous to life." Reply: "I really could not pretend to say." Voice: "Would you be good enough to suggest a doctor as a specialist in such a subject?" Reply: "There is no need to ask a doctor, for the question can be settled by yourself. Thus, when you go home to-night have a really good dinner, then take a hot bath and see what happens!" Result: no more inquiries from that newspaper. Again, a sharp female voice: "I want to ask you a question about infant feeding." Reply: "I know very little about it." Voice: "But aren't you a Baby Specialist?" Reply: "No, madam, thank Heaven, I'm a full-grown man!" *Tableau*.—I am, etc.,

London, Oct. 16th.

H.

Obituary

ROBERT J. GITTINS, M.D., M.R.C.P.

Pathologist to the Children's Hospital, Birmingham

We regret to announce the death on October 7th of Dr. R. J. Gittins, pathologist to the Children's Hospital, Birmingham. While attempting to save his young son from drowning in the River Severn, near Upton-on-Severn, he was himself drowned. Dr. Eileen Gittins, his wife, made a gallant attempt to rescue them, but they were dragged under by the strong current, and she could not reach them. Robert John Gittins was 39. A native of Birmingham, he was educated at the King Edward VI School and Birmingham University. He served in France during the war and won the Military Cross. In 1919 he returned to Birmingham, and in 1922 graduated M.B., Ch.B. He later took the M.D. degree and the D.T.M. and H., and became M.R.C.P. in 1930. In 1924 he went to India to take charge of the Friends Hospital at Itarsi, C.P. His wife was there with him as medical officer, and they did valuable work, not only at the hospital, but in connexion with welfare and social hygiene schemes over a wide area. They returned to Birmingham in 1929.

A senior colleague, L. G. P., sends the following appreciation:

Robert Gittins was one of a group of brilliant young paediatricians which during recent years has been associated with the Children's Hospital at Birmingham. Both he and his wife, who showed such wonderful bravery at the time of his accident, were students at the Birmingham Medical School, and spent five years in medical missionary work in India, where he came to realize the importance of pathological research and his own inability to carry it out satisfactorily. Returning to England Gittins devoted the remainder of his life to the study of the pathological aspects of paediatrics. He was appointed pathologist to the Children's Hospital in 1930, and so excellent was his work that in January of this year his appointment was confirmed on a whole-time basis. He carried out all the pathological work in the series of studies of anaemia which recently appeared in the *Archives of Disease in Childhood*, and was solely responsible for the work on leukaemia which has everywhere been regarded as a notable contribution to the cytology of the leucocyte. This work is marked by careful and accurate observations, and an attention to detail which was typical of the man. He was devoted to research, for he had a passionate desire for truth;

indeed, the desire dominated his whole life, and he was prepared to follow wherever the search for it might lead him, however difficult the course. This wholeheartedness brought him the affection of all who knew him well. He had a lively sense of humour, revelled in manly exercises, loved nature, the sea being perhaps his chief delight; indeed, on a series of week-ends he had sailed the boat from which he dived to his death from Padstow to Worcester. He was prepared to argue on either side on many controversial subjects, although tenacious even to a degree of obstinacy where principles were concerned. Nowhere did this character show itself better than in his championship of those in less favoured circumstances than himself, and it is not to be wondered at that his laboratory assistants would do anything for him. With all these things he was somewhat of a mystic, and his personal appearance bore out his spiritual characteristics, for he had those light blue eyes which appear to look far into the future and the fair hair of his Nordic ancestors. His last public appearance was in one of the series of post-graduate demonstrations at the commencement of the new session of the Medical School, when he spoke on pulmonary tuberculosis as a foe of little children. He felt strongly, even passionately, that the medical profession as a whole did not realize the deadliness of tuberculosis in childhood, and took every opportunity of trying to enforce this view. Two days later he gave his life in an unsuccessful attempt to save his second child from drowning. We who knew him realize how gladly he did this, and that he would have done it just as gladly for any child in like need. If he had lived Gittins would have gone from strength to strength, and would have been recognized as a great man in the sphere which he had chosen. His colleagues and friends and all who listened to the tributes paid to his goodness in the Friends Meeting House, Bull Street, Birmingham, on Friday last, know that by his life and death he had already achieved greatness; indeed, the manner of his being cannot better be described than in the words of those old Puritans who were his spiritual forebears: "So he passed over, and all the trumpets sounded for him on the other side."

"Nothing is here for tears, nothing to wail
Or knock the breast; no weakness, no contempt,
Dispraise, or blame, nothing but well and fair
And what may quiet us in a death so noble."

F. V. BEVAN-BROWN, M.D., M.R.C.P.

Physician to the Christchurch Hospital, New Zealand

Dr. Frederic Vivian Bevan-Brown, who died of uraemia at his home in Christchurch, New Zealand, on October 5th, was the second son of the late Mr. C. E. Bevan-Brown, the well-loved head master of the boys' high school of that town. On leaving school Dr. Bevan-Brown began his medical studies at Canterbury College, Christchurch, after which he came to London and entered Guy's Hospital as a student. He qualified in 1913, and proceeded to hold the posts of out-patient officer and house-physician at Guy's. At the outbreak of war he joined the R.A.M.C., remaining in that corps until after the armistice, and serving both on the Western Front and in Mesopotamia. On returning to Guy's Hospital he served as a medical assistant, and took the diploma of M.R.C.P. and the degree of M.D.Lond in 1930. He then returned to Christchurch, New Zealand, in which town he worked as a consulting physician up to the time of his final illness. He was honorary physician to the Christchurch Hospital, where his teaching was greatly appreciated by a long series of house-officers, and his medical services were of constant value to those under his care. His enthusiasm as a physician was an inspiration to all around him, and he contributed many original papers to local

medical societies, the diseases of the thyroid gland and the relation between the psychic and physical sides of disease being his special study. He was closely connected with other medical institutions in his native town, such as St. George's Hospital, the Karitane Hospital, and the local branch of the St. John Ambulance Association. In addition to these activities, Dr. Bevan-Brown was a very active member of the Chapter of the Christchurch Cathedral, to which he was appointed lay canon some years ago.

His death, which occurred after a very brief illness, comes as a blow to his many friends both in New Zealand and in London; at the age of 46 he had achieved more than is permitted to many, and his enthusiastic optimism will be long remembered.

F. A. SAUNDERS, F.R.C.S.Ed.

Medical Superintendent, Prince Alfred Infirmary, Grahamstown

We regret to record the death, on August 26th, at the age of 76, of Dr. Frederick Anastasius Saunders, an outstanding personality of Grahamstown, Cape Province, and a member of the British Medical Association for nearly fifty years.

Born in London, he received his medical education in Edinburgh and at University College, Liverpool. In 1882 he obtained the diplomas L.R.C.P. and S., and in 1884 the F.R.C.S.Ed. After practising in Fifehire he went out to South Africa in 1892, and started general practice in Grahamstown, where he remained until his death. He soon became renowned as a bold and skilled surgeon, and then, as medical officer of health for many years, achieved remarkable successes, abolishing slum properties and segregating lepers. In 1912 he was appointed medical superintendent of the Prince Alfred Infirmary. This was shortly after he joined the staff of the old Albany Hospital, and in two years had raised enough money to place it on a good basis. Elected to the British Medical Association in 1885, he was president of the Cape of Good Hope Eastern Province Branch in 1926-7.

From 1886, when he joined the Fife Light Horse, Dr. Saunders took an active interest in the Volunteer and similar movements. Three years later he obtained a commission in the West Yorks Regiment. In 1893 he was adjutant of the First City Volunteers, Grahamstown, and afterwards held various military appointments. He took part in the Boer War, receiving the Queen's medal with three clasps and the King's medal with two. He was finally honorary colonel of the 1st City Regiment, Grahamstown, and honorary major of the 3rd West Yorks Regiment. In Masonry he was district grand master of the Eastern Province, Scottish Constitution, 31st Degree. Outstanding characteristics were his forcible personality and abounding generosity. Apparently indefatigable, thanks to a fine physical constitution and enthusiasm for athletics, he took but few holidays. Industrious reading of new books and periodicals, as well as close comradeships with medical workers and friends in the Medical Association of South Africa, rendered post-graduate study unnecessary for him, and kept him fully up to date in his professional work. He was for some years honorary secretary of the Royal Society of Tropical Medicine and Hygiene of South Africa. Dr. Saunders attracted a large circle of friends, and actively supported the general interests of his adopted town, in which he did good work as a magistrate.

Dr. DAVID ROBERT POWELL-EVANS, who died at his residence in Wimbledon on October 11th, had been a member of the British Medical Association for forty years, and had filled various offices. Born in 1862, he received

his medical education at Liverpool and Charing Cross Hospital, obtaining the diploma L.S.A. in 1890 and the M.R.C.S., L.R.C.P. ten years later. His early appointments included those of clinical assistant to the Samaritan Free Hospital for Women and Children, and to the London Throat Hospital. He started general practice in Wimbledon in 1891, and for some time was medical officer to Wimbledon Hospital. He was medical officer and public vaccinator to the North Wimbledon district of the Kingston Union. Dr. Powell-Evans joined the British Medical Association in 1892, and was a representative at the Annual Meeting of the Association in Birmingham in 1911. He was chairman-elect of the Wandsworth Division in 1912-13, Wimbledon appearing as the "Wimbledon Section" of the Wandsworth Division in the 1912 *List of Members*. In the following year he became chairman of the Wimbledon Division, the Division then belonging to the Metropolitan Counties Branch. He was vice-chairman of the Wimbledon Division of the new Surrey Branch in 1914-15, and chairman of the Kingston-on-Thames Division in 1925-6. A man of large sympathies and wide experience, he was popular with his colleagues and patients. A prominent hobby of his was golf, and he was one of the leading members of the Raynes Park Golf Club. He was a P.M. of the Chère Reine Lodge of Freemasons, and had been president of the Wimbledon Medical Society. Dr. Powell-Evans married twice, and leaves a widow and four sons, the eldest of whom succeeds him in his practice. He had expressed the wish that money which would have been expended on wreaths at his funeral should be sent to Epsom College, of which he was a life governor.

We regret to record the death, on October 11th in London, of Dr. JAMES CRAWFORD CRAIG, at the age of 56. Dr. Craig received the degree of M.A. at the University of Edinburgh in 1895, and, after holding the Grierson bursary in pathology in 1907, qualified M.B., Ch.B., with honours, a year later. He took the D.P.H. of the English Conjoint Board in 1910. Before settling down to general practice in London, Dr. Craig had held appointments as house-surgeon to the Royal Maternity and Simpson Memorial Hospital, Edinburgh, and surgeon to the Royal Buckinghamshire Hospital, Aylesbury. He was for some years clinical assistant at the Central London Ear, Nose, and Throat Hospital.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Ernest Basil Verney, M.B., F.R.C.P., Sheild Reader in Pharmacology and lately Professor of Pharmacology at University College, London, has been elected into a Professional Fellowship at Downing College. Frank Goldby, M.B., M.R.C.P., of Caius College, University Demonstrator in Anatomy, has been elected into a Fellowship at Queen's College.

The following candidates have been approved at the examination indicated.

Physics is Modern Radiology and Electromagnetism.—(Part II): J. D. P. B. Boyd, A. A. Dunlevy, M. Kahn, W. D. C. McCune.

UNIVERSITY OF LONDON

At its meeting on October 10th, with Lord Macmillan in the chair, the University Court was informed that the Surrey County Council, acting on the recommendation of its education committee, had decided to make a grant of £50,000, payable over ten years and subject to the approval by the County Council each year, towards the erection of the new university buildings in Bloomsbury. The Court also learnt of a grant towards the same purpose of £10,000, payable over ten years from the Hertfordshire County Council. The Court has conveyed its most cordial thanks to the councils and education committees of Surrey and Hertfordshire for these munificent gifts. It has also accepted, with gratification, a donation from the Worshipful Company of Turners towards the ceremonial hall to be built on the Bloomsbury site.

The Semon Lecture

The Semon Lecture will be delivered on Thursday, November 1st, at 5 p.m., at the Royal Society of Medicine by Mr. Herbert Tilley, consulting surgeon to the ear and throat department of University College Hospital. His subject is "Inflammation of the Maxillary Antrum and other Accessory Sinuses (Some Clinical Manifestations of its Pathology)." The chair will be taken by Mr. W. M. Mollison, president of the Laryngological Section of the Royal Society of Medicine.

UNIVERSITY OF SHEFFIELD

The Council of the University at its meeting on October 12th received the resignation of Professor Graham Simpson from the chair of surgery, and of Mr. H. B. Yates from the lectureships in surgical anatomy and surgical pathology, and the tutorship in surgery. Mr. Ernest F. Finch, M.S., F.R.C.S., was appointed to the chair of surgery.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examination indicated:

FINAL MEDICAL EXAMINATION.—(Part I, *Materia Medica and Therapeutics, Pathology and Bacteriology*): M. R. W. Spacek (passed on high marks), S. E. M'Connell, R. F. Cantan, H. FitzG. Sloan, S. H. Morrison, D. P. Beckett, Margaret Perry, H. Elliman, P. L. van Aardt, D. H. A. Irwin, J. M'Quillan, J. R. Shapiro, R. S. MacL. Cooke, H. W. W. Good, N. J. Smith, C. Eppel, A. E. B. de Courcy Wheeler, N. Jackson, Eithne M. O'Connell.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Bradshaw Lecture

The Bradshaw Lecture on "Haemochromatosis" will be delivered by Dr. J. H. Sheldon at the College, Pall Mall East, S.W., on Thursday, November 1st, at 5 p.m.

FitzPatrick Lectures

Sir Humphry Rolleston will deliver the FitzPatrick Lectures on the "History of the Endocrine Organs" at the College on Tuesday and Thursday, November 6th and 8th, at 5 p.m.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A quarterly council meeting was held on October 11th, with the President, Sir Holburt Waring, in the chair.

Mr. L. R. Broster was admitted a member of the Court of Examiners.

Mr. F. J. Smith, late of Bristol Grammar School, was admitted the fifth Macloghlin Scholar.

Mr. W. R. L. Harrison of Epsom College was nominated as the forty-second Jenks Scholar.

It was reported that the Sir Gilbert Blane Gold Medal for 1934 had been awarded to Surgeon Lieut.-Commander T. C. H. Neil, R.N.

Mr. F. W. Bentley was reappointed Bernhard Baron Scholar for a further period of six months.

A diploma of Fellowship was granted to Mr. J. B. Pennybacker (Edinburgh).

Diplomas of Membership were granted to Norman Angel (Birmingham), R. C. F. Catterall (Cambridge, and University College), G. B. Davis (King's College), and C. Ratnayaka (King's College).

The following appointments were made for the Primary Fellowship Examination to be held at Madras, beginning on December 27th: Lieut.-Colonel K. G. Pandalai (Assessor in Anatomy), Major S. L. Bhatia (Assessor in Physiology), and Professor P. K. Koshy Avargal (Superintendent of Dissections).

The Council adopted the annual report to Fellows and Members, which will shortly be circulated to those who have expressed a wish to receive it.

WELSH NATIONAL SCHOOL OF MEDICINE

The new laboratories of *materia medica* and *pharmacology* in the department of preventive medicine at the Welsh National School of Medicine were opened on October 12th by Sir William James Thomas, donor of the building. On the evening of the same day Professor G. Grey Turner, M.S., F.R.C.S., delivered the opening address for the new session.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

GOODWILL. AGREEMENTS TO REFRAIN FROM PRACTISING

The subject of goodwill and restrictive agreements is important not only to partners but also in every other working relationship between doctors. It is discussed here because it follows logically on a discussion of the relation of partnership, but it belongs equally to every other section of this article.

In a commercial business, carried on with the object of manufacturing or selling goods, the goodwill may be as tangible an asset as the firm's capital. Long ago, in *Crutwell v. Lye* (1810), Lord Eldon said that the goodwill which had been sold by a certain firm was nothing more than the probability that the old customers would resort to the old place. Later decisions have given the word a much wider meaning, and in *Trego v. Hunt* (1896) Lord Macnaghten said that the goodwill was often the very sap and life of the business, without which it would yield little or no fruit; it was the whole advantage of the reputation and connexion of the firm, which might have been built up by years of honest work or gained by a lavish expenditure of money. In *Hill v. Fearis* (1905) Mr. Justice Warrington said that goodwill was the advantage of being entitled to represent oneself as carrying on a business which had been carried on for some time previously. The name of the firm in a commercial business usually has a definite money value. For instance, it is obvious that for a company manufacturing biscuits the right to call itself Messrs. Huntley and Palmer would be worth many thousands of pounds. For this reason, in the very improbable event of Mr. Huntley and Mr. Palmer dissolving their partnership, neither would be entitled to continue selling biscuits as Messrs. Huntley and Palmer without paying the other his share of the value of this privilege. Moreover, if Mr. Palmer decided to start in business by himself, and sold his share of the goodwill to Mr. Huntley, he would not be entitled by law directly to solicit customers of the old firm to deal with him, and so take advantage of the connexion and his knowledge of it, but must behave as a complete newcomer into the market.

The goodwill of a medical practice is, on the contrary, a purely personal one, depending almost entirely on the confidence which the patients repose in the partner himself. A medical firm does not advertise; it is not known by a trade name; and it cannot, ethically at any rate, solicit custom. The goodwill consists in the partners' individual connexion, and when a doctor buys a practice or a partnership he merely buys an introduction, an exclusive recommendation and the exclusion of the seller. The goodwill, in the legal view, has no realizable value. If one partner, who has paid a premium, withdraws before the date fixed for the expiration of the partnership he may possibly be able to claim back a part of the premium corresponding to the unexpired term, but this is only what he has paid in order that he may share in the profits. True, the profits could not be earned without the goodwill, but he is not considered to buy with his premium goodwill, but only the opportunity of earning and sharing profits.

When the partnership expires the goodwill is not an asset which can be sold and divided among the partners. If a partner dies his representatives cannot claim anything as his share of the goodwill; the survivors need not retire from practice in order to make the goodwill saleable. They may make what subsequent use of it they please, provided they do not make use of the ex-partner's name. It is, however, always open to partners to agree beforehand that the goodwill shall have a saleable value, and in any event if the goodwill has actually been sold by

anyone in a position of trust the proceeds can be successfully claimed by anyone who has a just right to them.

For instance, in *Smale v. Graves* (1850) the widow of a dentist was made executrix of his will. She sold the goodwill and an introduction for £500, which she claimed to keep as arising from her personal influence with the patients. The court held that some, at any rate, of this money belonged to the estate.

In *Corbin v. Stewart* (1911) the widow of a medical man, who had not taken out letters of administration and therefore was not acting on behalf of the estate, sold the practice. She used those words in her receipt for part of the purchase money. Her purchaser defaulted and she sued for the balance. Mr. Justice Scrutton, as he then was, considered that she was entitled to sell the right to carry on business in the house, which was her own, but if she was selling the right to say "I am Dr. C's successor" he was inclined to think that part at any rate of the proceeds of the sale of this right belonged to the estate.

COVENANTS NOT TO PRACTISE

The value of the connexion to a purchaser will therefore depend very largely upon whether the original practitioner, or any of the members of a dissolved partnership, continue to practise in the neighbourhood. When a partnership is dissolved the law will not restrain any of the ex-partners from continuing to practise. A partner who has been expelled or who has withdrawn from the partnership and has been repaid his share of the capital will not, unless he has entered into an agreement to the contrary, be restrained from carrying on business on his own account. It follows that when a doctor buys a practice from a retiring colleague, or a partner leaves the partnership, or an assistant or locum tenens finishes his term of service, the value of the connexion will be seriously depreciated if the outgoing practitioner remains in the district and continues to practise, for the patients who have been consulting him will probably continue to do so. For this reason every agreement to purchase a practice, every partnership agreement, and every contract with an assistant or locum tenens should contain a legally binding clause restraining the outgoing party from continuing practice near by. The clause must be drafted by a solicitor with special experience, or the chances are that it will be quite worthless. The fundamental fact about such covenants is that the law originally refused to enforce them at all, holding that they were contrary to public policy, and even now the courts insist that the outgoing practitioner shall not be restricted any more closely than will secure the legitimate interests of those who are continuing to practise.

To make an agreement in restraint of trade valid two conditions must be satisfied: (1) the party who is to be restricted must receive some benefit by way of consideration (something valuable, that is, in return for the freedom he is renouncing); and (2) he must not be restricted more than is reasonably necessary, at the time of making the contract, to ensure that the party who gives the consideration gets the freedom from competition for which he is paying. The mere fact that the doctor is employing the assistant is considered a sufficient benefit to the assistant to constitute consideration for a restrictive covenant (cf. *Davis v. Mason*). The restriction, to be reasonable, must obviously be limited in space, for it will not hurt the buyer of a practice if the seller goes and practises a hundred miles away. It can, however, still be reasonable even if it is unlimited in time, for it protects (at least in England) not only the buyer himself but also anyone to whom he sells, assigns, or bequeaths the practice, and is, in fact, an asset—part of the goodwill. A medical man (at least in England) is still bound by such a covenant even if the other party or his successors have ceased to practise, for the reasonableness of the restriction is determined at the time it was made, and nothing that happens later can affect it.

SIZE OF RESTRICTED AREAS

The size of the area within which the buyer can reasonably demand to be protected varies according to the nature of the practice. The courts have upheld agreements not to practise within ten miles of Thetford and of Newton (Montgomery)—small country towns—and even within

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), the fourth on July 21st (p. 141), the fifth on September 22nd (p. 574), and the sixth on October 6th (p. 669).

twenty miles of Aylesbury. This last case was heard as long ago as 1818, and such a condition would presumably be equally valid to-day, when distances are so much shorter. In London, distances of two and a half and three miles have been held reasonable (*Atkins v. Kinnier, infra*). An agreement not to practise as a surgeon-dentist in London has been held reasonable. On the other hand, when a dentist agreed not to practise within 100 miles of York, the condition was held to be unnecessarily wide for the protection of the other party to the agreement (*Horner v. Graves, 1831*). Unless the method of measurement is stated, the distance is measured "as the crow flies."

The peculiar danger of these covenants is that if by some mistake the area within which an outgoing practitioner binds himself not to practise is too wide, the whole restriction is invalid and the outgoing practitioner is at liberty to practise anywhere. Suppose an assistant to a Halifax doctor agreed not to practise in the West Riding of Yorkshire, and afterwards broke his agreement by practising in Dewsbury; if the courts considered that the West Riding was an unreasonably large area they would hold the restriction invalid as against public policy, and then there would be nothing to prevent the ex-assistant from coming to Halifax and setting up in practice next door to his late principal. The court will not fix a fresh limit. A more frequent source of trouble is faulty framing of the restrictive clause so that it does not entirely prevent the seller, ex-partner, assistant, or locum-tenent from competing. One of the commonest errors of drafting is to forbid the seller to "set up in practice" within a certain radius. If the buyer, under this condition, goes out one morning and finds the ex-owner of the practice calling on some of his old patients at their invitation he has no redress. In order to be safe the restraining cause must prohibit the seller, etc., from doing any act at all in the capacity of a registered medical practitioner within a given reasonable area for a given time. One firm of solicitors with a large medical connexion advises, in London agreements, a double restriction: the outgoing party agrees not to set up in practice, or to practise, within a given small radius—usually one mile—and also that he will not profitably attend upon, advise, or prescribe for a patient who was previously a patient of the practice within a much wider radius, usually twenty miles. The small radius, while legally unobjectionable, gives ample protection against competition for future patients, and the large radius is obviously reasonable for the specific protection of the existing practice.

The words "practising the profession of a medical man" will probably cover every kind of competing activity.

Two medical men, on dissolving partnership, drew a line on a map and agreed not to "exercise or carry on the practice, profession, or business of physician, surgeon, or apothecary at any place within the boundaries of the partnership practice," north and south of the line respectively. One of them attended patients at their own residences on the wrong side of the line and the other sued him. Counsel argued that "practising" in an area meant opening a surgery or having consulting rooms in it, but the court held that the doctor practised his profession every time he attended a patient, and that the patient's house was a "place" within the meaning of the restraining clause.

When a practitioner binds himself not to practise within given limits, a condition that he shall also not live within certain limits is reasonable if it is connected with the covenant not to practise, and is necessary to protect the interests of the other party.

In *Atkins v. Kinnier (1850)* a surgeon, K, entered into partnership with another, A, for three years, and promised that at the end of that time he would not practise or reside within two and a half miles of No. 28, Dorset Crescent, "measuring by the usual streets or public ways of approach thereto," and that if he should break this condition he would pay A £1,000. After the end of three years A sued K on the grounds that his house in Southwark was within two and a half miles of 28, Dorset Crescent. At the trial it appeared that K's house was more than two and a half miles away if the distance was measured by the public thoroughfare most frequented by carriages, but if measured by another public thoroughfare along which carriages seldom passed the distance was a few feet under two and a half miles. There was no evidence that K had done A any damage whatever by living

where he did, but the court found that the contract was broken and ordered K to pay the £1,000. The Exchequer Chamber—corresponding in those days to the Court of Appeal—supported the judge in holding that the condition that K should not reside within two and a half miles was not unreasonable, as a person might reasonably guard against a harmless act in order to prevent an injurious one which might easily follow from it. As the covenant not to practise was legal and binding, and the covenant not to reside was connected with it, this was legal and binding also.

The court has also held reasonable a condition that the retiring practitioner shall not let his house to a medical man. When a retiring practitioner binds himself not to carry on medical practice he is also bound not to act as assistant to a person who does so (*Palmer v. Mallet, 1887*).

RESTRICTIVE COVENANTS IN SCOTLAND

In Scotland the courts have sometimes regarded a restrictive covenant as a purely personal agreement which is not assignable to a successor. In *Rodger v. Herbertson (1909)* H sold his practice to A and agreed that A, his heirs, executors, and successors should have the exclusive right to the practice and the goodwill, and that he himself would cease to practise in the neighbourhood. A assigned the practice and the agreement to R, but when R brought an action to prevent H from practising in the neighbourhood the Court of Sessions held that the contract was personal and intransmissible, and that the term "successor" had no meaning. In this case, however, the court found that certain terms of the contract disclosed *delectus personae* (an exclusive personal reference) as regards the purchaser A, so as to suggest that the agreement was binding on H only with respect to A. Lord Dunedin, the President of the Court, expressly stated that there was no general rule, and that each case must depend upon its own terms and on the just construction of the bargain between the parties. Lord Wark, commenting on this case in an opinion delivered in *Cunningham v. Forsyth (1933)*, dissented from the dictum of Lord Kinnear that in a medical practice there is nothing to assign but a personal goodwill, and that this can hardly be assigned except on considerations personal to the assignee. Although, he said, a medical man may sell his practice only to a person in whom he has confidence, and show by the terms of the contract that he has done so, yet in *Cunningham v. Forsyth* the practice was sold to the first comer by the representative of a doctor under legal disability. It was, he said, a little difficult to see why a restrictive covenant binding the doctor's son not to compete with this first comer should not be transmissible to any practitioner to whom the first comer should sell the practice. There did not, in fact, seem to be any element of *delectus personae* about the transaction. The position is probably, therefore, that even in Scotland a doctor selling a practice to a colleague can, if he makes it quite clear in the agreement that he is doing so, legally bind himself not to compete with any successor of that colleague. Friendly societies and other bodies sometimes insist that their medical officer shall bind himself not to practise in the neighbourhood after his engagement with them is ended. Such covenants have been upheld by the courts.

The courts accept the ordinary covenant not to practise afterwards as a necessary part of every agreement between two doctors who wish to work together, but as soon as two competing doctors try to make a similar arrangement they reject it as contrary to public policy.

Collins v. Locke (1879) concerned stevedores, not doctors, but the same principle would probably apply to medical practice. Four stevedores in Melbourne made a kind of "ring." They agreed to divide the stevedoring business of the port on the footing that each one should do the work on a certain list of shipping firms; if one took a job from a firm "belonging" to another of his colleagues he should compensate that colleague; and if at any time one could not get a particular job from one of his own firms, none of his colleagues should take it. The Privy Council held that the condition by which a party who did work allotted to another should compensate him was fair and reasonable, because each party in turn might benefit by it and the merchant interested in the ship could have his work done by the party whom he wished to do it. The court would not, however, enforce the other clause

—that which provided that if one party was not given the work, none of the parties should take it. This clause, it said, restrained three out of the four parties without giving any of them any profit or benefit to compensate for the restriction, which was also detrimental to the public because it deprived merchants of the services of any of the parties unless they employed a particular one, against whom they might have a perfectly reasonable objection. Their Lordships said that the clause was entirely beyond anything which the legitimate interests of the parties required.

It is therefore practically certain that if two doctors who lived in the same district made an agreement by which each should take certain patients and that neither should attend a patient belonging to the other, the courts would refuse to enforce their bargain. An agreement to allot certain streets or villages to one doctor exclusively would probably be open to the same objection. The courts are very jealous of the public interest in enforcing any agreement in restraint of trade or practice. If, however, a number of doctors agree that, whichever of them does the work, certain doctors shall receive the fees from patients in certain districts, the bargain would be held good at law, because each of the parties would stand to benefit in turn and the agreement would not in any way restrict the services available to the public.

LIQUIDATED DAMAGES

The condition by which a doctor agrees not to practise within a certain area generally includes a covenant that, if he does practise within that area, he shall pay a stipulated sum of money as "liquidated damages." This means that the parties agree that if the covenant is broken this sum shall represent the damage which the owner of the practice has suffered. If the clause expresses that the offender shall pay a certain sum as a penalty for breaking the agreement, then the sum is a penalty and the aggrieved practitioner can only recover a sum equal to the damage he has actually suffered. The courts will not necessarily, whatever the wording of the agreement, award such a sum either as liquidated damages or as a penalty, but will take all the circumstances into consideration. The decisions to be found in the reports suggest that the sum named will only be treated as liquidated damages if it represents a genuine estimate of the damage which the owner of the practice is likely to suffer if the outgoing doctor remains in the neighbourhood. If the sum is obviously disproportionate, the court will not make the offender pay it all; if the sum seems fairly proportionate, it probably will. The aggrieved practitioner can ask the court either to grant an injunction preventing the outgoing doctor from breaking his restrictive covenant or to award damages for the breach, but not both. A practitioner who succeeds in obtaining an injunction will not be allowed to sue afterwards for liquidated damages, and if he is granted damages the outgoing doctor will be perfectly at liberty to practise in the district as long as he likes. The owner can, however, sue both for an injunction and for unliquidated damages—that is, the actual amount of damage that he can persuade the court he has suffered. A doctor who has agreed not to practise on pain of liquidated damages cannot simply offer the amount of the damages and set up in practice.

If the owner of a practice suddenly discovers that one of his old assistants or ex-partners has started to practise in the neighbourhood in defiance of his agreement not to do so, he should lose no time in instructing his solicitor to apply for an injunction. The court will, if he makes out a good case, grant an interim injunction without hearing the other side, and this will protect the practice until the case is tried or for a definite time fixed by the court. If the offender has really infringed the covenant, the court will not refuse an injunction merely because the actual damage has so far been trifling. It is dangerous to delay in these cases, for courts of equity are apt to take the view that if a suitor does not ask for their help in reasonable time he cannot be in any great need of it. The injunction is a most effective remedy, because if the offender disobeys it he can be promptly imprisoned. It is a very different matter from trying to get damages out of an evasive debtor.

Medical News

Lord Moynihan will open the extension of the Samaritan Free Hospital for Women, Marylebone Road, London, N.W., on Tuesday, November 13th, at 3 p.m. It is twenty-seven years on November 23rd since Sir Frederick Treves formally opened the new operating theatre, and referred to the perfecting of the methods of certain operations particularly associated with the Samaritan Free Hospital and Sir Spencer Wells.

On Monday, November 5th, a banquet will be held at the Mansion House in support of the appeal of St. Bartholomew's Hospital Medical College for funds for the purchase and equipment of the site and buildings in Charterhouse Square acquired last year. The Lord Mayor, in a special appeal to the City of London, explains that £65,000 is needed to pay off the balance of the purchase price, £40,000 to alter and equip the existing buildings formerly occupied by Merchant Taylors' School, and £30,000 to build and equip a residential hostel for students. The College authorities have already raised £65,000, and they own a building which it is hoped to sell for £20,000. The new College must be ready for occupation before the opening of the winter session 1935-6. H.R.H. the Prince of Wales, President of St. Bartholomew's, has given his personal support to the launching of this appeal.

A reception will be held at the Royal Society of Medicine on Thursday, November 8th, at 8.30 p.m., when Fellows and their friends will be received in the library by the President and Mrs. Robert Hutchison. At 9.15 p.m. an address (in English) will be given by Professor Arturo Castiglioni, entitled "The Ancient University of Padua and its English Scholars." Admission will be by ticket only.

The annual dinner of the Leeds School of Medicine will be held at Queen's Hotel, Leeds, on Thursday, November 15th. Particulars may be obtained from the secretaries.

The Buckston Browne annual dinner of Fellows and Members of the Royal College of Surgeons of England will be held in the College, Lincoln's Inn Fields, on Thursday, November 8th, at 8 p.m. This dinner, provided through an endowment by Sir G. Buckston Browne, F.R.C.S., has been held regularly since 1928. Those present usually number about a hundred, and at least half of the guests are members of the College.

An address, on "Sir James Paget at Home," will be given by Bishop H. L. Paget on Friday, October 26th, at 8.45 p.m., at the Princess Elizabeth of York Children's Hospital, Shadwell, E.1. Professor G. Grey Turner will occupy the chair. Admission free, without ticket.

After the meeting of the Cambridge Medical Society on Friday afternoon, October 26th, at Addenbrooke's Hospital, Dr. G. S. Haynes will unveil the Arthur Cooke Memorial Plaque. By arrangement with the Cambridge and Huntingdon Branch of the British Medical Association, all members of the Branch are entitled to attend the meetings of the Cambridge Medical Society, which count as clinical meetings of the Association.

A meeting of the Medico-Legal Society will be held at 11, Chandos Street, W., on Thursday, October 25th, at 8.30 p.m., when a paper will be read by Dr. Ainsworth Mitchell on "The Use of Invisible Rays in Criminology," followed by a discussion.

A meeting of the St. John's Hospital Dermatological Society will be held at St. John's Hospital, 49, Leicester Square, W.C., on Wednesday, October 24th, at 4.15 p.m., when clinical cases will be shown.

A course of three lectures on "Forty Years of Gynaecological Endocrinology" will be given by Professor Ludwig Fraenkel, late director of the Women's Clinic in the University of Breslau, at University College Hospital Medical School, University Street, W.C., on October 31st and November 2nd and 5th, at 5.30 p.m. Professor F. J. Browne will take the chair at the first lecture. Admission free, without ticket.

A course of eight lectures on "Psychology and Modern Problems" will be given at the Institute of Medical Psychology, Malet Place, W.C., on Tuesdays from October 23rd to December 11th, at 6 p.m., with the exception of the lecture on October 30th, which will commence at 5.45 p.m. The fee for the course is £1 ls., and tickets may be obtained in advance from the honorary lecture secretary; tickets for single lectures, obtainable at the door, are 5s. each.

The programme for the ensuing session of the Eugenics Society has now been published. On October 30th Professor H. Muckermann will discuss "The Eugenic Movement in Germany"; on November 20th Mr. Herbert Brewer "Eutelenesis"; and on December 18th Dr. Shepherd Dawson "Disease and Intelligence." The meetings will be held in the rooms of the Linnean Society, Burlington House, Piccadilly, at 5.15 p.m., with Sir Humphry Rolleston in the chair; tea at 4.45. All interested in the subjects mentioned are invited to attend.

A post-graduate course on diseases of children will be held at the Great Ormond Street Hospital, W.C., from October 22nd to November 4th, from 10 a.m. to 1 p.m. and 2 p.m. to 4 p.m.; Saturdays 10 a.m. to 1 p.m. The course, the fee for which is £6 6s., will consist of fifty clinical lectures and demonstrations, and six laboratory demonstrations. Applications to take the whole course, or any part thereof, to the secretary of the hospital.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., at 2.30 p.m. on October 23rd and 30th. The first lecture in the series, on diet and dietetics, will be given at 11, Chandos Street, on October 24th, at 8.30 p.m., by Professor R. J. S. McDowall. A week-end course in diseases of the chest will be held at the Hospital for Consumption, Brompton, on October 27th and 28th. Other forthcoming courses include neurology, at the West End Hospital for Nervous Diseases, October 29th to November 3rd; obstetrics, at the City of London Maternity Hospital, November 3rd and 4th; medicine, surgery, and gynaecology, at the Royal Waterloo Hospital, November 5th to 24th; diseases of the chest, at the Victoria Park Hospital, November 5th to 10th; urology, at St. Peter's Hospital, November 5th to 17th. Courses of instruction, clinics, etc., arranged by the Fellowship are open only to members.

The Italian Congress of Industrial Medicine, which, as stated in our issue of October 13th (p. 705), was to have been held at Turin from October 20th to 22nd, has been postponed to the 25th to 27th.

The fifth Rumanian Congress of Surgery will be held at Bucarest during the first ten days of November under the presidency of Professor I. Bacalesco, when the following subjects, among others, will be discussed: surgery of cholelithiasis; surgical treatment of uterine prolapse; osteosynthesis; genital actinomycosis; and surgical treatment of facial paralysis. Further information can be obtained from Dr. J. Jianu, rue Campineanu 62, Bucarest.

The annual general meeting of the Guild of St. Luke, St. Cosmas, and St. Damian will be held in the Committee Room, Cathedral Hall, Archbishop's House, by permission of the Cardinal, on Sunday, October 21st, immediately after the High Mass at Westminster Cathedral, which will be celebrated at 10.30 a.m. Front seats will be reserved on the Epistle side.

On October 12th Mrs. Charles H. Marshall and Mrs. E. M. Field of New York attended the naming of the "Josephine B. Marshall" pathological laboratory at the West End Hospital for Nervous Diseases. The Bishop of Willesden performed the ceremony, and the Earl of Harewood presided. The late Mrs. J. Marshall was a great benefactress of the hospital, and for ten years, until her death in 1933, she was a member of the committee of management. Mr. and Mrs. Charles Marshall and Mrs. Field gave £3,200 to enable the laboratory to be named after her.

Under the auspices of the Standing Conference of Metropolitan Borough Tuberculosis Care Committees an

exhibition and sale of work made by students attending handicraft classes at tuberculosis dispensaries in London will be held next week at Carpenters' Hall, Throgmorton Avenue, E.C. There will be two opening ceremonies, the first on Wednesday, October 24th, at 3.30 p.m., by the Lord Mayor, and the second on the following day at the same hour by Lord Snell, chairman of the London County Council, after which Sir Henry Gauvain will give an address. Tea will be served during both afternoons (price 1s.), and working demonstrations will be given. Invitations and further particulars may be had from the honorary secretary, Mrs. William Brand, "Pembury," The Drive, Rickmansworth, Herts.

Rural housing in Wales and tuberculosis in cattle will be discussed at a sessional meeting of the Royal Sanitary Institute in the Pier Pavilion, Colwyn Bay, on Friday, October 26th.

In the year ending August 4th, 1934, in eighty-six large towns in the United States, 23.3 persons per 100,000 inhabitants were killed by motor accidents, as compared with 21.1 persons in the previous year.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

Hospital Wards

Dr. SIDNEY CLARKE (St. Albans) writes: There is a tendency for architects at present to build hospital wards with beds parallel to the windows in place of the usual head to wall. Is this more costly, and does the arrangement lead to increased work? Some sisters are said to view the system with little favour. Would anyone, please, who is familiar with such wards give any information as to the advantages and disadvantages of such arrangements?

Chronic Bone Sinus

Dr. CLEMENT BELCHER (Birmingham) writes with reference to the inquiry by "A.B.C." (September 29th, p. 617): With a deep sinus of such long standing it is questionable if closure would be in the interests of the elderly patient, there being the probability of dead bone for which the sinus gives drainage. I have a similar case, but this is a tuberculous osteitis, not a staphylococcus infection, as is usual, I believe, in acute osteomyelitis cases. This patient has been under my care for forty-five years, and for the last forty has had a bone sinus. In 1890 his right foot was amputated for a tuberculous ankle-joint which troubled him for five years. He then developed a focus in his right elbow, but never would he have another operation. During all this long period he had had treatment every week, first as a "club," then as a panel patient. His

treatment consists of light dressings soaked in boric acid lotion with zinc sulphate and ammon. picrate solution; this has kept the elbow-joint useful. I have removed on several occasions a small sequestrum, but he has carried on his employment as a leather worker all these years, and is still at work at the age of 69.

Income Tax

Cost of Assistant's Board, etc.

"SRS" has claimed £150 per annum as the cost of the board and lodging of his indoor assistant. The inspector points out that the cost of a surgery maid and one-half of the rent, rates, and light and heat are already claimed and allowed as professional expenses.

Though much must depend on the facts of the particular case it does seem that there is not much of the element of "lodging" to be claimed for by "Spes," seeing that it has to be covered by the "lodger's" share of one-half of the rent, etc.—the rent and rates not already allowed amount to £56 per year only. In the circumstances we suggest that a personal visit to the inspector's office might lead to a reasonable compromise.

Income from Dominions

"A. R." is resident in one of the Dominions, and has a private income on which he pays tax there of about £120 per annum. What would he pay if he resided in England?

Assuming "A. R." to be married, but not entitled to "child" or other special allowances, his tax here would be:

	£	s.	d.
On the first £150	...	...	nil
On the next £175 at 2s. 3d. in the £	...	19	13 9
On the balance of £675 at 4s. 6d. in the £	...	151	17 6
	£171	11	3

Less Dominion income tax relief, which in the circumstances would represent apparently about half the above amount, leaving "A. R." in the position of paying £120 plus, say, £85 = £205, less any relief he might obtain from the Dominion authorities.

Employment of Wife

"J. G." explains that he has "paid his wife £25 a quarter for years," and "the work she does is worth at least £45 a year," which is all he claimed. The inspector of taxes has refused the claim on the authority of a decision in the case of Thomson v. Bruce.

The allowance of £45 in respect of the earned income of the wife presupposes that the wife's earnings have been assessed. "J. G." does not state whether he returned his wife's "income" for assessment. That was one of the points in the case cited. Another was that accounts had been lodged which did not show the wife's wages as paid out of the business receipts. The question is really one of fact—that is, it is for "J. G." to prove (a) that he did pay wages to his wife for the work she did in the practice, and (b) that he has been assessed in respect of her earnings.

LETTERS, NOTES, ETC.

The G.P.'s Nightmare

To those who may have had similar dreams, this one of Dr. J. Vergely's may bring the comfort of a fellow-sufferer. We translate it from the *Journal de Médecine de Bordeaux*, 1934, xxv, 681.

I have had a frightful dream. I distinctly saw coming towards me a man with his flesh flayed and large tears running from his eyes. In spite of this horrible mutilation, he walked and spoke without difficulty. When he reached the place where I was, he stopped and made a sign that he wished to speak with me. "Who are you?" I asked. "Who am I?" he replied. "I am the last survivor of a disappearing race, one which, when I am gone, will become completely extinct. . . . I am a practitioner of general medicine. No doubt you are surprised to see me in such a sorry state, but it is all the fault of those specialists. They have taken everything from me, even my skin, bit by bit. As you see, they have left only my eyes, so that I can weep. Ah! how magnificent was the life I used to lead, and who would have said that I

should come to this? But, let me tell you, my condition was not always so deplorable. When I began the practice of medicine I was, if not exactly rich, at least properly clothed; and I tried my best to care for suffering humanity. Up to the time of the war things went on in much the same way. True there were already specialists. Besides the surgeons and, within their ranks, the genito-urinary surgeon, the gynaecologist, and the orthopaedic surgeon, there were also the obstetrician, the dermatologist, the oto-rhino-laryngologist, the dentists, the radiologists. But that was almost all, and these specialties seemed to us to be justifiable. But since the war! Ah! my good sir, there have sprung up the foot specialists who have taken our feet from us, the cardiologist the heart, and the tuberculosis experts who, under the guise of this disease, have stolen all the maladies of the lung. I will not refer to the paediatric physicians, more wildly specialized than before, nor to the neurologists or the psychiatrists, who speak a language which becomes more and more esoteric. Then there are the specialists for rheumatism, lymphatism, and much else besides; and the last thing I heard of was that there were specialists for diseases of the vessels and for endocrine disorders. I tell you truly that they have taken everything from me, bit by bit, and have left me only my eyes to weep with. Ah! he cried, striking his chest, "I will go and specialize in unknown diseases."

Treatment of Trichophyton Infection

"M.D." writes: The difficulty in effecting a cure of trichophyton infection of the fourth interdigital spaces of the feet has recently been alluded to. The experiences of a sufferer may be of assistance. For several years I have persevered with a number of treatments, often for several months each. All have failed to produce improvement with one exception. Cignolin (Bayer) grains x in benzol 3i is the exception. A solution of silver nitrate, x rays (1/4 pastille on one occasion, 1/2 pastille on another), Castellani's fuchsine paint, chrysarobin ointment (8 per cent.) have all proved completely ineffective. Whitfield's ointment, containing salicylic acid grains xx and benzoic acid grains xxv to an ounce, applied nightly on pledgets of cotton-wool, produced almost intolerable smarting and a marked extension of the disease, so that the whole interdigital skin, up to the tips of the affected toes, became white and infected. Cignolin alone has produced improvement; but of cure I begin to despair.

Lethal Noises

Dr. W. J. BURNS SELKIRK (Birmingham) writes: In reading Dr. Dan McKenzie's paper on "Noise and Health," in the *Journal* of October 6th (p. 636), I recollected two curious instances of the effect of noise given in Hudson's book, *A Hind in Richmond Park*. (1) A baby died as a result of an explosive sneeze by another person in the room. (2) A man had so loud a voice that when, in temporary forgetfulness, he shouted loudly at his ox the ox fell dead. I think the sudden shriek of the whistle of a passing railway engine can cause fits of terror in a baby for months afterwards.

Medical Golf

The autumn meeting of the Sussex Medical and Dental Golfing Society was held on the course of the Dyke Golf Club, Brighton, on September 30th, when twenty-eight members were present. The weather was fine and warm, although there was a strong wind. The morning round, for the captain's prize (presented by Dr. A. E. Drynan), against bogey resulted in a win for Dr. H. Butcher with a score of 2 up; M. W. Pilcher was second (1 up), and the prize for the sealed holes was won by Dr. J. M. Anderson. In the afternoon the competition took the form of a four-ball foursomes against bogey, resulting in a win for Drs. Bond and Devlin (4 up), the runners-up being Drs. J. Thwaites and J. K. Raymond, who tied with Drs. G. Thwaites and A. E. Drynan, with 2 up.

George Newnes Limited announce the publication, in fortnightly parts, of a popular work entitled *An Outline of Modern Belief*, by J. W. N. Sullivan and Walter Grierson.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 47, 48, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum-tenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 212.

BRITISH MEDICAL JOURNAL

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BAD SURGICAL RISKS*

BY

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Apart from the technical competence of the operator, the organization of his theatre, and the environment in which he works, there are many factors which combine to determine the success or failure of a surgical operation, and which contribute towards promoting a glorious result or compassing a fatal ending. The title of the subject for this discussion might appear literally to indicate surgical undertakings which, by reason of their magnitude, by reason of the condition of the patient, or possibly because of both these causes co-operating, seem fraught with grave but justifiable hazard; or the reader perusing the wording of this theme might contemplate a morning spent on listening to a veritable catalogue of perils to which patients have been quite unwarrantably exposed by operators, whose conduct is tacitly implied to have been reprehensible in this respect. The parlance of insurance has, however, invested the term "bad surgical risk" with a rather different connotation: it is the operated, and not the operation, that is envisaged, and the *bad surgical risk* has been defined by Basil Rooke¹ as "a type of patient whose prospect of recovery from active surgical treatment of his condition falls much below the average."

It is not, therefore, intended to discuss in these columns surgical enterprises formidable in magnitude and no less forbidding in their prospective mortality, such as the total extirpation of the thoracic oesophagus for cancer and its reconstitution by some form of oesophagoplasty, a surgical triumph gained in this country only by Grey Turner² of Newcastle in that *annus mirabilis* of oesophageal surgery, 1933, and more recently abroad by Gohrandt of Berlin.³ We are not to consider the ablation of large hepatic tumours, whether these be primary hepatic adenomata or the direct extension of a colonic cancer. Interpelvi-abdominal amputations⁴ claim no attention in this discussion, although they are still associated with an operative anxiety sufficient to designate their performance as a risky procedure. Dramatic and heroic extractions of emboli from the pulmonary artery, although bad surgical risks in the literal sense, are to make no claim on our notice, nor are the marvellous encroachments of war surgeons into operative fields hitherto unexplored, than which there has been no greater hazard and no more glorious attainment than Pierre Duval's extraction of a bullet from the intrapericardiac portion of the inferior vena cava.⁶ In this discussion it is upon the patient himself rather than upon the operation that attention is to be focused.

Various causal agencies are operative in determining a patient a "bad surgical risk": (a) aetiological factors—for example, race, sex, heredity, age, etc.; (b) bodily conformation—fat, colour of hair, etc.; (c) previous

habits and mode of life; (d) antecedent or intercurrent disease, and the state of the cardiovascular, respiratory, urinary, and nervous system; (e) the psychology, etc., of the patient; (f) the pathological condition for which surgery is contemplated, the severity of that condition, and the existence of secondary phenomena affecting the sufferer prejudicially; and (g) the type of operation proposed.

This discussion would assuredly be judged incomplete, and would fail in its object, if one were content with delineating and portraying these "bad surgical risks," and did not adumbrate the therapeutic measures whereby these patients might be made safe, or safer, for surgery.

General Aetiological Factors

Race.—It would be difficult to controvert the accepted view that members of the Jewish faith are notoriously "bad surgical risks"; and in the case of operation the simplest measures are to be preferred: safety must be put before thoroughness and the highest efficiency. It is easier for "a camel to go through the eye of a needle" than for a Jew to recover from an abdomino-perineal excision of the rectum; a perineal ablation must suffice. Moreover, although a Jew may recover from a gastrectomy for ulcer, it is rare for recovery to take place when the pathological condition demanding an extensive removal of the stomach is a malignant growth. I have, nevertheless, a Jewish patient alive five years after a gastro-colic resection for a carcinoma involving the stomach and the whole of the right side of the colon; this is, however, a very exceptional case, which goes to "prove the rule." The Welsh and Irish[†] have also been impugned as relatively bad risks. The Chinese stand operation well; but my experience of war surgery among those who came "from India's coral strand" convinced me that they were extremely "bad risks."

Mr. Green-Armytage⁷ kindly informs me that the operative risk in natives is related in no small degree to such considerations as blood count, calcium index, blood pressure, which are all lower than those of the "Westerner"; their diet, whether they be meat-eaters or vegetarians, is always defective in vitamin A, with the result that their resistance to infection is below normal, and a merely moderate degree of infection of thorax or abdomen proves fatal. Considerations of diet may also be responsible for the frequency of post-operative ileus after abdominal operations, and for the alarming acetonaemia which may supervene after surgery. On the other hand, the increasing desire of the native to get out of bed at the earliest moment after operation, and the good

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

† A lengthy experience of surgery behind the 16th South Irish Division during the war does not confirm but rather refutes this opinion.

musculature of the abdomen, make post-operative thrombosis rare.

Sex.—It is well known that certain operations, such as the extirpation of the rectum by the combined method, are better borne by women than by men, but on the other hand I am confident that gastrectomy is an operation far more frequently followed by anaemia in females than in men,⁸ and therefore to be performed in the former sex more reluctantly. Operations are badly borne during menstruation, pregnancy, and parturition. The sinister effect of the menstrual period upon a radical breast operation is perhaps not sufficiently well known; such an undertaking at that epoch may well prove calamitous.

Heredity.—A long-lived ancestry is a precious possession and an asset of no mean worth, if surgery be contemplated. There are at present no means of altering for the better the proclivity of this or that race to react badly to surgery; we cannot in the twinkling of an eye transform ancestral inheritance or racial characteristics, any more than can "the leopard change his spots or the Ethiopian his skin."

Age.—It is obvious that surgery must be safest during those years when the individual is in his prime, and that operations performed at the extremes of life must carry with them a greater risk than those carried out during the intermediate decades. Nevertheless, it is a remarkable fact that surgery undertaken in the first three months of infant life by skilled and experienced operators is extremely well borne.

Mr. Tyrrell-Gray,⁹ whose considered opinion, based on a vast experience of children's surgery, is an authoritative one, has courteously informed me of the

"absolute safety of Ramstedt's operation for pyloric stenosis; the absolute safety of herniotomy, even double herniotomy, in these early months, if this operation has to be done on account of large size, obstruction, or strangulation, or because it cannot be controlled by any form of truss; likewise the safety of hare-lip operations (although he himself prefers waiting)."

The great anxieties naturally associated with emergency operations during the first few days of life are concerned not so much with the paucity of the hours of separate extrauterine existence as with the actual pathological condition demanding surgery. Fortunately, congenital intestinal atresia is rare, as is also congenital volvulus but all cases, except the simplest malformation of the hindgut, are extremely "bad surgical risks." Nevertheless, Mr. Gabriel has successfully closed a colostomy performed for some congenital hindgut malformation as an emergency operation in the first few days of life.¹⁰ Apart from gangrenous changes demanding resection of bowel, the prognosis in intussusception is excellent, despite the fact that 50 per cent. of the cases occur between the fifth and ninth months of infant life. Early diagnosis, prompt surgery, and the method of anaesthesia have all conduced to the attainment of this low mortality. Gas and oxygen would appear to be the anaesthetic of choice in these cases, but in my own hands spinal anaesthesia has given me a mortality of only 2 per cent., my one fatal case being one demanding an excision for gangrene of the bowel. The occasional publication in medical journals of successful cases of intestinal resection for gangrenous intussusception in early infancy bespeaks the fatality of the procedure: the continuity of the bowel must be re-established at all costs; a time-saving but chicken-hearted enterostomy after resection is always fatal in these cases.

The aged are naturally "bad risks" in cases of injury, and where any operation of severity is contemplated. The adage that "a man is as old as his arteries" must be constantly kept in mind if any complicated surgical incursion

is under consideration. In the very old, local anaesthesia is probably the method of choice, and with its aid I have successfully performed a colostomy for a woman of 98 years with a cancerous rectum, who survived a year; and, in the case of a male nonagenarian, I anastomosed the ileum to the pelvic portion of the rectum for a large obstructing carcinoma of the sigmoid; the patient survived two years, and died of uraemia. It is only fair, however, to record that the oldest patient successfully operated on had general anaesthesia administered; she was a woman of 107 years with a strangulated femoral hernia, and was alive a year after without sign of recurrence. I have, under light general and local anaesthesia, resected a carcinoma of the transverse colon in a gentleman of 85, who is alive six years after.

Bodily Conformity

Those whose stature and form are abnormal are "abnormal surgical risks." The microscopical woman of a few stones in weight may finally disappoint the operator just as easily as the giant or the Hercules.

Fat is well known as a surgical handicap, and where there is no necessity for special haste time may be well spent in reducing weight and improving the musculature of the heart and body under the guidance of a skilled physician and the co-operation of a biochemist. Apart from the mechanical difficulties of operation in the obese, the depth of the wound, the friability of the tissues, the less secure ligature of vessels by reason of greasy gloves, the obscuration of the serous coat of the large intestine by enormous appendices epiploicae and the fatty tissue on the bowel, it must be remembered that there is probably the same amount of fat round the heart and in the heart itself; it is this type of person who perhaps appears more prone to thrombosis and embolism, and who certainly resists infection less well than his neighbour of more spare frame. Any operation for a ventral hernia in a fat woman, where much of the contents of the abdomen have been long outside the coelom and are now replaced, is almost always disastrous.

The general condition of tissues is also important. Prolonged confinement to bed tends to produce deterioration of the tissues of the body, a poor cardiac musculature, and a general inability to respond to any severe surgical procedure. On the other hand, confinement to bed for a few days before operation may be a most salutary preliminary measure: this simple measure may make an easy operation of one which promised to be difficult, and less pain is experienced by the patient than if he had had his abdomen opened "the morning after the night before." The auburn-haired, especially children, are liable to occasion anxiety during and after operation, and their scars have a tendency to become keloid in character: a keloid condition resulting from a circumcision is a terrible sequel to the commonest operation in the world.

Habits

It is obvious that those addicted to excess in the matter of alcohol, tobacco, drugs, etc., must be "worse surgical risks" than their fellow creatures. The liability of the alcoholic to develop delirium tremens after operation or injury is well known: the mortality of any post-operative chest complication is far higher, but if he is already the possessor of a cirrhotic liver, the chances of his recovery from any really severe operation are remote.

Antecedent or Intercurrent Disease

This must obviously prejudice the patient's chances of a successful operation, and this is the more true of cases in which disease is latent and unexpected, and when some urgent operation is required. How often has pulmonary

tuberculosis flared up—perhaps disastrously—in a patient making a good recovery from a perforated gastric ulcer. Where the thoracic condition is known beforehand, the use of an appropriate anaesthetic may minimize the risk.

Cardiovascular disease and degeneration must obviously load the balance against the patient: arteriosclerosis and calcification of vessels will obviously be a matter of greater moment in some varieties of operation than in others. When vascular disease is combined with fat in a Jewish patient with a growth in the colon, the surgeon will be prudent who avails himself of the Paul-Mikulicz type of exsection. The co-operation of a good physician—not necessarily a cardiologist—is of great help in the pre-operative treatment of those with a heart and a blood pressure deviating from normality, who are awaiting a severe operation. Sometimes, in spite of cardiovascular degeneration, "bad surgical risks" will recover from very severe surgery, and I have saved a hind-quarter amputation in a man of 63 with marked calcification of all his arteries, demonstrable in radiograms. Again, four years ago I extirpated a cancerous rectum for a patient of 75 years with auricular fibrillation who still survives. Vascular disease carries other risks more remotely connected with the operation, such as cerebral haemorrhage, cerebral thromboses, intraocular haemorrhage, etc., but usually those with a high blood pressure are found to stand operation extremely well. A low blood pressure is a more serious handicap for severe surgery than is hypertension.

The development of post-operative thrombosis and embolism is one of the tragedies of surgery. George Bankoff,¹¹ employing a thyroxine test, was able to group patients into two classes: (a) thyroxine-sensitive, and (b) thyroxine-resistant; he further found that it is only in the thyroxine-resistant cases that thrombosis occurs. He claims that the complication can be prevented by three hypodermic injections of atropine 1/100 grain and ephedrine 1/4 grain; these are commenced on the first day after operation, and repeated on the third and fifth days.

The odds must be desperately against survival from any but the simplest operation in those with Addison's disease*; my only case of appendectomy in such a case died. I have had no personal experience of eucortone in this rare disease, and in an emergency there is little time for premedication.

In diabetes the risks and dangers of surgery are now negligible since insulin and glucose therapy have been employed pre-operatively. The cause of death in fatal cases is senility, not the glycaemic condition. The only anxiety is post-operative vomiting, especially if the patient is unable to take glucose. Renal disease obviously constitutes an added risk: renal breakdown will be referred to when genito-urinary operations are under consideration.

Antecedent infections constitute an added risk in surgical procedure. Those who have suffered from *erysipelas* in the past may develop it again during the aftermath of an operation, and those who have had *tetanus* in connexion with a wound years before may have a recrudescence of the infection if the part be re-operated on; the fresh outburst may indeed prove fatal. I have known an alarming recrudescence of a *pyogenic infection* in the case of a man with a diaphragmatic hernia resulting from an old abdomino-thoracic gunshot wound: the hernia was operated upon by the transthoracic route ten years after his original wound. In these matters the bacteriologist may afford most valuable aid. Those who have recently suffered from some systemic infection, such as pneumonia, influenza, etc., are bad risks. Where opportunity arises, operation should be deferred as long as

possible. The performance of herniotomy soon after a bad cold or an attack of influenza has been followed on more than one occasion by thrombosis and by recurrent embolism, and it is my practice to defer these operations until the summer, especially in the case of those who are approaching, or who have reached, middle age. The syphilitic who has been well treated for his disease usually bears operation well, but the onset of a gastric crisis or some other type of crisis may occasion some anxiety during convalescence. The presence of a syphilitic history will modify the type of operation envisaged. The onset of general paralysis may be precipitated by an accident in those who have had syphilis.

Second operations, following hard on the heels of the primary surgical attack, are apt to be followed by thrombosis of lung or limb; but in these cases the operation is almost always of an urgent character, and the surgeon cannot choose his own time.

Psychological Factors

Any surgeon of experience will have convinced himself that "the psychological undesirables," considered from an operative viewpoint, constitute as numerous and motley a collection as the Gilbertian list in *The Mikado*. That surgeon will be wise who refrains from any operation of convenience upon those who require much persuasion or over-persuasion: he should beware of the apprehensive patient; and he will also regard with anxiety the man with huge piles of books on the tables at each side of his bed; the man with the rapid pulse and the stack of French novels around him; and likewise the individual who is reading his paper upside-down!

An eventful recovery, or worse, may be confidently predicted for those who change their religion the night before an operation, and for the politician or potentate who keeps the theatre waiting while the final lines of his autobiography are completed. These types may well be regarded as "bad risks" before operation, but the appearance of these eccentricities or unusual whims in a patient after surgery are signposts of ominous portent. Unfortunately, this attitude of mental unrest often develops only after an operation, and the operator may be taken unawares. It is commonplace experience that clergymen, doctors, nurses, actors, and those of an artistic temperament are "poor surgical risks": and garrulous loquacity, pre-operative or post-operative, whether it be an individual trait or a transient phenomenon, is a danger signal that should not pass unnoticed: it so often heralds surgical disaster.

Pathological Conditions Demanding Surgery

There are certain anatomical regions of the body which appear to tolerate surgical incursion and attack far better than others; in this respect the gynaecological surgeon is at a great advantage: the invulnerability of the pelvis is a surgical adage. No matter what the pathological condition present, no matter how derelict the patient, a good result may be almost confidently predicted. *The pelvis is indeed the surgeon's fairyland*: there are few or no "bad surgical risks" in this area of the body.

Surgery of Thyrotoxicosis

To my mind the greatest advance in surgery during the last quarter of a century has been the extraordinary increase in the safety of operations for this condition. Whereas operations for this type of case were at one time fraught with grave anxiety and associated with a heavy mortality, save in the hands of a few with great experience and special knowledge of the disease, it has now become one of the safest of the operations of surgery.

* Carl Greene, Walters, etc.,¹² report a successful orchidectomy for tuberculosis in a patient with Addison's disease.

Pre-operative medication with iodine, and the repeated investigation of the basal metabolic rate during the pre-operative period of rest in bed, has made these cases almost safe for surgery. The surgeon has become almost a mere carpenter in the hands of the physician and biochemist, who indicate the exact time for surgery with an accuracy akin to that of the astronomer. The work of our Courtauld Institute of Biochemistry at the Middlesex Hospital has enabled us to reduce the mortality of the operations for toxic goitre to an almost infinitesimal figure: the larger number of cases have been operated upon by my colleague and assistant surgeon R. Vaughan Hudson, but the results of all the cases operated upon by all the surgeons in Middlesex Hospital yield a mortality rate of under 1 per cent. For my own part I prefer regional anaesthesia, but the combined results of eight surgeons, employing almost every variety of anaesthesia, would appear to discount the value of my personal predilection. Increased knowledge has given even those whose goitre operations are not yet to be numbered in thousands rules by which dangerous surgery may be avoided in this class of patient.

Operation is contraindicated and dangerous in the following circumstances: (a) If the patient has been dosed with iodine indiscriminately for months or years previous to seeing the surgeon with a view to operation, at which time the basal metabolic rate is above 40, and tachycardia is present, along with marked loss of weight. (b) If, when put on iodine by the surgeon preparatory to operation, the patient gets clinically worse and the basal metabolic rate rises. (c) If operation is delayed too long after iodine has been prescribed; the iodine loses its action, and the basal metabolic rate rises even on iodine. (d) In the presence of an "acute" infection, such as tonsillitis. (e) If the patient is mauiacal or mental. (f) If the patient shows an idiosyncrasy to iodides, as is seen by coryza, nasal discharge, skin eruption, and bronchitis. These risks can be overcome by the following measures: (a) Only giving iodine immediately prior to operation. (b) Operating only if the response of the patient to iodine is favourable—that is, the basal metabolic rate falls to constant low level. (c) Not operating if iodine makes the patient worse: the iodine should be stopped for about two months and then restarted in an effort to obtain a favourable response: this invariably happens. (d) Operation should not be delayed too long after iodine has been started—that is, more than twenty-eight days. In spite of current belief, the following are not contraindications: (a) heart failure, congestive or anginal; (b) auricular fibrillation or flutter; (c) hypertension; (d) extreme youth or old age.

Surgery of the Tongue and Mouth

Increased knowledge and experience of radium therapy has given us an alternative method of treatment for those who are, on general grounds, or because of the extent of the growth, considered "bad surgical risks." Whatever views may be held as to the best form of treatment for cases of cancer of the anterior half of the tongue, which are "good surgical risks"—and each such case must be considered strictly from every point of view—there can be no doubt that the final results of radium therapy are at least as good as, and probably much better than, those of surgical extirpation, where the growth involves the posterior portion: and the mortality of the procedure is but a fraction of that involved in the more drastic measure.

"Block-dissections" of the neck for the extirpation of the cervical glands are usually well borne even by the aged, but in the case of bad risks, and for recurrence, the various methods of radiation therapy are available.

Surgery of Peptic Ulcer

Ill-advised, ill-timed, or inappropriate surgery may convert into a "bad risk" one which seemed to promise well. There is no single form of operative procedure universally applicable to every case of peptic ulcer. Apart from those general considerations, outlined in the introductory paragraphs, which combine to constitute a patient a "good" or "bad" risk, there is perhaps no factor which so cogently determines in which class the sufferer shall find himself during and after a gastric operation as the judgement of the surgeon under whose care he is placed. By surgical judgement, or the lack of it, the patient's cause may be won or lost.

The immediate result of surgical incursion will be undoubtedly influenced by the particular technique employed: it is manifest that for the patient who is admittedly a bad risk the most simple, the most gentle, the most rapid procedure is the method of election. The position of the ulcer, its size and fixity, any suspicious characters suggestive of malignancy, the results of fractional gastric analysis, are all points worthy of careful consideration in the "good risk" candidate for a gastric operation, or in one whose previously poor and debilitated condition has been improved by preliminary treatment to approximate normality. Although these data, amassed and collected by radiological and biochemical methods, will assuredly influence and determine the type of operation in the "good risk" patient, in the "poor surgical risk" they must not be unduly stressed: a gastro-jejunostomy, or even a jejunostomy, performed under a local anaesthetic may be the wisest procedure, and at worst the patient's condition may be improved and ameliorated, so that more drastic surgery may be considered later, if by any chance symptoms should reappear, or should that full measure of health which surgery can confer not have been attained by the minor procedure.

The dangers of post-operative complications in "the bad surgical risk," as indeed in all those who undergo upper abdominal surgery, may be greatly reduced by the employment of regional and splanchnic anaesthesia: this may be combined with very light general anaesthesia. Light ether, or even ether and chloroform anaesthesia in combination with the methods of infiltration, has, in the last dozen years, practically abolished thoracic complications in my upper abdominal operations. With such a technique the mortality of gastrectomy for ulcer is under 4 per cent.

High spinal anaesthesia, with the great fall of blood pressure induced, has not in my hands been found to help the "bad surgical risk"; but the surgeon will, of course, utilize that technique with which he has made himself familiar, and which has always given him the best results.

Gastric and Duodenal Haemorrhage from Ulcer

A patient with a chronic peptic ulcer may be made a "bad surgical risk" by ill-judged and indiscriminate surgery, but he is already and at once a "bad risk" when he has bled from that chronic ulcer. Furthermore, if such a patient is a "bad surgical risk," he is no less a "bad medical risk," although the truth of this latter statement may not have always been appreciated. The mortality from bleeding among cases of chronic ulcer of the stomach and duodenum treated by non-operative measures at Middlesex Hospital from 1924 to 1933 amounted to 24 per cent.—a percentage mortality almost identical with that obtained by A. M. Coove from the St. Thomas's figures; in the Middlesex Hospital cases a second large haemorrhage produced a mortality rate of 78 per cent., and with each succeeding haemorrhage the risk became greater and,

greater. It would therefore appear that in these cases operation is required before a second haemorrhage takes place, and that for such patients, and at the particular stage in the course of their illness, surgery is the only logical measure of safety. The surgical risk would appear to be least bad, and the moment for intervention most opportune, not longer than forty-eight hours after the bleeding has ceased.

Finsterer of Vienna,¹⁴ however, regards bleeding from a chronic ulcer as an imperative indication to operate at once. Early operation in his hands is associated with an extraordinarily low mortality. After twenty-four to thirty-six hours they become bad surgical risks, and the mortality rapidly rises. My own figures for operations performed for acute haematemesis from 1919 to 1926 show a mortality of 19 per cent., so that the risk is not inconsiderable. Closer co-operation between physician and surgeon will show us which are the cases that should be attacked by surgical intervention; but if surgery be required operation should be performed early under local anaesthesia, and in certain cases a caecostomy may be advantageous.

The possessor of an anastomotic ulcer is a "bad risk," and to quote the words of Garnett Wright,¹⁵ "The Angel of Death is hovering near, and the fluttering of his wings can be almost heard." The patient, worn out with pain, is in many cases little able to stand the prolonged and complicated surgical operation which is required to relieve his symptoms and to prevent a recurrence of his malady. Increasing experience of the operative surgery of this condition, which is in itself becoming more frequently encountered, will doubtless lower its mortality in the hands of those who most frequently have to treat these cases. A gastro-jejunal or a jejunal ulcer may be a severe burden to bear, but an added communication with the colon increases the duration of the operation to cure it, and a complicating haemorrhage makes the risk more desperate than ever.*

Gastric Cancer

All gastric cancers are "bad surgical risks," and I am in the habit of teaching that, whereas a gastrectomy for ulcer will always try to live, a gastrectomy for cancer will always die if he can. Nor am I alone in regarding the condition and its operative surgery as a "bad risk," for Bastianelli,¹⁶ whose enterprise and whose sympathy enable him to resect no less than 44 per cent. of his cases, admits a mortality of 28 per cent. Even excluding three cases of total gastrectomy and twelve stomach-colon resections—which, of course, tended to increase the death rate—his mortality rate from operation was 25.4 per cent.

Finsterer,¹⁷ however, employing local anaesthesia, had only twelve deaths in 202 operations—6 per cent. In the advanced cases where pancreas, colon, or liver are involved, resection carries, of course, a much heavier mortality. In those cases of cancer of the stomach associated with stenosis at the pyloric extremity, protracted vomiting, dehydration, toxæmia, etc., may make a single-stage operation a tax on the patient's resisting and recuperative powers that he is incapable of bearing. In these cases, therefore, a preliminary drainage operation and a subsequent resection may turn the "bad risk" into a "good" one.

According to the condition of the patient, the procedure may take the form of an ordinary anterior or posterior

gastro-jejunostomy and a later resection; or the stomach may be cut across above the growth and an anastomosis performed between the proximal end and the small intestine. The upper end of the distal segment is sutured over, and the suture line reinforced by omentum. The operative technique of the operation is improved and facilitated by a clamp of the von Petz type. It is almost imperative in every case of gastrectomy for cancer to make use of the transfusion of blood.

Surgery of the Spleen.

There are certain forms of splenic pathology where operation is associated with severe risk. The danger of post-operative thrombosis in cases of splenic anaemia with a high initial blood platelet count is perhaps not always sufficiently appreciated: R. E. Kelly¹⁸ of Liverpool has, amongst others, drawn attention to it. The services of a competent haematologist are of the greatest importance when splenectomy is contemplated for this disease. Splenectomy for thrombocytopenia has, in my experience, been a most dramatic and a safe operation, but the mortality has been affirmed to be 80 per cent. when the operation is done in an acute phase. The risk of transfusion in cases of acholuric jaundice is not inconsiderable.

Cancer of the Colon and Rectum

It will naturally depend upon that percentage-mortality which is regarded as fair and justifiable for an operation, to designate the surgical adventure as a "good" or "bad risk." By reason of the operative mortality of colectomy for cancer of the colon, it would seem that most of these cases are to be regarded as "unfavourable risks." S. Strunk,¹⁹ in 1928, while affirming that surgery offers the only cure for malignant disease of the colon, deplored the high mortality of colectomy. "Except for operation in certain serious emergency cases," he wrote, "the mortality following operation for cancer of the colon is perhaps higher than in any other type of intra-abdominal operation."

Grey Turner in 1929²⁰ admitted an operative mortality of 12.28 per cent., but many of his cases were most complicated resections. He appears to think that a mortality of 5 per cent. would represent the acme of surgical judgement and the perfection of operative technique. The mortality of the procedure may be reduced, and the risk improved, by drainage of the bowel, preliminary or simultaneous, the employment of exteriorization methods of the Paul-Mikulicz type, lateral incisions over the growth where possible, the provision for drainage of the abdomen at the site of anastomosis, the employment of blood transfusion, and possibly preliminary immunization. The mortality of operations of the Paul-Mikulicz type in my hands is in the neighbourhood of 1 or 2 per cent., and these should be used more frequently.

In the case of cancer of the rectum there are many types of operation, but the most important factor in the management of the case is the judgement of the surgeon. In forming a judicious estimate of his patient he will take into consideration the age, the sex, and the cardiovascular system; the urinary tract and the bodily configuration of the invalid will also demand attention. A preliminary microscopical section of the tumour may be possible, and may help in forming an opinion as to the malignancy of the particular cancer. The surgeon may utilize the Moots-McKesson test of operability by employing what is termed the "pressure-ratio percentage"; the pulse pressure over the diastolic pressure is calculated in percentages, the normal being about 50 per cent. If the pressure-ratio is high or low there is reason to apprehend danger. If below 25 per cent. or above 75 per cent. the case is inoperable. Close attention to these points and a wise and judicious decision will make a "risk" a good or fair one.

* Mr. A. J. Walton has operated on seventy-nine of these cases, and out of his last twenty cases has had the amazingly low mortality of only one death (*Lancet*, April 28th, 1934). My own results (G. G. T.) are: fifty-four anastomotic ulcers treated by resection, with ten deaths. Excluding ten cases in which there was a communication with the colon, and of which four died, there were six deaths in the remaining forty-four cases—that is, 13.6 per cent. mortality.

The Surgery of the Biliary Tract

In contrast to the extraordinary safety of operations on the gall-bladder the surgery of the common bile duct is associated with a much heavier risk to life. To make these cases of jaundice safer for surgery operation should be deferred until the jaundice begins to subside. Blood transfusion is better than intravenous calcium chloride as a means of diminishing or preventing the tendency to haemorrhage, and is especially valuable where the bilirubin curve tends to rise. It is also important to administer large quantities of water and of glucose before and after operation—by the rectum or by intravenous infusion. In the worst cases of jaundice nothing more than drainage should at first be essayed.

Genito-Urinary Surgery

A candidate for the operation of prostatectomy is a "bad surgical risk" if the operation is performed when the blood urea is over 60 mg. per 100 c.cm.; and if there is evidence of moderate renal impairment, even in spite of a normal blood urea estimation. Eric Riches and Douglas Robertson²¹ regard it as dangerous to operate radically if the urea-clearance test of van Slyke for estimation of renal function is below 60 per cent. of normal, no matter how normal may be the blood-urea estimation.

Secondary nephrectomy for any condition is always an anxious operation, and two or three transfusions and infusions may be required to carry the patient through his convalescence from what may be a carnivorous type of surgery.

Conclusion

It requires no superlative enthusiasm of mine, no unwarranted optimism, to foresee and foretell that, as the "bad surgical risk" of a decade or two ago is now a "normal or good risk," so will the "despairs" of to-day be the "certainties" of the morrow. The craftsmanship of surgery is not yet finished and perfected as an art—fresh techniques will be evolved, fresh avenues of approach will be explored, fresh territories will assuredly be conquered. More accurate and certain knowledge of the causation and cure of disease, and methods and forms of therapy still undreamt of, will in future days cheat and rob Death of those victims that, in this twilight of our surgical wisdom, appear to us now beyond all mortal aid.

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RETROVERSION OF THE UTERUS*

BY

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The usual position of the uterus is one of antelexion and anteversion in the middle of the pelvis, the axis of the uterus being very nearly horizontal. When the exact opposite of this occurs the uterus is retroverted and retroflexed. In between these two extremes any position of the uterus may be found. It is usual to describe a uterus as retroverted when the cervix is pointing downwards or forwards and the axis of the body of the uterus is directed backwards. The retroverted uterus is often retroflexed as well.

The normal position of the uterus is maintained by the structures which are attached round the supravaginal portion of the cervix. These are the pelvic fascia, the bases of the broad ligaments, and the utero-sacral ligaments.

There is a wide divergence of opinion as to the symptoms which result from retroversion of the uterus and the treatment required. Some confusion has arisen from grouping all cases together and not separating those of congenital origin from those acquired after pregnancy and labour. It is my intention, therefore, to make as clear as possible the different groups of cases.

Classification

1. The group of those women who are single and have congenital retroversion. It is a fact that many of them are unconscious of the condition and have no symptoms; these, of course, require no treatment. There are others, however, in whom symptoms begin to appear as they get older. This may be due to increase in degree of the condition, with increasing retroflexion, giving rise to venous congestion and symptoms of backache, increasing dysmenorrhoea, pelvic discomfort, or pain for which no other cause can be found.

2. The group of married women who have a congenital retroversion which gives rise to symptoms, on or after marriage, of which the commonest is dyspareunia; or they may seek advice for sterility; or, if they become pregnant, miscarriage may result. These patients require investigation and treatment.

3. The group of those who are found to have retroversion acquired after miscarriage or labour. This is a large and important group, as is shown by the record of two hundred consecutive confinements. Post-natal examination one month after delivery showed that of the primiparae 13 per cent. had retroversion; of the multiparae 3.5 per cent. had retroversion. These patients had received the advantage of skilled nursing and postural preventive treatment, so that the percentages are probably higher among the greater number of women attended in their own homes. These require treatment in order to prevent subinvolution after labour; the position of the uterus must be corrected in order to prevent the development of symptoms of pelvic discomfort, backache, congestive dysmenorrhoea, leucorrhoea, and dyspareunia. Further, if a retroverted uterus is left uncorrected after labour it will be a factor leading to future prolapse.

The pelvic discomfort is generally of a dull aching nature, aggravated by activity and fatigue. It may have a bearing-down character or may give rise to a sensation of fullness or pressure on the rectum. The backache is generally dull and constant, increased by fatigue and relieved by rest. It is generally felt posteriorly over the sacrum, but may radiate towards the iliac fossae or the thighs.

*Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Treatment of Congenital Cases

In the case of single women many require no treatment and should be left alone. In young married women complaining of dyspareunia or sterility or miscarriage the condition may be treated by manipulation and a pessary, or by operation. It is advisable to give a good trial to medical treatment before resorting to a surgical operation. When treatment is indicated for the above symptoms it is often found that correction of the displacement cannot be carried out as the manipulations cause pain, and it is difficult or impossible to correct the misplacement. In such cases it is advisable to carry out an examination under an anaesthetic.

The patient is anaesthetized, a thorough pelvic examination is made, and the body of the uterus is pushed forward either by the fingers alone or with the aid of a vulsellum forceps on the cervix. In difficult cases a uterine sound may be required to assist the reposition of the uterus. Having put the uterus into a satisfactory position, a Hodge pessary is inserted. This is left in for two or three months, and it is then removed and the position of the uterus after removal ascertained. If the uterus remains in good position after this treatment nothing further need be done. If, however, the uterus reverts to its old position after removal of the pessary, the question will arise whether to replace the pessary or to perform an operation. In order to arrive at a decision all the factors in the case must be carefully considered. If the position of the uterus cannot be corrected under an anaesthetic the indications for operative treatment appear greater, but generally speaking the indications for operation in single women do not often arise. In married women, on the other hand, symptoms are often sufficiently important to require treatment by pessary or operation.

Treatment of Acquired Retroversion

Seeing that retroversion is most often the result of pregnancy and labour, it is very important to adopt all precautionary measures which may prevent the occurrence of this displacement. The most important of these precautionary measures consist in promoting the free drainage and anteversion of the uterus during the puerperium. The puerperal woman should assume a prone position for at least two hours in the day. The bladder should be emptied at regular intervals, and the abdominal binder should not be sufficiently tight to press the fundus of the uterus back. Adequate rest in bed is essential, but it is difficult, for economic reasons, to arrange for hospital patients to stay in bed for more than twelve days. At the end of a month a post-natal examination should be made, and the position of the uterus determined. If the uterus is retroverted the position must be corrected by manipulation, and a Hodge pessary inserted for two months. At the same time the patient must be instructed to do all she can to promote involution of the uterus and pelvic floor by suitable exercises.

General lines of treatment fall under three headings: exercises, pessaries, and operation.

Exercises are most useful in helping to restore tone to the uterine supports after labour during the puerperium. They are helpful at a later date, but are of more value in restoring loss of tone than in repairing injury to the tissues. Further, their scope is limited, because it is difficult to give instruction in exercises designed to strengthen the levator ani muscle and the uterine supports, and it is even more difficult to get women to carry out these exercises except under expert instruction.

Treatment with Pessaries.—The vulcanite Hodge pessary is the instrument most suitable for temporary treatment of retroversion, and is far superior to the rubber ring for this purpose. Indications for its use are: (a) In mobile

puerperal retroversion after correction of the position of the uterus. The pessary should be left in two months, during which time the pelvic floor and uterine supports regain their normal tone. On removing the pessary the uterus should remain in a position of anteversion. (b) In non-puerperal mobile retroversion—that is to say, when the retroversion is discovered at some interval after the last confinement. Here the pessary treatment is not likely to effect a permanent cure, but will relieve symptoms and arrest the progress of the displacement. When used in these circumstances the pessary will act as a valuable diagnostic agent, for if symptoms are cured by its introduction it shows that they were due to the backward displacement of the uterus. This will be of value in deciding whether operative treatment should be undertaken. (c) Pessaries are useful after correction of a backward displacement in early pregnancy; the instrument will prevent the recurrence of the retroversion. The main indications for pessary treatment are as a therapeutic test and as a temporary measure in puerperal retroversion. When, however, pessary treatment cannot effect a permanent cure, and relapse occurs after removal, the time has come to consider the advantages of operative treatment.

Operative Treatment of Retroversion

The indications for operative treatment for backward displacement of the uterus are in some cases quite clear when symptoms are severe or cause the patient considerable discomfort, or cannot be alleviated by pessaries or other means. This may occur when the uterus is fixed and the ovaries are prolapsed and tender; when the retroversion is associated with pelvic inflammation; when there is dyspareunia; when there is sterility; and when there is abortion. A decision, on the other hand, may be difficult when the symptoms are not severe, and when the retroversion is uncomplicated.

The question of operation is influenced by the age of the patient less than are many operations, for the reason that after operation pregnancy and labour may supervene without any risk of complication or recurrence. Before deciding to operate it is most important to take a very thorough history, make a very complete examination, and to have no doubt that the symptoms referred to are not caused by anything apart from the displacement.

In order to ascertain the opinion of others as to the indications for operative treatment in uncomplicated retroversion a form of inquiry was sent to the senior gynaecologists at the London teaching schools. The result of this inquiry shows that operative treatment is not common. When it is done the commonest indications are sterility and dyspareunia. The present position seems to be against operative treatment in uncomplicated cases. This attitude should, I think, be modified, since there are many patients who suffer severe symptoms from an uncomplicated retroversion who could be cured by operative treatment.

The indications for operation are, in my opinion, as follows:

- (a) When the retroversion is fixed or is complicated by adhesions or by chronic pelvic inflammation.
- (b) When the retroversion is giving rise to symptoms, which are increasing, of backache, pelvic pain, menorrhagia, dysmenorrhoea, or pain and difficulty with micturition or defaecation.
- (c) When the retroversion, though mobile and simple, causes symptoms which disappear after correction of the displacement and insertion of a pessary—for example, dyspareunia.
- (d) When retroversion is causing sterility.
- (e) When retroversion is causing miscarriage.

In uncomplicated cases it is important to use a pessary as a therapeutic test before deciding in favour of operation; if the pessary relieves the symptoms, permanent cure by operation may be looked for with confidence.

Nature of the Operation

The operation of choice is that generally described as the modified Gilliam operation, after the name of the surgeon who first described this operation in the year 1900. The principal points in the operation are that a loop of the round ligament on each side is brought out under the peritoneum and attached to the anterior rectus sheath on each side. Details of the operation are as follows.

The abdomen is opened by a paramedian incision. A stitch of No. 3 chromicized catgut is tied about the round ligament on each side an inch from the cornu of the uterus. The anterior rectus sheath is then cleared, and a small puncture is made towards the outer part at the level of the fundus of the uterus. A special curved forceps is then passed outwards behind the peritoneum till the region of the internal abdominal ring is reached. The forceps then turns inwards in the base of the broad ligament till its point reaches the ligature on the round ligament. The peritoneum is then punctured, the round ligament suture grasped with the forceps and withdrawn along the track made by the forceps through the rectus sheath. The loop of round ligament is then made fast to the rectus sheath and the abdomen closed. The suture material used is No. 3 chromicized catgut, as this has been found satisfactory and no recurrence has occurred.

This operation has stood the test of time and has given complete satisfaction. It has therefore seemed unnecessary to change the technique of the operation or the suture material. In order to confirm these points, letters were written to patients operated upon from two to fourteen years ago, inquiring as to the result of the operation. The replies were illuminating and highly satisfactory.

Modifications of Operation

In order to test my own results I sought the opinion of the senior gynaecologists of the London teaching schools as to the nature of operation employed. All appear to employ a modified Gilliam operation, and find it eminently satisfactory. Many seem to prefer the use of silk, and some think it essential. Many, however, give up puncturing the rectus sheath, and draw the loop of round ligament up between the outer surface of the rectus muscle and the under surface of the rectus sheath. One operator pleats up the round ligament before drawing it through to the under surface of the rectus sheath, to which it is firmly attached by silk, thus approaching the technique of a fixation operation. Another operator pleats up the round ligaments and attaches them to the cornu of the uterus; while a third combines the ventral suspension of the uterus with shortening of the utero-sacral ligaments. Except for these three modifications, all do the modified Gilliam operation, and are satisfied with the results. The majority use silk sutures, but I have found chromicized catgut satisfactory, and think that silk introduces a possible element of sepsis.

Conclusions

Retroversion of the uterus is responsible for a considerable amount of ill-health in women. It may be prevented or cured during the puerperium by suitable exercises and treatment.

Congenital retroversion in single women often causes no symptoms and requires no treatment.

Congenital retroversion in married women does cause symptoms.

Retroversion acquired after labour or miscarriage is common, and the importance of preventive treatment is stressed.

Acquired retroversion often gives rise to symptoms, and requires correction by pessary or operation.

HAEMOPTYSIS: A NOTE ON PATHOLOGY AND TREATMENT

BY

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AND

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PHYSICIANS TO CITY OF LONDON HOSPITAL FOR DISEASES OF
HEART AND LUNGS

Haemorrhage from organs such as the lungs and intestines, which are not accessible to the ordinary surgical methods of haemostasis, present a problem which is peculiar to itself; for not only does the practitioner feel more or less helpless, as he is unable to reach the bleeding point, but the psychological effect on the patient of bringing up large quantities of blood—whether from lungs or stomach—together with the knowledge that the lesion is not accessible, leads to a distress of mind which reacts unfavourably on the natural processes which should physiologically help to stay the haemorrhage.

The usual treatment recommended for haemoptysis is along the general lines suggested for the arrest of bleeding when not accessible to direct methods of haemostasis; these general methods have two objects in view, which are as follows. In the first place, to secure a local effect by the administration of drugs or other preparations which have the reputation for promoting clotting at the source of the haemorrhage by increasing the coagulability of the blood; secondly, to endeavour to rest the organ from which the bleeding is taking place, and by sedatives to quiet the body, ease the mind, and so cause a reduction in the rate of flow of the blood.

Preparations used in the first group, such as calcium, haemostatic sera, horse sera, etc., whilst possibly of some use are somewhat unreliable in their action, and, in consequence, though used as a routine, they are regarded as rather accessory, and there is a natural tendency to place most reliance on those methods which will promote mental quiet and physical rest to the organ from which the haemorrhage is proceeding, and thus give the bleeding vessel the opportunity of forming a clot sufficient to stay the haemorrhage.

Pathology and Mechanics of Haemoptysis

Should these methods be successful in stopping the haemorrhage the arrest is only slowly produced, with the result that some bleeding will continue to take place for varying periods, according to the size of the vessel eroded, while in addition any movement or disturbance of the patient may cause the haemorrhage to recommence, and as a result a considerable amount of blood will be found in the lumen of the organ concerned.

If the bleeding is intestinal the blood in the lumen will be drained into the intestinal tract, but in a haemoptysis the blood remains in the bronchus and can only be evacuated therefrom by the patient coughing; if, however, the patient has been forbidden to cough, and has been heavily morphinized, the cough reflex will be lost, and the blood will remain in the bronchus. It is well recognized that even during natural sleep secretions from the upper respiratory tract may be aspirated into the lower bronchi; further, it is admitted that, when unconsciousness is increased by morphine or basal anaesthetics, aspirated secretions may cause a pulmonary collapse. In the morphinized patient, with blood or blood clot in the bronchial tree, the chances of mechanical pathological changes taking place are very considerable.

If the quantity of blood in the bronchus is small, aspiration into the smaller bronchi and bronchioles will take place; further, if the patient gives a half-stifled ineffective cough, the blood will be evacuated from the

bleeding bronchus as far as the bifurcation of the trachea, or into the trachea itself, ready to be sucked down by the next inspiration, not only into the diseased lung, but into the healthy one as well. If the cause of the haemoptysis is a septic or a tuberculous lesion, organisms will be aspirated with the blood and will often give rise to a spread of the infection. This spread of the disease is indubitably seen to occur in septic conditions, and is not uncommon in tuberculosis. The reason that it does not occur more often is probably the dilution obtaining in large haemorrhages. If the haemorrhage is a copious one the coagulated blood often forms a clot within the bronchus, which clot is sometimes large enough to occlude a main bronchus, thus producing a sudden complete collapse of a lobe or even the whole lung; moreover, if by an ineffective cough the clot be extruded into the trachea, aspiration may take place into the main bronchus of the sound lung and cause a complete collapse of it.

Illustrative Cases

These mechanical pathological lesions are not merely theoretical possibilities, but are practical facts which we have ourselves observed and of which the following cases are examples.

Case I.—Male, aged 45, suffered from haemoptysis which was treated on general lines. A skiagram taken a few days later showed in the right upper lobe a lesion bronchopneumonic in distribution which was thought to be a tuberculous condition. Two weeks later a skiagram showed collapse of right upper lobe; on bronchoscopic examination we could see new growth occluding the upper lobe bronchus. There can be little doubt that the bronchopneumonic area seen on the first skiagram was produced by lobular collapse secondary to aspirated blood.

Case II.—Male, aged 22. Haemoptysis treated on general lines. When admitted to hospital definite signs at left upper lobe, with signs suggestive of a small area of bronchopneumonia in the right axilla. Sputum, T.B. +. To control the haemoptysis left artificial pneumothorax induced. Haemoptysis ceased and patient improved. Skiagram at this stage confirmed diagnosis of left-sided pulmonary tuberculosis, and showed a small area of bronchopneumonia of lobular distribution in right axilla. Artificial pneumothorax kept up. Sputum became negative. Area in right axilla cleared. We believe that the area in the right axilla was an aspiration spread due to the haemoptysis. It might be argued that it was the spread that led to the haemoptysis, but against this is the fact that it was controlled by the left-sided artificial pneumothorax. As no films were available previous to the haemoptysis the point cannot be definitely settled.

Case III.—Female, aged 40. Patient had a benign growth of left main bronchus. During an attempt to remove the growth by diathermy severe haemoptysis occurred, which was uncontrollable by diathermy and adrenaline. Within twenty-four hours the previously afebrile patient developed a high temperature, with signs of pulmonary collapse of lobular distribution. This was treated by expectorant mixtures and CO₂ inhalations, and the signs in the chest cleared. This sequence was repeated when a second attempt was made to apply diathermy to the growth.

Case IV.—Female, aged 23. Patient had the same type of growth, and diathermy treatment was followed by same sequence of events as in the previous case.

Case V.—Male, aged 16. Large haemoptysis, treated by absolute rest and morphine. On his admission to hospital the physical signs in the chest were those of complete collapse of the left lung. Skiagrams confirmed the diagnosis. The haemoptysis having nearly ceased, it was decided to risk further haemorrhage and to deal with the collapse by CO₂ inhalations and expectorant mixtures, with the result that the clot was expectorated, and in the course of a few days the left lung re-expanded to show a comparatively small tuberculous lesion in the mid-zone.

Case VI.—Female, aged 20. Patient was known to have a small unhealed lesion in right upper zone, and was admitted

to hospital following a large haemoptysis which had been treated on general lines. A few indefinite signs were found in the right lung, and signs of complete collapse of the left lung. This was confirmed by skiagram. After a few days following the coughing of clotted blood, the left lung expanded completely, and the skiagram showed no evidence of any disease in it.

Haemostasis by Congo Red

Experience as exemplified by these cases has led us to the conclusion that the measures adopted under the second group—that is, the use of opiates—are not without danger, and this applies to any drug which definitely abolishes the cough reflex. It would seem not unnecessary that this point be stressed, for one seldom sees a case of haemoptysis in which a large dose of morphine has not been previously given. We agree that it is necessary to reassure the patient, to lessen his anxiety, and to put his mind and body as much at rest as possible, but we are convinced that it is bad treatment to order the patient not to cough, and deliberately to attempt to abolish the cough reflex.

It is well to point out that in early tuberculosis, in acute septic pneumonitis or lung abscess, or in haemorrhagic bronchiectasis, it is seldom that a haemoptysis is severe enough to endanger life, and therefore it is certainly not justifiable to employ a method which may by its application cause a spread of disease. On the other hand, in the advanced tuberculous case with large rigid-walled cavities, in malignant growth, and in leaking aneurysm the prognosis is in any case so poor that the objection to morphine does not hold.

If the use of sedatives is inadvisable it is certain that endeavour must be made to find some reliable haemostatic; those mentioned above have been in use a sufficiently long period of time to prove their deficiencies, though they certainly have their place in treatment. For some two years, in those cases in which haemostatics of this class had failed to effect a result, we have used an intravenous solution of Congo red. This haemostatic appears to have been little used in this country. It was recommended by Becker *et alia* in 1930 for use in haemorrhage.

The precise pharmacological action is not known, but Sachette and Osseladore¹ found that after the intravenous injection of neutral substances into rabbits, changes in the clotting time of the blood took place. In the beginning this change was accompanied by a numerical variation in the thrombocytes, and they formed the conclusion that the reticulo-endothelial system, especially the bone marrow, influenced the production of the thrombocytes.

Becker² *et alia*, from examination of the blood of their cases before and after the injection of Congo red, came to the following conclusions. That the Congo red produced: (1) an increase in the monocytes, (2) an increase in blood platelets, (3) an increase in blood fibrin content, and (4) a reduction in clotting time.

Technique.—The technique of administration is that of a simple intravenous injection, though, the colour of the solution being a deep red, some difficulty may be experienced in knowing when one has entered the vein. We have found from experience that dosage is of considerable importance. For an adult the dose usually given is 10 c.cm. of a 1 per cent. solution. This dose is often followed by a definite rigor of short duration which never gives cause for alarm. In an attempt to avoid the rigor we have tried smaller doses, and have found that although they may succeed in checking the haemorrhage temporarily they are not as successful in obtaining complete stasis as is the full 10 c.cm. dose. We have not so far had need to give a larger initial dose

than 10 c.cm., and from our experience in one case in which by an error double the dose was given we doubt if an increase is advisable, for in that case the patient developed a severe rigor with an alarming collapse; nevertheless, the haemorrhage which had menaced his life and had failed to be controlled by other haemostatics ceased instantly. We have found that occasionally the 10 c.cm. will check the haemorrhage for some time, and then slight recurrence occurs. In such cases the dose may be repeated, a further 10 c.cm. being given in four to six hours. In a large number of cases treated with this drug we have only had two in which the haemoptysis was not sufficiently controlled and other methods were necessary.

Other Methods

In cases of gastric and duodenal haemorrhage results have also been satisfactory, though perhaps not quite so certain as in haemoptysis. Other methods of obtaining stasis which have been suggested, such as the introduction of adrenaline into the bronchial tree, have not impressed us with their efficacy. Adrenaline may be introduced by the nasal catheter, crico-thyroid route, or by the bronchoscope. We have used the first two methods, but in any case the solution is so diluted with blood that effect can scarcely be expected; moreover, the bleeding point is usually so distant in the bronchial tree that it is unlikely that any direct result could be produced. Quite different are the severe and somewhat alarming haemorrhages which occasionally take place in the removal of polyps or a section of malignant growth via the bronchoscope; in this case adrenaline can be applied direct in large quantity over the bleeding area.

In the event of failure of other methods, the induction of an artificial pneumothorax is often successful in staying the haemorrhage. The cause of the haemoptysis must, however, first be considered. If the lesion is an early tuberculous one it will probably be successful, but in these cases the bleeding is usually not so severe as to cause alarm; if the lesion is in an advanced bilateral case artificial pneumothorax may be done as a temporary measure, even if it may be deemed inadvisable to keep it up permanently. In this type of case difficulty may arise in deciding as to the side from which the haemorrhage is coming. If an x-ray is available then the side showing a cavity is the most likely to be the offender, if not, one has little guide, as the ordinary methods of physical examination are not available. Often, however, the patient knows which is the worst side, and in many instances is able to indicate the side from which the bleeding is coming from subjective sensations. But as a contralateral artificial pneumothorax may be successful in stopping the haemorrhage, the position is not quite so difficult as it might appear. If the lesion is a lung abscess or a bronchiectasis, one must weigh up very carefully the urgency of the haemoptysis with the risk, especially in the former case, of producing a pyo-pneumothorax. Occasionally repeated haemoptyses call for some preventive measure. Such are frequently cases of dry bronchiectasis and chronic fibrosis, and an artificial pneumothorax or phrenic avulsion may be a useful procedure.

Conclusions

In a pulmonary haemorrhage the bronchi must be kept free. This can only be attained by leaving the patients their cough reflex. Some method of haemostasis is desirable, and in the failure of the ordinary methods Congo red has proved in our experience to have a very definite use.

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OBSERVATIONS ON THERAPEUTIC MALARIA

WITH SPECIAL REFERENCE TO A CASE
OF HAEMOGLOBINURIA

BY

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Malaria is still the most popular of all forms of treatment for general paralysis in spite of the numerous attempts which have been made to supersede it by other forms of pyrexial therapy. Its popularity with clinicians is derived not so much from the high measure of complete recoveries achieved as from its relative immunity to serious accidents. In thus combining a moderate degree of success with comparative safety, it has proved itself superior to, and generally more acceptable than, any of its rival methods of treatment.

The truth of this claim has been amply borne out by our experience of some 300 cases of therapeutic malaria during the last ten years at Rainhill Mental Hospital. With a judicious selection of cases the number of untoward complications has been almost negligible, and the great majority of patients have succeeded in completing a course of ten rigors, with associated rise of temperature, at no greater cost to the patient than a mild prostration and some degree of anaemia. With adequate after-treatment both of these temporary set-backs have been successfully combated. In about 10 per cent. of the cases a mild degree of jaundice has been observed, associated with the anaemia appearing towards the end of the malarial course, but in all instances clearing up completely after the administration of quinine.

Both the benign tertian and quartan forms of malaria have been employed at different times, but of the two the former has proved the more satisfactory. In our experience the quartan is less reliable, and not so readily controlled with quinine. Despite this, relapses are of very rare occurrence. As will be noted from the accompanying temperature chart the rigors sometimes occur at much more frequent intervals than is characteristic of this strain of malaria. This phenomenon is by no means an uncommon experience with therapeutic malaria, particularly after many generations of the parasite have passed through the human host, and in our opinion is attributable to the fact that propagation is carried on solely by the asexual cycle for so many generations. Blood films examined from such sources show that the parasites mature at different periods, and in the same sample of blood parasites at all stages of development are to be seen. This offers some explanation of the irregular pyrexia, but, in addition, there is some evidence for thinking that there may be a personal factor also concerned.

Case Record

A case which provides an outstanding exception to this general experience has recently been encountered at Rainhill, and because of its unusual features it is deemed worthy of a detailed consideration.

G. H., a male, 46 years of age, was recently admitted to the hospital in a restless, excited, and grandiose state. He had typical delusions of grandeur, and clinically presented a classical case of general paralysis. Though he had few neurological signs, the clinical diagnosis was amply confirmed by serological tests. Thus the Sigma reaction in blood and cerebro-spinal fluid was strongly positive, there was increased protein in the cerebro-spinal fluid, and the large gold-sol curve read 5555554100. The mental symptoms had only been in evidence for just over a fortnight prior to his admission, and as he was in good physical condition there was no hesitation in prescribing for him a course of malaria. Before

inoculation with 5 c.cm. of malarial blood (2/2/34) his acute mental symptoms had considerably subsided, and he had regained to some extent his insight, a circumstance which rendered his subsequent management and nursing very easy. Eleven days after his inoculation (13/2/34) he had his first rigor, and this was repeated at roughly twenty-four-hour intervals for ten days, with an associated temperature averaging 104°F . On two occasions during the course blood films showed the presence of malarial parasites of the quartan variety with a relative increase in the mononuclear leucocytes. After the tenth rigor (23/2/34) quinine was given orally in mixture form (quinine sulphate, 10 grains t.d.s.). Twenty-four hours later (24/2/34), after he had received five doses of quinine, he had a very severe rigor, with a temperature of 105° , the highest recorded. This unexpected and unusual event gave rise to considerable misgivings, but quinine was continued. Two days later (26/2/34) his temperature rose again to 99.6° without any rigor, and the same day a definite icteric tinge appeared on his skin, whilst a little later his urine was observed to be unusually dark in colour. The following day (27/2/34) the jaundice had deepened, and the urine was diminished in quantity and of a deep red colour.

At this stage a sample of blood taken for examination revealed a marked degree of haemolysis, the serum being of a reddish hue instead of the usual straw colour. An examination of a blood film showed severe anaemic changes with anisocytosis, polychromatophilia, and punctate granular cells. There were numerous normoblasts and a few megaloblasts. Among the white blood cells there were myeloblasts and myelocytes in all stages. The urine contained a large amount of haemoglobin, and spectroscopic examination of both urine and blood serum showed the bands characteristic of oxyhaemoglobin. Another abnormal constituent of the urine, which was alkaline and of high specific gravity, was albumin, present in considerable amount, but there was no deposit of red blood cells or casts. The test for occult blood was strongly positive.

Progress.—This association of malaria, quinine, and haemoglobinuria strongly suggested a diagnosis of blackwater fever, and prompt and vigorous measures were taken to meet this very serious situation. Quinine was stopped (28/2/34), copious drinks were given, and large massive doses of alkalis administered, whilst a careful watch was set upon the quantity and colour of the urine passed. Remarkable to relate, despite this severe haemolysis the patient, who was very clear mentally, had scarcely any subjective symptoms. He made no complaints at all beyond his feeling of weakness, but stated at a later period that for a short time he had seemed a little deaf.

His condition responded exceedingly well to treatment. He passed large quantities of urine, which gradually cleared and became free from haemoglobin and albumin in four days (3/3/34). His blood picture improved *pari passu*, a distinct improvement in the blood films being observed very quickly (2/3/34). The progress of the blood condition may be gauged from the following reports.

2/3/34—Blood film shows an occasional normoblast; anisocytosis still very marked. Haemoglobin 80 per cent.

3/3/34—Blood count: red blood cells, 2,800,000 per c.mm.; white blood cells, 7,500 per c.mm.; colour index, 1.4. Leucocytes consist chiefly of myelocytes in various stages of development.

5/3/34—Blood film shows an occasional normoblast, also many myelocytes. Red blood cells show less marked anisocytosis but severe achromia.

7/3/34—Halometer reading of red blood cells, 7.32 μ . Blood count: red blood cells, 2,800,000 per c.mm.; haemoglobin, 60 per

cent.; colour index, 1.07. Well-marked anisocytosis still, but no normoblasts seen. Considerable improvement on previous films. 16/3/34.—Blood count: red blood cells, 4,100,000 per c.mm.; haemoglobin, 70 per cent.; colour index, 0.85. Numerous reticulocytes seen in film. Halometer reading approximately 7.32 μ . 5/4/34.—Blood count: red blood cells, 4,600,000 per c.mm.; haemoglobin, 85 per cent.; colour index, 0.9. Only an occasional reticulocyte seen. Halometer reading 7.48 μ .

As will be seen from the report of the last blood examination, the man's blood picture approximated closely to normal. Clinically, his general bodily condition showed corresponding improvement, but at the time of writing (April, 1934) he still has a mild degree of tachycardia—a residuum, no doubt, of the profound degree of anaemia. His mental condition is very satisfactory, and he will shortly be discharged from hospital as fit to resume outside life and pursue his former occupation.

Discussion

The quartan strain of malaria employed in this case had already passed through two female patients, who throughout the course of treatment of the usual length had not manifested any unusual or alarming symptoms.

Further, another male patient, inoculated simultaneously and with the same blood, ran the course in the usual way. The possibility of a previous malarial infection either of the malignant or benign form has been definitely excluded by investigation of the man's previous history.

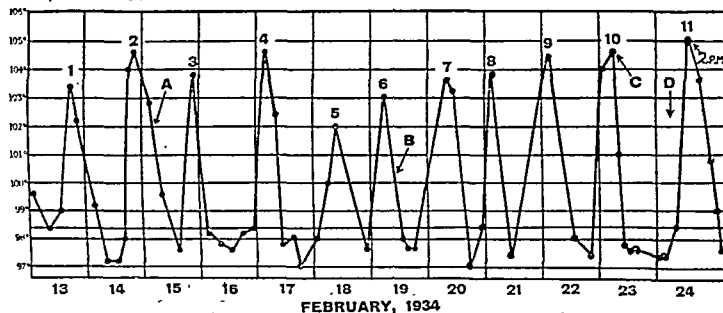
If it serves no other purpose, this phenomenal case illustrates the obscurity

with which the aetiology of blackwater fever is still surrounded. There would have been no hesitation in labelling this case as one of true blackwater fever if the malaria had been of the malignant variety, for in this case most of the characteristic features of this disease made their appearance in the usual sequence. Thus there was the malarial course terminated by quinine, and this, in turn, followed by the intravascular haemolysis, resulting in haemoglobinuria, jaundice, and anaemia. As in most cases, it is very puzzling to assess the importance of the part played by quinine in the production of this condition, but it is very significant that the symptoms appeared immediately after the administration of the drug, a feature of the aetiology which is much emphasized in textbook descriptions. Other causative factors of haemoglobinuria can be dismissed—namely, drugs (for example, potassium chlorate), over-exertion, excessive cold, as in the paroxysmal haemoglobinuria variety, in which in the last-mentioned case there would in all probability have been previous attacks.

Whatever may be the nature and source of the lysis producing such severe haemolysis, it would seem from the experience of this singular case that a condition identical with, or strongly resembling, blackwater fever can arise after benign malaria treated with quinine as well as after the malignant form. The complete absence of any reference to this possibility in all standard textbooks of medicine testifies to the extreme rarity of the condition.

In conclusion, I gratefully acknowledge my indebtedness to Dr. F. Murgatroyd of the Liverpool School of Tropical Medicine for his invaluable advice and interest, and also to Dr. E. F. Reeve for permission to publish this case.

Temperature Chart of Malaria, showing Rigor occurring after Administration of Quinine. Rigors occurring at Daily Intervals (with the exception of the fourth day).



A = parasites in blood film. B = parasites frequent in blood film.
C = quinine given. D = total of five doses of quinine given.

PREVENTION OF INTRACRANIAL INJURIES OF THE NEWBORN

BY

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During a period of six months I performed necropsies on 107 consecutive natal and neo-natal deaths at the above hospital. Excluding fourteen of these cases which had perforations performed for varying causes, forty-three of the remaining ninety-three cases were found to have intracranial lesions—that is, in 46 per cent. of all these consecutive deaths there were intracranial injuries. The lesions present were lacerations of the tentorium cerebelli in most cases, and usually associated with haemorrhages or oedema of adjacent parts; occasionally the falx cerebri was also lacerated.

There is not the slightest doubt that a large proportion of infants who survive have intracranial injuries; the greater number of these will have no more than small tears of the tentorium and oedema of adjacent parts, but others may survive where relatively large haemorrhages have occurred, and I have seen a great amount of blood removed in two cases where I performed repeated bi-daily cisternal punctures for four days and the infants at the time of discharge appeared to be normal. Although the presence of these injuries in the newborn has been recognized as far back as 1829, their tremendous importance as regards infantile mortality has not been stressed until the last few years, and even now some modern obstetrical textbooks do not seem to appreciate their great importance.

The purpose of this short article is not to determine the treatment of these injuries, but to find methods by which these injuries may be prevented.

Mechanical Causes of Injury

Numerous theories have been brought forward as to the method of production of these injuries, but it is more commonly agreed now that a mechanical factor is the direct cause of the injury, due to alteration in shape and compression of the foetal head. This is accompanied by stretching of the supportive apparatus, particularly the tentorium cerebelli. This mechanical effect of alteration in shape and compression is most marked in cases where there is excessive moulding, or where the change in shape of the foetal skull is accomplished too quickly by an operative delivery.

If there is excessive moulding, the effect of lateral compression is to raise the vault of the cranium, so increasing the strain on the falx and tentorium. The prevention of this excessive moulding can be carried out only by efficient ante-natal care in watching for disproportion between size of foetal head compared to maternal pelvis, and performing induction of labour before term or, if necessary, Caesarean section at term. This is one big factor in preventing intracranial injuries.

Breech Deliveries

Another extremely common cause of these injuries is in extraction of the after-coming head in breech deliveries. Bourne in 1922 found that breech delivery is ten times more likely to give rise to cerebral injuries as compared with vertex deliveries. In my series every breech mortality (six) had, at necropsy, intracranial injuries. To prevent these injuries in breech deliveries it is most important that the still unmodelled head should not be drawn violently through the pelvis and so cause sudden compression and, in this way, rapid stretching of the cranial supports. Also the routine procedure of performing a

lateral episiotomy in every case of breech delivery is a great help in preventing the sudden application of, and then sudden release of, compression on the foetal head due to an unstretched perineum.

Again, in breech deliveries care should be exercised in applying suprapubic pressure on the after-coming head, especially as this pressure is applied to the foetal skull in a vertical direction, and so is more liable to produce stretching of the cranial supports. Some obstetricians favour the routine application of forceps on the after-coming head as opposed to applying any suprapubic pressure on the head, thus avoiding pressure in a more dangerous direction.

Misuse of Forceps

As regards the use of forceps, these alone should not increase the risk of intracranial injuries unless associated with other factors as marked disproportion, or the wrong application of forceps, especially a fronto-occipital application. If forceps are being used, it is advisable to use axis traction, even in low forceps deliveries, to avoid premature extension of the head, which causes pressure of the occiput against the pubic arch with increased possibilities of intracranial injuries.

An unexpected cause of injury may result from the use of forceps of wrong size. One well-known firm sent to me a new pair of axis traction forceps with the widest diameter between the blades of exactly $2\frac{1}{2}$ inches instead of the usual $3\frac{1}{2}$ inches. Pulling on the forceps with this ridiculously small diameter would certainly cause intracranial injury, so it is a wise plan to check the separation of the blades from time to time, and also the shape of them, as after much use it is surprising how they can alter their correct shape.

Other Causes of Intracranial Injury

Another common cause of intracranial injury is the use of pituitrin in a case with incompletely dilated cervix or with a rigid perineum. The use of pituitrin in these cases may quickly force the foetal head through this obstruction, with resultant cranial injury. Again, precipitate labours are a frequent cause of similar damage, as the sudden compression followed by sudden release results in injury.

In premature labours one must be exceedingly careful in the delivery of these cases, as premature infants are notoriously prone to develop intracranial injuries, no doubt due to abnormal fragility of the vessel walls, and of the dura, etc., due to incomplete development of fibres of dura.

In delivering a normal case in the interval between uterine contractions, with the head on the perineum, one must be careful not to push too forcibly the foetal forehead against the pubic arch by a finger on the perineum or in the rectum, as such pressure may be enough, especially in a premature infant, to injure the supportive apparatus.

An indirect method in the prevention of these injuries is applicable in those cases with an irregularity or change in rate of foetal heart sounds. Usually these changes are due to compression on the foetal skull, and the treatment is not to apply forceps and deliver as rapidly as possible, and so increase the likelihood of intracranial injury, but to use chloroform, which will lessen the uterine contractions.

Efforts at Resuscitation

The last important point in the prevention of these injuries, or in this case I should say in preventing the increase of intracranial damage, is the manipulations during resuscitation. It is most important to remember

that practically all asphyxiated newborn infants which do not respond to treatment within the first minute or two are suffering from intracranial injuries, and that the older and violent methods of resuscitation, if used, will further increase these injuries by causing increased haemorrhage. If an asphyxiated infant is going to respond to any form of resuscitation, I am sure no more treatment is needed than to remove any mucus from the throat, and to encourage attempts at respiration by gentle traction on the tongue with tongue forceps at the rate of about twenty pulls per minute, together with the injection of a cardio-respiratory stimulant such as coramine or icorol.

Should the infant attempt to breathe, carbon dioxide is here of some use. The older methods of throwing the child from one hand to the other or of violently flexing its body should never be allowed to be used on an asphyxiated newborn infant, as all such infants should be considered as having potential brain injuries, and small haemorrhages may soon prove fatal if unnecessarily aggravated by vigorous manipulations during resuscitation.

RECURRENT VOMITING ATTACKS IN CHILDHOOD

WITH SPECIAL REFERENCE TO ALLERGIC FACTORS*

BY

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Recurrent attacks of vomiting, or so-called "bilious attacks," occur with sufficient frequency in childhood to be of real importance in clinical practice. Though not usually causing prolonged illness, they are often most inconvenient to the children concerned on account of their repeated interference with school life, while they may at times be severe enough to necessitate admission to hospital.

Wyllie and Schlesinger¹ have recently discussed a group of cases of this type under the heading of "The Periodic Group of Disorders in Childhood." Such a title has certain advantages, the chief being the emphasis it lays upon the tendency of these attacks to recur. "Cyclic vomiting" is a term often used for the attacks, but this rather implies a regularly recurring cycle, and any absolutely regular periodicity of the attacks is actually very rare, if indeed it ever does occur. Again, these children are often said to be suffering from attacks of acidosis. This is mentioned in order to draw attention to the fact that there is usually no justification whatever for such a diagnosis, although acidosis may accompany severe attacks of vomiting. It is of course well known that at the time of attacks these children do suffer from varying grades of ketosis. The term "ketosis" is, however, by no means synonymous with acidosis, and in fact true acidosis is not usually met with in childhood except as a relatively rare accompaniment of such diseases as diabetes, nephritis, and acute gastro-enteritis.

The aetiology of the recurrent attacks of vomiting under discussion is by no means clear. They are probably a manifestation of some metabolic disturbance, and Josephs² has shown that they may be associated with a hypoglycaemia. This being so, the accompanying ketosis is therefore explicable on the basis of an insufficient supply of carbohydrates being available for the proper metabolizing of fats. In these patients the clinical improvement effected by restricting fats and giving glucose is evidence favouring this explanation. It should, however, be mentioned that not all cases show a hypoglycaemia, and that

the theory of hypoglycaemia as an important aetiological factor has not been definitely established. Whichever is primary, the ketosis or the vomiting, the fact remains that between attacks these children are generally healthy, with, so far as one can judge, no evidence of ketosis or of any other metabolic disturbance, and one is still ignorant as to the exact factor which initiates an attack. It has been shown that some at least of the children can tolerate a definite ketosis produced artificially without an attack being precipitated.

It is recognized that gastro-intestinal symptoms may be a manifestation of allergy, and Rowe³ regards gastro-intestinal food allergy as occurring most frequently in infancy and childhood. It appears quite possible, therefore, that allergy may play a part in the production of these recurrent attacks of vomiting, and that sensitivity to some foodstuff may be a determining factor in their onset. With this aspect of the problem particularly in view, the following study was undertaken.

Investigation of Forty Cases

So far as possible, all children were selected for study who came to my out-patient sessions in the Children's Department of the London Hospital between January, 1932, and August, 1933, suffering from recurrent vomiting attacks. Personal and family histories were investigated, all significant data in regard to clinical findings were recorded, various investigations were carried out, treatment was prescribed, and progress was followed in each case. An attempt was then made to correlate the findings in the entire series, and to draw conclusions therefrom. As in every case reliance had to be placed on the history obtained from the mother and upon her account of subsequent progress, it was obvious that accuracy in certain of the data was open to question. This, however, is invariably the case in any clinical study of this nature involving observation of out-patients.

The series here presented consists of forty cases; as is inevitable, certain other patients who were originally included defaulted before adequate observations could be carried out, and had therefore to be omitted. Of this series all the children attended quite regularly except three, each of whom for some time failed to come up as requested. The maximum period of observation was twenty-seven months and the minimum five months. The average period of attendance during which observations were made was sixteen and a half months; only two children were observed for less than six months. Reports of progress were subsequently obtained in regard to four of the children after attendance had lapsed.

Character of Attacks

It soon became apparent that there was no absolute uniformity in the duration of individual attacks, and, generally speaking, no regular periodicity in their occurrence. Often a child who was, at the time of first attendance, said to have an attack every two or three weeks, was found thereafter to have such attacks only at very infrequent intervals. Even in the history given by the mothers any account of regularity of attacks was infrequent. It is really impossible to make any useful analysis of the frequency or duration of these attacks. In most cases the vomiting was accompanied by headache, which was sometimes the most outstanding feature of the attack. This will be discussed later.

The average age at the time the children were first examined was just under seven and a half years. In twelve cases the attacks were said to have commenced before the age of three years, in thirteen cases the onset apparently occurred between the ages of three and five years, and in fifteen cases between the ages of five and ten years.

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Precipitating Cause

In twenty-three of the cases the mother stated that she had no idea what initiated the attacks; in the remaining seventeen cases various factors, such as fatty foods or excitement, for example, were suspected to be associated with the onset of an attack. From these histories, however, one is forced to take the view that any exact knowledge of what precipitates an attack must be uncommon. Excess of fats does, however, appear to be a factor in certain cases, and some of the children in the group observed have a dislike, possibly physiological, of fatty foods. Constipation may well be an associated factor, but discussion of this is apt to be misleading on account of the difficulty of obtaining a reliable history in this respect. It should be recognized that the criteria among hospital out-patients as to normal and abnormal actions of the bowels are extraordinarily variable and frequently fantastic.

Allergic History

The allergic history is a matter of some importance, in view of the fact that it had been considered that the attacks themselves might be of an allergic nature. Of the forty children, four gave a personal history, present or past, of some manifestation usually regarded as allergic—namely, asthma (one case) and urticaria (three cases). In eighteen cases—that is, 45 per cent.—a family history of allergy was obtained, this being very pronounced in five. As it seemed possible that such a proportion of family histories of allergic manifestations might well be obtained in any similar group of children, a control series was investigated. Forty children attending hospital as out-patients, who gave no history at all of bilious attacks or headaches, were taken without selection. None of these gave a personal history of any allergic manifestation. A family history of allergy was obtained in only ten—that is, 25 per cent.—of this control group, and in only three of these was such family history really pronounced. There is therefore a much higher incidence—almost double—of history of allergic manifestations in the families of the children suffering from vomiting attacks than in those of the control series of cases.

Skin Tests, Blood Counts, and Gastric Acidity Tests

Each child in the series was skin-tested with extracts of all the articles of food usually regarded as most commonly responsible for producing allergic phenomena. The extracts used for testing were put up by Messrs. Duncan, Flockhart and Co., and consisted of: wheat, oatmeal, rice, potato, egg white, whole cow's milk, cocoa, beef, pig group (pork, bacon, lard), crustacea (group extract), and fish group (cod, herring, haddock, whiting, plaice, mackerel). A control solution was also employed in carrying out the test. Before applying the test the arm was in every case gently washed over with spirit. The results were very disappointing. In only one case was a slight but definite positive reaction obtained, this being to egg; in this case the mother had stated, on first bringing the child to hospital, that no food appeared to upset her. In five other instances certain reactions were regarded as possibly positive, but clear-cut positive reactions were not obtained, except in the one case mentioned. Skin testing in these children proved, therefore, to be of no assistance. It is, however, recognized that a negative skin test does not necessarily mean that a child is not allergic to the substance tested, and Rowe³ states that skin reactions are infrequently obtained in cases of gastro-intestinal allergy.

Blood counts were carried out in all except one of the cases, because of the fact that eosinophilia is generally accepted as being an accompaniment of the allergic state. No child in the series showed a conclusive eosinophilia,

but in seven cases the eosinophil count could at some time be regarded as slightly above normal, amounting to between 5 and 9 per cent.

It has been shown that in certain allergic conditions there exists a hypochlorhydria and a tendency towards alkalosis (Bray,⁴ Beckman⁵). With this in view test meals were carried out on thirteen of the children under investigation, who were admitted to the ward for this purpose. These cases were selected as being the most likely to yield significant results in view of a definite associated family history of an allergic nature. The meal given was the ordinary Ewald meal, on an empty stomach. Possibly different results for secretion of acid might have been obtained if histamine had previously been injected, or if fractional test meals had been employed, as in Bray's⁴ series of cases. At the same time, since a control series was treated in exactly similar fashion, it seems justifiable to make a comparison between the results of a simple Ewald meal in the two groups.

In seven of the cases investigated free hydrochloric acid was found to be absent. In two it amounted to 0.04 per cent., in one to 0.05 per cent., in one to 0.07 per cent., in one to 0.08 per cent., and in one to 0.17 per cent. The percentages given are those of mineral acid calculated as HCl. Taking the normal values of total acidity as lying between 40 and 60 (acidity of 100 c.cm. test meal in terms of cubic centimetres of decinormal acid) two cases gave normal and ten subnormal values, while in one a high total acidity of 77 was found. A control series of test meals was carried out on twenty children of the same class, who were in hospital convalescing from various medical conditions not of a digestive nature. In this series twelve had a complete absence of free HCl, and in four others the free HCl was below 0.1 per cent.; six gave normal and thirteen subnormal values for total acidity, while in one a high total acidity of 85 was found. One cannot, therefore, from consideration of this series, argue that the absence of free HCl, or low total acidity, in children suffering from recurrent vomiting is of any particular significance.

General Physical Signs

Several children in the series had some entirely extraneous disability, such as a rheumatic cardiac lesion. Excluding such findings there were no abnormal physical signs except what was regarded as a raised blood pressure, which was found to be present in eight of the cases under review. Raised blood pressure as a feature of some cases of the type under discussion has already been observed by Wyllie and Schlesinger.⁶ Its significance is not clear, but it may be noted, as they point out, that adults with essential hyperpiesia not infrequently give a history of migraine in early life. In thirty-seven of the cases whose urines were tested between attacks by Gerhardt's ferric chloride test, no diacetic acid was found: this is what one would expect.

Association of Headache with Vomiting

Special mention must be made of the association of headaches with these attacks of vomiting. Ophthalmic examinations to exclude errors of refraction were carried out in all cases of severe persistent headache. In no case did it appear that such errors were responsible for the attacks. It is well recognized that headache is usual at the time of such attacks, but in a number of cases the type of headache is such as to justify one in classing it as definitely migrainous. Again, certain cases under observation, which came for examination primarily because of symptoms typical of migraine (severe recurrent prostrating headache, sometimes accompanied by visual phenomena), complained of vomiting at the time of the attacks. There seems to be so close an association between these two

symptom-complexes that it is questionable whether in a number of cases they can be accurately separated. It is probable, therefore, that severe recurrent bilious attacks in childhood should be regarded as atypical manifestations of migraine.

It may be mentioned in this connexion that various observers regard migraine as being due to food allergy. Balyeat and Rinkel⁶ are of the opinion that in about 30 per cent. of all patients with migraine, symptoms have developed during the first decade of life, and that many cases of so-called cyclic vomiting may actually be cases of migraine in childhood.

Treatment and Progress

These are being discussed under one heading on account of their interrelationship.

The general lines of treatment adopted may be stated to consist essentially of:

1. The ordering of a low fat diet with liberal carbohydrates. The mother received detailed instructions regarding the types of foodstuffs to be given.
2. The prescribing of luminal, to be given at the time of attacks of severe headache, to children prominently exhibiting this symptom.

In certain cases in which a particular article of food was regarded as a possible causative factor in precipitating an attack, this was eliminated from the diet for a short period. This did not appear to make any difference, nor, in fact, did the giving of such foods seem to cause any particular upset.

One is faced with the greatest difficulty in assessing the effects of treatment and the progress of the children because of the impossibility, already mentioned, of obtaining from the mothers accounts that can be regarded as strictly reliable. Recognizing these difficulties, which are inherent in any study of this type, it is possible to make only the broadest assessment of progress in relation to treatment. Three children were not given any special dietary instructions at all. Of the remaining thirty-seven the patients were dieted for periods ranging from six weeks to twenty-one months, the average duration of the dieting being nine and a half months. Extra sugar as well as very restricted fat was ordered in most cases at the outset; later it was usual only to restrict the fats. Apart from six of the children who had no further attacks from the time of first coming under observation, there remain thirty-four cases for consideration. Of these, twenty-seven improved under dietetic treatment, and the improvement was maintained subsequently when an ordinary diet was allowed. In seventeen of these patients the improvement was regarded as very marked. Three failed to show improvement, and in two cases the improvement was doubtful. Two patients improved under dietary treatment, but regressed when given ordinary diet without fat restriction.

However great the improvement may have been, and even if no attacks were observed while the child was attending, the time of observation hardly permits one to speak of an absolute cure having been effected. There seems, however, to be little doubt that, when children suffering from recurrent vomiting attacks are ordered a diet in which the fats are much restricted, a general improvement is usually effected, and this appears to be lasting.

Summary and Conclusions

A study was made of a series of forty children suffering from recurrent attacks of vomiting, and in particular evidence was sought as to whether or not the attacks were associated with an allergic state.

There was found to be a definite family history of some allergic disorder in a considerably greater proportion of the children in this series than in a second series of

children taken as a control. Apart from this no definite evidence of allergy was found. Generally speaking, skin tests failed to reveal sensitivity to any of the common foodstuffs.

The association in childhood of recurrent vomiting attacks with migraine is emphasized and discussed. Severe vomiting attacks in childhood are probably atypical manifestations of migraine.

Treatment consisted essentially of restriction of fats in the diet. From the generally favourable progress made by these children it would appear that good results may be expected from this line of treatment in the majority of cases, and that the improvement effected is likely to continue after a normal diet has been resumed.

I should like to thank Dr. Pantton and Professor Marrack, in whose departments certain of the investigations were carried out, Dr. W. G. Bray for helpful advice, and the Research Committee of the London Hospital, who kindly assisted me with a grant.

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NEW CASES OF WAR BLINDNESS DUE TO MUSTARD GAS

BY

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OPHTHALMIC SURGEON, ST. DUNSTAN'S

Surprise is often expressed by the lay public, and sometimes even in medical circles, that men are still being admitted to the benefits of St. Dunstan's organization as being blinded from the results of the war. That there are many men with damage to the brain from bullet wounds, which years later have resulted in injury to the brain tissue from the effects of scarring and traction, is readily understandable; that these changes cause damage to the optic paths and optic centres, and result in blindness, more or less, is also quickly appreciated when an explanation is called for. But such explanations are comparatively rarely required, because the general public thinks that, since the war ended sixteen years ago, any after-effect of head wounds in the way of blindness would have shown itself much earlier.

Numbers of clear, well-authenticated cases of this nature are on record. In this article, however, it is not intended to touch upon these, but upon a variety of war injury which causes an immense amount of untold suffering, years of treatment, and, unfortunately, progressive loss of already much impaired vision, and the occasional loss of eyes themselves. I refer to the men who were badly gassed by shell and cloud mustard gas, and whose conjunctivae, particularly the lower fornices, are as irritable and inflamed to-day as they were after the acute effects had more or less passed off in 1917, 1918, and 1919. Very considerable oedema of the conjunctiva and lids first occurred, which slowly settled down, leaving a chronic conjunctivitis of such nature and severity that one can but conclude that some change in the tissues has taken place resulting in the loss of some lubricating secretion present in the normal eyelids and conjunctivae. This change would appear to be the total destruction of the mucin-secreting glands, a change which seems to have taken place in those distressing cases of essential shrinking of the conjunctiva and xerophthalmia.

In the latter cases, however, corneal ulceration and definite losses of corneal tissue are not a prominent feature, whereas in the gas cases, corneal destruction—thinning, ulceration, and bulging of the weakened substantia propria of the cornea—itsself is an ever-present symptom, especially the bulging and the giving way of the cornea.

I did not come across these changes in the early days of the use of gas, when lachrymatory gas, chlorine, bromine, and supposedly hydrocyanic volatiles were used, and I saw and attended the greater number of the gas cases arising during the first and second attacks in the Ypres sector. Uncomfortable and irritating as lachrymatory gas was, the effect upon the eyes and conjunctiva soon passed off, as did that of chlorine, but this latter had fatal effects upon chests, lungs, and bronchi. During these gas attacks there were no protective masks for the eyes, the only available protection being pads of gause tissue with tapes, the pad being dipped in thiosulphate of soda such as was then used in the Vermorel sprayers.

In addition to the number of cases in which the men's eyes, previously sound and normal, were directly and acutely burnt by mustard gas, and as a result the men were partly blinded, there have been many cases of old interstitial keratitis, in which the previous disability has been lighted up by the intense irritation and destruction of tissue resulting from mustard gas burning; in some instances both eyes have become affected, although the interstitial keratitis first appeared only in one eye. While it is true that the original interstitial keratitis was not in any sense a war injury, the attack following mustard gas burning was, and should be so considered. There are also cases in which, after extreme burning, some of the mustard gas became absorbed and brought about deeper changes in the eyes, such as degeneration of the retina, presumably following an inflammatory retinitis, which showed itself primarily in night-blindness. (An example of this is included later in this paper.) Such cases have been known to follow heavy doses of phosgene gas, which causes very few local and immediate symptoms, but deadly after-effects; not many have followed mustard gas burning.

Case Notes

The men in the following cases have all come to St. Dunstan's for admission or assistance owing to their wretchedly uncomfortable eye conditions, with progressive deterioration of vision in spite of continuous treatment. Most have lost their jobs through failing vision, and some are unemployable because of the appearance of their eyes, the uncertainty of being able to carry out any work without continual breakdowns for treatment, and, sad to relate, the objection of fellow workers. They have all come up within the last eighteen months.

Case 1.—The patient, aged 38, was seen on July 12th, 1934. He was wounded on the Somme, was in hospital six months, and was then sent back to a Pioneer Battalion. He was gassed in 1918 (mustard gas), and, as a result, spent nine months in hospital. His chest was affected. He began to lose his sight after being gassed, and it was for this that his pension was granted. Vision R., largest letter at one foot indefinitely. Vision L., largest letter at six inches indefinitely. Field of vision very contracted. This man was a sniper for two years after going on foreign service. Fundus shows marked retinal degeneration and pigmentation. Cornea and conjunctiva not markedly affected.

Case 2.—Patient, aged 50, seen in April, 1933. As a result of mustard gas poisoning at St. Quentin in August, 1918, he was invalided out, and in hospital from August to November. His eyes have given trouble ever since, and broke down finally in February, 1929. He has been under continuous treatment since he was gassed. Left eyelids have been stitched up since July 15th, 1932, and are still closed. Right partly stitched in September, 1932, and remains so. Vision R. less than 1/60; vision L. still less. Both conjunctivae, when

seen, were considerably congested; right, roughened and discharging; left, cornea still ulcerated. The man is quite unable to get work or to perform it, and is being trained as a blind man. He is under treatment at the Ministry of Pensions Hospital.

Case 3.—This patient, aged 44, who was seen on June 7th, 1934, was gassed by shell at Ypres on September 27th, 1917. He spent seven months in hospital, and has been under treatment ever since. Vision R., 3/60 just; vision L., largest letter at one foot. Right: corneal nebula, opacities on lens capsule, signs of iritis; tension normal, no view of fundus. Left: scarred cornea, raised patches with clear cornea between; eye tender and cannot stand daylight. Eyes and vision have deteriorated lately. He left the Ministry of Pensions Hospital, where he had been an in-patient, just before Whitsuntide of this year. He has been under treatment ever since being gassed, and had to give up his own business on January 26th, 1934. His chest is also giving trouble.

Case 4.—The patient, aged 37, was seen on June 7th, 1934. He was gassed near Albert in 1918, and was in hospital as a result for six weeks, during which time his eyes were completely closed, and he was unable to open them for two weeks. Ulceration continued. Nebulae in lower half of right, and a very dense leucoma down and out in lower half of left cornea. Vision R., 4/60 indefinitely; L., 1/60. Eyes have been inflamed again this year. In this case the gas shell burst in the entrance of a tunnel, in which the man was working a signalling lamp; he thus had the full benefit of the mustard fumes.

Case 5.—A gunner, aged 44, seen in February, 1931, was gassed at Armentières in 1918. Right eye: no perception of light; tension minus; cornea opaque and disintegrated in lower two-thirds, bulging and perforated; anterior chamber collapsed. Iris adherent to wound. Left eye: perception of light, but cannot count fingers. Lower half of cornea opaque and roughened, lens capsule opaque, pupil bound down. This man's body, wherever there was moisture—armpits, thighs, etc.—also burned at the same time.

Case 6.—This patient, who was gassed in France in 1918, was seen on July 26th, 1934. He had never had any comfort with his eyes since he was gassed, nor did he do any further service. His eyes very badly ulcerated; left stitched up for a year. He never goes longer than six weeks without having exacerbation, and has extensive calcareous deposits in both corneae. His own doctor has treated him for his eyes for nine years. Vision R., 2/60 barely; L. less than this. Both corneae hazy, due to dense infiltration masking the whole cornea.

Case 7.—Patient seen on July 26th, 1934. He was gassed (cloud gas) at Villars in 1918, and, as a result, was in hospital from May to December, 1918. Both corneae badly burned; nebulae, calcareous film right; has been under treatment ever since being gassed, and was in a Ministry of Pensions Hospital from 1930 to 1931. Right vision: sees light only—or thinks he does; left vision: 1/60 eccentrically with head held very much on one side. Vision is still deteriorating.

These authenticated cases are sufficient to prove that much acute suffering is still being uncomplainingly borne, and all such cases will eventually be cared for by St. Dunstan's organization, and account for the recent admissions.

The first number has appeared of a new journal, *Acta Cancerologica*, published in Budapest under the general editorship of Dr. Paul Geré. The articles are printed in English or French or German, at the author's choice, each being followed by a summary in all three languages. Publication will continue at intervals of one and two months, the annual set of twelve single or six double copies being bound in one volume. The English agents are Messrs. H. K. Lewis and Co. Ltd., 136, Gower Street, W.C.1, who will be pleased to send particulars of the journal to inquirers. The subscription is £4 for one year, and £2 2s. 6d. for six months.

Clinical Memoranda

NON-FATAL LIGHTNING BURNS

It has long been a canon of surgical practice that "if one-half the superficial area of the body of an adult is burnt, no matter of what degree the burn is, or one-third of the body of a child, the burn will end fatally."¹ Again, "involvement of one-third of the skin surface is a very grave matter and, if this includes the abdomen, the outlook is practically hopeless."² The following case, which occurred in August, 1933, is recorded both for the interesting clinical features and for the unusual satisfactory result.

CASE RECORD

One evening, during a thunderstorm, two boys, aged 12 and 7, were about to enter a cowshed in order to milk several cows when the building was struck by lightning. The cow nearest to the door was killed instantly. (Subsequent examination by a veterinary surgeon showed no detectable abnormality.) The boys were thrown down and rendered unconscious.

The younger of the two was hurled several yards away from his brother. Apart from shock his injuries were slight. A certain degree of cerebral irritation supervened the following day; after a few days' complete rest in bed he made an uninterrupted recovery. It is interesting to note that, of the two, the younger boy showed a far greater degree of psychological sequelae, in the form of "terror-dreams," and during a thunderstorm all the signs of extreme fear, including, on a recent occasion, a temporary paresis of both legs and incontinence of urine lasting twenty-four hours.

The older boy, who was carrying a galvanized bucket in his left hand, was severely burnt. It would appear that the lightning "earthed" itself through the bucket. The burns extended all over the back, from the nape of the neck to the fold of the nates on both sides: down the left leg to the ankle; over the front of the thorax from the suprasternal notch to the xiphisternum, extending across the abdomen from the right iliac crest to become continuous with those on the back. The only free portion of the trunk was an area from the right axilla, two inches broad, down to the lower border of the ribs, and broadening an inch to the level of the umbilicus.

The left arm was charred black from the shoulder to the elbow; the muscle fibres of the biceps could be seen clearly. The fingers of the left hand, on the dorsal surface, were scarcely affected; the palmar surface was burnt to the second degree. In the earlier stages of recovery it appeared as if a permanent state of contraction of the fingers would result, independently of the healing of the flesh. Subsequent events have shown that this was probably a functional contracture of psychological origin and not due to any local or neurological damage. The head, right arm, and leg escaped injury. It was in the right hand that he had held a wooden milking-stool. The latter was found, without its legs, at the other side of the shed.

The patient was seen about twenty minutes after the accident. He was then unconscious, breathing stertorously, and the skin cold and clammy. The pupils were dilated. He had been totally incontinent. He was practically naked; the cuffs of his shirt, held by metal buttons (which were twisted), were all that remained of his upper garments. There were no arborescent markings on the skin such as have been described by some observers.

RESPONSE TO TREATMENT

Consciousness returned in three to four hours. The wounds were cleansed gently by allowing a solution of 1 in 1,000 mercury perchloride to flow over the surface. Later, these were sprayed with colloidal tannic acid solution (2½ per cent.). This was repeated at hourly intervals. Because of the ex-

tensive nature of the wounds, a 5 per cent. tannic acid ointment dressing on broad sheets of lint was substituted the next day, and changed daily during the following three weeks. Thereafter the intervals between changing the dressing were gradually increased. The last "black crust" separated at the end of the eighth week. From this time a 1 in 1,000 solution of acriflavine emulsion replaced the tannic acid dressing. There was very little sepsis except from the wounds on the abdomen. The temperature rose to 102° on the second day, and remained above normal constantly during the first three weeks. The pulse rate gradually increased out of proportion to the temperature and the heart-muscle sounds became progressively of poorer quality, probably due to a degree of myocarditis. A Nativele granule grain 1/600 was given morning and evening for three months with no ill effects. The rhythm remained regular throughout.

No morphine was given during the period of shock. Contrary to the usual advice, strychnine sulphate grain 1/100 was given every four hours for the first week. Glucose drinks and glucose salines per rectum were administered at four-hourly intervals during the period of shock. On no occasion was it necessary to use an anaesthetic to allay the pain during the dressing of the wounds.

Permission for skin grafting was not obtainable. The only stimulating treatment available for the wounds was that afforded by the actual rays of the sun, and the scarlet red ointment of the *National Formulary*. The effect of the ointment was remarkable in producing a rapid epithelialization when it was applied around the circumference of the wounds and covered by lint soaked liberally in acriflavine emulsion.

The total time taken for complete healing was ten months. It is characteristic of electric burns that they heal slowly. Apart from those mentioned above there were no complications, and recovery has been uneventful. "Halimalt" and a simple mixture of glycerophosphates were given during convalescence.

The ultimate results are, on the whole, satisfactory. The boy now has the complete use of his hands, and, apart from a certain amount of contracture at the left shoulder region, there is every likelihood that, in time, he will become a useful agricultural worker.

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AN UNUSUAL LARYNGEAL FOREIGN BODY

The following instance of impaction of a foreign body in the larynx is, I think, of sufficient interest to be worth recording.

A child, aged 10 years, was admitted to hospital an hour after having swallowed an unusual type of foreign body—namely, the "eye" component of a "hook and eye" appliance for joining dress material. The child had apparently been playing with the foreign body, when it was noticed to have a sudden spasm of choking and become hoarse. An x-ray revealed the foreign body at about the level of the pharyngeal pyriform sinuses, a little to the left of the middle line, with its longitudinal axis in the sagittal plane, and the "eye" component directed posteriorly. Direct laryngoscopy two hours later, under general anaesthesia, revealed the foreign body lying as to one-half over the anterior part of the left vocal cord and the remaining half below the left cord in the subglottic region, with the "eye" of the appliance directed towards the middle line. The slit in the horizontal limb had passed over the free margin of the true cord, so that the foreign body was encircling the true cord. When the position and relation of the foreign body had been appreciated, extraction with the forceps through the laryngoscope presented no difficulty. The foreign body was grasped by the forceps at the upper limb of the "eye," and gentle upper traction applied.

Manchester.

F. HOLT DIGGLE, F.R.C.S.

¹ Howard: *The Practice of Surgery*, fourth edition, p. 171.

² Souttar: *The Art of Surgery*, second edition, p. 97.

REVIEWS

Reviews

BRAIN ABSCESS

Elaboration of the Jacksonian prize essay for 1926 has resulted in a volume on *Abscess of the Brain*, by Mr. E. MILES ATKINSON.¹ The monograph is based upon twenty-three cases of brain abscess treated or personally observed by the author. All save one were of aural origin, and with one exception all were temporo-sphenoidal or cerebellar in situation. The series is admittedly rather small, and to supplement this and provide a complement of cases of different origin the author has drawn upon a wide field of literature, and provides an excellent bibliography. The anatomy and pathology of brain abscess are dealt with admirably in a comprehensive fashion. The author's own researches make him of the opinion that the spread of infection into the brain substance is by the perivascular route in a great majority of cases and less frequently by the process of retrograde thrombophlebitis, which is more favoured by transatlantic writers.

A full account of the general and local signs of brain abscess is given. Mr. Atkinson rightly emphasizes the necessity of repeated examination for the detection of transient localizing signs, and stresses the danger, which ought to be more widely appreciated, of allowing more than one or two cubic centimetres of cerebro-spinal fluid to escape on performing diagnostic lumbar puncture. But it is doubtful if the cerebro-spinal fluid can be estimated even approximately without a manometer, as he maintains, and surely the manometer is the best check against too much loss of fluid. His statement that tests of visual fields have proved of no value to him will surely be amended in the future.

Mr. Atkinson's opinion that operation, or at least exploratory puncture, should be performed just as soon as the diagnosis of brain abscess is made, whether localizing symptoms are present or absent, will, as he expects, be contested by many. In spite of his agreement with others that Macewen's unsurpassed results were probably due to the long-standing nature of his cases before operation, and in spite of several recent papers advocating delay as long as possible, he maintains that the risks of such procedure are too great. It is difficult to understand such compelling dogmatism based on limited experience. The various methods of approach and drainage used by different writers—*quot homines, tot sententiae*—are fully dealt with. The author himself favours a double tube for drainage and irrigation.

The monograph is well produced and illustrated. If it lacks conciseness, that is probably due to the zeal of the author for his own personal contentions making his style a little reiterative.

ORTHOPAEDIC SURGERY

Dr. GEORG HOHMANN's book on Foot and Leg, their Disorders and the Treatment of Them, appeared first in 1923. A second and enlarged edition, with many more illustrations, has now been published.² The title "Foot and Leg" suggests, to English eyes and ears, that the book deals with the surgery of the whole lower extremity, but that is not in fact the case. Dr. Hohmann is director of the University Orthopaedic Clinic of Frankfurt-on-Main, and he confines himself in this book almost entirely to deformities and to orthopaedic methods of treatment. He leaves out such maladies as tuberculous joint disease and

osteomyelitis. While he describes and discusses various congenital deformities he omits club-foot, but includes, on principles of selection which seem obscure, chronic varicose ulcer of the leg.

In his preface the author points out that during the past decade there have been notable advances in the field of orthopaedic surgery, and that this volume is not simply a revision and amplification of the first edition, but an entirely new work, the outcome of thirty years' work on the foot and experience of thousands of patients with foot maladies. Several new chapters have been added on maldevelopment of the foot and toes, which are of practical importance, such as those on the processus trochlearis, on the sesamoid bones, and athletic injuries, especially those of the joints of the foot and ankle. The author is a follower of Max Lange, whose monograph on myogelosis, or muscle induration, we noticed nearly four years ago. (See *British Medical Journal*, 1931, ii, 536.)

The book is written, he says, for the orthopaedic specialist as well as for the general practitioner. Within the limitations aforementioned *Fuss und Bein* should be found useful to those seeking information about deformities of the feet. The numerous illustrations are clear and informative. The value of the book as a work of reference is seriously diminished by the absence of an index, which is the more felt because the table of contents is very laconic.

SERUM DIAGNOSIS OF GONORRHOEA

Serum Reactions in Gonorrhoea,³ by BERTRAND RÈME, is a valuable addition to medical literature for a number of reasons. It gives a historical review of the evolution of the complement-fixation reaction in gonorrhoea from its commencement in 1906; the technique, taking reagent by reagent; its interpretation, sensitiveness, and specificity; and finally a most comprehensive bibliography.

Müller and Oppenheim are given the credit of being the first to apply, in 1906, the principles of Wassermann and Bruck to the serology of gonorrhoea. From that date numerous workers—all mentioned by name—have gradually evolved a test which to-day may be considered to be as valuable in gonorrhoea as the Wassermann reaction is in syphilis. A long and interesting section on the history of the complement-fixation reaction is followed by one on technique; as regards the patient's serum, complement, and haemolytic system most workers are in general agreement—it is over the question of antigen that methods differ widely. In general, antigens may be divided roughly into those treated by physical and those by chemical means. The former include emulsions and filtrates, whilst the latter comprise those made by extraction with alcohol or ether or solution in soda or antiformin. A comprehensive table is given of the various types of antigen employed, together with the names of the workers who use them. As regards specificity, the question of cross-fixation with the meningococcus and *Micrococcus catarrhalis* arises. There seems to be a general consensus of opinion that this does take place: with the former it is not usually of much importance, since the differential diagnosis is easy, but in the case of the latter difficulties may arise. It appears possible that the solution may lie in testing the serum in question against antigens made from each kind of organism. Much more work, however, requires to be done on this question. The bogy of cross-fixation with a syphilitic serum is finally laid—it should never occur with a good technique. The complement-fixation reaction will stand comparison with other laboratory methods in the diagnosis of gonorrhoea: excluding early acute cases, far more positive results are obtained with it than with films or cultures.

¹ *Abscess of the Brain: Its Pathology, Diagnosis and Treatment*. By E. Miles Atkinson, M.B., B.S., F.R.C.S. London: Publications, Ltd. 1934. (Pp. 289; 45 figures. 21s net.)
² *Fuss und Bein. Ihre Erkrankungen und deren Behandlung*. By Professor Dr. med. Georg Hohmann. Second edition. Munich: J. F. Bergmann 1934. (Pp. 380; 326 figures. R.M. 24; geb. R.M. 25 80.)
³ *La Seroreaction Blennorrhagique*. Par Bertrand Rème. Paris: Masson et Cie 1934. (Pp. 179 20 fr.)

On the question of sensitiveness most workers agree that the test is usually positive: (1) after about the second week, (2) in nearly all complications such as arthritis, and (3) where there is a closed focus of infection. Opinions differ as to how long the reaction remains positive after cure, and what importance must be attached to a persistent positive remaining long after all signs have disappeared. Speaking generally, the reaction may be expected to return to negative in from six to twelve weeks following cure: where a strongly positive reaction persists the inference is that a focus of infection exists somewhere and must be sought for diligently; cases which have suffered from complications often show a positive reaction for months or even years after all symptoms have disappeared, and may perhaps be considered on a par with "Wassermann-fast" syphilitics.

This book is essentially a digest of all the work that has been done on the subject, no author of any note being omitted. The various methods are described and the opinions of the various workers quoted. The reader is left, very largely, to decide for himself which are the better techniques and to draw his own conclusions, though here and there the author gives his own views and experiences. All who have to do with the management of gonorrhoea should read this valuable work; if its publication succeeds in stimulating further interest in a subject which has not received the attention it deserves Dr. Rème will be in some degree compensated for undertaking a most laborious task. There can be little doubt that the value of the reaction is well established, and those who treat gonorrhoea without its aid are handicapping themselves severely: it is a curious fact that those who tend to belittle the value of the reaction are those who have least experience of it.

THE B.C.G. VACCINE

Dr. K. NEVILLE IRVINE, during his recent tenure of the Radcliffe Travelling Fellowship, spent two years visiting clinics and laboratories in Europe and America in order to collect data on the method of vaccination against tuberculosis introduced by the late Professor Calmette. His findings are incorporated in a short book entitled *The B.C.G. Vaccine*.⁴ In this work Dr. Irvine deals with the main questions that have excited discussion among scientific workers. His method is to devote a separate chapter to each question, to review briefly but comprehensively the published reports on the subject, to mention sometimes the work under progress, and, after a critical assessment of the findings, to furnish a fairly definite answer to the question posed at the commencement. As a result Dr. Irvine concludes that (1) the B.C.G. is not a "virus fixé," but can (or could until recently) increase in virulence when cultivated under suitable conditions; the parenthesis is necessary because the B.C.G. has shown signs lately of decreasing still further in virulence; (2) the B.C.G. does occasionally produce progressive tuberculosis in laboratory animals, though it has never yet been definitely proved to have done so in man; (3) a definite degree of immunity can be produced in cattle by B.C.G., though in other animals the results are doubtful; (4) a certain undefined degree of immunity can be produced in man by the vaccine; and (5) the vaccine should be given to children in tuberculous families to supplement the existing measures of control.

These views are very similar to those which have been advanced in the editorial columns of the *British Medical Journal* during the past few years, and are likely to meet with a considerable measure of approval. The real crux

of the matter is how great and how lasting is the degree of immunity produced. At present the evidence does not suggest that it is either great or of long duration, so that the general application of the vaccine is out of the question in this country. Its use must therefore be restricted to specially exposed classes. Since these constitute but a small fraction of the total population, information on the value of the vaccine will be very difficult to obtain unless a properly organized programme is laid down and adhered to by such bodies as the Ministry of Health and the Medical Research Council acting jointly.

Dr. Irvine is anxious that research on man should be undertaken, and is fully aware of the statistical fallacies that have marred so much of the work carried out in other countries. His book, by providing a reasoned résumé of the highly controversial data on B.C.G., will not only attract a wide public, but may lead to a demand for more exact knowledge of the protective value of the B.C.G. vaccine.

CORRECTIVE PHYSICAL EDUCATION

In her book with this title⁵ JOSEPHINE LANGWORTHY RATHBONE has made a conscientious attempt to produce a sound textbook for students of physical education to enable them to help the child who is suffering from faulty development or definite deformity, or who is otherwise maladjusted to take his part in the activities of normal life. Having reviewed the anatomy and physiology necessary for the understanding of normal body mechanics, the author describes the commoner types of faulty development and orthopaedic lesions, and explains how physical therapy may correct or help to compensate for these handicaps. She lays stress upon the importance of psychological factors in reconstructive work, and discusses the need for co-operation between home and school if corrective physical education is to have a reasonable hope of success. Systems of general exercises are given, and special exercises for different regions of the body. These are illustrated by "stick-man" diagrams, which show movements clearly, but, being small and spidery, are rather irritating in the text. A bibliography is appended; and a glossary in which the choice of words is curious. Why waste space in defining words in common use, such as "sleep," "normal," "obesity," "rigidity," "true," and give so little enlightenment about a word like "bacillus," which is merely mentioned as "a rod-shaped body"? The author does not claim to have contributed any original material to her subject, but she has its advancement very much at heart, and here presents her own knowledge and experience in such a way as to make it of practical benefit to students of physical education.

CHEMISTRY OF THE HORMONES

The Chemistry of the Hormones,⁶ by Professor B. HARROW and Dr. C. P. SHERWIN, is a useful monograph that summarizes current knowledge on this subject. It is divided into nine chapters, which deal with the following matters: thyroid and parathyroid hormones, insulin, pituitary, adrenal, male and female hormones, secretin, and plant hormones. The greater part of the volume is concerned with the methods used to isolate hormones from glands and other tissues. Adequate accounts are also given of the chemical properties of the hormones and our knowledge regarding their chemical structure, together with short accounts of the biological tests used

⁴ *Corrective Physical Education*. By Josephine Langworthy Rathbone, M.A. Philadelphia and London: W. B. Saunders Company, 1934. (Pp. 222; 153 figures, 12s.)

⁶ *The Chemistry of the Hormones*. By Benjamin Harrow, Ph.D., and Carl P. Sherwin, D.Sc., M.D., D.P.H. London: Baillière, Tindall and Cox, 1934. (Pp. vii + 227. 1s. 6d.)

⁴ *The B.C.G. Vaccine*. By K. Neville Irvine, D.M., M.A., B.Sc. London: H. Milford, Oxford University Press, 1934. (Pp. 70. 5s. net.)

in the estimation of hormones. A selected list of references appears at the end of each chapter.

The introduction of a short chapter on plant hormones deserves special notice, for the authors here discuss the chemistry and actions of the remarkable substance auxin, discovered by Kögl and his associates in Utrecht about two years ago. Auxin controls the growth of growing plants, and is of interest because of the extraordinary intensity of its action. A measurable response is produced by one fifty-millionth of a milligram. Mention also is made of tokokin, the substance allied to oestrin which Butenandt has isolated from plants. These discoveries promise to throw new light on the comparative physiology of hormone formation.

We think that *The Chemistry of the Hormones* will be found more suitable for reference than for general reading. The subject is one that is changing every month, and the prime necessity of a monograph of this kind is that it should provide a reliable summary of the most recent work. This purpose the monograph under review fulfils excellently.

Notes on Books

Dr. H. L. Tidy's *Synopsis*⁷ has established a place among the textbooks of medicine. The sixth edition, revised and enlarged, remains a handy volume of 1,100 pages, packed with information. Since the last edition, reviewed in our columns at the end of 1930, many advances have been made in medical knowledge, and the author has rewritten and brought up to date the sections on anaemia, nephritis, diseases of the endocrine glands, and deficiency disease. In these, as in other parts of the book, we are pleased to meet again the lucidity and crispness of style found in former editions. The author in his original preface suggested that the synopsis should not be used by students to replace a textbook of medicine; but it has a distinct role where revision of all the essential material is required by students or teachers, and consultants who carry "Tidy" with them on their rounds will find it a never-failing source of accurate information. A full index of over fifty pages enables any subject to be readily found. The new edition worthily maintains the high standard of former ones, and should meet with the same success.

The eighth volume of the *Transactions of the Bose Research Institute, Calcutta*, contains further observations by Sir CHUNDER BOSE on the movements and growth of plants.⁸ He had already shown that in sensitive plants the conducting tissues transmit impulses in a manner analogous to nerve impulses in animals; his latest researches establish the generalization that the motor mechanism is essentially similar in ordinary plants also. A second paper by Sir Chunder Bose bears on the problem of eliminating a voracious fish (bhетки), which is often present and does great damage in tanks used for stocking edible fish. He has discovered a vegetable extract which, in very dilute solutions, kills the bhетки without injuring the edible fish. An interesting paper by Mr. N. C. NAG contains observations on the influence of manganese in plants, in relation, more especially, to the inflorescence and to the proper functioning of green leaves. Mr. P. C. BASU contributes a paper on the racial affinities of the Mundas, one of the aboriginal tribes, which still retains its native purity of blood. Anthropometric details and cranial measurements are given, and the paper is illustrated with excellent photographs of the various forms of head and cranium met with in these natives. Other articles relate to variations in the growth of the stem and

roots of plants, the effect of certain Indian drugs on the peristaltic activities of animals, the composition of oils from leguminous plants, and the absorption-spectra of the vapour of silver and lead haloids.

*The Empire Social Hygiene Year-Book*⁹ represents the first annual edition of a record prepared by the British Social Hygiene Council of the work in progress in the British Dominions in combating venereal disease and in advancing the Council's policy of promoting social hygiene. The Right Hon. L. S. Amery, M.P., contributes a preface, in which he calls attention to the value of the educational approach, especially along the two lines of the study of biology and the use of the cinema film. He adds that there are few maladies more susceptible to individual cure or collective prevention, once their existence is frankly acknowledged, and once medical science, social legislation, and personal conduct combine to grapple with them. Sir Basil Blackett discusses imperial citizenship, its responsibilities and privileges, with emphasis on the possibilities arising from closer mutual co-operation. This annual record will in future replace the *Proceedings of the Imperial Social Hygiene Congresses*, which have hitherto appeared biennially. In the present issue Canada has been singled out for special study, and it is proposed that one Dominion or group of colonies shall be the subject of special survey in each succeeding edition. The relation of the Empire to international developments in social hygiene will be dealt with as occasion arises. The bulk of the volume is made up of surveys of the position in various parts of the Empire, which will be found very useful for reference purposes. A series of articles will also attract attention. They deal with such topics as the position of biology in education in Great Britain and the colonies; propaganda methods and results; the future of the film in education; the international aspect of traffic in women and children; the League of Nations inquiry in the East; venereal diseases administration in Great Britain; the International Labour Office and its work for seamen's welfare and coloured labour; and the constitution of a British film institute.

The volume entitled *Clinical Miscellany*¹⁰ comprises a series of twenty-two papers on various interesting cases, by ten members of the staff of the Mary Imogene Bassett Hospital, Cooperstown, New York. Among others mention may be made of a report on two cases of chronic meningococcaemia associated with nephritis; chronic glandular infection of the foci caused by an organism resembling *Flavobacterium pseudomallei* Whitmore; notes on the symptomatology of undulant fever, including one of short duration in a child of 9; and a scarlatiniform eruption followed by desquamation, associated with *Staphylococcus aureus* bacteraemia.

A ninth edition (making 123,000 copies) has been issued of the *Mothercraft Manual*,¹¹ by Miss MABEL LIDDIARD, matron of the Mothercraft Training Society. This society, it will be recalled, was inaugurated by Sir Truby King, and the work is now carried on by Miss Liddiard, with Dr. R. C. Jewesbury as honorary director. The changes in this edition have for the most part been suggested by readers who have been in correspondence with the author at Cromwell House, Highgate, N.6.

Reprints of articles published in various periodicals during 1933-4 by members of the staff of the Middlesex Hospital Medical School have been bound up within one cover. A copy of these collected papers will be added to the Library of the British Medical Association.

⁷ *Empire Social Hygiene Year-Book, 1934*. Prepared by the British Social Hygiene Council, Inc. First annual edition. London: George Allen and Unwin, Ltd. 1934 (Pp. 509. 15s. net.)

⁸ *Clinical Miscellany*. The Mary Imogene Bassett Hospital, Cooperstown, New York. Vol. i, 1934. Springfield and Baltimore: Charles C. Thomas. London: Baillière, Tindall and Cox. 1934. (Pp. 206; 37 figures. 13s. 6d.)

⁹ *The Mothercraft Manual, or The Expectant and Nursing Mother and Baby's First Two Years*. By Mabel Liddiard, S.K.N. With an introduction by J. S. Fairbairn, B.M., F.R.C.P., F.R.C.S. Ninth edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 195; 32 figures, 8 plates. 3s. 6d. net, postage 4d.)

¹⁰ *A Synopsis of Medicine*. By Henry Letheby Tidy, M.A., M.D., B.Ch., F.R.C.P. Sixth edition, revised and enlarged. Bristol: John Wright and Sons, Ltd.; London: Simpkin Marshall Ltd. 1934 (Pp. 1,112. 21s. net.)

¹¹ *Transactions of the Bose Research Institute, Calcutta*. Vol. iii, 1932-3. *Biological and Physical Researches*. Edited by Sir Jis Chunder Bose, M.A., D.Sc., LL.D., F.R.S. London: J. and A. Churchill, Ltd. 1934. (Pp. 266; 131 figures. 21s. net.)

British Medical Journal

SATURDAY, OCTOBER 27th, 1934

HEALTH INSURANCE IN CANADA

At the sixty-fifth annual meeting of the Canadian Medical Association, held at Calgary in June last, a report was received from its Committee on Economics, of which Dr. W. Harvey Smith, a past President of the British Medical Association, was the chairman. That report, which contains the Canadian Association's "Plan for Health Insurance in Canada," has now been published in full in a Supplement to the *Canadian Medical Association Journal* for September. It will be found of intense interest and great importance to all those in this country who are concerned with the establishment of a general medical service for the nation based upon an enlargement of the present national health insurance system, as well as to those who in other British Dominions are considering the desirability of setting up some similar system. The report is in three parts. In the first part the meaning and object of health insurance are examined; a description of the development and character of the German, French, and English systems is given; the elaborate report of the American Medical Association is critically analysed; the British Medical Association's proposals for a general medical service are set out; and all the most usual general objections to health insurance are fairly and adequately considered. The second part of the report states fully the present position with regard to medical practice and to organized medical or health services in Canada as a whole and in its several Provinces. The third part contains the Canadian Medical Association's plan for State health insurance, with a reasoned exposition of the principles on which it is based, and of the methods which it is proposed should be used for their practical application. The whole of this third part, and considerable portions of Part I, will be of paramount interest to readers in Great Britain.

It is obvious that conditions in Canada are in many respects similar to those which exist in the United States of America: in others, however, there is a more distinct likeness to those prevalent in this country, particularly in the trend of thought and in administrative practice. This is especially true of the large towns and more populous localities; but even in very sparsely populated areas the needs to be provided for are not dissimilar from those in the Highlands and Islands of Scotland, which have been met by a specially organized medical and health service. The tenor of the whole report makes it evident that its authors have profited by both American and English experience. Negatively, they have seen from the American report on the costs of medical care, with its majority and minority sections and the disharmony to which they have given rise,

how the subject should not be dealt with; and, positively, it is gratifying to note how nearly alike their conclusions and suggestions are to those which have been put forward for development in this country. Indeed, in its general outline the actual scheme proposed is practically identical with that set out in the British Medical Association's "Proposals for a General Medical Service for the Nation"; and the authors quote with approval, and incorporate in their scheme, the principles and conditions which were stated and discussed, as being absolutely essential, by Sir Henry Brackenbury in his address on "The Essentials of a General Medical Service" (reported in the *British Medical Journal* of March 4th, 1933, and since published as a B.M.A. pamphlet) and in his article in the *New England Journal of Medicine* of April last, to which we drew attention in our issue of June 9th (p. 1036). These are, in brief, the right of all registered medical practitioners to be members of the service, the absence of interference between doctor and patient, the appropriate participation of the profession in administration, separation of medical benefit from cash benefits, provision of a full medical service, administration on an area basis and not through approved societies. A further most important agreement with the British Medical Association's "Proposals" is the insistence that the indigent patient must be provided for as an integral part of the scheme, and must be dealt with as nearly as possible on the same lines as those who are able to contribute in the ordinary way.

On the initiation of national health insurance in Great Britain historical reasons and existing facts appeared to justify the establishment of approved societies for the administration of cash benefits, and similar reasons and facts make it extremely difficult, if not impossible, to provide residential institutional treatment as one of the ordinary and universal benefits under a compulsory contributive insurance scheme. Canada is happily free from these particular disadvantages, and, learning from experience in this country and elsewhere, will doubtless be able to establish a more complete and less imperfect scheme. Some less important but not negligible features of the Canadian proposals may be noted. It is recommended that insured persons should pay individually some part of the cost of necessary medicines, and that at least an early, and preferably a periodic, health examination of insured persons should be required. The remuneration of medical practitioners in each area should be according to the method which they collectively select, but the "contract-salary" method should be limited to areas with a population insufficient otherwise to maintain a general practitioner. The importance of the preventive aspects of medicine is emphasized: "It is not enough to render lip-service to the idea of prevention and then leave it all to the public health worker. State health insurance must mean the systematic practice of preventive medicine by the health insurance medical practitioners." Above all—and this is of great significance in view of certain American proposals—the general practitioner and not

the hospital must be the basis and the pivot of the service. "It is *not* intended to make the hospital a medical centre with full-time staffs, but an institution to provide hospital facilities for the use of the general medical profession in the proper care of their patients."

The entire medical profession of the Empire, as represented by the British Medical Association, will desire to congratulate the Canadian Medical Association on this admirable report, and to wish that Association success in pressing its proposals upon the governing and public health authorities of the Dominion and of its Provinces.

INTERACTION OF LABORATORY AND CLINIC

When the first suggestion was made for the allocation of money to a Medical Research Committee, it is easy to imagine that in after-dinner conversations there must have been much shaking of heads among those who knew something about it. Government money spent on research would have to give results which would appeal not only to the university mind but also to the clinicians, and would have to give these results fairly quickly. In all probability the proposal was carried through by the enthusiasm of those who had little more than vision to justify their action. Fortunately Mr. Lloyd George had vision, and so had his immediate advisers, Sir Robert Morant and Sir Walter Fletcher. But the scheme would undoubtedly have met with little success if there had not been men to work it possessed of shrewd and practical minds. One of these, Professor Edward Mellanby, was last year appointed the secretary of the Medical Research Council, and he has now published an account of his work in London and in Sheffield under the title *Nutrition and Disease*.¹ The book has the significant subtitle "The Interaction of Clinical and Experimental Work," and it would be hard to find a more convincing vindication of the value of laboratory research to the clinician when it is carried out under favourable conditions.

Perhaps the most scientifically complete part is the account of Edward Mellanby's contribution to the solution of the problem of rickets, and of May Mellanby's not less important researches on the cause and prevention of dental caries. By now this work is becoming fairly well known, and it need not be discussed again here. The next section deals with simple and toxic goitres, to our knowledge of which the author protests he has made no original contribution. His experiments, however, furnish a very clear picture. When iodine is withheld from a pregnant bitch and from her puppies after birth, the offspring develop large thyroids containing no colloid. The importance of iodine for the pregnant mother is well shown. The hypertrophied thyroid in a dog can be filled with colloid by giving iodine, and, provided the treatment is begun early and the hypertrophy is not excessive,

the gland will become smaller. The giving of cod-liver oil, because of its iodine content, leads to a smaller thyroid gland; similarly, the administration of a large amount of codfish may greatly reduce the size of a goitre and change it to the colloid-containing form. To effect a reduction in the size of a hypertrophied thyroid in an adult dog a good deal of iodine must be given, for smaller amounts merely change the hyperplastic goitre to a colloid goitre. The administration of iodine in exophthalmic goitre produces a similar histological change, causing the thyroid to be filled with colloid and diminishing the symptoms, but there is danger that this newly stored material may be suddenly released. The essential problem of Graves's disease is to discover the mechanism of the release of the active principle from the gland.

In the later part of the book Professor Mellanby deals with the relation of vitamin A to infection and to nervous disorders. Here his argument is directed towards encouraging the investigation of diseases such as retrobulbar neuritis, subacute combined degeneration, and disseminated sclerosis from a new point of view—namely, that of vitamin A deficiency, though he considers that other factors are also involved. His view that the cause of beri-beri and of pellagra is a deficiency of vitamin A and not of vitamin B₁ and vitamin B₂ respectively is of great interest. He argues that the polyneuritis of beri-beri is quite different from avian polyneuritis, since the beri-beri nerve disorders are not rapidly cured by administration of vitamin B₁, and resemble more closely the peripheral nerve changes of vitamin A deficiency.

These lectures carry throughout the stamp of the author's vigorous personality. For example, he protests that "so much ill-judged criticism is levelled against any attempt to open up problems of disease from new angles, both by a certain type of clinician who demands nothing short of a direct cure, and by a certain type of biochemist with no appreciation of the difficulties of biological problems." His main theme, which he seeks to illustrate throughout, is that if the most productive results are wanted from investigators, and if medical treatment is to benefit from money spent on medical research, the investigator must be continually confronted with the problems of disease by having the supervision of patients; specific subjects for laboratory study are suggested in this way, and clinical experience helps in the interpretation of laboratory results. The author's position as secretary of the Medical Research Council gives him a unique opportunity to guide and supervise the application of these views, and the results of the next ten or fifteen years will be awaited with great interest.

In the Lane Medical Lectures, delivered at Stanford University, Professor J. C. Drummond gives an account of the present state of our knowledge of nutrition from a wider aspect.² There were five lectures, and in them is discussed the character of modern problems of nutri-

¹ *Nutrition and Disease. The Interaction of Clinical and Experimental Work.* By Edward Mellanby, M.D., F.R.C.P., F.R.S. Edinburgh and London: Oliver and Boyd, 1934 (ss. ed. net.)

² *Lane Medical Lectures. Biochemical Studies of Nutritional Problems.* By J. C. Drummond. Stanford University Series, vol. III, No. 2. London: H. Milford, Oxford University Press, 1934. (7s. net.)

tion, the part played by protein, the part played by fat, the fat-soluble vitamins, and the water-soluble vitamins. This account, where it covers the same ground as that surveyed in Professor Mellanby's book, is more orthodox—for example, in expressing the usually accepted views of beri-beri and pellagra, though Professor Drummond considers that pellagra is due not only to a deficiency in vitamin B, but also to a deficiency in protein. Many valuable tables are included, such as that showing the results of Corry Mann's experiments on the addition of milk and other supplements to a schoolboy's basic dietary, and the table summarizing M'Gonigle's evidence to explain the increased death rate following slum clearance in Stockton. It will be remembered that families, when moved to better conditions outside the slums, showed a higher death rate because their rents were more and they had less to spend on food. Professor Drummond's lectures will be found a valuable source of information.

BRITISH POST-GRADUATE MEDICAL SCHOOL

On March 17th (p. 487) we published an article on the new British Post-Graduate Medical School, describing the progress so far made with the scheme. It was written by the dean, Dr. M. H. MacKeith. We now have to announce with regret that Dr. MacKeith, within a year of his appointment, has found it necessary to retire from that office on grounds of ill-health. The governing body of the school has accepted this resignation, while expressing sincere appreciation of all the heavy work he has done for the school at its initiation. Public notice of the vacancy is given in our advertisement pages this week. A point to be emphasized is that this announcement is no mere formality: the governing body has decided to throw the post open to the medical profession at large. The dean is the principal executive officer and secretary of the governing body, responsible under its direction for arranging courses of instruction for students at the hospital and school in Ducane Road, Hammersmith, and their attendance at courses elsewhere; for the administrative and financial management of the school; for organizing the supply of information about the school and its work, both in this country and abroad; and generally for advancing the aims and purposes of the school. The inclusive salary of the post is £1,800 a year.

All the professorial chairs and readerships are now filled, and the governing body has been singularly fortunate in the persons appointed to these positions. The new buildings will be completed by the end of this year, and it is hoped that during the first three months of 1935 the professors and their staffs will gradually get the machine into working order. They are due to take over the wards and out-patient department, etc., of the associated hospital from January 1st, so that the school may be open for teaching purposes by about April 1st. Meanwhile the school council has got into its stride, and now holds frequent meetings at which all the details with regard to courses of instruction and so forth are being carefully worked out. It is the earnest wish of all who have at heart the success of the British Post-Graduate Medical School that suitable candidates for the key position of dean may come forward.

INHERITED SMALL-POX

Inherited infection is commoner in small-pox than in any other acute illness, and the study of the effect of the present benign strain of virus upon the offspring of infected mothers, in the current issue of the *Archives of Disease in Childhood*,¹ raises many points of great interest. Drs. J. Pickford Marsden and C. R. M. Greenfield of the London County Council's small-pox hospital service report thirty-four cases of parturient women with small-pox observed by them over the last six years (out of a total of over thirteen thousand patients admitted to hospital during this period). These fell into four large groups as regards the time-incidence of the disease in the baby. Three instances of true congenital small-pox occurred with the rash present at birth, and in each case a period of about ten days had elapsed between the onset of the mother's illness and the estimated time of the appearance of the exanthem on the child. In a second group (eight cases) the child's rash appeared within fourteen days of birth, and in each case the mother at the time of parturition was either in the pre-eruptive stage of small-pox or in the early days of efflorescence, with a time interval of nine to twelve days between the onset of the mother's toxæmia and the appearance of the child's rash. In the third group the child's focal rash appeared on the eleventh or twelfth day of life, and in each case birth had occurred at the time of the outcrop of the mother's focal rash. The fourth group consisted of seventeen infants who escaped congenital infection, although born of infected mothers, seven of them acquiring small-pox subsequent to birth, always with the focal rash on the child fourteen days after the appearance of the mother's rash, and they were all either not vaccinated or vaccinated later in the incubation period. Of the remaining ten cases two were born during convalescence of the mother and found to be immune (unsuccessful vaccination on three occasions); seven babies born late in the mother's illness were all successfully vaccinated and did not develop small-pox; and, finally, twins born during the first week of the mother's illness presented a very interesting phenomenon, for both were successfully vaccinated and one only developed small-pox, on the eleventh day of extrauterine life. This last example of inherited infection gives point to the view, borne out by a study of the whole series, that if not exactly fortuitous, it is more or less of an accident if infection is inherited. All the cases in the first three groups (seventeen) were infected, and all in the fourth group escaped the inherited mode of acquiring the disease. It is also clear that when both mother and foetus are infected they do not pass through the disease simultaneously, and the foetus has its own individual period of incubation. It is nowadays held that the common mode of infection in small-pox is by the respiratory tract, and about fourteen days afterwards the outcrop of the focal rash begins: this time interval was present in those babies acquiring their infection after birth. For those inheriting the disease a shorter period was commonly observed, which corresponds exactly to that found in rare instances of inoculated small-pox, and suggests that the bulk of foetal infections are acquired *in utero* at the time of the mother's "septicaemia" stage—

¹ October, 1934, p. 372.

that is, the stage of generalization of the virus. If the foetus escapes this it may similarly acquire infection at or about the time of separation from its parent, especially if the mother's rash is in its early stage when birth takes place. If the child escapes these two contingencies it escapes congenital infection, but generally, and in the absence of prompt successful vaccination, the disease, acquired by the more usual respiratory route, will show itself after the normal period of incubation. Lastly, there is evidence that if the foetus escapes intra-uterine infection and remains *in utero* until the mother is convalescent from her attack of small-pox it may be born immune. This carefully worked out series of cases will be of great interest to those concerned with the whole mechanism of the inheritance of disease and immunity.

CYSTIC DISEASE OF THE LUNG

Although Fontanus and Nonnus each described a case of bilateral cyst of the lung as far back as 1638, and Wrisberg reported accessory lobes in 1777, congenital abnormalities of the lungs entered the realm of the clinician only with the development of chest radiology. The accessory lobe of the azygos vein has recently attracted much interest, but not sufficient attention has perhaps been drawn to cystic conditions in view of certain diagnostic and pathological facts which Debré and Gilbrin emphasize in a review of the subject.¹ Congenital pulmonary cysts may be unilateral or bilateral, single, multilocular, or multiple; or part or the whole of the lung may assume almost a honeycomb appearance. The condition generally leads to stillbirth or to death shortly after birth, but it may remain latent for any number of years, symptoms, when they arise, taking the form of "major dyspnoeic crises," with cyanosis, violent dyspnoea, and intense inspiratory stridor. In older children and adults, however, dyspnoea is less prominent, and the suffocating attack, associated with pain in the chest, may lead to a diagnosis of spontaneous pneumothorax, which an x-ray photograph, if one is dealing with a single cyst, will appear to confirm. Careful examination of the latter should, however, enable the distinction to be made, for in the congenital condition the collapsed lung will not be seen, or its margin be ill defined; and, further, the air cavity is generally irregular in outline and may show ramifications due to smaller pockets or vessels. It is difficult to explain the sudden onset of symptoms after years of latency and the varying course adopted subsequently. For instance, in one patient the first attack occurred at the age of 66, in another the first attack took place at the age of 6 years, but no other had occurred by the age of 15, only slight dyspnoea being noticed in the interval. The authors point out, however, that a similar course of events is not uncommonly found associated with congenital malformations elsewhere. They also quote an interesting case of an infant whose cyst was seen gradually to increase in size by noting the diminution of the atelectatic area above it by means of serial skiagrams. Cysts may undergo various pathological changes: open into a bronchus; fuse, when multiple; suppurate; and multiple abscesses have been found surrounding a cyst. Malignant disease as a sequel has not been observed

up to the present. Of great interest is the authors' discussion of the condition in relation to bronchiectasis. They point out that the histology of cysts is in the main similar to that found in bronchiectasis, and, basing themselves also on pathological evidence published previously, express the opinion that a congenital abnormality is at the bottom of all cases of bronchiectasis. As in all malformations infection occurs readily in the dilated bronchi (which find it difficult to empty), and this accounts for the onset of symptoms. They consider the rarity with which bronchiectasis follows the very common pneumonic sequels of measles, whooping-cough, and influenza as clinical support of their hypothesis, which incidentally is borne out by a paper by Sayé² describing tubular bronchiectasis (with symptoms) in the left base in each of two univitteline female twins aged 18 years. It would appear that, in spite of its rarity, congenital cystic disease of the lung has to be kept in mind in dealing with spontaneous pneumothorax—especially if it persists unaltered for a considerable time—and with atelectasis, and as a possible cause of abscess.

THE HARVEIAN FESTIVAL

The annual Harveian commemoration was celebrated by the Royal College of Physicians of London on St. Luke's Day (Thursday, October 18th) in the usual manner. In the afternoon the Oration was delivered by Dr. James Collier, and an abridgement of this appeared in the opening pages of our last issue. In the evening the Harveian dinner was held at the College in accordance with Harvey's injunction: "Once every year there shall be a general Feast kept within the said College for all the Fellows that shall please to come." The President, Lord Dawson of Penn, took the chair in his robe of office, and the company included many distinguished guests, some of whom were there in a twofold capacity—as Fellows of the College and as representatives of other bodies. After the memory of William Harvey had been toasted in silence, the health of "The Guests" was proposed by the President. Among those whom Lord Dawson gracefully welcomed by name were Lord Greville and Lord Gorell; the Bishop of Southwark and Chancellor Ponsonby, who had officiated at the service in Marylebone Church that day; Dr. Edwin Bramwell, President of the sister College in Edinburgh; Sir Holburt Waring, President of the Royal College of Surgeons of England; Dr. Robert Hutchison, President of the Royal Society of Medicine; Dr. J. S. Fairbairn, President of the British College of Obstetricians and Gynaecologists; Dr. Ralph Noble, physician to the psychiatric clinic, Royal Prince Alfred Hospital, Sydney; Dr. E. K. Le Fleming, Chairman of Council of the British Medical Association; Professor Edward Mellanby, Secretary of the Medical Research Council; Mr. Hugh Lett, Chairman of the Committee of Management of the Conjoint Examining Board in England; Mr. G. H. Gater, Clerk of the London County Council; Sir Squire Sprigge, Editor of the *Lancet*, and Dr. N. G. Horner, Editor of the *British Medical Journal*. The concern, said Lord Dawson, of those within their fellowship was not only knowledge and its furtherance, but such applications of that knowledge as would adapt it to social needs.

¹ *Presse Méd.*, July 11th, 1934, p. 1113.

² *Anales de Med. Int.*, Madrid, 1932, i, 13.

Medicine must play an increasing part in the constructive statesmanship that had for its aim the health and contentment of mankind. It had to take into account not only the sick man but the man who was up and doing. One by one new services were arising for the promotion of health, and it was here that education had a frontier with medicine. In agreement with Dr. Cyril Norwood he would put physical education in the forefront of the whole educational system, thus bringing the schoolmaster and the doctor into responsible partnership. He coupled with the toast the names of Lord Gorell and Mr. Maurice Healy, K.C., who each replied with entertaining speeches. The health of the Harveian Orator was proposed by the Senior Censor, Professor Langdon Brown, who, speaking as a friend of thirty years' standing, said that Dr. James Collier's Oration that day had given a taste of his quality—that gift of illuminating the dark corners of some problem with a flash of insight. After Dr. Collier's reply the library was visited, where the Harveian librarian, Dr. Arnold Chaplin, had set out a number of valuable books and MSS.

TREATMENT OF MÉNIÈRE'S DISEASE

In a study of forty-two cases subjected to division of the auditory nerve for the relief of vertigo, Dr. Walter E. Dandy¹ shows that the operation can now be performed safely, for there was no fatal case and the attacks of vertigo invariably ceased. The early operations recorded on the eighth nerve were performed for the relief of tinnitus, but the results were discouraging, because the risk was great and the effect on this symptom uncertain. Dandy found that in his series the tinnitus disappeared in twenty cases and diminished in a few others; so it appears that a patient has about an even chance of obtaining relief from this symptom also. The chief technical advance which has contributed to the safety of the operation is the evacuation of cerebro-spinal fluid from the cisterna magna before the cerebellar hemisphere is elevated to expose the internal auditory meatus. After opening the dura mater a spatula is passed over the cerebellum towards the cisterna magna and the arachnoid sheath opened, in order that the cerebro-spinal fluid may be released and aspirated. The cerebellum then can be elevated without using pressure, thus exposing the cerebello-pontine angle. The eighth nerve is exposed by opening the overlying cisterna lateralis. Various methods can be used for the actual division of the nerve, but the essential precautions are to avoid injury of the facial nerve and of the internal auditory artery or any small branches. In three cases Dandy has endeavoured to preserve the residual hearing by dividing only the vestibular portion of the nerve, and he has found that up to the present this has been successful; but in many cases the patient is so deaf in the affected ear that conservation of the hearing is not important and the chance of relief from tinnitus would be of greater value. Transient diplopia followed in four cases, as has been observed by Cairns and Brain, but no satisfactory explanation has been provided for this complication, though it is significant that this symptom is sometimes associated with those of the classical group which com-

prise Ménière's syndrome. There is also a transient vertigo in many cases after the operation; it does not, however, last longer than a week to ten days, usually much less. Dizziness on turning the head may persist for several months,² but the attacks of vertigo always cease. From a careful analysis of the histories of the cases and study of the symptoms before and after operation, Dandy concludes that the lesion responsible for Ménière's syndrome lies in the eighth nerve itself and not in the semicircular canals as has been commonly assumed. He has never observed the same effects after operations in the posterior fossa performed for other conditions, and concludes that the post-operative dizziness is related to the disease, of which the pathology is still unknown. This careful study of a comparatively large series of cases shows the operation to be safe in the hands of a competent neurological surgeon and to be of practical value. In spite of the remarkable success which has been obtained by the perfection of his surgical technique, it may be questioned whether at least two of the conclusions reached by Dandy are valid. In the first place, he says that no other treatment, either curative or palliative, is worthy of mention. A. Hautant² has shown that a proportion of cases of essential vertigo may receive benefit over long periods by relief of intralabyrinthine pressure. The operation is a simple one of opening either the horizontal or the posterior semicircular canal by an exposure through the mastoid process. The good effects of this method of treatment have been confirmed in this country also, and they appear to invalidate the second conclusion of Dandy that the lesion lies in the eighth nerve rather than in the semicircular canals.

A SURGICAL SCHOLARSHIP

A notice by the Association of Surgeons of Great Britain and Ireland appears in our advertisement pages inviting applications for a surgical scholarship to the value of £350, to be held for one year. The object of the scholarship is to enable the holder to pursue a definite line of research or to study surgery in specified clinics at home or abroad. It is designed for the assistance of young surgeons, possibly not yet on the staffs of hospitals, and the wording of the condition applying to it is left vague so that candidates may propose to carry out any kind of surgical work. For example, laboratory or clinical research in some special branch may be proposed alone, or may be combined with travel. The scholarship may also be utilized solely as an assistance in travelling to various surgical centres. A scholar is expected to devote the greater part of his time for a year to the scholarship, but the holding of a part-time appointment does not preclude election to it. Candidates holding such posts as registrarships are not usually considered suitable owing to the amount of time they must give to routine work.

We have received a cable from Professor D. W. Carmalt-Jones, President-Elect of the New Zealand Branch Conference to be held in Dunedin from February 26th to March 1st, 1935, saying that visitors from home will be welcome.

¹ Arch. Otolaryngol., July, 1934.

² Bull. de l'Acad. de Méd., June 25th, 1934, p. 533.

NATIONAL RADIUM

THE ANNUAL REPORTS

The fifth annual reports of the National Radium Trust and the Radium Commission differ slightly as regards the periods to which they refer, the first relating to the twelve months ended March 31st, 1934, and the second to the year August 1st, 1933, to July 31st, 1934. The financial statement of the Commission, however, covers the same twelve months as the Trust. Taken together, the two reports afford important information as to the supplies of radium in the country as a whole, and indicate the uses to which it is being put.

Changes in the membership of the Trust and Commission which occurred in the year under review were noted in these columns last year (*Journal*, 1933, ii, 746). It has also to be recorded now that the retirement of Professor Woodburn Morison created a vacancy in the membership of the Trust, and that Professor A. J. Hall has been co-opted in his place. Moreover, Professor T. G. Moorhead succeeded Lord Dawson as President of the British Medical Association, and therefore became a member of the Trust. Lord Dawson still remains a member, however, in his capacity as President of the Royal College of Physicians of London.

Comparatively small purchases of radium were made during the year under review, totalling 174.295 mg. The amount of the element owned by the Trust on March 31st, 1934, was just over 19 grams. Towards the end of the twelve months the Commission submitted detailed specifications covering in all 1,870.96 mg. of radium and 290 containers. It was clear that in addition to the not inconsiderable amount of radium in hand in containers of types no longer required, a substantial purchase of new radium would be necessary, and negotiations were commenced for this. Since the commencement of the Trust's work a sum of £11,501 has been derived from interest on investments, including £1,535 in respect of the year 1933-4. Against this, the total administrative expenses of the Trust, including £297 for that year (of which £134 represents payments made to the National Physical Laboratory for the testing and measurement of radium and containers), amount to £2,707, leaving a balance of £8,794. Of this sum, £1,500 is on loan to the Radium Commission, being the balance still outstanding of advances amounting to £2,500 made to the Commission in 1929-30.

Two points of a more general nature are included in the report of the Trust. Reference is made to the scheme of research now in progress at the Radium Institute, and under the supervision of a special governing body with the status of a joint research board of the Medical Research Council and the Department of Scientific and Industrial Research, concerning beam therapy, in which a highly penetrating beam of rays is directed upon a malignant growth from a large quantity of radium, termed a "bomb." It is obvious that the results of this investigation may have an important bearing on the work and policy of both the Trust and the Commission in relation to the provision of radium treatment on a national scale. The Cornish radium, which was lent by the Trust to the National Physical Laboratory, has been employed during the year in an attempt to enable gamma ray dosage to be measured in terms of the röntgen, the isometric unit adopted internationally for the measurement of x-ray dosage. Preliminary measurements indicate that in the case of gamma rays scattered radiation plays a prominent part. It appears likely that with further experience it will be possible to specify conditions under which the röntgen can be realized in the gamma ray region with sufficient accuracy for present purposes. The investigation is being continued.

DEVELOPMENT OF CENTRES

The Radium Commission has the following objectives: promotion of the treatment of the sick throughout Great Britain; advancement of knowledge of the best methods of rendering such treatment; and the securing of due economy in using radium therapeutically. The second of these has been dealt with in earlier reports, and the appraisal of results will be dealt with when sufficient statistical evidence has accumulated. The Commission's view that patients should come to well-equipped centres, rather than that radium should be taken to patients, has been strengthened by experience since it was originally set out in the first report of the series. Reference was made in last year's report to the advisability of using in a single scheme all the radium in a centre, including that provided by the Commission with that possessed independently by the centre. The implied unity of organization is less easy at some centres than at others, but the avoidance of wastage of "radium time" is only possible in institutions which can provide bed accommodation for a large number of patients.

The Commission has urged this in previous reports, and in the present one regret is expressed that so few signs of the expansion of bed accommodation at the centres are yet observable. In some centres difficulty in complete pooling arises from the fact that, especially in those instances in which the hospitals are unprovided with "pay" beds, it becomes necessary to make arrangements for a proportion of the hospital's own stock of radium to be used outside its buildings—for example, in nursing homes. In such instances, it is added, the provision of "pay" beds—a practice which has been steadily extending during recent years—may help to solve some of the difficulties attending admission of patients to these centres. Only by avoiding wastage of "radium time" and by provision of adequate bed accommodation can the existing centres perform fully one of their essential functions as units in a national radium service—namely, providing for the needs of a population larger than that normally served by the hospitals in which they have been established. If, it is argued, radium therapy of cancer is confined to the populations normally served by the hospitals selected to act as centres, large areas of the country will remain unprovided for, and it seems essential that arrangements should be made with the authorities of neighbouring voluntary and municipal hospitals to secure a larger clientele for this particular service. The establishment of a larger number of centres is not a practicable alternative, owing to the comparatively small number of hospitals which are provided with all the other services necessary to the proper functioning of a radiotherapeutic centre conceived on modern lines. It is added that the modern tendency to combine treatment by x rays with that by radium may be expected to act as a further incentive to concentration of treatment within the centre. Looking further to the future, and assuming that beam therapy by large masses of radium realizes the hopes of those now having experience of it, an additional reason will exist for organizing the administration of treatment in the way advocated by the Commission.

WORK AT THE CENTRES

Such concentration of radiotherapy at a centre was from the first fully adopted by Aberdeen. The radium officer is not only able to organize the actual details of the radium treatment, but in virtue of his appointment as McRobert research lecturer in malignant disease, comes into contact from the educational side with post-graduates and with medical students in the final year of their studies. The value of courses of instruction in the diagnosis and treatment of malignant disease to men who are going into

general practice cannot be overestimated. This centre has for many years been recognized as a research centre under the Medical Research Council, and the increased radium facilities have enabled it to undertake further investigations. The physics department is showing great activity in the work of the radon requirements of the centre, and in devising solutions to the many problems of radiation dosage which confront the therapist. At Birmingham the General Hospital has been a research centre under the Medical Research Council since 1922, and the help given to actual treatment by the services and investigations in physics have been noteworthy. The Radon Laboratory is under the general supervision of the professor of physics; an increasing use is being made of radon by the centre and by the hospitals in the surrounding district which it serves. Considerable developments in deep x-ray therapy are foreshadowed at this centre. No appreciable improvement in the administrative difficulties having occurred at Bristol, it has been found necessary to withdraw a further 350 mg. of national radium during the past year. The Cardiff centre is well organized, and there is at present no waiting list of cancer patients. The follow-up system at this centre is so complete that nearly all the patients have been traced. Financial reasons prevented the appointment of a specially qualified whole-time radium officer at the Dundee Royal Infirmary, and it has been necessary to return the supply of the national radium and to close the centre.

At the Edinburgh centre it has become evident that a mass unit of one-third of a gram of radium has produced good results, and it has been arranged that a unit of one gram shall now come into operation. A new organization, the Cancer Control Organization, has been formed for Edinburgh and South-East Scotland to assist the National Radium Centre. It has already made a grant of £100 towards the cost of the radium mass unit, and provided financial support for the publication for the first time of the full statistical analysis of the follow-up department for cases of malignant disease. There are two national centres at Glasgow—namely, at the Western Infirmary and the Royal Infirmary. Both continue to do well. The Leeds centre is also doing well, and its allocation of radium has been increased to a total of 1,506.5 mg. The medical director of radium therapy at this centre will now be able to develop and evolve methods for the application of radium at a distance in the treatment of cancer patients. Supplementary x-ray treatment of patients, who in the first instance are treated by radium, will be facilitated in future at this centre by the provision of a new department of deep x-ray therapy.

Owing to the reorganization of the Liverpool Radium Institute and Hospital for Cancer, the National Centre at the Royal Infirmary has not been functioning to its full capacity. In view of the lessening local demand for radium, and of the great need for it in other centres, it has been arranged that a fraction of the radium here shall be returned for use elsewhere. At Manchester the Radium Institute was in existence long before the Commission came into being, and had entered into obligations with neighbouring hospitals, which extend as far away as Chester and Denbighshire. Although national radium is used only within the Holt Institute and the Manchester Royal Infirmary, this practice of using radium outside these institutions cuts across the policy of concentration, which has been one of the main planks in the structure of the Commission's efforts. Sheffield is doing well, and has received a further loan of 250.5 mg. of radium element. A feature of considerable interest at this centre has been the installation of an x-ray apparatus with a new type of x-ray tube, the department being under the direction of the radium officer. By this means he is able to control to his complete satisfaction the dosage to patients who, for the most part, have had radium treatment first. Its

design permits the dismantling of the tube, should the hot filament burn out; a new filament can be introduced and the tube put into action again in the course of a few hours. Bearing in mind the high cost of x-ray tubes operating at high voltages, the performance of these new tubes is being watched with great interest.

Regional centres are operating well at Lincoln, Norwich, Plymouth, Southampton, and Stoke-on-Trent, although the first of these is not yet in full working order. Recognition has been extended to the Royal Infirmary, Bradford, the Burnley Victoria Hospital, the Leicester Royal Infirmary, and the Wolverhampton Royal Hospital, where radium treatment has been in operation for a number of years. These institutions have willingly entered into obligations to the Commission, including the taking of clinical records in proper form, the rendering of statistics annually, and the observance of the rules concerning the care and custody of radium and the protection of the staff which handles it. It is expected that these institutions and others which will similarly receive recognition in the future will, by their returns, make a considerable contribution to the information which the Commission is steadily accumulating as to the value of the treatment of cancer by radium.

ONE-GRAM UNIT THERAPY

In 1932 the Commission placed one-gram units of radium at the disposal of the Cancer Hospital, the Middlesex Hospital, and University College Hospital, in order to find out the utility of these units in the treatment of malignant disease, the work being co-ordinated by a standing clinical committee. This committee has now reported that 251 cases were treated at the three institutions between April 1st, 1933, and April 1st, 1934. All have been treated under identical conditions as regards filtration, radium skin distance, and shape and size of beam, the only variants being the duration and frequency of dosage and the distribution of fields. The majority of these cases allow of histological verification of the diagnosis; they can also be readily observed, and the results of treatment be assessed without difficulty.

AVAILABLE SUPPLY OF RADIUM

The total amount put at the disposal of the Commission by the Trust to date is approximately 20 grams. Of this, 18 grams is on loan to centres, the Medical Research Council, and the National Physical Laboratory, and recently an additional 1.87 grams has been allocated to the national centres at Edinburgh, Leeds, Manchester, and Sheffield. The Commission, by arrangement with the King's Fund, exercises control over the three one-gram units, the property of the Fund, mentioned in the previous paragraph, so that the total amount of radium under the control of the Commission amounts to 23 grams. There are at present thirteen national radium centres and five regional radium centres. There is an additional amount of radium in the country under other control, and it is estimated that the total quantity available for treatment is now about 70 grams. It is expected that more will be required in the future, partly because of the increased number of patients seeking radium therapy and partly because of the spreading opinion that the use of large doses in units and bombs is more effective.

The London School of Hygiene and Tropical Medicine has issued, as a stencilled document of thirty-two pages, a classified catalogue of books in the library relating to natural science. This is the first of a series of class catalogues which it is proposed to issue from time to time: periodical publications and pamphlets are not included. Copies will be sent gratis to interested persons on request to the librarian of the school (Keppel Street, W.C.1).

Nova et Vetera

THE DEATH OF MAURICEAU'S SISTER

To few women is it given to have the manner of their passing recorded for posterity with such wealth of detail and with such eloquence as that with which François Mauriceau, the great seventeenth century accoucheur, describes the death of his sister from ante-partum haemorrhage. A macabre chance decreed that he himself should play the chief part at her death-bed, and in his eager and vivid prose he tells the story.* It is in the nineteenth chapter of the first book, *De la Perte de la Sang*, that he relates the history, and he certainly could have devised no better method of impressing upon his readers the point he wished to make—that a woman attacked by a severe haemorrhage late in pregnancy should be treated by version and delivery without delay. It is of interest to us as showing the slow diffusion of knowledge in those days. Mauriceau himself quotes Guillemeau, who antedated him by about half a century, as having advocated the same treatment, yet he writes as if he had to contend (as no doubt he had) with an almost universal dead weight of contrary opinion, or else no opinion at all save a passive fatalism. When one reflects that "Celuy qu'on croyoit estre le plus habile de tous les chirurgiens qui pratiquait à Paris les accouchemens" could do no better when summoned to the bedside of a woman with ante-partum haemorrhage than to pronounce that "C'estoit une femme morte, à laquelle il n'y avoit rien à faire que de luy faire recevoir tous les Sacramens," it moves one to wonder what must have been the practice of the commonality of the profession in those days. It is difficult for a translation to do full justice to his fiery and passionate rhetoric, for he writes as though the scene were enacted before his eyes, and as if he lived again the hours of suspense he passed at the bedside of his dying sister.

The more to confirm these things I will recount from my own experience a case the memory of which is so painful that the ink with which I now write to make it known that the public may profit by it, seems to be of blood. For on this pitiful and fatal occasion, to my sorrow there was shed before me the very semblance of my own [blood].

It was nine years ago that my own sister, who had not yet reached 21 years of age, was pregnant of her fifth child. Being in good health till then, she had the misfortune to injure herself (though in appearance only slightly), having fallen upon her knees. Her belly struck the earth a little, after which she was a day or two without hurt, which made her neglect the rest which was so necessary for her. But the third day after her hurt at eleven o'clock in the morning, she was suddenly taken with strong and frequent pains in the belly, to which was at once joined a great loss of blood. This caused her to send incontinently for the midwife, but she, not understanding her trade so well as she might, said when she was come, that she must be patient till the uterus was opened by the pains, assuring her for the rest that she had nothing to fear, and would soon be delivered from her trouble, more especially as the child presented favourably. For three or four hours she thus filled her with vain hopes, until (the flow of blood continuing abundant) the pains began to leave her and the poor woman fell several times into a faintness. Thereupon the midwife demanded that a surgeon should come to save her.

They came in haste to my house to warn me, but unhappily not finding me there, went to seek him who was thought to be the cleverest of all the surgeons who practised midwifery in Paris. They led him immediately to the lodging of my sister, it being then about four hours after midday. But having seen the state in which she lay, he contented himself by saying that she was a dead woman for whom there was nothing to be done save to give her the Sacraments, and that she could in no way be delivered. To this the midwife agreed, believing that the opinion of a man so justly famous was not to be doubted. When he had made this prognosis, not wishing to remain longer, he returned to his house leaving

in this deplorable state and without succour this young woman, whose life, and that of her child, he could without question have saved if he had delivered her at the time. This could easily have been done, as one may see by the rest of the story.

After the advice of a man of so great a reputation joined to that of the midwife, all the people who were present believed that since M. Such-a-One could do nothing, there could be no remedy for so great an evil other than to trust in God who alone could do all things. They tried thenceforth as best they could to comfort my poor sister, who was longing with great earnestness to see me, to know if I should pronounce the same sentence, and if her trouble, which grew worse and worse, was without remedy. For the blood flowed continually in great abundance. At last I returned to my house, where they had so long sought me to tell me the evil news. Hearing their tidings I ran in haste to her house, and when I had come there I was met with such a pitiful spectacle that my soul was shaken to its depth with a variety of conflicting emotions. After having regained my senses a little, I approached the bed, where my sister had just received the last Sacraments. She implored my help many times, saying that she had no hope unless from me. I learned from the midwife all that had passed, and she told me the opinion of the surgeon who had seen her more than two hours ago (for it was then quite six o'clock), and I saw that the blood flowed in abundance without ceasing. She had already lost more than three quarter measures and a dozen dishes full in the two hours that had passed since the surgeon had left her. Which blood would have remained in her body had she been delivered at that time, and would have saved her life. I saw also that from one moment to another she was seized with attacks of faintness which grew worse and worse, which told me that she was in greater peril than she would have been had she been delivered two or three hours ago, before she had lost all her strength with the blood which flowed continually. Desirous of knowing if it were true that she could not be delivered, I felt on examining her the internal orifice of the womb opened so that I could easily pass in two or three fingers. I then caused the midwife to examine her again to find out if the orifice were so when the surgeon had said she could not be delivered. She told me yes, and that it had always been in that state since he had left. When she had declared it so, I saw at once her ignorance and what it was that had troubled the surgeon. I told her I was astonished they should both have been of this opinion, as the matter seemed to me quite contrary, and that the surgeon could easily have delivered her then if he had wished, as easily as I could now. And in truth I should have done so on the instant, but my mind so long trembled on the resolution I was forced to take when I had lost hope of all other assistance. What hindered me was not the prognosis of the famous surgeon who had persuaded all those about her that she could not be delivered (for it is temerarious to resist the advice of those held as oracles), but the person of the sufferer who was my own sister and whom I loved very tenderly. So shaken was my soul with passion to see her die before me from a prodigious loss of blood, coming from the same source as my own, that I could not summon my resolution on the instant. This it was which caused me to send again in haste to the surgeon, praying him to return to the house, so that, showing him how easily the operation could be done, and making him confess that there is never any hope in such cases unless it is done at once, I might resolve him to deliver her instead of abandoning her to despair and her child to perish with her. But he would not return, however much one prayed and besought him, excusing himself always that there was nothing that could be done. When they told me this I sent to another surgeon I knew, with whom (if he had come in time) I could have agreed about the need for an operation, as I could have made him confess that it was possible. But by misfortune he could not be found at his house. During all these comings and goings a good hour and a half passed, during which time the blood flowed without ceasing, as also the faintings grew worse and worse. It was then that, seeing myself without hope of the help I had sent for, I took the resolution to deliver her at once. But it was in truth a little too late for the mother. For if I had had strength of purpose enough to do it as soon as I arrived, there was still then a good hope of saving her as I did the child.

Having put two of my fingers within the internal orifice of the uterus, I followed them with a third, and little by little with the ends of all the fingers of the right hand, with which I dilated the orifice enough to give passage to the whole hand. Which can be done easily on such occasions because the abundance of blood mollifies and relaxes the whole womb. When I had gently entered my hand I found that the child presented by the head and that the waters had not yet flowed away, which obliged me to break the membranes with the end of my nails. This being done, I immediately turned the child to take it by the feet, by which I drew it out very easily. And this I did in less time than it takes to count from one to a hundred. And I protest on my conscience that I have never in my life accomplished a delivery more promptly, more easily, and with less violence to the mother, who during the operation complained not the least in the world, though she had at the time good judgement and a full knowledge of what I did to her, but felt much relief after I had delivered her, and thereupon the loss of blood ceased.

The child I withdrew alive and it was instantly baptized by a priest who was in the chamber, but it was too late to save the life of the mother, who died an hour after from a fainting such as she had had before her delivery. The flow of blood in truth ceased, but too little remained in her to withstand the frequent syncope, which she assuredly could have done if this surgeon who saw her first had delivered her three hours before. For since that time she had lost without exaggeration more than twenty dishes of blood, and four or five of these would have sufficed to save her, seeing that she was a young woman of sound constitution suffering from nothing till she was seized with this fatal accident. She was delivered at seven o'clock in the evening, but because she had lost all her blood before the operation it was without avail, and she died an hour after, speaking always with

good judgement till the moment when she died, which was at eight o'clock the same day.

It is interesting to note the importance attached to the completion of delivery, throughout the narrative. Mauriceau was apparently unaware of the efficiency of the undelivered half-breech as a haemostatic plug. Though one shrinks a little from the idea of manually dilating a cervix with a placenta attached to it, yet, remembering the insistence of all these past masters of the art upon the utmost gentleness in manipulation, together with their own extraordinary dexterity, it is unlikely that they did much harm. At all events it was a great improvement on the policy of reaching for one's hat and sending for the priest.

Mauriceau goes on to impute the basest of motives to the surgeon. He does not believe that it was sheer ignorance which drove him precipitately from the lying-in chamber, but "qu'il fuit tant qu'il peut les accouchemens perilleux et sujets à mauvaise suite; ce qu'il fit d'autant plus volontiers, qu'il se rencontra dans la chambre de ma sœur une Dame de considération . . . laquelle il accouchoit ordinairement . . . il aima mieux se conserver l'estime de son ancienne pratique . . . que de faire chrétiennement son devoir." It is a horrible accusation, which one can only hope is false. Whatever the truth of the matter—and criticism after two and a half centuries should be charitable before all things—one cannot but echo most heartily Mauriceau's regret that he could not summon "assez de force sur mon esprit" himself to deliver immediately her "qui étoit ma sœur, que j'aimois très-tendrement." Not yet 21 and pregnant of her fifth child! Poor girl!

A. J. HAWES.

MEDICAL DEFENCE UNION

ANNUAL GENERAL MEETING

At the annual general meeting of the Medical Defence Union the president, Mr. E. Pearce Gould, moving the adoption of the report and financial statement, said the figures showed that during the last year the number of cases dealt with represented more than one for every ten members. The council, he continued, had added to the completeness of its representative character by the appointment of a vice-president who was a dental practitioner. It had also considered certain matters raised by criticism, and as a result there would be submitted to a later meeting that day revised articles of association, which embodied not only the requirements of recent legislation, but indicated more clearly than did the previous articles the current practice of the Union.

The meeting adopted the report and financial statement, and re-elected the retiring members of council, Dr. W. S. A. Griffith, Dr. V. A. Jaynes, and Mr. J. Furneaux Jordan.

REPORT OF THE COUNCIL

This report states that the number of new members elected was 1,080—an increase of ninety-six over the figure for the previous year—and that at July 19th, 1934, the total membership was 17,963. The assistance of the Union was invoked in 1,842 cases. In addition to the usual cases concerning fees and unpaid accounts, members sought legal guidance in such matters as the provision of x-ray examination for osteopaths and the sterilization of female patients. Following the discussion at the last annual meeting, the council was submitting for acceptance certain alterations in the existing articles of association, and also a new clause giving power to the council to undertake a case which had been begun prior to the date on which the member joined the Union but while he was entitled to the privilege of membership of some other society having objects similar to those of the Union. The report points out that while members are afforded protection in respect of claims made as a result of the act or omission of a locumtenent, whether that deputy is a member of any

defence society or not, the same does not hold good in the case of an assistant. The appointment held by the latter is more or less of a personal character, and it should always be possible for the member to ensure that the assistant becomes a member of a defence society.

REPORT OF THE SOLICITORS

The Union's solicitors (Messrs. Hempsons) emphasize the desirability of members taking advice from the Union as early as possible in any proceedings, particularly in cases of complaints under the National Health Insurance Acts. The report states that while representation by counsel or a solicitor is not permitted in inquiries before the Medical Service Subcommittee, a member is entitled to the assistance of the Medical Defence Union in dealing with preliminary correspondence, and this expert guidance in the initial stages often secures a more favourable result than would otherwise be obtained. A total of 148 cases was referred by the council during the year; twenty-six of the fifty-seven involving charges of negligence were a direct response to members' claims for fees, and fifteen of these were abandoned when the defendant learnt that the Union was concerned. Among the cases of alleged negligence were several claims for damages resulting from a swab being overlooked at operation, and a claim in respect of loss of sight against a member who, instead of referring the patient to his ordinary doctor or panel practitioner, gave wholly gratuitous and friendly advice. As regards the former, while the checking of swabs is, in the opinion of the solicitors, a nursing duty for which the nurse should be responsible, the court has not yet recognized this, nor has a clear-cut decision been obtained. Members attached to hospitals, therefore, should make sure that there is a reliable and accepted system for the checking of instruments and swabs.

The total income of the Union for the year 1933 was £19,026 11s. 9d., and the expenditure £16,044 4s. 5d.

AMENDMENT OF ARTICLES

At an extraordinary annual general meeting of the Union held the same day the revised articles of association, with certain amendments made by the meeting, were adopted.

New Zealand

[FROM OUR CORRESPONDENT IN WELLINGTON]

The Cancer Campaign

The annual meeting of the New Zealand branch of the British Empire Cancer Campaign was held in Christchurch, and the reports of its various activities received much public attention. The special research work at the medical school is to be continued for seven years under the direction of Dr. A. M. Begg. The cancer clinics, conducted once, or, in some instances, twice a week by the society in the larger hospitals, are most successful in attracting patients and in the results secured, which are steadily improving, and are a bright and encouraging contrast to those obtained less than a decade ago. The records and statistics have been most carefully prepared, and are now numerous enough to warrant the beginning of statistical research. At the time of writing Dr. Moran of Sydney, adviser on radiotherapy to the Government of New South Wales, has arrived in New Zealand, and, under the auspices of the New Zealand branch of the Campaign, will address medical men and also the laity on the cancer problem. He believes that as in some strange way civilization has brought greater susceptibility to the disease, so the evolution of man's intelligence must in time produce a cure. In the meantime, here as elsewhere, the medical profession, with all the means it possesses, must do its utmost to relieve suffering while researchers slowly track down the disease.

Influenza in Great Britain and New Zealand

The Director-General of Health for New Zealand (Dr. M. H. Watt) refers, in his annual report for the year ended March 31st, 1934, to the recurring question whether an epidemic of influenza in Great Britain is in due course followed by an outbreak of the disease in New Zealand. He summarizes recent evidence, which indicates that while Australia and New Zealand follow each other closely in this respect, there is no such relation between Great Britain and the Antipodes. Indeed, for the period 1923-8 the curve for England and Wales takes a diametrically opposite course to those for Australia and New Zealand. Thus 1924 and 1927, peak years for England and Wales, were marked by a low incidence in Australia and New Zealand, while 1923, 1926, and 1928, with few influenza deaths in the former, proved to be years of heavy mortality in the latter. Subsequent to 1928, however, there is a general similarity between the curves, peak years and years of low incidence being the same for the three countries. The evidence, Dr. Watt considers, is altogether inconclusive; all that can be said is that influenza does not necessarily or even usually invade New Zealand from Great Britain. The period of time which separates the winter epidemics of the two countries further supports the belief that these seasonal outbreaks are purely local affairs, due not to any importations of fresh virus, but rather to a lighting up of an infection which is always present and continues to smoulder until it is activated by suitable environmental and biological conditions.

Infant Mortality and Expectation of Life

New Zealand's low death rate and high expectation of life have recently received added prominence from the use made of them by Drs. Dublin and Lotka, United States statisticians. The expectation of life in the male is 65 and in the female 68, and the comment is made that New Zealand has already come close to the possible top score in the present state of medical and sanitary knowledge. The mortality in the first year of life in the white

population of New Zealand is only 38.35 per 1,000 for males and 25.48 for females. The corresponding figures for the white population of the United States are 60.86 and 48.21. The report and commentary are a plea for close attention in all civilized countries to infantile mortality. As the child grows older it enters a zone of low mortality with a minimum of not much more than 1 per 1,000 per annum about the age of 10, and the opportunity for improvement here is small. Mortality figures again increase in later life, but they cannot be reduced by sure methods such as are available against infectious diseases and nutritional and other diseases of infancy. Some years ago Dr. Dublin prepared a hypothetical life table at a time when the actual expectation of life was 57, and he gave 63½ years as the expectation of life to be attained some time in the future in the United States, this estimate being based entirely on New Zealand figures. He now thinks that he was too conservative in his prognostication, and that an expectation of 70 is now attainable. It would appear, however, that the conditions of life on a continent such as America are not exactly comparable with the conditions on an island country such as New Zealand, and differ climatically, socially, and economically.

Doctors and Investments

Government Commissions are inquiring into the operations of nineteen interlocking trust companies in New Zealand, New South Wales, and Victoria. The evidence has caused what the newspapers call a sensation. One of these companies is known as the British Medical Investment Trust Limited, conveying a suggestion that it is connected with the British Medical Association—which is a compliment to the B.M.A., no doubt! A large number of medical men will probably now read with close personal interest the evidence given of the ramifications of investment companies, and the mysteries and secrets of high finance, and for a time will be highly discriminating in their choice of investments.

School Dental Service

An attempt is now being made to reach the country schools, often scattered very widely apart, by means of a new type of trailer dental clinic. The interior of the trailer car is 14 feet by 7½ feet, the walls are of steel, and the interior is smooth with rounded angles. Natural lighting is provided from a bay window, which forms one end of the car, but lighting and also heating are available from hydro-electric supplies, which serve even sparsely populated districts. The clinic is towed by a motor lorry or car.

India

Annual Meeting of the Assam Branch

The annual meeting of the Assam Branch of the British Medical Association was of exceptional interest this year, for it celebrated the union of the Northern Bengal Division with the Branch. As the retiring president, Lieut.-Colonel J. Morison, director of the Shillong Pasteur Institute, pointed out at the dinner, since its inauguration in 1908 the Branch has had a fine record of public service. It initiated the movement that resulted in the building of the Pasteur Institute, and thus gave to Assam a fine centre for medical research. Its members had also started the campaign against kala-azar which was later so effectively developed by the Government. Moreover, it had actively supported the interests of the tea-garden coolies and of the skilled and experienced native licentiate. The Governor of Assam, Sir Michael Keane, added that

the Branch had achieved many miracles, of which the most recent was the anti-cholera crusade along the banks of the Brahmapootra and the Barak, largely due to the close co-operation which existed between it and the Government and the Pasteur Institute. The meeting was held on four days at Shillong, and the morning of one day was spent at the Pasteur Institute, when Lieut.-Colonel Morison gave a very interesting demonstration of the recent discoveries in respect of bacteriophage types, the micro-manipulator, and the preparation of antirabic vaccine. Fruitful discussions were held on cholera, diphtheria, the treatment of malaria by atabrin, the control of this disease in a group of tea-gardens, and public health and sanitation in tea-gardens. The discussion on atabrin proved so vigorous that the subject will be brought up again at the next annual meeting. A visit was also paid to the Welsh Mission Hospital, with its up-to-date x-ray and electrical department and new operating theatre and dark room. In his presidential address Lieut.-Colonel Morison discussed the Indian Medical Council Act, and mentioned the responsibilities which were carried by the Assam Branch, particularly in respect of the advice it was often called upon to give to the Government. He commented on the difficulties attending lunacy certification in Assam, and then gave a general account of the activities of the Pasteur Institute. Daring experiments had been conducted with phage in the prevention of cholera, and the president gave details of the successes that had been achieved and the conclusions that were being reached. Since there was a possibility that phage might prove to be a factor also in influenza epidemics, and in other great epidemic diseases with well-defined cycles, fascinating and important issues still remained for further investigation. The *Proceedings* of this annual meeting have now been published by the Indian Tea Association; they include reprints of the chief speeches delivered, which are in many cases of considerable clinical and scientific interest, particularly to those whose work lies in tropical countries.

Calcutta School of Tropical Medicine

The annual report for 1933 of the Calcutta School of Tropical Medicine and the Carmichael Hospital for Tropical Diseases records some important developments, designed to remedy to some extent the crippling due to inadequate accommodation for a steadily growing work. Thus the All-India Institute of Hygiene has made room for a continuation, on a smaller scale, of a kala-azar inquiry, its predecessor having been closed in March, 1933. Dr. Muir's research laboratory is also housed there now. The Pasteur Institute of Bengal has been transferred to commodious premises in another part of Calcutta, whence it now issues the antirabic virus to centres throughout Bengal. This decentralization is not only an economical move, but it has also rendered antirabic treatment much more widespread through the Province. The museum is being enlarged, and its educational value has been thereby enhanced. The Carmichael Hospital, with its ninety-two beds in the open wards and its fourteen in private cabins, represents a research hospital attached to the school. Such cases are selected as will be suitable for post-graduate teaching in tropical medicine or for research work. Even so, there is always a long waiting list of candidates for admission, it being realized that the whole resources of the school can be brought into action for each case. The reports of the various professors and departmental heads make interesting reading. For example, complement-fixation tests in malaria have continued, and it has now been established that cases of acute or subacute lymphangitis tend to exhibit two different types of immunity response. In one

type the finding is a positive complement-fixation reaction associated with an eosinophilia, the total white count and polymorphonuclear percentage being within normal limits. In the other type the finding is a negative complement-fixation reaction with a polymorphonuclear leucocytosis. It is concluded, accordingly, that there are two distinct types of attack in such cases, which have been designated the toxic and septic types respectively. Repeated testings of cases of acute or subacute lymphangitis, with a positive complement-fixation reaction, has demonstrated that as the attack passes off the reaction becomes negative. A new investigation of anaemia and respiratory diseases—chiefly pneumonia—has been started in the Assam tea-gardens. With regard to cholera, results have been obtained which establish the aetiological relation to this infection of the so-called cholera-like non-agglutinating vibrios. A comprehensive work on the antigenic structure of the different phases of the vibrio is nearing completion, and is expected to throw much light on the puzzles connected with the serological reactions of vibrios. The leprolin test, which originated in Japan, has proved of value in determining the type of leprosy, in making a prognosis, and in estimating the value of treatment.

Ireland

Royal College of Physicians

At the annual meeting of the Royal College of Physicians of Ireland Dr. J. A. Matson was elected President and Dr. W. Boxwell Vice-President. A special service for doctors and medical students was held in St. Patrick's Cathedral on October 18th, and in the evening the annual St. Luke's Day dinner was given in the College Hall, when there was a large attendance of Fellows and guests.

Home Hygiene

At the inaugural meeting of the clinical session Dr. Robert E. Steen, physician to the Meath Hospital, Dublin, read a paper on home hygiene, in which he said that the system of school hours in this country was very detrimental to the health of children. A child was continuously worked after entering the school at 9.30 a.m., except for a short break at midday for a piece of bread or for bread and milk. The result was that by the time the child reached home, at 3.30 p.m. or later, its appetite in many cases was gone, and the hot meal which it should have received at midday, and which should be its mainstay, became little more than a farce. The tendency was for the child to eat more heavily later in the evening, and tea, which should be the lightest of the three meals, became the chief meal of the day. Discussing the milk supply, Dr. Steen said that a quiet effort had been made in the last ten years to make milk reasonably safe for consumption. It was only within the present year that a Bill had been introduced to prevent vendors from selling milk under misleading titles. Until the Bill became law the old conditions would exist, and a man might sell milk teeming with microbes under the title of Grade A without any penalty. There were a large number of milk producers who sold what might be regarded as a reasonably safe milk. They had joined together to form an association known as the Tubercle-Free Milk Producers' Association, which meant that every cow in the herds was periodically subjected to vigorous tests. Such milk cost no more than ordinary milk, and those dairies should be encouraged by receiving public support. Professor J. W. Bigger congratulated Dr. Steen on his address, and said that while the preventive aspect of medicine was being more and

more emphasized Government authorities had not utilized the knowledge that had been acquired by the profession. If he himself were so unfortunate as to be appointed dictator of this country for one year he could reduce the number of deaths from diphtheria by 90 per cent., and in the same proportion he could also reduce the deaths from bovine tuberculosis. He could guarantee to eradicate all forms of tuberculosis within twenty years by utilizing the knowledge which the medical profession now had. Much was being done by medical officers of health, and in that connexion it was gratifying to realize that almost all counties in the Free State had full-time county medical officers of health. A great deal of preventive work could best be done in the homes. The old-time family doctor had many virtues. He would like to sketch out a scheme for reviving the position of family doctor—a scheme applicable particularly to the middle classes. The middle classes were medically neglected, as compared with the rich, who could look after themselves, and with the poor, who were well cared for. Doctors were anxious to help the public and to give the public the benefit of their knowledge.

Treatment of the Mentally Defective Child

In the course of his monthly report to the Grange-gorman and Portrane Mental Hospitals Committee, Dublin, the resident medical officer, Dr. J. O'C. Donellan, refers to the difficulty of giving proper care to mentally defective children. In the two institutions there are eleven such children. Their care is a problem, since their number is not sufficient to warrant the setting aside of special wards. Dr. Donellan suggests that a central home for these defectives should be established, where patients from all parts of the country could be dealt with. Some of these cases could be much improved under judicious management and training, and those of the worst type would receive appropriate attention, which it was impossible to provide in a general mental hospital.

England and Wales

A Twenty-First Anniversary

King's College Hospital has now occupied its present site in the South of London for twenty-one years, and a service in commemoration of this anniversary was held on October 18th at the Church of St. Clement Danes. The Archbishop of Canterbury gave an address in which he said that the removal of the hospital twenty-one years ago had been a wise step. It was placed in healthy surroundings, and its greater usefulness was shown in the increase in the number of in-patients treated. Since the foundation of the hospital ninety-four years ago there had been an amazing advance in medical and surgical knowledge. No single step in the effort to save life had been comparable to that of the discoveries of Joseph Lister, who for fifteen years held the chair of clinical surgery in King's College. His Grace, referring to the voluntary hospitals, said that while he was not forgetful of the work of the hospitals maintained by public authorities, the fact that a hospital stood for voluntary zeal gave it a tone and atmosphere of its own. The number of in-patients of King's College Hospital last year was 6,779, compared with 2,991 in 1912, the last year on the old site. The out-patients increased in the same period from 37,009 to 306,248. The annual expenditure has risen from £22,599 to £104,000, but the mortgage of £80,000 which had to be raised to carry on the work during the war has now been reduced to £57,000. The next step in

the completion of the hospital is the addition of a final side to the administrative block, forming the nurses' home, at a cost of £25,000. The present hospital was actually occupied by patients on October 13th, 1913, when the casualty department was opened and two wards were made available out of the 384 beds forming the present complement. The removal from Portugal Street to Deamark Hill was made possible by a gift of a site of twelve acres by the late Lord Hambleden. The medical school, which had hitherto been incomplete, was finished and opened by Prince George in 1933.

Congress on Life Assurance Medicine, 1935

An international congress on life assurance medicine will be held in London next summer under the patronage of H.R.H. the Duke of York and the presidency of Professor W. Langdon Brown. It is the first congress of its kind since 1903 and the first to be held in this country. On the evening of Tuesday, July 23rd, a reception will be given to the delegates, and after the formal opening ceremonies on July 24th discussions will be held on methods of estimating risks and on the prognosis of hypertension. On July 25th there will be discussions on the acceptance of glycosurics, and on gastro-intestinal ulceration and life assurance, with a conference banquet in the evening. The morning of July 26th will be given up to a discussion on the role of health service in life assurance, and the afternoon to short papers. On Saturday, July 27th, there will be excursions. Details of the names received for discussions and of the short papers, and also of the various social functions in connexion with the congress, will be circulated later. The subscription, including banquet, etc., and a copy of the transactions, is £2; for lady associate members (limited to one for each member of the congress) £1, to include banquet and social functions only. The hon. secretary is Dr. Otto May, 142, Holborn Bars, E.C.1; the chairman of the executive committee is Dr. Theodore Thompson; and the hon. treasurer, Dr. Stanley Bousfield. For practitioners resident in Great Britain and Ireland, membership is restricted to members of the Assurance Medical Society and to such other practitioners as are interested in life assurance and whose application for membership is approved by the congress committee.

Chelsea Clinical Society Annual Dinner

On October 16th the annual dinner of the Chelsea Clinical Society took place at the Rembrandt Hotel, S.W., the president, Dr. Charles Sundell, being in the chair. There was a good attendance of members and guests. The toast of "The Society," coupled with the name of its president, was proposed by Colonel T. McDonald Banks, Director-General of the Post Office. He said that, on the principle of the cobbler sticking to his last, he could perhaps best occupy the time by telling those present something about his own work. The Post Office employed a quarter of a million people, and with the exception of the L.M.S. was the largest single organization in the world. Their chief medical officer, Dr. H. H. Bashford, was doing very fine work in watching over the health of all its servants. Everyone who applied for employment was thoroughly examined medically, and elaborate records were kept of the state of health of every member of the organization. It was, incidentally, worth noting that messenger boys applying for work were now, on the average, 16 lb. heavier and one and a half inches taller than they were before the war. The sick records would, it was hoped, prove of considerable statistical value, as there was enormous material available for mass investigation. As an example of this, the effect of an

antitubercular vaccine was tried on 800 Post Office volunteers all over the country, and a similar investigation was going to be made this year. High blood pressure might well form a suitable subject for statistical research. An investigation of the occupations and hobbies of the modern generation was particularly interesting. Out of 250 young employees only eight had no outdoor amusement, seventy-two were cyclists, forty-one were swimmers, fifty-nine campers, and sixty-three played cricket or football. This seemed to show, in contrast with the foreign "youth movement," that as a race the British did not have to be dragged into athletic activities, but were well able to look after themselves. The speaker concluded with a tribute to the president. In reply, Dr. Sundell related a personal anecdote concerning Colonel Banks and the Post Office, and made passing references to the Minister of Transport, the Treasurer's attack of influenza, and the campanological duties of the chairman—a silver hand-bell serves as curfew in cases of long-windedness. Future subjects for discussion in the society included "slimming" and, as a suitable follower, "embalming." Proposing the toast of "The Guests," Dr. Henry MacCormac mentioned Dr. Robert Hutchison, Dr. Hope Gosse, Lord Horder, and Lieut.-General Hartigan, Director General of the Army Medical Services. The last two briefly replied.

Winsley Sanatorium

Important extensions to Winsley Sanatorium were opened by Lady Lansdowne on October 10th. This sanatorium, which serves the three local authorities of Bristol, Wiltshire, and Bath, was opened in 1903 as the result of intensive propaganda by the Gloucester, Somerset, and Wilts branch of the National Association for the Prevention of Consumption. The splendid pioneer work of this association stands in some danger of being forgotten, but the presence of Dr. Lionel Weatherly at the opening of the extensions recalled the time when the foundation stone was laid more than thirty years ago and he was chairman of the Executive Committee. Dr. P. Watson-Williams, who was the honorary treasurer of this branch of the association, was also at the ceremony. The admirable beginning made by the association has expanded, until the increasing needs of those patients for whom local authorities are responsible has brought the cities of Bristol and Bath and the county of Wiltshire into the position of maintaining nearly the whole of the available beds. The Marquess of Lansdowne presided at the meeting which preceded the opening ceremony. Alderman J. E. Jones (of Bristol) gave a short account of the progress of the institution, explaining the urgent need for the extensions, which included a new administrative block, a new nurses' home, and a recreation room for female patients. Additional space has thereby been gained in the medical unit, and used for the provision of out-patient rooms, a throat department, and dental treatment rooms. Dr. Lionel Weatherly spoke of the finding and purchase of the site and the early days of the sanatorium, which was founded on philanthropy, rate aid, and self-help. The institution is now taking nothing from the philanthropic purse, and is saving money every year. Lady Lansdowne made a charming and brief speech, dwelling especially on the work of the nurses and the need for housing them well. She was presented with a golden key, with which she proceeded to open the new buildings. It is interesting to note that the new buildings have been entirely paid for out of capital funds, and that although the estimated expenditure was £17,361 the complete cost was only £17,244. The plans were drawn by Messrs. W. S. Skinner and Sons of Bristol, whose hospital designs here and elsewhere in the neighbourhood are unsurpassed for simplicity and workableness.

Reports of Societies

UNSETTLED PROBLEMS OF NEUROSYPHILIS

Instead of delivering a presidential address in the Section of Neurology of the Royal Society of Medicine on October 18th, Dr. S. A. KISSNER WILSON introduced a discussion on some unsettled questions of neurosyphilis.

Dr. Wilson recalled that he was one of a number of medical men visiting Paris at the invitation of the Faculty of Medicine in the spring of 1905, when the great subject of discussion was the new discovery of the organism of syphilis. He wondered whether very much advance had taken place since then. Things were "hang'ng fire" to some extent to-day because not nearly enough was known about the organism. It was not even known whether it was a low form of plant life or of animal life, whether it could be cultured or not, whether or not it was a filterable virus. It had been pointed out years ago by McDonagh that the organism had never, or very rarely, been seen to divide. Cultures seemed to die for no ascertainable reason, as though there were some undiscovered intermediate phase. Nothing was known about the laws, if there were any, whereby syphilis was inherited. It was, perhaps, wrong to talk about inherited syphilis; there was congenital syphilis, but not cellular inheritance. Had these years of advancing knowledge made any difference to the incidence of congenital syphilis, or to its sequel, in 3 or 5 per cent. of cases, neurosyphilis? There were other problems awaiting solution. He had never been able to discover why syphilitic Parkinsonism was so rebellious to treatment; he had never seen a case which improved under treatment, yet syphilis of other parts of the nervous system did improve very greatly indeed. He had never seen a case of syphilitic amyotrophy in a child. Another peculiarity was the non-occurrence of central scotoma in syphilitic optic atrophy. It was difficult to understand the relation of symptoms to lesions in many cases of neurosyphilis; this was notoriously true of general paralysis of the insane. Finally, with regard to treatment, he exhibited the mortality tables for two main varieties of neurosyphilis over the last twenty years, and showed that the mortality from general paralysis had been halved while that from tabes had remained undiminished.

Mr. J. E. R. McDONAGH said that the inference he had drawn from the clinical and research work he had done on this subject was that all matters relating to syphilis must remain unsettled pending a resifting of the knowledge acquired since 1905. Serological tests were crude and non-specific, and could not be used as indicators either of the presence or absence of the infected phase, and the treatment, equally non-specific, did no more than correct the physical changes. The acceptance of the protozoa as having a complicated life-cycle which had to be completed before signs and symptoms manifested themselves explained the long incubation period, and why the word "cure" should never be used. In quiescent cases the spore could not be detected, but its presence in the body appeared to be lifelong, because a patient who had once had syphilis never became reinfected. The whole behaviour of the micro-organism in the body was determined by the state in which the host's resistance happened to be at the onset of and throughout the infection. It was the body, not the parasite, which varied. Hence it was incorrect to speak of neurotropic and dermatropic types of infection. Syphilis, by changing the blood in the way it did, was particularly apt to precipitate manifestations of disease and aggravate other diseases which had an ageing tendency. Experience had taught him that infinitely more was to be gained by treating the patient than by treating his infection. He was convinced that if syphilis and all other invaders were removed from their pigeon-holes, collected together, and regarded as a single cause of extrinsic disease, an enormous advance would be made. In short, there was nothing in syphilis, *qua* syphilis, different from any other invader.

Dr. BUCKLEY SHARP confined his remarks to treatment. The problem was to penetrate what had been called the "blood-brain barrier." Recourse had to be made to chemotherapy aided by the ability of the patient to defend himself against infection by his own immunity response. Chemotherapy was not just a simple process involving direct action of the drug upon the organism, like the action of an antiseptic; some other substance, unidentified, was formed by the interaction between the injected drug and the patient's tissues. Should intensive treatment be started at the earliest stage or should time be allowed for the development of the patient's own immunity response before active therapy was begun? In practice it was usual to commence treatment immediately after diagnosis. He believed that neurosyphilis was most likely to follow in cases inadequately treated at the beginning. What drugs could most readily penetrate the nervous system? The trivalent arseno-compounds in general use did not normally pass the "blood-brain barrier." Tryparsamide appeared to have a special affinity for the central nerve cells, and this drug was of great value in general paralysis. It had little if any effect on the somatic as compared with the neurological manifestations of syphilis. From a clinical point of view the most troublesome problem was that of tabes in its early stages. He knew of no medical treatment that would with certainty put an end to root pains and crises. He had tried malarial therapy in two cases of lightning pains, with only temporary benefit.

Dr. D. NABARRO spoke particularly of congenital syphilis as seen at the Great Ormond Street Hospital. One problem was why white children were ten times as susceptible as coloured. He had examined the cerebro-spinal fluids of 107 infants with congenital syphilis, and in no fewer than fifty-seven the fluid was abnormal. The figure indicated how frequently the central nervous system was invaded in congenital syphilis, yet very often lumbar puncture was not done. In infants, insufficient early treatment, particularly with mercury, might lead to recurrence of neurosyphilis in the second or third year. Neurosyphilis in children past the age of infancy might be latent or manifest, the former state being diagnosable only by lumbar puncture in all cases. In these cases disorders of conduct, fits of temper, moral obliquity, varying degrees of feeble-mindedness, and occasionally mental precocity, were encountered. Cases of juvenile tabes were very rare. He could recall only two during his twenty years at Great Ormond Street; one of them did very well on intravenous sodium iodide in association with arsenic, but the other on the same treatment showed no improvement. He gave details of an investigation of thirty-one families in which syphilis was probably or undoubtedly present in the third generation; in nearly every one of these cases the disease was transmitted to the third generation by an untreated congenitally syphilitic mother. It was frequently the second child who was most markedly affected.

Dr. W. NICOL described the work on malarial therapy at Horton Mental Hospital. Since 1925 just over 600 cases had been treated; at present some 200 cases were in the hospital. Nearly all the cases that would ever be discharged were ready for discharge in from seven to nine months. Omitting these recent cases, there were eighty-four women and fifty-three men now in hospital who had been under treatment for long periods: twelve of the women and seventeen of the men had shown improvement and were useful workers in the hospital, though not able to return to the outside world; others were deteriorating after some years of improvement. Malarial therapy indisputably prolonged the life of the general paralytic, and physical health improved. Why did some cases resist treatment and others not? Some might be explained by treatment beginning too late, but there were cases in which that would not hold. If a case did not respond favourably to a first course of malaria it was not likely to respond at all.

Dr. K. PADDLE said that his experience was limited to cases among mental defectives. The relation of syphilis to mental deficiency was even now not settled. In mental

defectives suffering from congenital syphilis was it to be inferred that the deficiency was the result of syphilis, or was it a coincidence? The family history of forty-seven unrelated cases of mental deficiency complicated by congenital syphilis revealed that in 50 per cent. there was a definite neuropathic agent, so that probably the mental defect was the result of the two factors acting together, when either might have been insufficient in itself to produce the condition.

Dr. L. C. COOK described his work at the Fountain Hospital, and divided patients of this character into two categories—those with abnormal and those with normal cerebro-spinal fluid. Of the latter he found it extremely difficult to say that their cases could be labelled neurosyphilis. The value of a cerebro-spinal fluid picture in congenital syphilis, whether as a guide to diagnosis, prognosis, or treatment, was to be doubted. A large percentage of the congenital cases had changes in the cerebro-spinal fluid, but he was doubtful whether any prognostic significance could be attached to such findings. It had struck him that the syphilitic patients tended to exhibit a greater emotional facility than other aments.

Mr. LINDSAY REA discussed some ophthalmological findings, and said that he had never seen a central scotoma in any syphilitic case. Dr. Kinnier Wilson had stated that probably the spirochaete was aided and abetted by some other organism. The speaker had come to the conclusion that a gonorrhoeal iritis occurred only in people with some form of dental sepsis, and that the two conditions were definitely related. He was sure that many of these diseases were not due to one specific organism.

Mr. SYDNEY SCOTT spoke from the point of view of the otologist, and said that it was extremely difficult to diagnose clinically, from any special examination, whether a patient had a syphilitic lesion of the vestibular or cochlear nerve, though he had seen syphilis of both these nerves. He showed a number of lantern slides to illustrate the difficulties of otological investigation in this field. Dr. HUGH GARLAND said that although he believed in treatment with bismuth and N.A.B., there were certainly cases which did develop neurological signs despite such treatment. Dr. FERGUS FERGUSON asked whether in a case of early tabes dorsalis one was justified in advocating malarial treatment in view of its risks. Was the treatment to be justified in the case of a young person? Dr. LEONARD FINDLAY had had the opportunity of treating some seven cases with malaria and found no disadvantage; one case, apparently, was cured, and in another the disease was arrested. On the other hand, he had not seen the least benefit from treating neurosyphilis with mercury or salvarsan. Mr. LESLIE PAXON said that he knew of only one reported case of central scotoma in neurosyphilis. He thought that he himself had discovered one case, in a tabetic who had been coming to Queen Square for thirty years; it was certainly a central scotoma, but further investigation proved that it was due to tobacco, not to tabes. He gave an anatomical explanation for the rarity of central scotoma in these conditions. He also stated that he had seen one undoubted case of reinfection with syphilis.

Dr. KINNIER WILSON, in closing the meeting, remarked that most of the questions he had posed at the beginning remained still unanswered.

PROBLEMS IN THE STUDY OF SCIATICA

At the meeting of the Section of Physical Medicine of the Royal Society of Medicine on October 19th Dr. J. BARNES BURT, the president, instead of reading a presidential address, opened a discussion on some problems in the study of sciatica.

Dr. Burt first posed the problem of classification. A practical method was to divide sciatica into three main clinical groups—namely, (1) root sciatica, (2) trunk sciatica, (3) referred sciatica. This classification was also an anatomical one if the word "branch" were substituted for "referred," and formed a definite basis for diagnosis and treatment. It was often said that referred sciatica

was not true sciatica; but it was certainly true "leg ache," and the pain was distributed along the branches of the sciatic nerve. Many used the terms "primary" and "secondary"; the term "true" was also used; but Dr. Burt urged that these terms should be abandoned. Putti, the Italian orthopaedic surgeon, had written the classical article on root sciatica, and had proved that it was a clinical entity, though his definition of "root" was slightly different from that usually adopted in this country. Dr. Burt had analysed his figures at Devonshire Hospital, Buxton, and had found that out of 140 cases 35.5 per cent. were of root sciatica, 17 per cent. of trunk sciatica, and 45.5 per cent. of referred sciatica. It followed that the average medical student learned his sciatica on the rarest type, while referred sciatica was lost in the mass of differential diagnosis. Dr. Burt claimed for his own classification that the groups were quite distinct: in most cases the diseases were entirely different, with different pathology, onset, and treatment.

The second problem he put to the meeting concerned differential diagnosis. Generally speaking, the symptoms of referred sciatica were less severe than those of sciatica belonging to the other groups. The pain was seldom constant, and often did not reach below the ankle. Sensory signs were absent, and although there might be some muscle wasting this was of the general type, due to disuse. Unfortunately, similar mild symptoms might occur in a mild case of root sciatica. It was a mistake to think that root sciatica produced more serious symptoms than trunk sciatica or referred sciatica. Putti regarded rigidity of the lumbar spine as a constant sign in root sciatica: there were two other signs which, although not constant, assisted the diagnosis—namely, tenderness along the lateral aspect of the lumbar vertebrae and distribution of pain along the external cutaneous nerve of the leg. This was not a constant sign, but when it did appear it put one on the track at once.

Dr. Burt's third problem related to the varieties of referred sciatica. Every textbook was full of sciatica caused by osteo-arthritis of the hip. To his mind this was a cause very much exaggerated. The only two cases out of the 140 which he had analysed having severe sciatica associated with osteo-arthritis of the hip were also cases of osteo-arthritis of the spine. Sciatica due to sacro-iliac disease was simply bristling with problems. A number of people had suggested that inflammation spread by direct contact from the sacro-iliac joint into the roots of the sacral plexus. This had been very carefully investigated. If there was swelling of the intervertebral joint it would press the nerve right against the opposite side of the bone, and in many cases the inflammation spread into the tissues in that way: thereby a root sciatica might become a trunk sciatica, the inflammation spreading down the roots into the trunk. It was a problem to him why sciatic pains were not found in spondylitis deformans. In practically every such case there was ankylosis of the sacro-iliac joint, and one would have thought that inflammation severe enough to produce ankylosis would be sufficient to give rise to sciatica. The most interesting of the referred sciaticas was that due to fibrositis of the gluteus medius and minimus, partly because it was not mentioned in the textbooks, and partly because it was easily cured if correctly treated. If one slipped on a rug or a parquet floor pain was felt just over the gluteus medius muscle, and one was likely to have a certain amount of sciatica. In driving a car with a seat that did not suit the leg a certain amount of sciatica was apt to develop by reason of strain on the gluteus medius. The greater part of these muscles was lying on the bone, and was covered by one of the firmest aponeuroses in the body. A branch of the superior gluteal nerve travelled along the surface of the ilium to supply the muscles. Any inflammatory swelling of the muscle in this confined space set up a pressure on the nerve, or possibly the nerve was involved in the inflammation, and the pain was referred to areas of the leg supplied by the fourth and fifth lumbar, chiefly the peroneal branch of the sciatic nerve. All these cases of sciatica got well quickly. Another problem concerned Lasègue's sign, the value of which was belittled by both Putti and Buckley. The sign was not of

pathognomonic value: it occurred only in two conditions—namely, trunk sciatica and the sacro-iliac condition. Two modifications of the sign might prove exceedingly useful. One was Dr. Mennell's modification, in which, as the leg was raised with the knee straight, the foot was extended or flexed; with the foot extended it could be raised a little higher in sacro-iliac trouble than in trunk sciatica. The other was what he called the "floor sign," in which the patient sat flat on the floor with his back against a wall. The back of the knee normally touched the floor unless he had arthritis (or acute trunk sciatica, in which case he could not sit down in that manner at all): the positive sign only appeared if there were adhesions. Out of his 140 cases only nine had a positive "floor sign."

Finally, Dr. Burt touched on the subject of treatment. Massage was of value in two classes of conditions. In the case of referred sciatica due to fibrositis of the gluteus medius early massage would effect a cure. If, however, the condition was not treated properly, and the unfortunate patient "worked it off," the inflammation spread to the fascia of the gluteus maximus and into the trunk sciatic nerve. The other condition that benefited by massage was sacro-iliac trouble. But massage must be given by careful prescription—gluteal muscles only, and bed for an hour afterwards.

DISCUSSION

Dr. WILFRID EDGEcombe said that Dr. Burt's percentage of 45 as coming within the "referred" group related to hospital cases. In private practice the proportion of these cases was much greater—perhaps 65 or 70 per cent. The cases were easily curable: in the acute stage nothing but rest, heat, and large doses of aspirin; later, intelligent massage. More troublesome cases were those of acute toxic neuritis of the sciatic nerve: the pain was severe and constant, irrespective of movement, and the wasting of muscles was marked and dramatic. Dr. C. W. BUCKLEY asked whether it was true that pressure on a nerve fibre produced pain. Pressure produced first "pins and needles," then numbness of the parts affected, and, if a motor nerve was involved, muscular wasting; but it did not create pain. If there was pain it was due to pressure on that specialized organ, the nerve-end. Dr. A. R. NELIGAN drew attention to a form of sciatica which seemed to be connected with varicose veins in the leg, and to clear up when the veins were treated. As to massage in sciatica, one form which he had found extremely useful was the underwater douche. Dr. W. J. TURRELL related particulars of some cases of the radicular type, and Dr. ALASTAIR MACGREGOR referred to the value of mild faradic current in locating tender points in trunk sciatica.

AWARENESS IN PSYCHOLOGICAL MEDICINE

An extraordinary general meeting of the Medical Society of Individual Psychology was held at 11, Chandos Street, W.1, on October 11th, Dr. J. C. YOUNG being in the chair. The objects of the society were defined more exactly in the following resolution, which was adopted:

The objects of the society shall be: (1) to advocate and extend the general psychological approach to medicine, and (2) to promote the study and discussion of individual psychology. Membership shall neither require nor imply formal adherence to any particular school of psychology.

The chairman inaugurated the session by an address on "Awareness in Psychological Medicine," in which he said that the consciousness of the higher animals differed from the consciousness of the human animal in that the latter, in addition to the vital or organic memory common to both, disposed of a voluntary capacity for recollection not found in the other animals, notwithstanding, for example, the elephant's long memory for kindnesses and injuries. This recollection was a function of vital memory rather than voluntary recollection. Nevertheless, in so far as human voluntary recollection consisted in the last resort in the capacity to delay and to co-ordinate reflexes, depending somatically on a highly differentiated nervous organization of highly differentiated parts, the difference

between human and animal consciousness might be said to be only one of degree. There was no essential difference in kind. Similarly there were differences, as between man and man, in degree of human consciousness, almost amounting to a difference in kind. The higher degrees of consciousness implied higher degrees of integration with less liability to the disintegration or dissociation which was the essential feature in neurosis and psychosis. Dr. Young thought it useful to designate these higher degrees as "awareness." No sharp dividing line could, however, be drawn between awareness and consciousness. But awareness connoted a degree of self-awareness of motive and life goal which was deficient in the neurotic and practically extinguished in the psychotic. Awareness did not happen mechanically, nor could it be achieved by mechanical reading of textbooks. It required work on oneself and a certain disciplinary sincerity. Only in virtue of awareness born of experience recognized in himself of the psychological realities and mechanisms which had overwhelmed his patients could the physician in psychological medicine hope to cure or alleviate their sufferings of unawareness of dissociation and disintegration.

ADHESIONS IN ARTIFICIAL PNEUMOTHORAX

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, held on October 5th, Dr. GUSTAV MAURER, medical superintendent of the Sanatorium Guardaval, Davos, read a paper on a modification of the Jacobaeus operation for pleural adhesions in cases of artificial pneumothorax.

Dr. Maurer described the technique of his method for the examination and delimitation of adhesions with a thoracoscope, their transillumination with an instrument of his own design, and their enucleation from the chest wall. The advantages of this method were absence of shock and a great reduction in the incidence of post-operative complications, such as empyema, haemorrhage, and pleural effusion. More than eight hundred cases had been operated upon, with a mortality of less than 1/2 per cent. The paper was illustrated by lantern slides and x-ray plates.

The President of the Academy (Mr. R. A. STONEY) said that there was no doubt that the surgical treatment of tuberculosis was still in an adolescent stage in Ireland, and that no general attempt had been made to undertake surgical treatment as an aid to the management of cases of tuberculosis of the lungs. In connexion with the surgical treatment of tuberculosis the team spirit—the close co-operation of physician, surgeon, and radiologist—was most important. Every case should be carefully considered on its own merits, and no rule-of-thumb methods should be adopted. He believed that there was a great field open before the surgical side of the medical profession in regard to the treatment of tuberculous cases. The work was extremely technical, and the results obtained by Dr. Maurer, the x-ray photographs, and the description of the cases seemed to him almost miraculous. There was no doubt that this was, and always would be, work which required extreme knowledge, experience, and delicacy of technique. He would like to recommend to the younger generation of surgeons this large field of surgery in which they could exercise and develop their talents.

Dr. HAROLD QUINLAN said that in the out-patient department of the hospital to which he was attached he saw from 120 to 150 cases of pulmonary tuberculosis a year. Of these, about 66 per cent. were unilateral, and on that account a great number of them were suitable for pneumothorax. He had seen some cases in which adhesions had been cut, but thought that it was very difficult to find cases which were really suitable for this procedure. In some cases excellent results were obtained by thoracoplasty. He personally did not like interfering with adhesions unless they were very thin and fibrous in character.

Dr. W. R. F. COLLIS felt that this was a line of treatment, really more medical than surgical, which might be more widely adopted.

Dr. J. B. MAGENNIS confessed himself amazed to hear of the very successful results obtained by Dr. Maurer by the operation he described in cases which the majority of medical men would have looked upon as hopeless. Referring to the value of internal transillumination of adhesions, he said that, until one had interfered with an adhesion without knowing it, it was impossible to realize the importance of transillumination. He was interested to note that in Dr. Maurer's cases there had been so little reaction on the part of the pleura. He felt that the failure to make advances in the treatment of tuberculosis as rapidly in Ireland as in other countries was largely because there was no central hospital for tuberculosis. Many hospitals tried to keep a small ward only for tuberculous patients, but if there was one hospital only for tuberculous cases treatment would be much easier.

Dr. LEONARD ABRAHAMSON stressed the need for more adequate accommodation for tuberculous patients, and for better equipment and facilities in the existing institutions. He thought that small general hospitals were unsuited to the treatment of such cases. In regard to operative procedures, whilst definite advance had been made of late years, a little conservatism was indicated in contemplating such measures in a given case. Dr. A. R. PARSONS said that until he had heard Dr. Maurer's paper he had had very little faith in the procedure of division of adhesions, as he thought it was an extremely difficult operation, and one which was attended with great risk to the patient. Since hearing Dr. Maurer he had changed his opinion. Dr. Maurer had operated on 815 patients, and of these only three had died as a result of the operation—a mortality of less than 1/2 per cent. He considered this an amazing result for surgery, and he would like to congratulate Dr. Maurer on the extraordinary results he had obtained.

The President of the Section (Dr. V. M. SYNGE), in complimenting Dr. Maurer on his work, said that in some cases the cures were little short of miraculous. He was interested to notice the very small number of cases in which an exudate had occurred, and thought that this was very significant.

CHOLESTEROL AND DISEASE

At a meeting of the Pathological Society of Manchester, held on October 10th, Professor S. L. BAKER delivered his presidential address on "Cholesterol and Disease."

Cholesterol deposits, he said, might be either generalized, when they were of metabolic origin, or local, following local destruction of tissue. Arterial disease was the most important condition in which cholesterol deposits were found, and had been much studied experimentally. Several distinct processes were concerned in the production of the common forms of arterial hardening comprised by the term "arteriosclerosis." Of these processes the most important was atherosclerosis, characterized by the development of fatty (lipoid) streaks and patches and atheromatous deposits, particularly in the aorta and its main branches. Rabbits whose diet contained powdered cholesterol showed such lesions. Their development was due to the greatly raised blood cholesterol. The lesions were closely similar, both topographically and histologically, to those seen in human atherosclerosis. The type of lesion depended on the time the rabbits were allowed to survive. Fatty streaks and patches were early lesions, while raised patches with intimal fibrosis occurred later. Spontaneous atherosclerosis was very rare in the rabbit, but in man it was present in some degree in almost all subjects. The fatty (lipoid) streaks seen in children had been regarded as toxic effects, but it had been found that their incidence was correlated with age, and not with toxic conditions. It was probable that the slighter lipid deposits might disappear, but deposits tended to increase with age.

In diabetes and the nephrotic type of renal disease, conditions in which hypercholesterolaemia was present, there was an increased tendency to atherosclerosis. There was no evidence that hypercholesterolaemia led to hypertension, but increased strain on the arterial wall predisposed

to lipid deposits. Extensive atherosclerosis might be found in subjects not showing hypercholesterolaemia, but work on rabbits had shown that atheromatous deposits following a temporary rise in blood cholesterol remained in the arterial walls for long periods. The experimental evidence incriminating cholesterol in the production of atherosclerosis was abundant, but much further systematic work on the fluctuations of blood cholesterol in the human subject was needed to throw more light on the problem.

The address was copiously illustrated by Professor Baker's own preparations.

CORRESPONDENCE

Trauma and Pulmonary Disease

SIR,—The annotation on chest injuries and pulmonary tuberculosis in the *Journal* of October 13th (p. 689) emphasized once more the necessity of thorough inquiries into the immediate and remote results of chest injuries, and into the mechanics of the production of such extreme lung damage as recorded by Dr. E. G. Fenton in the same issue (p. 700), and lesions of lesser degree.

The inquiries might begin with the pooling of cases of trauma in connexion with pneumonia, empyema, haemoptysis, pneumothorax, and haemothorax, and cases of pulmonary tuberculosis directly caused or aggravated by injury. Physicians and pathologists to large hospitals and tuberculosis sanatoria, and many general practitioners, must have records of such cases. The criteria to be satisfied as to the association between trauma and subsequent disease might be considered by such a body as the Science Committee of the British Medical Association. A discussion on the mechanics by a body of physicists detailing their experiments would be not only a mental entertainment but of real assistance in visualizing the various degrees of lung disruption.

The results would be of considerable academic interest and of very great practical importance. Problems of diagnosis, treatment, and prognosis in the various conditions would be ventilated, and groups of definite cases placed on record which would be invaluable in workmen's compensation and medico-legal practice as well as in general medicine.

If the Science Committee could be prevailed upon to undertake the work I feel sure the members would have the cordial co-operation of all branches of the profession. —I am, etc.,

Wigan, Oct. 19th.

W. E. COOKE.

B.C.G. Vaccine

SIR,—In his recently published book *The B.C.G. Vaccine* Dr. K. Neville Irvine recommends (p. 62) the administration of 0.1 mg. of B.C.G. vaccine intradermally, and adds that the vaccine may be obtained free from the Institut Pasteur, Paris, by asking for "parenteral B.C.G."

The Pasteur Institute supplies three varieties of ampoules at present: (a) BCG, for oral vaccination soon after birth, containing 1 cg. of bacilli in 2 c.cm.; (b) BCG-NR, for oral vaccination in children older than 2 years and in adults, containing 5 cg. in 10 c.cm.; and (c) BCG-SC, for subcutaneous injection (the Pasteur Institute does not recommend the intradermal method), containing 1/50 mg. in 2 c.cm. To obtain a dose of 0.1 mg. one would therefore have to use 0.02 c.cm. of ampoule (a) or (b), or 10 c.cm. of ampoules (c). Clearly both of these alternatives would be impracticable.

Dr. Irvine must therefore have in mind B.C.G. emulsions prepared elsewhere. With those supplied by the Institut Pasteur, Paris, either a different dose or a different dose and another route than those he indicates

would have to be adopted. Incidentally, Dr. Irvine does not mention in his recommendation the fact that the vaccine must be used not later than ten days after its preparation—the earlier the better—a point well worth remembering in obtaining the vaccine from Paris.—I am, etc.,

Vejlsted Sanatorium,
Denmark, Oct. 13th.

G. GREGORY KAYNE.

* A review of Dr. Neville Irvine's book appears this week at page 773.—Ed., B.M.J.

Pre-natal Cardiac Murmurs

SIR,—The letter from Dr. A. W. Johns (October 20th, p. 743), concerning a case of congenital heart disease diagnosed before birth, reminds me of a question that has long simmered in the back of my mind. I have had in the past certainly two cases—and I rather think three, but am not quite sure—in which I have found a cardiac murmur in the auscultated heart-beat of a foetus *in utero*; and in each case I confirmed the observation by repeated examinations. In none of the cases was there found any abnormality about the cardiac sounds of the newborn infants. The point I have long pondered is this. If the foramen ovale is patent in the unborn child, and the circulation passes through it, and if patency of the foramen ovale after birth causes a cardiac murmur, why does not every foetal heart-beat exhibit, on pre-natal auscultation, a murmur likewise?—I am, etc.,

Woolton Hill, nr. Newbury,
Oct. 20th.

HENRY ROBINSON.

Motor Backache and Neuralgia

SIR,—Some of your readers may perhaps be personally interested in a rather common form of postural strain, which may arise as the result of motor-driving from an inefficient seat over a prolonged period. In its milder grades this seems to be a widely prevalent source of discomfort, but the severer and more important forms are likely to be indifferently confused with such conditions as lumbago, rheumatism, and sciatica from other causes, and their origin lost sight of. The distinction is an important one from the aspects of prevention and possibly of treatment.

I must ask to be excused for quoting in detail my personal experience as a patient, but such description seems to afford explanation of the cause and of the symptoms which arise from this particular strain.

Rather more than six months ago I developed an unpleasant pain in the left buttock and across the lower part of the back, and early recognized that this was induced by motoring. It was accentuated by any attempt to flex the spine in the lower dorsi-lumbar region. Lateral, rotatory, and extension movements were quite free and painless, but flexion speedily became greatly affected. It was no longer possible to get near one's toes, and as time went on putting on shoes and socks became a painful difficulty. There was much other difficulty of a similar kind, although it was at this time possible to lead an active life in some ways hardly to have been expected. For example, it was possible to play tennis with comparative comfort, but then necessary to flex the right knee and get down with a stiff left leg when attempting to pick up a ball.

Such mild exercise and walking tended to lessen temporarily both pain and stiffness; later they might be accentuated. Standing and lying prone were both more comfortable than sitting, which on a hard chair was quite intolerable. Commonly, I took my meals standing, and wrote my letters lying on my face. At this time there were no descending leg pains.

It seemed possible that insufficient exercise, by reducing muscle tone, had contributed towards this disability, but this factor was recognized too late. A period of deliberately active holiday (in which, notably, swimming in sea water was easy

and completely free from pain) was followed by an increase of symptoms—distressing neuralgic pains in the course of the left sciatic nerve, reaching to the foot, and about the buttock to the level of the iliac crest in the region of the left anterior superior spine, and beside the sacrum and coccyx. Travelling in all forms had become most painful; particularly any vibration greatly added to pain. I have been reduced to sitting on the floor in a taxi, in order to get some relief from the support of the seat edge. Walking was reduced to a limp and, crippled to this extent, work had to be abandoned.

There was much stiffness of the lower part of the spine, and x-ray examination showed no obvious disease. Rectal and urinary examinations and lumbar puncture were normal.

Much earlier I had come to the conclusion that the cause of the condition was the inefficient disposition and form of the driving seat in my car. Many observations supported this conclusion—in early days the creation of a backache whenever I used it; later, the degree of relief which could be obtained from a properly placed air cushion, low down behind the right side of the sacrum. By inquiry from others—motoring friends and garage owners—I learned how commonly varying degrees of discomfort were complained of.

The driving seat of the car, looked at after the event, appears to be particularly designed to give trouble. It is of the "bucket" type, fitted with air cushions but with back and seat heavily raked so as to present the shape of the letter L tipped backwards. Such an arrangement necessarily creates an unoccupied angle, resulting in inadequate support to the dorsi-lumbar region of the driver. Such a single-bucket seat is subject to much enhanced vibrations, which no doubt increase the strain thrown on ligaments when muscles become fatigued: vertebrae then tend to sag and stretch the posterior aspects of the intervertebral joints.

Clearly it might be expected, as it was experienced, that flexion of the lower spine would give the maximum of pain. Exactly how pressure comes to bear on spinal roots and give rise to neuralgic pain is a matter for conjecture, but it is not surprising that it should so happen, and it may be due to local oedema and subsequent adhesion.—I am, etc.,

London, W., Oct. 21st.

G. H. A.

Residual Infection of the Jaws

SIR,—Mr. Nodine's letter that appeared in the *British Medical Journal* of October 20th raises a number of very important points for consideration. It is undoubtedly true that the condition of residual infection of the jaw would almost be non-existent if the Novitsky technique was employed more generally, but until the dental profession is educated to the standard of Novitsky and his successors residual infection of the jaw will occur, and the clinical manifestations will be observed. Mr. Nodine has done a great service in calling attention to the possibility of preventing residual infection; he was the first person to introduce the Novitsky method into this country, and the profession owes a great debt of gratitude to him.—I am, etc.,

London, W.1, Oct. 19th.

R. S. TAYLOR.

Ether Convulsions

SIR,—I have read with interest Dr. Stanley Sykes's letter on the subject of ether convulsions, and would like to confirm his findings.

A child, aged 6, was being anaesthetized for tonsillectomy with ether vapour from a Shipway apparatus, the head being extended by a sandbag under the shoulders. After fifteen minutes anaesthesia convulsions were seen to commence in the leg muscles, and rapidly spread all over the body, the face being affected last. The operation was stopped and the anaesthetic discontinued, but the convulsions increased.

Eventually the head was raised through a right angle and the convulsions ceased immediately, and did not recur when the head was lowered a few minutes later. The operation was then completed and recovery was uneventful.

In this case the head was lower than the rest of the body, and the cerebral anaemia produced by raising it was almost certainly responsible for the cessation of the convulsions.—I am, etc.,

London, N.W.3, Oct. 22nd.

C. J. M. DAWKINS.

Death and the Survival of Rights of Action

SIR,—I think, with respect, that the learned author of your article under this heading, published on September 29th (p. 600), and Dr. Hugh Woods, who contributed a letter to your correspondence columns on October 6th (p. 658), much exaggerate the danger to the medical profession of the Law Reform (Miscellaneous Provisions) Act, 1934. Your leader-writer suggests that a surgeon whose patient dies on the operating table is open for six years to an action for negligence by the personal representatives (that is, the executors or administrators of the deceased's estate). This may, technically speaking, be true, but the practical risk is surely very remote. The Act specially provides that where personal representatives are suing for the benefit of a dead person's estate the damages must not be exemplary, and, when the death has been caused by the negligence, they must be calculated without reference to any loss or gain to his estate consequent on his death, except that a sum in respect of funeral expenses may be included.

In face of these limitations it is difficult to see quite what damages the personal representative can claim. The learned writer of a leading article in the *Lancet* (1934, i, 1177), so far from foreseeing damage to doctors from this source, protests that personal representatives will not even be able to claim the expenses of the hospitalization and treatment of the deceased, so that doctors and hospitals will once more go uncompensated. The widow and children can, of course, claim damages under the Fatal Accidents Act, 1846; they have been able to do so for nearly ninety years, but the harm done thereby to the medical profession has been negligible. Truly, they have only a year to make their claim, and the personal representatives have the six years allowed by the Statute of Limitations, but the personal representatives are so little likely to succeed in a stale action that few in all probability will make the attempt.

Your leader-writer's second hypothetical case, where a patient whose treatment has gone wrong subsequently dies for some other reason, has more substance, for here the negligence, if any, has not caused the death, and it seems that the personal representative may claim damages for injury to the estate due to such factors as the deceased's inability to earn and the expense of his later treatment and convalescence. But they would have to explain why the deceased had not thought it worth while to bring an action: they would be deprived of his evidence, and although they might prove the injury to the estate they would probably find such difficulty in proving it due to negligence that they would think very long and carefully before they ventured to go to court. "Londoner," in the *Evening Standard*, suggested recently in his Diary an even more fantastic case: that if a legacy of £500 had been left to an individual but on examination the estate was found to be insolvent, the legatee could then bring an action for damages against the doctor. It is sufficient to remark that this suggestion entirely neglects the provisions of the Act which I have quoted, and, in addition, at least three elementary rules of common law. The *Law Journal* (October 6th, p. 206) has dealt with it far more crushingly than I could.

The plain truth is that the Act was passed with one particular purpose in view. The Common Law contains a peculiar doctrine that the right of personal action dies with the person. The result was that when a negligent motorist injured someone and was himself killed in the accident the injured party had no redress. He could not sue the estate, and he could not even recover from the negligent one's insurance company. The Act sets right an intolerable injustice. It is a principle of law to give the same rights to both sides, and so the Act allows the personal representatives of an injured person who has died to sue in his place, but has very closely limited their right to damages—so much so that negligence actions by personal representatives are likely to be few and far between.

It is always possible to construct theories from legal doctrines and enactments, just as it is from philosophical premisses, but such inventions commonly have little if any relation to practical affairs. They are unfortunate when they tend to frighten unnecessarily a body of deserving persons who already have to face more than their share of real legal danger.—I am, etc.,

London, E.C., Oct. 23rd.

D. HARCOURT KITCHIN.

Publicity

SIR,—As one who has received a large amount of publicity in the lay press, may I say that so far as I know I have never been one penny the richer on account of it so far as my medical practice is concerned. I fully agree with Dr. Frank G. Layton that we are all guilty in one way or another of seeking publicity, and that, so long as a man does not profess to have some special treatment which he alone is capable of administering, it is all completely harmless.

Let us clear our minds of cant on this topic. Every article in the *B.M.J.* is an advertisement, intended to be read by the profession. These articles, and the personal recommendation of satisfied patients, are the only form of publicity that is likely to increase our incomes. Yet the *B.M.J.* is read by thousands of lay men and women throughout the country. It is one of the most popular journals in the free libraries, and anyone who has ever visited these public reading-rooms must have noticed old ladies poring over your columns for hours. If the *Journal* is only intended for the profession, why allow it to be circulated in free libraries? But for the old ladies many of us, by using the free libraries, might save our subscription to the Association; and if the old ladies are allowed to read the *B.M.J.*, what possible objection can there be to the newspapers selecting from your columns any matter that they consider to be of general interest to their readers?—I am, etc.,

London, W.8, Oct. 19th.

HALLIDAY SUTHERLAND.

* * However much some medical men might wish us to do so, we cannot control the newspapers or the public libraries or the old ladies.—Ed., *B.M.J.*

Whither General Practice?

SIR,—I would like to thank Dr. W. Savile Henderson for his letter in the *Journal* of October 20th (p. 742) and for ventilating what, I think, is a very general abuse. I may say that I have had an almost identical experience with the one he describes in Case 1, and, like him, received the same reply when I complained to the authorities. I have also had complaints from patients about welfare workers trying to force their way into the house to give advice on a variety of medical subjects without my knowledge or consent, and have been asked, indignantly, if I had sent them. This state of affairs

causes a loss of confidence between the family doctor and his patients.

I would like to suggest that the authorities should issue a strongly worded standing order to all welfare workers, that they must call on the doctor *before* they visit any of his patients, and discuss the case with him first. I have never had the courtesy of a visit from the welfare worker.—I am, etc.,

RUPERT PALMER, M.R.C.S., L.R.C.P.

Lydd, Kent, Oct. 21st.

SIR,—We must all sympathize with Dr. Savile Henderson in his discovery that not only lower-class but also middle-class patients are being inveigled away from the general practitioner to the public clinic, and in his plea for a remedy.

If Dr. Henderson read the report of the discussion at the Annual Representative Meeting at Dublin last year (*Supplement*, August 5th, 1933, p. 86) he will remember that it was stated there (by a member of Council) that infant welfare was educational work, and could not be done in general practice. So if Dr. Henderson accepts this view he will sit down and rejoice that the work which a mere general practitioner was unwisely attempting is being taken into the hands of people more competent to perform it.

If, on the other hand, as appears from his letter, Dr. Henderson does not adhere to this mediaeval theory, then he may accept my suggestion (*Supplement*, July 14th, 1934, p. 33) that the general practitioner is actually the person in the best position to undertake infant welfare, and let his patients know that he is able and willing to give them all that the public clinics can offer them as regards infant welfare. If he does, then I am sure that he need not fear the competition of the local authority.—I am, etc.,

London, S.W., Oct. 22nd.

F. GRAY.

Correction of "Medical Register"

SIR,—I am desired by the Returning Officer to say that voting papers for the purpose of the forthcoming election of a direct representative to the General Medical Council were issued on October 23rd to all registered medical practitioners having registered addresses in England and Wales; and that the authorities of the Council would be glad if every such practitioner who has not received a voting paper would communicate immediately with the Office of the Council (44, Hallam Street, London, W.1), whether or not he proposes to vote in the election, in order to ascertain that his address is correctly entered in the *Medical Register*.—I am, etc.,

MICHAEL HESELTINE,
Registrar, General Medical Council.

October 24th.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on October 18th the following medical degree was conferred:

B.M.—G. H. Buck, J. P. Dewsbury, C. M. Vaillant, A. B. Stokes.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor announces that Sir Percival Horton-Smith Hartley, M.D., sometime Fellow of St. John's College, has conveyed to him through the good offices of the Regius Professor of Physic his desire to make over to the University, for the further endowment of the Raymond Horton-Smith Prize, securities producing an income of £20 a year. The foundation of this prize, for the best M.D. thesis in each academic year, is recorded on page 339 of the *Historical Register*. Sir Percival is the eldest son of the original donor and a brother of Raymond John Horton-Smith, whom the

prize commemorates. His gift would restore the former value of the prize, and would increase its value beyond the former amount if payment of dividends upon the present investments of the fund should be resumed.

At a congregation held on October 19th the following medical degree was conferred:

B.CHIR.—*M. A. Rugg-Gunn, *T. V. Tattersall, *A. R. R. Mears, G. T. Hindley.

*By proxy.

UNIVERSITY OF MANCHESTER

Dr. R. W. Fairbrother has been appointed lecturer in bacteriology, and Dr. J. C. Kerrin succeeds him as assistant director of the routine section of the Department of Bacteriology and Preventive Medicine. Dr. D. T. Robinson has been appointed assistant lecturer in bacteriology, and Dr. I. A. Cathie and Dr. James Dawson demonstrators in pathology.

UNIVERSITY OF WALES

The following candidates have satisfied the examiners in the examination indicated:

DIPLOMA IN PUBLIC HEALTH.—(Part II): K. J. Grant, T. M. A. Lewis, J. C. R. Morgan, Elizabeth S. G. Owen, Jean J. Smith.

UNIVERSITY OF GLASGOW

A congregation was held on October 20th, when the following degrees were conferred:

M.D.—*W. S. L. McLeish, *C. Nicholson, Elizabeth J. Findlay, D. P. Leiper, J. Riddell.
M.B., Ch.B.—†R. C. Elitzik, †E. M. Rappaport, †J. D. O. Kerr, *M. Lazarowitz, *S. Smith, *H. Gillies, *J. H. Hutchison, *B. Joseph, *A. B. Semple, *C. L. Elder, *D. Gersten, *Gertrude I. R. Tannahill, *R. W. Carslaw, *R. McI. Millen, *C. Slutsky, *D. Ferguson, *J. D. Fulton, *D. Livingstone, *E. L. Nicolson, R. H. Adam, G. H. Aitken, Eleanor M. Alexander, W. J. Barclay, J. Black, R. Black, W. M. Borthwick, J. F. D. Boyd, D. B. Brown, J. Brown, G. G. Browning, J. N. M. Chalmers, Janet M. S. Clark, G. B. M. Clarke, N. P. R. Clyde, M. X. Colby, G. C. Cooper, J. E. Craik, J. F. Diamond, D. O. Dickie, D. Douglas, R. J. Eadie, Sarah G. Fee, I. Felsen, A. G. Fergusson, J. D. Finlayson, R. E. Fletcher, S. L. Frank, N. A. Freebairn, L. D. Gardner, Helen M. Gibb, G. C. Gordon, J. M. Graham, J. R. Hendry, Agnes B. Herbert, J. Hodge, J. Hughes, G. Hunter, A. Hutchison, J. S. Jackson, A. Leitch, M. Levinson, W. Love, A. D. Lynch, A. F. McDonald, J. Macdonald, J. A. MacDougall, J. S. L. McGibbon, Ethelwyn M. McKendrick, A. McKenzie, Roberta M. C. MacLean, J. Macrae, W. Mallinson, K. H. Martin, W. J. Moffat, R. Murdoch, J. J. Murray, J. Parker, Marion A. Pearson, R. Pettigrew, J. D. Ramsay, J. D. Rankin, J. L. Rankin, J. A. Rankin, J. G. Roberts, J. B. McN. Ranciman, Olive Scott, M. S. Segall, Ada M. Sewell, Helen S. C. Smith, N. Sragowitz, Jean W. Strang, D. F. Suttie, W. O. G. Taylor, R. A. Tennent, A. Thomson, W. Thomson, J. J. Tillie, J. A. Weir, J. B. Wilson.
* With commendation. † With honours.

R. C. Elitzik gained the Brunton Memorial Prize, awarded to the most distinguished graduate in medicine for the year 1934, and E. M. Rappaport gained the West of Scotland R.A.M.C. Memorial Prize, awarded to the candidate with the highest aggregate marks in medicine, surgery, and midwifery in the final M.B. and Ch.B. examination held during 1934.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Museum Demonstrations

The autumn course of museum demonstrations in the theatre of the College commenced on Monday, October 22nd, when Mr C. E. Shattock showed specimens illustrating bone tumours. To-day (Friday, October 26th) Dr. John Beattie discusses the functional anatomy of the pituitary gland, and on November 2nd and 9th respectively he will deal with dysfunction of the anterior lobe of the pituitary gland, and the posterior pituitary problem. On October 29th Mr. Cecil P. G. Wakeley will discuss tumours of the intestinal tract, and on November 5th Mr. E. K. Martin will show specimens illustrating surgical diseases of liver and bile ducts. All the demonstrations commence at 5 p.m.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh, held on October 16th, with Dr. A. H. H. Sinclair, president, in the chair, the following successful candidates were admitted as Fellows:

F. Bartholomew, B. W. F. Bi-hop, E. Bourke, J. J. M. Brown, A. J. Cameron, H. F. Cameron, J. E. Ellison, J. Gerrie, R. N. Ghosh, F. J. D. Gillespie, H. R. Goldberg, S. W. Grimwade, G. C. Halliday, R. W. G. Kelly, A. B. Kerr, W. D. Macfarlane, C. W. McVicar, A. M. Marshall, G. G. Mowat, D. N. Wilson, E. C. Wynne-Edwards.

Obituary

PROFESSOR RAMÓN Y CAJAL

Santiago Ramón y Cajal died on October 18th at the age of 82. To most medical men in England his name has been familiar since their study of histology, but few have realized the greatness of his achievements. Of these perhaps the chief is the stimulus which he gave to scientific education in Spain, and the advances in educational methods which were based on his advice. How much of his thoughts were given to this subject may be gleaned from any of his more personal writings. The prefaces to his books show a complete devotion to science and a desire for recognition, not of himself, but of Spanish science. He was, in fact, the father of Spanish science, for no Spaniard before him had made any noteworthy contribution to scientific knowledge.

Cajal was entirely self-taught. His father, who was professor of anatomy at Zaragoza, first turned his attention to the structure of the human body, and his intense love of beauty and skill in drawing stimulated his interest in histology. He owed to Golgi's publications and to photographic methods the use of silver impregnation in histological work. But apart from Golgi he had no teachers. His first medical excursion to foreign lands was to demonstrate his preparations of the nervous system to the German Society of Anatomists. His life-work consisted in the application of his own methods to histology. How fruitful those methods can be in skilled hands has scarcely been recognized outside Spain, for few have taken the trouble to master all the variations in technique which are needed for different structures. In Cajal's hands and those of his pupils, however, they have resulted in a wealth of knowledge which only of very recent years, by the translation of his *Degeneration and Regeneration of the Nervous System* and his *Histology*, has found its way into the English language. His greatest work, *Textura del Sistema Nervioso del Hombre y Vertebrados*, which began to appear in Spanish in 1897, was translated into French in 1909. Unfortunately it has been out of print for many years, and is now difficult to obtain. Neuro-anatomists know it as the most complete and accurate account of the microscopical anatomy of the nervous system which has ever been written. But its most remarkable feature is that it is chiefly based on Cajal's own studies with silver impregnation techniques.

Since 1901 Ramón y Cajal edited the *Travaux du Laboratoire de Recherches Biologiques*, which was devoted to his own work and that of his pupils and associates. The prestige of this journal has always been high, and its publication in French of recent years has greatly widened its appeal. When he was elected a foreign corresponding member of the British Medical Association in April, 1934, he generously presented to the Association's Library a set of the *Travaux* for the years 1912 to 1933.

As a scientist Cajal ranks very high. Of his many contributions to knowledge few have had to submit to change. Perhaps his very isolation contributed to this result, as it made him observe things freshly with his own eyes and left him free from erroneous tradition. In fact, he insists in several places that his work is individual and Spanish, and deplors the fact that others, without troubling to read the Spanish literature, have rediscovered facts which he and his pupils had observed.

Cajal received abundant recognition during his life, a recognition which meant little to him, except the honour which it brought to Spain and the opportunities which it afforded for further work. He was professor of anatomy at Valencia at the age of 29 and for thirty years, up till 1922, professor of histology and morbid anatomy

at Madrid University. His early book, *New Ideas on the Structure of the Nervous System*, which appeared in 1894, was sold out in Spanish, German, and French editions by 1899. He gave the Croonian Lectures before the Royal Society of London in 1894, and received half of the Nobel Prize in 1906. On this occasion physicians of the Argentine raised a fund for the publication of a book by Cajal, and to this we owe his *Degeneration and Regeneration of the Nervous System*. In Spain also he was honoured by being made a life senator, and a magnificent laboratory in Madrid, El Instituto Cajal, has been erected as a permanent memorial of the man and his work.

We regret to announce the death, on October 10th, of Dr. Thomas Horton in his seventy-ninth year. Dr. Horton was trained as a pharmaceutical chemist, but at the late age of 35 he went to Durham University College of Medicine at Newcastle for his medical training. Two years later he entered University College Hospital, London. He qualified M.R.C.S.Eng., L.R.C.P.Lond. in 1894, and graduated M.B. (with honours) and B.S. at Durham University in the same year. He took his M.D. in 1896. He was Tulloch and Armstrong scholar at Durham University, and gold medallist in medicine and Erichsen prizeman at University College Hospital. He practised at Torquay for over twenty years with considerable success, and was honorary surgeon to the Torbay Hospital and honorary physician to the Western Hospital for Consumption. After his retirement he devoted himself to voluntary work for the Baptist Missionary Society, being successively chairman of the Medical Committee and chairman of the General Committee of that society. He was a keen member of the British Medical Association for some twenty years. His younger son was killed in the Great War. He is survived by one daughter and one son, who is in surgical practice at Weymouth.

Medical News

The centenary appeal on behalf of Charing Cross Hospital Medical School will be inaugurated on Thursday, November 1st, when Marshal of the Royal Air Force Sir John Salmond will distribute the prizes and give an address.

The Semon Lecture, 1934, on "Inflammation of the Maxillary Antrum and other Accessory Sinuses (Some Clinical Manifestations of its Pathology)," will be given by Mr. Herbert Tilley at the Royal Society of Medicine on Thursday, November 1st, at 5 p.m.

A series of lectures will be given at the Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W.C.), on Fridays, at 4 p.m., from November 2nd to March 29th (excluding December 28th).

Dr. George Barger, F.R.S., professor of chemistry in relation to medicine in the University of Edinburgh, will deliver a course of three lectures on "Chemical Questions Relating to Pharmacology," at the London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C., on November 1st, 2nd, and 9th, at 5.30 p.m. Admission free, without ticket.

Dr. A. Goodman Levy will read a paper on "Criticisms of Some Aspects of Psycho-analysis from a Layman's Point of View" before the London Jewish Hospital Medical Society, at the hospital, Stepney Green, E., on Thursday, November 8th, at 3.45 p.m., with the president, Professor Charles Singer, in the chair.

A course of post-graduate demonstrations will be given at the Manchester Hospital for Consumption and Diseases of the Ear, Nose, Throat, and Chest, Hardman Street, Deansgate, Manchester, on Wednesdays, at 4.30 p.m., from October 31st to December 12th inclusive. All graduates and students of medicine are invited to attend.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that further lecture-demonstrations will be given by Dr. Clark-Kennedy at 11, Chandos Street, W.,

at 2.30 p.m. on October 30th and November 6th. In the series of lectures on diet and dietetics, on Wednesdays at 8.30 p.m., at 11, Chandos Street, W., Dr. Leonard Findlay will speak on diet of infants on October 31st, and Dr. E. G. B. Calvert on diet of the diabetic on November 7th. Special demonstration of surgical cases by Mr. C. E. Shattock on November 10th, at 3 p.m., at the National Temperance Hospital, Hampstead Road, N.W. Special courses of instruction include neurology at the West End Hospital for Nervous Diseases, October 29th to November 3rd, all day; obstetrics at the City of London Maternity Hospital, all day, November 3rd and 4th; medicine, surgery, and gynaecology at the Royal Waterloo Hospital, November 5th to 24th, all day; chest diseases at the City of London Hospital, Victoria Park, November 5th to 10th, all day; urology at St. Peter's Hospital, November 5th to 17th, all day; venereal disease at the London Lock Hospital, November 12th to December 8th, afternoons; gynaecology at the Samaritan Hospital, November 17th and 18th, all day; proctology at St. Mark's Hospital, November 19th to 24th, all day; rheumatism at the British Red Cross Clinic for Rheumatism, Tuesday and Thursday evenings, at 8.30 p.m., November 20th to December 6th. A panel of teachers is available for individual tuition. Courses are open only to members and associates of the Fellowship.

Dame Louise McIlroy, who has been appointed assistant director and lecturer to the Clapham Maternity Hospital, Jeffreys Road, London, S.W., is now holding an ante-natal clinic there every Wednesday, at 10 a.m., and giving a weekly lecture.

The Lilly Research Laboratories at Indianapolis, U.S.A., were formally opened on October 11th. At the dedication ceremony addresses on "Research in Manufacturing Pharmacy" were given by Mr. J. K. Lilly, on "The Unpredictable Results of Research" by Dr. Irving Langmuir, on "The Early Story of Insulin" by Sir Frederick Banting, on "Chemical Ideas in Medicine and Biology" by Sir Henry Dale, and on "The Work of the Laboratories" by Mr. Eli Lilly.

It is announced that a committee, including Sir Charlton Briscoe and Mr. Cecil Wakeley, has been formed for the purpose of raising a fund to commemorate the late Miss M. E. Ray, R.R.C., of King's College Hospital. Miss Ray's association with "King's" began in 1889, when, on completion of her training, she was appointed sister of the Albert Ward. In 1896 she became assistant matron of the Leeds General Infirmary, and in 1899 matron of the County Lincoln Hospital. After being there for seven years she was appointed sister-matron of King's College Hospital, a post she held until 1918. For services during the war she was awarded the Royal Red Cross. In 1918 she retired from "King's," and took over the post of honorary secretary of Lady Minto's Indian Nursing Association. It has been suggested that the most fitting memorial to her would be the establishment of a fund to be devoted towards assisting "King's" nurses who are temporarily embarrassed, especially those requiring rest and convalescence after illness. Cheques should be sent to Miss M. A. Willcox, Sister-Matron, King's College Hospital, S.E.5.

The National Council of Women of Great Britain, at its annual meeting held in Edinburgh this month, unanimously adopted a resolution urging His Majesty's Government to require from local authorities strict compliance with their statutory duty to ascertain the number of mental defectives in their area, and to provide for them institutional accommodation and other appropriate means for their adequate care and protection.

On October 1st the British Legion took over, as a seaside annexe to the institution at Preston Hall, Douglas House, Bournemouth, which has hitherto been administered by the United Services Fund as a convalescent centre for tuberculous ex-service men. The institution is approved by the Ministry of Health, and will add seventy-five more beds to the number already available at Preston Hall.

Professor Pavlov, the world-famous physiologist and director of the biological station of Koltouchi, near Leningrad, has recently celebrated his 85th birthday.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is **EUSTON 2111** (internal exchange, four lines).

The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*

MEDICAL SECRETARY, Mediscera Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumshugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Treatment of Chronic Nasal Discharge

"M.S." writes: Could anyone suggest a hopeful line of treatment for this case of chronic rhinitis? The patient, a woman aged 25, has had the maxillary antra and frontal sinuses operated on, and, later, she tried a course of homoeopathic treatment. She states that the headaches are less severe and less frequent than they used to be, but there is still very copious nasal discharge. Should allergic reaction be tested, or would an autogenous vaccine or some form of light therapy be more helpful?

Age for Dick and Schick Tests

"O. M. H." writes: At what age should children be Dick- and Schick-tested and, if positive, actively immunized?

Localized Flushing

Dr. R. K. ROBERTSON (Sheffield) writes in reply to "H. H. B." (*British Medical Journal*, October 13th, p. 705): I once had a case of patchy areas of flushing in an otherwise healthy young woman, which responded quite well to the following mixture, taken thrice daily:

Quinae sulph. gr. j, acid hydrobrom. dil. m v, syr. aurantii q.s., aqu q.s.

Treatment of Trichophyton Infection

A major of the R.A.M.C. writes in reply to "M.D." who suffers from trichophyton infection: I have a brother who is a chemist. He was out East in a district where medical aid was not forthcoming, and he got dhobi itch. Using his knowledge that the skin is a colloidal membrane, and that glacial acetic acid is known to penetrate a colloidal membrane, he applied to himself pure glacial acetic acid, with an immediate cure. When told of this, I asked if it was painful, and how it was applied. It appears it was not very painful. The acid was dabbed on with a small piece of cotton-wool held in forceps, and there did not appear to be any burning of the skin. I applied this treatment to myself when a bald patch appeared in my hair. Several of the usual ointments failed to stop it spreading. An immediate cure resulted. This might therefore be worth trying in the case of a trichophyton infection. I should advise a very cautious application to a small area, and watch the result before applying it liberally, as from the nature of the drug it is rather drastic.

Dr. WRIGHT LAMBERT (Brentwood) writes: If "M.D." and others infected with trichophyton will try painting the affected parts daily with 1 per cent. brilliant green in rectified spirit I think they will get more relief, if not actual cure, than by any other treatment.

Income Tax

Use of Private Residence

"E. J. N." owns the house in which he lives, and uses two rooms for consultation, etc. One maid is kept at the house, and "E. J. N." rents another house, where the main surgery is situated. What can he claim for the former premises?

** Seeing that most of the callers are apparently dealt with at the rented premises "E. J. N." will probably not be entitled to claim more than 1/3, or even 1/4, of the general expenses (rental value, light, maid's wages, etc.) of his residence.

LETTERS, NOTES, ETC.

Ernest Hart, 1836-1898

Sir D'ARCY POWER writes: E. V. Lucas, C.II., says in the October, 1934, number of the *Cornhill* (p. 410): "Ernest Hart was the founder of the *Lancet* and a great connoisseur of Japanese art." Surely the first statement should not go uncorrected.

** Mr. Lucas would not have fallen into this blunder if he had read Sir D'Arcy Power's memoir of Ernest Hart in the *Dictionary of National Biography*, or Sir Squire Sprigge's *Life and Times of Thomas Wakley*. Hart was born in 1836, thirteen years after Wakley founded the *Lancet*.

Thrush and Pyloric Stenosis

Dr. ROBERT CRAIK (West Ealing) writes: A boy, born in a maternity home, was well till the twelfth day, when he vomited. This subsided, and mother and child were discharged on the fourteenth day. At birth the baby (a first one) weighed 8 lb. 3 oz.; and on discharge 8 lb. 2½ oz. I first saw him on the eighteenth day on account of vomiting. On the twentieth day he was no better, was constipated, and a swab from the mouth soon gave growth of *M. albicans*. Was it possible that his troubles were due to monilial gastritis? On coming home he was fondled by a large family, from one of whom he undoubtedly acquired the infection. His condition fluctuated, but there was no improvement in a week, and there was steady loss of weight. Suspecting pyloric stenosis, he was sent to hospital on his twenty-ninth day, weighing 5 lb. 15½ oz. on admission. He was operated on next day, made a good recovery, and was discharged at the age of 3 months, weighing 8 lb. 9 oz. At 7 months he weighed 16 lb. and had cut two teeth. Doubtless congenital abnormality is the important point, but the lumen is contracted to a varying degree. In this case I think the onset of serious symptoms was determined by the thrush infection, and possibly this is the explanation of the onset in not a few cases.

Mycoidema

Drs. J. RONALD and N. C. F. MILNE write from the Royal Infirmary, Stirling: We have just read Dr. Broadbent's interesting memorandum in the *Journal* of October 13th (p. 679), in which he draws attention to the physical sign of mycoidema. As members of what he describes as the "younger generation of doctors" may we point out that mycoidema (more generally known as "myotatic irritability") is familiar to most Edinburgh students—undergraduates and graduates alike. We venture to suggest that Edinburgh does not stand alone among the teaching schools in imparting knowledge of the significance and diagnostic importance of this phenomenon.

The G.P.'s Nightmare

Dr. CHARLES J. HILL AITKEN (Kilnhurst, nr. Rotherham) writes with reference to the paragraph with this heading (*October 20th*, p. 754): I understand that, many years ago, the late Professor John Chiene had a cartoon of himself—a general surgeon—hanging on to the umbilicus, the only part left to the general surgeon by the specialist surgeons.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 44, 45, 46, 47, and 50 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 228.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, NOVEMBER 3rd, 1934

CANCER OF THE OESOPHAGUS

BY

H. S. SOUTTAR, C.B.E., D.M., M.Ch., F.R.C.S.

SURGEON TO THE LONDON HOSPITAL

Cancer of the oesophagus still presents one of the unsolved problems of surgery. The deep situation of these growths, their close proximity to the great vessels—the pleura and the bronchi—and the vital importance of the oesophagus itself make surgical attack exceedingly difficult. Secondary growths are, it is true, not a very marked feature, but the explanation of this is to be found rather in the fact that the patients die before any can occur than in any want of malignancy in the growths themselves. The primary growth is often considerable in volume, but in general it is impossible during life to form any true estimate of its extent. This in itself adds greatly to the difficulty of scientific treatment; since if radium is employed it is impossible to say with any certainty where it ought to be placed, or how much should be inserted. In addition, the patient is usually an elderly individual, often in the last stages of exhaustion from starvation, and quite unable to support any attempt at radical surgery.

The first problem in all these cases is to enable the patient to swallow, and this we shall show it is usually possible to accomplish by comparatively simple means. On the other hand, the growths themselves are almost invariably squamous carcinomata, often of a baso-cellular type, such as is known to be highly sensitive to radium, and is constantly treated with success in the buccal cavity. If by some means it were possible to expose the growth to the action of gamma rays in a uniform manner, there is very little doubt that in a certain proportion of cases the growth would disappear, and in a few cases this has actually happened. The difficulties are undoubtedly immense, but they are purely anatomical in nature and should not be insuperable. Their conquest would constitute a really important advance in surgery.

The dimensions of the problem may be gauged from the fact that carcinoma of the oesophagus accounts for a proportion of all cases of malignant disease variously estimated at from 4 to 6 per cent. In this country the annual mortality from the disease is about 1,600, of whom 1,200 are males and 400 are females. But these figures, important though they must be admitted to be, in no way represent the amount of suffering involved to these unfortunate people, condemned, apart from surgical relief, to a lingering and miserable death from starvation.

Pathology

As we have seen, the disease occurs more commonly in men than in women in the proportion of about 3 to 1, but there is a curious distinction between the two sexes, both as regards the age and the site at which it occurs. In men it is a disease of later life, 90 per cent. of the cases occurring after 50, whilst it is far more common in the lower two-thirds of the oesophagus. In women it may occur at a much earlier age, and the incidence after 40 is almost constant, whilst 60 per cent. of the cases

occur at the upper end of the oesophagus. Many of the cases in women, in fact, are of an entirely distinct pathology, and are more correctly described as post-cricoid carcinoma, often arising in the pharynx. Generally speaking, however, carcinoma of the oesophagus may be regarded as essentially a disease of elderly men, in which 80 per cent. of the cases occur at or below the bifurcation of the trachea.

Histologically carcinoma of the oesophagus is almost invariably a squamous epithelioma, sometimes of the basal type, but often showing a number of cell nests and a high degree of keratinization. More rarely a medullary form is seen arising from the glandular structures and consisting of rounded polygonal cells. Spreading by the lymphatics these growths naturally tend to follow these structures round the circumference of the oesophagus and to produce stenosis. Sometimes, however, they remain localized to one portion of the wall, giving rise to a fungating mass, a local induration, or a deep ulcer according to the reaction of the stroma. Thus we may find anything between a soft, sprouting mass of tissue with a profuse discharge, bleeding readily on contact, and a dense fibrous scirrhous producing a tight stricture, which can only be dilated with difficulty.

No one can have studied these tumours post mortem without being struck by their wide extent and their involvement of surrounding structures. Several inches of the oesophageal wall may be entirely destroyed and replaced by growth, and we have had cases where over a long period the patient has swallowed through an intubated mass of carcinoma. The mass of growth may, indeed, protect the surrounding tissues, but ultimately these are opened up so that direct perforation may occur into the mediastinum, the pleura, a bronchus, or even the aorta. The usual termination arises from perforation of the respiratory tract and the rapid development of an acute septic pneumonia, although in a few instances the opening of a large blood vessel closes the scene.

The lymph glands along the oesophagus are usually involved, but distant metastases are unusual, simply because the patient dies before they can occur. There is a curious tradition that carcinoma of the oesophagus is a disease of low malignancy: we regard it as one of the most highly malignant tumours appearing in elderly people, only failing to give rise to secondary deposits because it destroys the individual by its local extension.

Clinical Course

In the great majority of cases the first symptom in carcinoma of the oesophagus is a steadily increasing dysphagia. Occasionally the onset is so abrupt that the patient thinks that some foreign body, such as a fish bone, has stuck in his throat, but usually it is gradual in onset and without remission. Solids are, of course, first affected, but in most cases the slowness with which

liquids can be swallowed will attract attention at an early stage, and this difficulty is often accompanied by regurgitation of unaltered food. The inconvenience is increased by the secretion of quantities of viscid mucus, which fills the oesophagus and impedes swallowing. Sometimes when this has been ejected as a quantity of white froth swallowing becomes comparatively easy. We have come to regard this white froth as a diagnostic feature of the first importance. In the later stages it is blood-stained and foul, indicating a fungating growth with extensive ulceration, and producing a marked fetor of the breath.

In a few cases where the growth is at the lower end of the oesophagus the symptoms are rather those of flatulent dyspepsia, a feeling of fullness after meals, and the eructation of gas. These symptoms may suggest gastric carcinoma, and, indeed, in some of these cases the growth has arisen in the stomach itself and invaded the cardiac orifice. The same symptoms may, however, appear with true carcinoma of the oesophagus. Pain is not usually an early symptom, but a reflex spasm which results from attempts at swallowing may lead to acute discomfort. In the late stages, where the dorsal roots, or even the vertebral bodies, may be involved, pain may be a very severe feature. Hoarseness and aphonia may occur from involvement of the recurrent laryngeal nerves, and in a few instances these have actually been the first symptoms of the disease.

Involvement of the respiratory passages gives rise to by far the most important group of secondary symptoms. Irritation of the upper passages produces a profuse secretion of a tenacious stringy mucus, which causes great annoyance, and often a constant irritable cough. In late stages involvement of the tracheal wall may give rise to respiratory embarrassment, and we have actually seen a nodule of growth perforating the trachea and producing obstruction. More common, however, is the formation of a fistula into the trachea or bronchus, or into the lung itself, followed by the development of a septic pneumonia as a terminal event.

Wasting occurs from pure starvation, and, in contrast with carcinoma of the stomach, the patient, far from having a loss of appetite, suffers severely from hunger and thirst. That starvation is the cause of the wasting is shown by the rapid improvement which occurs when the patient is enabled to swallow or is fed by a gastrostomy. In the later stages, on the other hand, if the patient is unable to swallow, the general discomfort, the constant pain, and the persistent cough have a very serious effect upon his condition.

Examination of a Case

Of the methods of examination available we shall only describe radioscopy and oesophagoscopy, for the passage of bougies is both useless and dangerous.

X-ray examination, in our opinion, entirely eclipses any other method. It is extremely simple and it is absolutely safe. In every case it will indicate the level of an organic obstruction, whilst in the great majority it will, if properly conducted, give indisputable evidence of the nature of the lesion. The picture furnished by a carcinoma is usually so characteristic that a mistake is scarcely possible. The patient should stand with his left arm above his head facing the screen obliquely, so that the rays pass through the thorax from left posterior to right anterior. In this way the spine, heart, and great vessels are avoided and the clearest picture is obtained.

He now swallows a thick emulsion of barium sulphate of the consistency of a viscous syrup. The emulsion is seen to reach the obstruction and to fill up the lumen of the oesophagus above it. Except in the rare cases when the obstruction is absolute, it will now be seen to trickle slowly through it and to fill up beyond it the longitudinal

folds in which the mucous membrane of the empty oesophagus normally lies. In the case of a malignant stricture a moderate degree of dilatation may be observed above, the shadow will terminate in a cone pointing downwards, and from the apex of the cone a fine pointed stream of barium will be seen making its way through the tortuous vagaries of the growth. A film will show these details even more clearly than the screen, and will supply permanent objective evidence of the nature of the obstruction.

The ordinary barium examination, carried out in an upright position, only gives information as to the condition of the oesophagus above the stricture. We owe to Ledaux of Brussels the ingenious suggestion that the patient should be made to swallow a certain quantity of barium into the stomach and then be examined on a couch in a high Trendelenburg position—in other words, standing on his head. If the patient now attempts to swallow, the cardiac orifice opens synchronously as a part of the normal mechanism, and the barium flows back into the lower portion of the oesophagus. In this way the extent of the stricture can be accurately defined.

Finally comes direct examination with the oesophagoscope, undertaken with a view to discovering the character of the growth and its possibilities of treatment, rather than for the mere diagnosis of malignant stricture. The information obtained may be of very great value, but it is not a manipulation to be undertaken lightly, for except in expert hands the instrument is by no means free from danger. With the patient lying flat, and the head slightly extended and deflected to one side, the oesophagoscope is inserted at the angle of the mouth and passed into the oesophagus under the control of vision. The passage through the upper sphincter is sometimes difficult, but once it is overcome the whole oesophagus can be explored with ease. In its whole thoracic course the lumen will be seen as a narrow transverse slit which opens and closes with each respiration. On reaching the aperture in the diaphragm the slit becomes antero-posterior and ceases to expand, whilst immediately beyond this the cardiac orifice of the stomach appears as a rosette of fine mucous folds. On entering the stomach itself the large folds of gastric mucosa are seen, and there is usually a gush of fluid into the instrument. Manipulations must be carried out with the greatest care, since the oesophagus itself is always fragile, and it may be deeply ulcerated in the presence of a malignant growth.

The lumen of the normal oesophagus appears on direct examination as a transverse slit which opens and closes with each respiratory act. If the wall is infiltrated these movements cease, whilst dilatation of the lumen above the stricture will be immediately obvious. A puckered stricture, a fungating mass of growth, or an ulcerated area can readily be observed, and occasionally it may be practicable to remove a fragment of growth for section, though we do not advise this as a routine procedure. But the chief use of direct examination is for dilatation of the stricture, to which we shall later refer.

Treatment of Oesophageal Carcinoma

It is only rarely that the question of radical removal of a carcinoma of the oesophagus can even be raised, and in spite of a few brilliant results it seems to us most unlikely from the pathological considerations which we have already described that it can ever become a practical method. The depth at which the oesophagus lies, the fragile nature of its wall, which possesses neither a sub-mucous nor a peritoneal coat, the complexity of the structures by which it is surrounded, and the age at which the disease occurs are all opposed to a direct attack, and one may be sufficiently grateful if one can relieve the dysphagia. For this we have three methods

at our disposal: dilatation, intubation, and gastrostomy. The last is, of course, a confession of surgical failure, but it by no means follows that in some cases it may not be the soundest practice. We would only say that if it is to be performed this should be done at an early stage, and not left until exhaustion has increased its danger and diminished its utility. Our own practice is to attempt to relieve the dysphagia directly, and, if this fails, to perform gastrostomy, although in certain cases where the patient's condition has been desperate we have first performed gastrostomy in order to save his life.

Dilatation should only be attempted under the direct control of the oesophagoscope. We first pass a fine flexible bougie on the end of a long steel wire, which does not interfere with vision. Over this are passed tubular dilators of increasing size, formed of short cylindrical rods of aluminium, with an axial hole which slides easily over the wire guide. The dilators rise by millimetres from 4 to 11 mm. in diameter, and by passing them in turn it is usually quite easy to dilate the stricture up to the full size. As the dilator is passed through and clears the stricture, or as it meets it on its return, a fair estimate of its length may be obtained. Even with these dilators it is, of course, necessary to proceed with great caution and gentleness, and to remember the extreme fragility of the oesophageal wall.

Dilatation is usually followed by immediate relief of the dysphagia, but this is likely to recur in a few weeks' time. To avoid this we devised, some years ago, a flexible tube formed of a spiral of German silver wire, with an expanded upper end and a twisted oval section which prevents its upwards displacement. These tubes are now in general use, and from their extreme flexibility they are readily tolerated, the patient being usually quite unconscious of their presence, whilst the large lumen allows ordinary food to pass. With reasonable care in mastication or in the preparation of food the tube should not become blocked, and we have had a large series of cases in which the patient was able to eat a dinner without difficulty. There was a slight difficulty in the introduction of these tubes, which we have now overcome by a very simple device. It was found that even after full dilatation the lower edge of the tube tended to catch on the end of the growth, and refused to pass through the lumen. This can be entirely avoided if before introduction a small cone of gelatin is inserted into the end of the tube: a glycerin suppository of suitable size answers perfectly. The facility of introduction produced by this simple device is very remarkable, and the gelatin dissolves in a few minutes and passes on down the oesophagus.

Treatment by Radium

These methods aim solely at the relief of dysphagia and not at the cure of the disease. So far as can at present be seen it is only with some form of radiation that we can hope to effect this, and we have at our disposal radium and x rays.

Of the methods of radium treatment which have been adopted the most direct is by the insertion into the lumen of the tumour of a sound containing radium. After exact measurements have been made of the position and extent of the stricture, a rubber sound is prepared containing within its cavity a series of radium tubes each 2 cm. in length, filtered by at least 1 mm. of platinum, and each containing 10 mg. of radium element. Three or four such tubes may be used according to the length of the stricture. The sound should be made of rubber, containing no metal, and should have a wall of at least 2 mm. in thickness, and it is convenient to block the lower end of the sound with a wooden or vulcanite rod 2 cm. in length. The sound is passed until a mark made upon it registers with the teeth and indicates that the

radium is in position, and it is then brought round the cheek and secured either by plaster or by a string passed round the ear. The tube should be retained in place for forty-eight hours, and this treatment should be repeated on three occasions in all, so that the total dose of 30 to 40 mc.d. is received.

More comfortable for the patient when it can be adopted is the method suggested by Madame Simone Laborde. A rubber sound is prepared, as already described, but only of slightly greater length than the region to be treated. The sound is attached to a stout thread and is simply swallowed by the patient. Its progress is noted on an x-ray screen and the thread is secured to a tooth or to the cheek when the sound is correctly placed. The weight of the sound and the platinum it contains assists its progress and prevents its regurgitation. The sound can be left in place for six or eight days provided a gastrostomy has been performed, but the dose received ought not to exceed 30 to 40 mc.d. In view of the fragility of the oesophagus, and our ignorance of the extent of the growth, a larger dose involves too great a risk of perforation. If no gastrostomy has been performed it is scarcely possible to retain the tube in position for more than eighteen hours, but it may be replaced after a day's rest and the treatment continued until a full dose has been received. The procedure, of course, assumes a permeable stricture into which the sound can pass, but given this condition very satisfactory results have been obtained, although so far only of a temporary nature.

Where intubation with my own spiral tube can be effected, this may very conveniently be used as a support for radium. A narrow gold tube, about six inches in length, is filled with radon gas. The ends are sealed, and one end of the tube is wound into a circle half an inch in diameter to form a ring to which a thread can be attached. This is lowered into the spiral tube, the ring resting on its upper aperture. The emanation tube does not interfere with the passage of liquids through the intubation spiral, and is easily withdrawn at the end of forty-eight hours.

A method which we have used extensively is the introduction of seeds by means of the oesophagoscope into the substance of the growth itself. With a large oesophagoscope a full view of the upper surface of the growth is easily obtained, and it is then quite easy, by means of a special introducer, to insert seeds into the substance of the growth to any depth that may be desired. We have made a practice of introducing two rings of seeds at different levels, and in this way it can be shown on radiographic examination that a fairly even distribution of the seeds has been obtained. It might seem that the proceeding was essentially dangerous, since it is impossible to guarantee that the seeds will not enter the mediastinum or the surrounding structures, but in well over a hundred cases we have never had any trouble attributable to this cause. Perforation of the oesophagus under normal conditions would produce certain death from infection of the mediastinum, but it must be remembered that the seeds are necessarily sterile and that no organism can grow in their neighbourhood. In a few cases a fairly satisfactory result has been obtained, the patient recovering his power of swallowing and being restored to a condition of health. In no case, however, have we succeeded in effecting a cure, all the patients having died within a year. If some means could be discovered of defining the limits of the growth it is possible that much better results could be obtained.

So far as we are aware, no attempts have been made, at least on any scale, to treat carcinoma of the oesophagus by accurately directed radium beam radiation. From the depth at which the oesophagus lies it is obvious that a very large source would be required, but, apart

from this, there would not appear to be any considerable difficulty, for with reasonable care the heart and lungs are not likely to suffer from ill effects: On general grounds one would expect that such a method ought to produce more satisfactory results than any of those hitherto employed, since the growth with which we are dealing is certainly radio-sensitive, and the only real danger is that by too energetic a dose we may produce sloughing of the tissues and perforation. Combination with internal radiation from a tube or from seeds would seem to be a rational method, but so far it has not been developed.

Deep X Rays

Results of great interest have recently been obtained by Levett using deep x rays, the radiation consisting of very hard rays and being limited to a narrow field, including seven inches of the oesophageal wall. It is still too early to speak with any certainty of the results secured, but in a few cases at least it would seem that complete healing had been obtained without secondary stenosis. Hitherto the disadvantage of x-ray treatment in these cases has been the intensely depressing effect upon the patient, due apparently to the effects of the x rays upon the surrounding structures, and perhaps to the absorption of products so formed. So severe have been these effects that radiologists of the brilliant achievement of Coutard have entirely abandoned the method. If, however, these secondary effects could be avoided by skilful adjustment of the apparatus, the method would appear to have definite possibilities, and it is certainly one which should be explored to the full.

Another method which we are at present ourselves investigating is the application of radon to the outer surface of the oesophagus after exposure by transthoracic exploration. It is a very remarkable fact that even in elderly subjects the lower half of the oesophagus can be fully exposed by the transthoracic route apparently without risk and with only trivial inconvenience to the patient, far less in fact than is associated with an ordinary laparotomy. Theoretically, if a growth of the oesophagus could be surrounded by a group of radon seeds there is little doubt that the growth would entirely disappear and that healing of the mucosa would occur. The mechanical problems involved are, however, difficult to solve, and in spite of a few encouraging examples we can still only regard the method as in the experimental stage.

Conclusions

It will be seen, then, that for the present we regard the relief of dysphagia as the one object to aim at in the treatment of carcinoma of the oesophagus, and we consider the introduction of a spiral tube as the method most likely to achieve this in practice. Our personal experience of the method now extends over some fifteen years, and includes upwards of 300 cases, whilst the method is in general use by many other surgeons. We consider, however, that every attempt should be made to develop the method of radiation both by radium and by x rays, since although both of these are still in the experimental stage they are probably the only methods to which we can look for any real prospect of curing the disease.

ADOLESCENT AND SENILE KYPHOSIS*

BY

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(With Special Plate)

It is about time that opportunity was given for the ventilation of ideas upon the difficult and puzzling subject of adolescent kyphosis. Though the literature is now abundant, most of the work seems to have been done by American, French, German, and Italian authors, and very little by Englishmen. It was not until Beadle¹ and Ross-Smith² published their papers in 1931 on the intervertebral disk that much thought was given to this structure in Great Britain, or to the possible association of its pathological conditions with adolescent kyphosis. It seems strange that this should be so, for it cannot be doubted that the condition has long been recognized here by orthopaedic surgeons and those working in institutions for surgical tuberculosis. In fact, one of its chief claims to recognition is that adolescent kyphosis, on account of its occasional combination of pain, deformity, and peculiar x-ray appearances, constitutes one of the most important differential diagnoses from spinal caries. Sorrell³ says that 25 to 30 per cent. of cases sent to his hospital with a diagnosis of spinal caries turn out to be cases of adolescent kyphosis.

Clinical Picture

Obviously, unless one has worked on this comparatively rare condition for a long time, it is difficult to collect a sufficient number of cases to give any valuable statistics on the relative frequency of any particular type of onset. I shall therefore content myself by merely enumerating the varieties.

Adolescent kyphosis starts between the ages of 12 and 17, normally a period of active growth, and is said to be more common in boys than in girls. The deformity may become exceedingly unsightly (Fig. A), but the active process tends to cure itself spontaneously in the course of eighteen months. If treatment is carried out early the deformity may even be lessened, but it is doubtful if it can ever be entirely corrected. In my small group of cases, and from a perusal of the literature, I think I can detect five different classes.

1

The onset is insidious. Kyphosis gradually develops, but the patient himself is unaware of it. He is usually brought up for advice by his parents, who are alarmed at the deformity. There is, however, no pain—at most a sense of fatigue at the end of the day or after exercise, but often not even that. There may be no history of trauma, and he appears to be in perfectly good health and of normal development. The posture is poor on account of the round back, but the musculature is good and there is no spasm. The kyphosis, however, cannot be corrected either actively or passively, and there is often a certain amount of rotation of the vertebrae. The hamstring muscles may be short.

2

In this group the onset is also insidious, but the patient belongs structurally to an altogether different type. The child is tall and lanky, and there may be a history of debilitating illnesses in childhood following rapidly one upon another. The musculature is inadequate, and the posture is very bad. He complains of backache, which appears, however, to be due to fatigue. In him, too, the movements of the spine are not restricted by spasm, but the hamstring muscles are markedly contracted. He belongs, in fact, to the type of child who acquires postural deformities, but in whom the kyphosis becomes fixed earlier than usual.

3

In this class are included those cases in which the onset is fairly sudden. There may be a history of a fall a month or so previously, or a period of exceptional activity at work or at play. Scheuerman,⁴ who first drew attention to the condition in 1920, was so impressed by this that he called it

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Bournemouth, 1934. The author's section on Senile Kyphosis has been omitted for reasons of space.

"apprentice kypnosis." Pain is a very definite feature, and there is said to be sometimes a rise of temperature. The pain is never very acute, but it is sufficiently severe for the patient to seek advice on account of it. The movements of the back are restricted by spasm, and the spinous processes are said to be tender on pressure. The symptoms disappear with rest, and the kypnosis may even improve a little.

4

In this type the patient is definitely overgrown. One of my cases, a boy of 15, was 6 ft. 1 in. These cases, however, differ from those in Class 2, inasmuch as their musculature is not so poor and they exhibit other signs of endocrine disturbance. Albanesi has collected a number of cases in which changes are seen in the sella turcica and also in other parts of the skeleton, suggestive of an endocrine imbalance.

5

Some cases have been described as coming on rapidly after an acute pneumonia. Albanesi² refers to this, and Edelstein, who has written on the subject, has told me that he quotes one such case.

Although the mode of onset and the type of patient may be varied, there are certain clinical features common to all classes.

1. The kypnosis is always round and never angular.

2. The kypnosis is always in the lower dorsal region.

3. The x-ray appearances are constant and characteristic.

4. The hamstring muscles are, I believe, usually short.

Scheuerman and the French school lay great emphasis upon pain in these cases. In fact, they have termed the condition "painful kypnosis of adolescence." I do not think that this is by any means a constant feature, and if we were to restrict ourselves in this discussion to those cases alone which have pain I feel sure that we should overlook a lot of important details.

X-Ray Appearances

In a fully developed case, where the active process has ceased, the vertebrae from the seventh dorsal to the first lumbar (often fewer, but rarely more) are wedge-shaped. The intervertebral disks are narrowed, and the vertebral borders, above and below, are sclerosed with punched-out areas in them, looking moth-eaten. In the early stages the point that Buchmann⁶ lays great stress upon is that the adjacent vertebral borders are indistinct and irregular, and even the whole vertebral body may become hazy. The epiphyseal points may be delayed in their appearance, and when they do appear they are denser than normal. As regression occurs the definition of the vertebral bodies becomes clearer and the epiphyseal plaques seem to be fragmented and dense. It is only in the later stages, when the whole of the plaque has become sclerosed, that the typical punched-out conformation can be seen.

Aetiological Factors

Whitman,⁷ in discussing coxa vara, says that the condition is due to a discrepancy between strain and stress on the one hand and the capacity of the bone to bear it on the other, and it will be useful in reviewing the theories

of aetiology of adolescent kypnosis to divide them into these two main headings.

Factor of Weight-bearing Capacity

The conditions which diminish the capacity of the bone to bear weight are: (a) circulatory; (b) infective; (c) endocrine or metabolic disturbance; (d) physiological weakness; (e) hernia of the intervertebral disk (Schmorl's theory). I will now discuss these seriatim.

Circulatory

Owing to the fact that specimens of Perthes's disease show that the bone nucleus has undergone a necrosis, some authors seek to explain, not only Perthes's disease, but most of the other osteochondritides and epiphysites as being due to embolism. So far as the back is concerned, however, it is difficult to see how emboli could reach simultaneously a limited number of vertebrae over a certain area of the spine at a certain age. It appears to me to be a very far-fetched theory.

Infective

Despite the fact that it is exceptional for organisms to be found in any of these epiphyseal conditions, the infective theory still has a large number of supporters. Those who favour this view do so because they think that it best explains the radiographic appearances, but I find it difficult to believe that infection which is sufficient to cause destruction of bone can occur without pain or occasionally giving rise to abscess formation. Apart from the jaw, I do not know of any other situation where there is chronic



FIG. A.

FIG. B.—To show deformity and short hamstrings.

infection in bone without pain. It is upon this question of pain where my experience, as far as it goes, differs from that of other authors. There are some cases of adolescent kypnosis where pain is a prominent symptom and even a rise of temperature has been recorded; but these are few, and in most cases where pain exists it is not of an inflammatory nature.

If infection does play a part at all, it must be of the very mild and transient kind which gives rise to thromboses, similar to spontaneous thromboses elsewhere in the body. Such disturbances of the circulation weaken the bone, and any subsequent changes are of a secondary nature owing to the peculiar mechanical arrangements that prevail in the intervertebral disk, and not to the destructive action of the organism itself. This infection would have to be of a very special kind, having an affinity for the blood vessels of a limited number of vertebrae, over a certain area of the spine, at a particular age! But what explains those cases of adolescent kypnosis that come on acutely during the course of a pneumonia?

Thanks to the writings of Watson Jones, spontaneous dislocation of the atlas, associated with an acute or chronic pharyngitis, is now a well-established, though rare, clinical entity. The hyperaemia produced by the pharyngitis causes decalcification of the bone and slackening of the ligaments, permitting a dislocation; but it must be noted that in this region no intervertebral disks exist. I do not think it is straining the imagination too far to presume that a similar condition might exist lower down the spine.

Supposing, during the course of a bronchopneumonia, the mediastinal glands were to become inflamed (as they undoubtedly do): this might produce decalcification of the vertebral bodies, and any minor traumata during the course of nursing, or maybe a paroxysm of coughing, might result in subchondral fractures. A dislocation, of course, could not arise because of the presence of the intervertebral disks. One of my colleagues has promised to x-ray the dorsal spine of every child convalescent from bronchopneumonia, and in the course of time I confidently anticipate to be able to report that the sequence of events I have visualized does occasionally occur. To sum up then: infection, in the sense of invasion by organisms, though it may be responsible for some cases, is probably a very rare cause.

Endocrine and Metabolic Disturbances

Late rickets has, at one time or another, been held responsible for this and all other epiphysites. Several cases were reported in Vienna during the famine stages of the war, but in these the disturbances were more widespread, and it can be assumed not to be an important factor in normal times.

I have already mentioned Albanesi's researches, and I believe his article to be an important contribution to the literature, but I feel inclined to take the view that Whitman takes in regard to coxa vara: which is that where coxa vara coexists with Fröhlich's syndrome the cause of the slipping is more likely to be due to the abnormal weight the epiphyses have to carry than to the fact that the endocrine disturbances affect the quality of the bone or its growth. One of the reasons which I think support this view is that only those epiphyses which have to withstand a shearing strain, such as the hip, the knee, and the dorsal vertebrae, appear to be affected. There are no changes in the ankle-joint, for instance, in Fröhlich's syndrome, in spite of the fact that the weight borne by the ankle-joint is greater than that borne by any of the other joints: this is undoubtedly due to movements of the subastragaloid joint, which protects the lower tibial epiphyses from a shearing strain. In connexion with this, it is interesting to note that Buchmann alludes to a case where adolescent kyphosis coexisted with changes in the epiphysis of the iliac crest. At first sight this might appear to be a case of multiple epiphyseal lesions of the endocrine or metabolic variety, but when one reflects that many powerful ligaments are attached to the posterior part of the iliac crest, in order to control the rotatory movements of the sacrum, the occasional combination of what one might call a "pulled" epiphysis of the ilium with adolescent kyphosis supports rather than refutes the strain theory.

Physiological Weakness

Murk Jansen⁸ has enunciated the theory of the vulnerability of rapidly growing young cells, and it would seem from this that during periods of rapid growth the bones are weaker. Generally speaking, there are two periods in which growth is particularly active—between 3 and 6, and between 12 and 17 years. During these two periods there may be said to exist a state of physiological weakness of the bones. Supposing that during either of these stages the back was subjected to undue strain or varying degrees of trauma, disturbances of growth might be expected to arise. This point will be referred to again later, in discussing short hamstring muscles.

Hernia of Intervertebral Disk: Schmorl's Theory

Thanks to the writings of Calve,¹⁰ Gallrand,¹¹ and Beadle, the ideas of Professor Schmorl⁹ are gradually becoming better known. He has collected and examined more than four thousand spinal columns, and his views are of considerable interest and practical importance. He

was the first to point out that the substance of the intervertebral disk might prolapse into the vertebral body.

The intervertebral disk is a complex structure, and consists of the nucleus pulposus, the cartilage plate, and the annulus lamellosus. The *nucleus pulposus* is a remnant of the notochord. It is a semi-fluid structure, and in normal circumstances is under very considerable pressure, estimated by Petter¹² as 30 lb. It varies in its position according to the level of the spine, being placed more anteriorly in the lumbar than in the dorsal region; and it is capable of a certain amount of shifting, depending on the position of the vertebrae above and below it. Its function is to act as a water-cushion and also as a pivot upon which the movements of the vertebrae take place. Being a water-cushion, it distributes the pressure equally over the whole surface of the bones, and prevents any one part of the bone bearing more weight than another. If such a mechanism did not exist—for instance, in the dorsal region, where there is already a normal kyphosis—the anterior parts of the bodies of the vertebrae would bear most of the weight and, according to the laws of growth, would eventually become wedge-shaped. The *cartilage plate* is a layer of hyaline cartilage attached to the surface of the vertebral bodies. On its bony aspect it plays the part of an epiphysis, and on its intervertebral aspect its chief function is to prevent the pressure atrophy of the subjacent bone, due to the turgidity of the nucleus pulposus. The *annulus lamellosus* serves to attach the two cartilage plates to one another, thus encapsulating the nucleus pulposus. Its fibres arise from the matrix of the cartilage plate above, and are inserted into those of the vertebrae below, and also into the fronts of the bodies of the vertebrae and the anterior longitudinal ligament. It is an extremely strong structure, and has a fair amount of elasticity.

It will thus be seen that all the structures of the intervertebral disk are subservient to the preservation of the nucleus pulposus. Since this latter is of great importance to the spine anything which interferes with its turgidity or mobility must be detrimental. During the course of development of the vertebrae, that part of the body in the region of the nucleus pulposus may be defective, so that it becomes, so to speak, encased. All the elements of the disk may be intact and healthy, but since the nucleus pulposus is rendered immobile it is not available for its weight-distributing function, and consequently the vertebrae tend to become wedge-shaped, and kyphosis results. Kyphoses of this nature, though they do not show the typical x-ray appearances, ought to be included in this review of adolescent kyphosis.

The point upon which Beadle lays great emphasis is that, when viewed phylogenetically, the erect posture is a comparatively recent event, so that the spine as a whole has not yet completely adapted itself to its new function—that of weight-bearing. As a result of this, certain elements of it are prone to premature degeneration. That part of the intervertebral disk which is apparently most vulnerable is the cartilage plate. Minute rents can frequently be seen in it, rents which are assumed to be caused, not by any one gross trauma, but by the wear and tear of an ordinary life. Where these rents appear, the nucleus pulposus, owing to its turgidity, insinuates itself and gradually prolapses into the bone. Schmorl has found evidence of these herniae in as many as 38 per cent. of all spines examined. They are always in the lower dorsal and upper lumbar regions, and are of three kinds. The commonest is a vertical protrusion of the nucleus pulposus into the vertebral body; occasionally, if the bone is resistant, the hernia can worm its way anteriorly between the cartilage plate and the bone; and, finally, the herniae may be in front of the nucleus pulposus and consist of the disk substance only.

Schmorl considers that a large number of cases of adolescent kyphosis are the result of these hernial protrusions. Those who support this view explain the radiographic appearances by assuming that the presence of a

foreign body in the bone produces hyperaemia, with its consequent decalcification. Hence the x-ray photograph of an early case shows lack of definition. But, as reaction occurs, the bone becomes sclerosed in order to prevent further incursions of the hernia, and it is only when this is completed that the typical moth-eaten conformation can be seen in the x-ray film. Furthermore, the hernia theory has some experimental support. Keyes¹³ and Compere¹⁴ very carefully injured the cartilage plate in a dog, and found that disk herniae invariably followed. Mauric¹⁵ quotes the observation of Meyer, who was able to get a necropsy of a case showing typical x-ray appearance, and found that the indentations corresponded to a discal hernia. It can therefore be taken for granted that these herniae do exist.

Examination of Schmorl's Theory

The first criticism which comes to mind is that, if discal herniae are so common as to occur in 38 per cent. of spines, why is adolescent kyphosis such a comparatively rare condition? The answer seems to be that the point of chief importance is the age at which these herniae arise. If they appear in later life, in the line of the nucleus pulposus, which is the commonest site, the secondary changes in the spine are those of an osteoarthritic nature, owing to the loss of function of the nucleus pulposus; but, if they appear earlier they give rise to abnormalities of growth. Schmorl is under the impression that these herniae are of congenital origin, or, alternatively, that there is a congenital weakness of the cartilage plate sufficient for it to undergo early degeneration. Anyone who has seen Schmorl's pictures, or read Beadle's account, cannot doubt that congenital abnormalities of the disk do exist, but I am not aware of any developmental reason why the lower dorsal and upper lumbar regions—the parts most affected in adolescent kyphosis—should be more prone to congenital malformation than any other. Also, I do not see the necessity of invoking the aid of such a hypothesis as a predisposition to premature degeneration of the cartilage plate in order to support Schmorl's theory, because that part of the spine is the most vulnerable and most liable to flexion traumata in any circumstance.

Those who oppose Schmorl's hypothesis do so because they think that it does not explain all the radiographic findings. We have already seen how some of them—namely, the early decalcification and later sclerosis—can be explained; but it is more difficult to account for the late appearance, the large size, and the marked opacity of the centres of ossification of the epiphyseal ring. Too much stress should not be laid upon the time factor in the appearance of these centres of ossification, because it is known to vary. But there is no doubt that when they do appear the x-ray picture is very similar to the changes seen in osteochondritis elsewhere. In all these latter the density is said to be due to necrosis of the bony nucleus. There is one important distinction, however, and that is that in adolescent kyphosis the dense centres are larger than normal, whereas in osteochondritis they are invariably smaller. Furthermore, I think that in adolescent kyphosis these centres fuse with the body of the vertebra earlier than usual—a fact that can hardly be reconciled with an idea that presupposes death of the bone.

It is customary, when one sees radiographic changes in the epiphyses, to regard them all as pathological, but the point I would like to make is that we do not know what changes, if any, take place in circumstances of a reactive nature which demand the rapid appearance and rapid fusion of an epiphysis. I am inclined to regard the changes in the centres of ossification of the epiphyseal ring as evidence of reaction against the invasion of a hernia, as an attempt to hasten its fusion with the body

in order to offer a greater obstacle to the incursion of a peripherally placed hernia.

To sum up, then; though some cases of adolescent kyphosis may result primarily from congenital abnormalities of the intervertebral disk, I think it is more reasonable to regard the discal herniae as secondary changes and as the inevitable complication of any process which weakens the cartilage plate or the underlying bone. This weakness may occasionally be caused by the variety of conditions already referred to, but the most important factor is stress and strain due to an abnormally heavy body, and more especially oft-repeated minor traumata.

The Effect of Stress and Strain

The factors which increase strain and stress are: (a) body weight, (b) trauma, and (c) short, hamstring muscles. Most of the theories so far examined presuppose the existence of an exciting cause—and that is

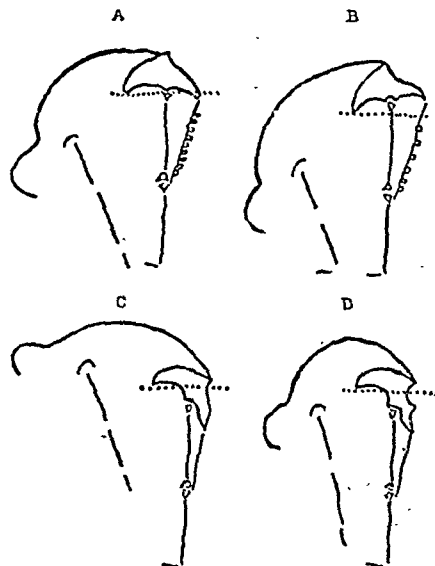


DIAGRAM I

A, Normal position for toe-touching. Note that contour of the back is regular. Anterior superior spine of the ilium on the same horizontal plane as the top of the great trochanter. Spring in the hamstring muscles not stretched.

B, Normal back flexed beyond comfortable limit. Note that the contour of the back is unchanged. Anterior superior spine below the level of the great trochanter. Hamstring spring stretched.

C, Short hamstrings. Note that the anterior superior spine is above the level of the great trochanter. Contour of the back is normal.

D, Short hamstrings. Back flexed beyond normal limits, showing the increased convexity of the lower dorsal and lumbar regions.

generally held to be stress and trauma. Reference has already been made to the influence of body weight in discussing the endocrine theory, and there is no need to enlarge upon the accident of a strong flexion force in a growing child as a cause of injury to the spine. But since the history of trauma often cannot be elicited, one must look for another explanation.

When a normal child (Diagram I—A, B, C, D) stoops down to touch his toes with the knees extended the contour of the back is regular and graceful, and the hamstring muscles are not tight. In this position the back itself is locked in full flexion, but the pelvis is not fixed, as there is some give in the hamstring muscles. Therefore, if a force falls upon the back, making it flex further, the hamstring muscles act as a spring (Plate, Figs. 1 and 2). On the other hand, if the hamstring muscles are tight, then in the stooping position not only is the back flexed to its maximum but the pelvis is fixed, for there is no spring action in the hamstring muscles. Since the back

of a child, even when fully flexed, is more resilient than the contracted muscles are stretchable, any force falling on the back will tend to hyperflex the spine and throw all the weight on the anterior parts of the bodies of the vertebrae (Figs. 3 and 4).

Influence of Hamstrings on the Back

Several years ago, when treating a child for bad posture by the usual method of remedial exercises, I noticed that it gradually got worse. Rotation of the lumbar vertebrae, which had not existed, became apparent. On further examination I found that the hamstring muscles were short—more so on the side of the rotation. With the kind permission of the medical officer of health and the school authorities of the L.C.C. I have examined a large number of school children for two years in succession with the idea of determining what proportion of them had short hamstring muscles. I found that it was common, but rarely existed before the age of 6. It was more frequently unilateral than bilateral, and in the former there was invariably rotation of the lumbar vertebrae towards the shortened side. Sometimes, even, the rotation was generalized. It was rare to find both hamstring muscles equally short, but when it did exist the contour of the back in flexion was much more curved (Figs. 5 and 6), the point of the greatest convexity being the lower dorsal and upper lumbar regions. In the bilateral cases, however, it was more common to find one side shorter than the other—usually the left—in which case there was always rotation of the lumbar vertebrae to the shortened side (Figs. 7, 8, and 9), and the point of greatest convexity in the contour was always in the lower dorsal region.

It was interesting to note that in the majority of cases the shortening of these muscles was transient. Children who were unable to touch toes by six inches or more in one year could do so the next, while some who could the first year were not able to the following year. This latter was most evident in children who had grown rapidly in the interval. In a smaller proportion of cases there was no tendency to improvement, and this was most marked in the long, lanky, flat-backed child, but not invariably so.

These are facts that can be verified by anybody who takes the trouble to do so. The point of interest is whether they have any bearing on the subject under discussion. I think they have. It seems to me that the back of a child which has not got the protective spring action of the hamstring muscles must be regarded as a vulnerable back. The inability to touch toes is in itself not important, but it is the loss of the spring action, due to the shortness of the hamstring muscles, that matters. It may be argued that bending down with the knees extended, a position in which the spring action is most necessary, is not a common attitude for a child to adopt; but one must remember that sitting up from the recumbent position is the equivalent of it (Figs. 10, 11, and 12), that it is frequently assumed when playing leap-frog, and that, most important of all, toe-touching is one of the routine exercises in the gymnasium classes at school.

I have seen children who are unable to touch their toes being exhorted to do so by a series of sudden jerks. The practice of using the back of a growing child as a lever (and a flexible one at that) to stretch the comparatively unstretchable hamstring muscles is a pernicious one. Such movements must cause considerable pressure on the front of the bodies of the vertebrae, and, as judged from the contour, it is upon the lower dorsal and upper lumbar regions that the brunt of the force falls. If the force is sufficiently powerful and frequent it is not difficult to conceive of minor injuries, such as small crush fractures or subchondral haemorrhages, occurring in the region of

the epiphyseal plaques. Furthermore, and most important of all, when one reflects that the annulus lamellosus arises from the matrix of the cartilage plate (Diagram II—A and B), forced movements of the annulus lamellosus might easily cause those mysterious fissures in the cartilage plate which are known to be the precursors of discal herniae. Owing to the fact that there are no nerve endings in the intervertebral disks, these minor injuries do not give rise to pain, and no opportunity is given them to repair. This seems to me to account for the fissures in the cartilage plate more satisfactorily than to imagine that the plate itself is a structure which sometimes has a congenital predisposition to premature degeneration.

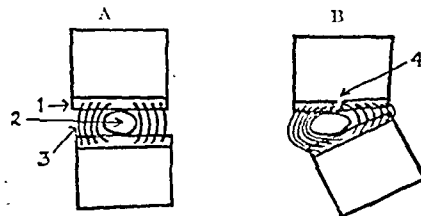


DIAGRAM II

To show the origin of fissures in the cartilage plate

A, In the normal resting position. Note the fibres of the annulus lamellosus arising from the matrix of the cartilage plate.

B, Showing forcible flexion. The nucleus pulposus is pinched as a cherry-stone between finger and thumb, causing strong traction on the posterior part of the annulus lamellosus, which pulls on the cartilage plate, causing it to rupture.

1 = Cartilage plate. 2 = Nucleus pulposus. 3 = Annulus lamellous. 4 = Rent in cartilage plate.

In conclusion, I am a profound believer in Schmorl's theory, but I doubt if any but a very few cases of adolescent kyphosis are the effect of congenital causes. The key to the problem lies in those mysterious fissures in the cartilage plate which I believe arise from flexion injuries. During the rough and tumble of play any child might sustain a flexion injury sufficient to produce these fissures, but I believe that the back of a child whose hamstring muscles are short is more susceptible to traumata of this nature, particularly if his general musculature is poor on account of previous debility or over-growth. I would go even further, and say that not only do short hamstring muscles predispose to flexion injuries, but they also give rise to rotation of the vertebrae and ultimately to scoliosis. If I have succeeded in convincing you that shortening of the hamstring muscles is an important factor, then we ought to agree that children with that condition should be watched with the utmost care and intelligence at school, and that toe-touching exercises in gymnastic classes should be condemned as a routine practice.

My thanks are due to Dr. C. J. Thomas for arranging for me to examine the school children, and also to the head master and head mistresses of the Laxon Street and Snowfield Schools for their courtesy and help. I should also like to thank Dr. B. Armstrong and Mr. Seddon for allowing me to see their cases and x-ray photographs.

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EFFECT OF PROLONGED ADMINISTRATION OF ACID EXTRACT OF ANTERIOR PITUITARY ON THE THYROID GLAND OF GUINEA-PIGS

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(With Special Plate)

Aron,¹ Loeb and Friedman,² and other investigators³ have shown that the initial hyperplasia of the thyroid gland produced in animals by the administration of the thyrotropic hormone of the anterior pituitary regresses and involutes to the colloid state in spite of continued treatment. Similarly, the basal metabolism, after an initial rise to a maximum on the seventh to the fourteenth day, falls to normal or below normal (Siebert and Smith,⁴ Anderson and Collip,⁵ Friedgood⁶). The mechanism whereby this regression in thyroid activity is brought about is unknown. It has been suggested by Friedgood⁷ and by Hertz and Kranes⁸ that it may be the result of thyroid exhaustion. The present experiments were undertaken to verify previous observations and to determine whether any explanation for the thyroid involution could be found.

Experimental Procedure

The extract of anterior pituitary was prepared after the method of Loeb and Bassett.⁹ Under sterile conditions 5 grams of Armour's undegreased anterior pituitary powder were extracted with 100 c.cm. of 0.5 per cent. acetic acid for twenty-four hours at 0° C. The mixture was then centrifuged, the supernatant fluid poured off, neutralized to pH 7.8 (phenol red), and again centrifuged. The extract was prepared weekly, and, when stored at a temperature of 0° C., could be safely injected without causing sepsis. Intraperitoneal injections in daily doses of 1 c.cm. (equivalent to approximately 40 units of thyrotropic hormone) into guinea-pigs weighing about 300 grams produced in three days thyroids which were considerably enlarged, very vascular, and markedly hyperplastic (Fig. 2).

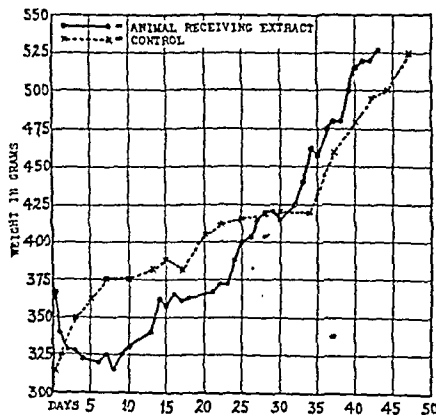
Preliminary experiments on rabbits showed that they are much less reactive to the thyrotropic hormone than guinea-pigs. Four prepubertal rabbits, each weighing about 1,500 grams and maintained on a non-goitrogenic diet of whole oats, alfalfa hay, and distilled water, received subcutaneously 4 c.cm. of the extract daily for six days. On the seventh day the thyroids were inspected surgically, and were found to be slightly enlarged and moderately vascular. The injections were continued for a further nine days and the thyroids again inspected. The glands had now diminished in size and their vascularity had considerably decreased.

Since a greater thyroid response may be obtained in guinea-pigs we chose these as experimental animals. Six males and eight females, each weighing between 300 and 400 grams, and receiving a non-goitrogenic diet containing fresh lettuce three times weekly, were given daily intraperitoneal injections of 1 c.cm., and later 2 c.cm., of the extract for varying periods up to ninety-five days. Three males and three females of approximately the same age and weight as the experimental animals were used

as controls. The guinea-pigs which received thyrotropic hormone were weighed daily, the controls twice weekly.

Results

All the animals which were injected showed an initial loss of weight. It usually fell rapidly during the first week, and then returned to the original level by the end of the second week. Thereafter it rose steadily throughout the experiment. The control animals showed a progressive increase (see Chart). Two animals, however, lost weight progressively and died, one on the twelfth day and the other on the seventeenth. On the twelfth day the latter developed exophthalmos. At necropsy no cause for death could be found. In the one which died on the twelfth day, the thyroid was extremely hyperplastic and the heart dilated. In the other, which was exophthalmic, the thyroid was slightly enlarged, but pale and translucent; microscopically there was slight hyperplasia, and colloid was beginning to accumulate in the vesicles. In both the suprarenals were enlarged and very hyperaemic.



Showing the weight curve of a representative guinea-pig receiving daily injections of anterior pituitary extract.

Exophthalmos also developed in two other animals, on the fourteenth and twenty-first days respectively, and persisted throughout the experiment (Figs. 5 and 6).

The remaining animals were killed at varying intervals. The thyroid glands of the controls ranged from 37 to 92 mg. in weight, and were histologically normal (Fig. 1). Of the twelve experimental animals the thyroid weights varied from 54 to 320 mg., and differed considerably in macroscopical and microscopical appearances. In four the thyroids were extremely hyperaemic and hyperplastic, and showed proliferative budding into the lumen of the vesicles (Fig. 3); in two the hyperplasia was less marked, and pale-staining colloid was accumulating in the vesicles. In the remaining six the glands were either pale and translucent or only slightly hyperaemic; histologically they had the characteristics of colloid glands, the vesicles being filled with well-staining colloid and the epithelium cubical or flattened (Fig. 4 and Table). In none of the thyroids was there evidence of exhaustion. The degree of thyroid involution appeared to bear no relation to the duration of treatment, neither was there any difference in the clinical appearance or behaviour of the animals which would make it possible to distinguish which animals still had hyperplastic glands. All were gaining in weight after the first week at a rate comparable with the controls.

The suprarenal glands showed marked changes. In the controls they were pale; in all the animals which received anterior pituitary extract they were enlarged and hyper-

aemic. The enlargement was greatest in those whose thyroid glands had involuted to the colloid state (see Table).

Effect of Prolonged Administration of Acid Extract of Anterior Pituitary on the Thyroid and Suprarenal Glands of Guinea-pigs

No. of Animal	Dura-			Condition of Thyroid		Weight of Supra- renals (mg.)	
		days)		(mg.)	Histology		
A.—Animals receiving anterior pituitary extract							
30	F	345	94	597	115	Colloid—normal	571
31	F	370	93	407	224	Moderate — marked hyperplasia	456
32*	F	345	17 (died)	250	81	Early—moderate hyperplasia	422
33	F	395	12 (died)	221	121	Marked hyperplasia	299
31*	F	365	95	630	60	Colloid—normal	480
35	F	390	93	720	88	Colloid—normal	515
36*	M	372	87	515	320	Marked hyperplasia	413
37	M	377	41	370	54	Colloid—normal	681
28	M	373	87	490	230	Marked hyperplasia	345
39	M	397	87	556	170	Early—moderate hyperplasia	519
40	M	335	86	460	75	Colloid	725
41	M	370	87	515	280	Moderate — marked hyperplasia	346
69	F	276	73	335	80	Early—moderate hyperplasia	455
70	F	326	73	490	140	Colloid—normal	250
B.—Controls receiving no extract							
42	M	315	92	625	92	Normal	374
44	M	340	80	553	80	Normal	301
45	F	285	62	553	62	Normal	406
46	F	356	60	690	60	Normal	260
71	M	330	37	500	37	? Early hyperplasia	211
72	F	325	60	520	60	Normal	314

* 32: Exophthalmos on the 15th day. 34: Exophthalmos on the 14th day. 36: Exophthalmos on the 21st day.

Discussion

Our results show that although the majority of the thyroids of animals receiving thyrotropic hormone over a prolonged period involute to the colloid phase, a certain percentage do not, but continue to be hyperplastic. It is unlikely that these colloid glands failed to become hyperplastic in the first place, since 100 per cent. of 150 of our guinea-pigs which have received treatment for various purposes with anterior pituitary extracts have shown marked thyroid hyperplasia.

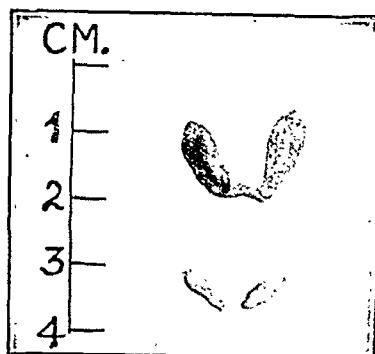
It has been suggested, notably by Friedgood⁷ and by Hertz and Krane,⁸ that the regression of the hyperplasia is evidence of an exhaustion phenomenon in the thyroid as a result of the prolonged administration of the thyrotropic hormone. It must be stressed here that a colloid gland is not evidence of exhaustion, but is, as Marine¹⁰ has repeatedly pointed out, the nearest approach to a normal gland that a thyroid which has been previously hyperplastic can attain. Involution to the colloid phase is evidence that the thyroid is no longer working under strain. On the other hand,

"exhaustion is believed to result from sustained hyperactivity without periods of physical rest. . . . Microscopically the colloid is practically absent. The epithelial cells are in the early stages high columnar, with infoldings and plications as in the active hyperplasia. Later the cells lose their uniform and regular shape and size. . . . There is often some piling up of the epithelial cells. The nuclei are in general large, often hyperchromatic, sometimes small and pyknotic, and very irregular in size and shape. . . . The stroma is relatively, perhaps absolutely, increased, and as the follicles become smaller, due to the loss of their secreting epithelium, the fibrous bands become wider, and give to the gland the appearance of a diffuse fibrosis or cirrhosis, in

which lie the nests of distorted and degenerated cells of the former follicles" (Marine!).

The four glands in the present series which remained hyperplastic would be the most likely to show these changes, but in none of these were there any signs of exhaustion atrophy.

It can be safely concluded, therefore, that the gain in weight after the initial fall which was seen in our animals and the decrease in basal metabolism following the preliminary rise, which has been observed by other investigators to run more or less parallel with the thyroid involution, cannot be attributed to thyroid exhaustion. Some other explanation has to be sought.



Upper: showing the thyroid enlargement (weight 280 mg.) in guinea-pig No. 41, which received anterior pituitary extract daily for eighty-seven days. Lower: Thyroid gland of normal control.

Marine and Baumann^{12, 13} showed that a sufficient but sublethal injury to the suprarenal glands of rabbits produced an increase in basal metabolism, which began from the third to the sixth day, and lasted from a week to several months. This was accompanied by definite hyperplasia of the thyroid.¹³ The diminution in the size of the suprarenal cortex which occurs in infants shortly after birth was shown to be associated with a rise in metabolism.¹⁴ It is significant that in the present experiment all the animals receiving anterior pituitary extract showed marked hyperaemia and enlargement of the suprarenal glands, and that this enlargement was greatest in those animals whose thyroids had involuted. It seems probable that the suprarenals exert some control over thyroid function, since their enlargement is associated with a regression, whereas their partial removal causes an increase of thyroid activity.

The suprarenal glands appear to be dependent on the anterior lobe of the pituitary. Removal of the pituitary results in atrophy of the cortex.¹⁵ Evans *et al.*,¹⁶ and later Collip, Anderson, and Thomson,¹⁷ have shown that anterior pituitary extracts which contain the thyrotropic hormone also contain an adrenotropic principle. This adrenotropic factor was in all probability partly responsible for the suprarenal hypertrophy seen in our experiments. In addition, however, the suprarenals may also have been stimulated by an adrenotropic factor elaborated by the animal's own pituitary in response to the increased thyroid secretion produced by the administration of the thyrotropic hormone. Lastly, it is possible that an excess of thyroid secretion may directly cause suprarenal hypertrophy. This question is not yet settled; experiments are being conducted on these lines.

The demonstration by Collip and Anderson¹⁸ of the presence of an antithyrotropic principle in the serum of animals treated for a prolonged period with anterior pituitary extract containing the thyrotropic hormone is interesting. We have recently confirmed this. A rabbit, aged 8 months, was given subcutaneously 8 c.cm. of anterior pituitary extract daily for six weeks. At the

end of this period the daily subcutaneous injection of 2 c.cm. of its serum prevented the occurrence of thyroid hyperplasia in guinea-pigs receiving at the same time daily intraperitoneal injections of 1 c.cm. of anterior pituitary extract. The formation of antithyrotropic principle is probably responsible for the regression of thyroid hyperplasia in animals which have received prolonged treatment with thyrotropic hormone. It is inconceivable that an antibody be formed to a hormone, as this would render it quite useless to the organism. The finding suggests that there exists normally a balance between thyrotropic and antithyrotropic principles. If large doses of the one be given, the other is elaborated in an endeavour to bring about hormonal equilibrium. Whether this antithyrotropic principle is produced by the suprarenal cortex in response to stimulation by adrenotropic hormone also contained in the extract is as yet unknown, but, if this be so, then the adenotropic hormone may be of value in the treatment of Graves's disease.

Summary

1. Thyroid hyperplasia, exophthalmos, and suprarenal enlargement have been produced in guinea-pigs by the prolonged administration of acid extract of anterior pituitary substance.

2. Although the majority of the thyroid glands had involuted to the colloid state during treatment, a certain percentage remained hyperplastic even after ninety-three days.

3. The suprarenal enlargement was greatest in those animals whose thyroids had involuted.

4. No evidence of thyroid exhaustion was observed.

5. The production by Collip and Anderson of an antithyrotropic factor in the serum of an animal treated for a prolonged period with thyrotropic hormone has been confirmed.

6. The mechanism responsible for the thyroid involution is discussed.

We wish to thank Professor F. R. Fraser for the interest he has taken in this work. We are grateful to Mr. S. B. Bradshaw, of Armour and Company, Ltd., for generous supplies of anterior lobe powder. One of us (A. W. S.) is indebted to the Medical Research Council for personal and expenses grants.

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The professorial chairs which the French Ministry of Education recently had to abolish on the grounds of economy include those of pathology and medico-chirurgical anatomy in Paris, therapeutics and external pathology at Lyons, medical physics at Nancy, operative medicine, physiology, and clinical obstetrics at Toulouse, physiology and clinical surgery at Bordeaux, pharmacy and operative medicine at Lille, and natural history and parasitology at Montpellier.

A NOTE ON THE X-RAY EXAMINATION OF EMPYEMA CAVITIES

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(With Special Plate)

One of the main difficulties in the treatment of empyema is to determine the proper time at which to cease draining the cavity. At present the indications usually given for this turn upon two factors. The first is the period which has elapsed since drainage started. The time advised for drainage varies with different authors; a very widespread tradition puts it at three weeks, but it is often amazingly short, of the order of a week or so. The second indication is the character of the discharge, the tube being removed when it becomes scanty, watery in consistence, or sterile upon bacteriological examination.

Now it is to be noted that neither of these indications takes any account of the physical conditions, the size of the cavity, and the firmness of its walls. There is nothing in them to ensure against the closing up of a considerable hollow filled with varying proportions of gas and fluid. If this should occur, as it not infrequently does, the contents may fail to absorb, the pleura thickens and stiffens in its characteristic fashion, and the final obliteration of the cavity becomes extremely difficult. A persisting empyema is nearly always one in which drainage has been stopped too early and this thickening process allowed to occur.

I came to the conclusion some time ago¹ that the process of cure in all empyemata was the growing together of the walls of the abscess, with the complete permanent obliteration of the part of the pleural cavity concerned (an interesting contrast with the frequent dissolving of apparently firm adhesions of the peritoneum). In consequence, the only logical indication for ceasing drainage appeared to me to be completion of this process; otherwise it was impossible to foretell a result controlled by the unknown factors of the size of the cavity, the thickness of its walls, the nature of its contents, and the absorptive power (never very high) of the pleura. To work in this way means, of course, a renunciation of impressively quick cures, those in which drainage is successfully stopped in a week or so. I have had my share of these, but I have found their absence a small price to pay for freedom from secondary operations on those cases in which the accumulation of pus persisted.

Procedure Adopted

My first method of judging the process of healing was the crude but quite effective one of measuring the amount of fluid that the cavity would hold, running it in through the intercostal de Pezzer catheter which I employed for drainage. To the many who did not agree with me, however, this was not at all convincing, so that I sought for some more demonstrable evidence. One of the most obvious means was x rays, but their employment to define the cavity was not easy. Barium paste is difficult to get in and more difficult to get out; lipiodol is expensive, and, being a very viscous oil, breaks when in thin layers into globules that look like a charge of shot instead of giving a clean outline; and sodium iodide is liable to cause poisoning if used on an absorptive granulating surface.

In this difficulty I turned, as often before, to the head pharmacologist at the Hospital for Sick Children, Mr. Wycliffe Peck. After many experiments he succeeded in producing a cheap, sterile, stable, and very fluid

emulsion of lipiodol, which gave an admirable shadow under the x rays. By running this into the cavity through the irrigation tubes, it was possible to obtain a perfect outline of it and to follow the process of healing.

The case from which the skiagrams were taken (see Plate)—that of a large slowly healing empyema in a debilitated child of 6—illustrates the use of this method of investigation. If the time indication had been used for ceasing drainage and the tubes removed at three weeks or so after operation, I believe that a grave risk of recurrence of the abscess would have been run. The other indication, that of the nature of the discharge, would have given very little information, since throughout (probably owing to irrigation with Dakin's solution) it was thin, scanty, and almost sterile. But the x-ray examination showed steady improvement, and it was difficult in view of this to argue either for early stoppage of drainage or for later resection of one or more ribs.

The first skiagram, taken a fortnight after intercostal drainage, shows a typical large cavity in the costo-vertebral groove half filled by the emulsion. The second, six weeks later, shows the reduction of the size of the cavity by the progressive adherence of the two layers of pleura round its periphery. The spike-shaped cavity running upwards seen in the third, taken a fortnight later still, is the usual final stage of such an empyema.

I am at present trying to get the manufacturers of lipiodol to put on the market a similar emulsion to the one used. It appears to me that it should have a fairly wide application in surgery.

REFERENCE

- ¹ Browne, Denis: *Lancet*, 1930, i, 733.

LEFT SUBCLAVIAN ANEURYSM IN ASSOCIATION WITH CERVICAL RIB

BY

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AND

GEORGE DAVISON, M.B., B.S.

(With Special Plate)

From time to time cases of subclavian aneurysm in association with cervical rib have been reported, but the condition appears to us sufficiently rare to justify the recording of another case.

Case Report

Mrs. B., aged 75, a widow, was seen by us on November 9th, 1933, when she complained of loss of power and pain in the left arm, of three weeks' duration. Her symptoms began with a sudden loss of power in her left arm, which lasted about half an hour. Similar attacks occurred during the next few days, one attack lasting almost the whole day. Power returned to the limb, but the patient continued to have difficulty with finer movements of the hand—for example, fastening buttons. Pain, which radiated from the shoulder down the limb to the fingers, was present with the loss of power, and also passed off, leaving only a feeling of "pins and needles" in the left hand.

The patient stated that she had always been healthy. Thirty years ago, when looking in a mirror, she had noticed a pulsating swelling in the left side of her neck. This had not grown in size nor had it given her any trouble. One month previous to the onset of symptoms she had fallen on her left shoulder. As the patient was a good witness this history may be accepted.

On examination she was seen to be a well-nourished woman, who did not look her age. Above the middle of the left clavicle there was a swelling one inch in diameter, tense

and elastic in consistency, and showing well-marked expansile pulsation; the surface was smooth and the edge well defined above and below, but not medially or laterally; it was freely movable in a line at right angles to the subclavian artery, but could not be moved in the line of the artery. The overlying skin was healthy and freely movable. Compression of the subclavian artery medial to the swelling diminished the size of the latter; compression distal to it increased the tension. On slight pressure over the swelling a systolic thrill could be felt; on auscultation the aortic second sound was clearly heard. On deep palpation a bar of tissue of bony hardness could be felt behind and just medial to the swelling; this bar extended downwards and laterally from the region of the seventh cervical vertebra.

The pulse was strong in both carotid and axillary and the right brachial and radial arteries, but could not be felt in the left brachial or radial. By auscultation the blood pressure in the right brachial artery was 138/80; in the left? 120/100. In other respects the cardiovascular system appeared normal.

As regards the nervous system the only abnormality found was an impairment of the finer movements of the left hand—for example, in picking up a pin.

Her urine was normal and her Wassermann reaction negative.

Radiography showed a well-developed cervical rib on the left side and a small rudimentary cervical rib on the right. (See Special Plate.) The appearances on the left side are difficult to interpret, the outline of the first thoracic transverse process being somewhat obscure. The accessory rib appears to articulate behind with the seventh cervical transverse process and anteriorly with the first rib. It appears to us that the head of the first rib is displaced downwards and medially; and that there has also been a dislocation of the accessory rib from its articulation with the seventh cervical transverse process. There is a faint shadow present in the situation of the aneurysm.

Owing to the patient's age and the relatively unimportant disability present operation was deemed inadvisable. Yet, even in the absence of positive operation findings, we feel that the facts recorded justify a definite diagnosis of aneurysm of the third part of the left subclavian artery in association with cervical rib. The onset of the nervous symptoms may be attributed to a displacement of the first rib, and with it of the cervical rib, produced by the fall on the shoulder.

Literature

Keen¹ in 1907 stated that ten cases had been reported of cervical rib in which the symptoms suggested aneurysm of the subclavian artery, but that at operation no aneurysm was found in one case (Pancoast's) and only a flattening of the artery in a second (Murphy's). He records that in a case of cervical rib of his own he found at operation that the calibre of the subclavian artery lateral to the rib was twice that of the vessel on its medial side, but that no definite aneurysm was present. In another case (Ehrich's) aneurysm developed following operation. Keen points out that in several cases the abnormal dilatation and pulsation of the vessel disappeared following operation. He considers that true aneurysm, as distinct from temporary dilatation of the vessel, is very rare, and, in addition, warns against abnormal pulsation produced by an abnormally high position of the artery being diagnosed as aneurysm. He cites one case, however (Adam's), in which at necropsy a definite cylindrical aneurysm was found extending from the outer border of the scalenus anterior to the commencement of the brachial artery.

Halsted² has collected records of 716 cases of cervical rib, in twenty-seven or more of which aneurysm or dilatation of the subclavian artery distal to the rib was noted. These include six in which the surgeon "believed the vessel abnormally large" and two in which an aneurysm

appeared promptly after removal of the rib. In an investigation on the cause of the dilatation he performed experiments in which an artery was partially occluded by a metal band. He concludes that circumscribed dilatation of an artery may arise distal to a constriction, the dilatation being at a maximum when the lumen of the vessel is reduced to a third or a quarter; and that it is constriction of the subclavian artery which produces the dilatation sometimes noted distal to a cervical rib. The portion of the artery distal to the constriction forms a relatively dead pocket, and, in his opinion, the dilatation is probably due to the whirlpool-like play of blood in this. He believes that probably vasomotor paralysis, trauma, and sudden variations in the blood pressure in the artery play no part. Halsted does not distinguish simple dilatation of the artery and "true aneurysm."

Since Halsted's article at least two further cases have been reported.

Moore² records a case in a man of 55 in which there was a saccular aneurysm the size of a cherry springing from the anterior surface of the artery just distal to the rib. There was neither bruit nor thrill over the aneurysm, it was increasing in size, and there was no difference in the radial pulses. The Wassermann reaction was strongly positive. Good recovery followed ligation of the artery on either side of the aneurysm.

Billington⁴ describes a patient of 42 who came under observation with a pulsating swelling in the left side of the neck; there was a difference in timing of the radial pulses. One month later the left radial pulse had disappeared and pain was severe. After a further five months the pulsation in the swelling had gone. There were no nervous signs. X-ray showed a fully developed cervical rib on the right side and an incomplete rib on the left. The Wassermann reaction was negative. The patient made an uneventful recovery following excision of the aneurysm. The aneurysm consisted of a fusiform swelling $2\frac{1}{2}$ in. in length and with a maximum diameter of $\frac{3}{4}$ in. It was almost completely occluded by thrombus. No primary disease of the intima was found.

Discussion

It appears to us that Moore's case was of a different nature from the others, and produced by different factors; the aneurysm was saccular in character and not associated with a difference in the radial pulses, and there was evidence of a syphilitic infection.

The case we have described seems to fall into line with the others recorded and with Halsted's experimental results—that is, there is a circumscribed dilatation of the subclavian artery immediately distal to a constriction caused by a cervical rib. We shall not attempt to define the conditions under which the dilatation of an artery shall be termed aneurysmal, but maintain that, clinically at least, the swelling in our case is an aneurysm of the third part of the subclavian artery. It is worthy of note that this aneurysm had evidently been present for thirty years without enlargement and without symptoms.

Summary

A case has been described of left subclavian aneurysm in association with cervical rib. The aneurysm had been present for at least thirty years, but neither it nor the rib had produced any symptoms until a fall on the shoulder caused a displacement of the rib.

We are indebted to Dr. Whately Davidson of Newcastle-on-Tyne for the radiograms of the case.

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- ² Halsted, W. S.: *Journ. Exper. Med.*, 1916, xxiv, 271.
- ³ Moore, C. A.: *Lancet*, 1922, i, 1045.
- ⁴ Billington, W.: *Brit. Journ. Surg.*, 1931, xix, 334.

A CASE OF BLINDNESS AFTER N.A.B.*

BY

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The organic preparations of arsenic used medicinally are divisible into two groups—the pentavalent and the trivalent. The former derives from arylarsinic acid and comprises atoxyl, soamin, arsacetin, hectine, orsudan, indarsol, stovarsol, treparsol, and tryparsamide. The trivalent group obtains from arsenobenzene, and contains salvarsan and its allies. The synonyms of salvarsan are "606," arsenobillon, arsenobenzol (France), and arspenamine (U.S.A.). Similarly, neosalvarsan is known as "914," N.A.B. (novarsenobillon), novarsenobenzol (France), and neoarsphenamine (U.S.A.).

Cases of blindness after administration of the pentavalent group were early recognized, and were collected by Lawford in a paper opening a discussion in 1916 (*Trans. Ophth. Soc.*, vol. xxxvi, p. 12). He mentioned cases of blindness following atoxyl reported by Koch, Kopke, Morax, and McAdams. In 1910 Ernest Clarke (*ibid.*, vol. xxx, p. 240) reported blindness after soamin and orsudan; and it is known to occur after stovarsol and treparsol. Tryparsamide is a drug which has been in use recently for neural syphilis and trypanosomiasis (Lees, *ibid.*, vol. lli, p. 208), but there is an admitted danger of optic atrophy, and its administration calls for care, especially during the first few injections. (See also Woods and Moore, *Journ. Amer. Med. Assoc.*, vol. lxxxv, p. 329).

Reports in the Literature

With regard to the trivalent arsenical preparations, the report of the Salvarsan Committee of the Medical Research Council in 1922 (Special Report No. 66) includes a section on the toxic effects of these drugs. It refers to an enormous amount of material from military hospitals and civil treatment centres. Altogether 140,636 cases are included, and no blindness was reported, although there were forty-nine fatalities. German figures are also mentioned. In 1914, 74,018 German cases were reported, including one in which blindness resulted. Further German figures in 1917 referred to 265,158 cases without any blindness. Thus, in a grand total of 479,812 cases, only one case of blindness was reported after the use of the salvarsan group.

In 1916 Lawford stated (*loc. cit.*, p. 25):

"After '606,' optic nerve lesions and lesions of the third, seventh, and eighth nerves have often occurred, which develop from a few days to six weeks after the injection. These usually, but not invariably, disappear if further treatment by '606' or mercury is adopted. These lesions are undoubtedly syphilitic, but are precipitated by salvarsan."

In 1927 J. G. Hopkins wrote (*Amer. Arch. of Ophthalm.*, vol. lvi, p. 543):

"The production of optic atrophy by arspenamine in a previously uninjured eye has never been proved, but with a pre-existing neuritis of primary optic atrophy, it may appear to cause damage."

In 1928 S. O. Chambers also reviewed the literature, and finds that reports of damage to the eye from salvarsan are very rare (*ibid.*, vol. lvii, p. 412). In 1930 Dr. Gunn said that the trivalent preparations did not cause amblyopia (*Trans. Ophth. Soc.*, vol. i, p. 392). In 1931 E. A. Seale (*Journ. Med. Assoc. of South Africa*, p. 528) reported the case of a man, aged 54, who

* Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

lost vision after a first injection of 0.75 gram of N.A.B. Three more similar doses were given without further effect. The vision was reduced to 1/60 in each eye, with white sharp-edged disks and narrowed vessels. The field to white was full; that to colour was lost. Two months later it had improved so that the right vision was 3/60, the left 6/60.

Case Record

The case I have to report is as follows:

History and State.—A married woman, aged 46, was brought to hospital on account of a positive Wassermann reaction. She was admitted with a history of some mental abnormality (? nervous debility), two miscarriages, and several attacks of aphonia. She had undergone appendicectomy and removal of gallstones seven years previously. On admission she was found to have an aortic systolic murmur, but there was no complaint of vision, and her mental and general condition appeared good. She had had no eye trouble previously.

Treatment and Progress.—She was given a course of N.A.B. by the resident medical officer in six doses, commencing with 0.3 gram and concluding with 0.9 gram twenty-eight days later. (The dates and doses are recorded as follows, but there is some doubt as to their exactitude: first day, 0.3 gram; fourth day, 0.45 gram; eleventh day, 0.5 gram; sixteenth day, 0.6 gram; eighteenth day, 0.75 gram; twenty-ninth day, 0.9 gram.) She was also given mist. hydrarg. biniodidi by mouth. She developed a skin rash on the day after the last injection. Fifteen days later she became rapidly blind in both eyes, the left lost all perception of light, the right vision was reduced to hand movements. I saw her two days later and noted that both disks were white, with slightly hazy outlines, and that the arteries were narrow, with white lines along them. The vision varied but little afterwards, and two years later she still had no perception of light in the left, and bare perception of light in the right eye. The disks were white with hazy edges; some of the vessels were small, some of fair size.

Outcome.—Her general condition remained fair at the time of the onset of blindness; she was in a somewhat toxic state, but there was no encephalitis and no meningitis. The rash noted previously had subsided. The cerebro-spinal fluid was not examined. Trinitrin was administered on the day after the onset of the blindness, and a few days later sodium thio-sulphate was given intravenously, but without benefit. The Wassermann reaction and the Kahn tests were still positive two months later.

Commentary

The rarity of this complication renders the above account open to criticism, but the facts are as they have been recorded. The woman was admitted with no ocular complaint; she became blind. There is no doubt but that she was treated with N.A.B., but the exact dates and doses cannot be vouched for. The dimness of vision affected both eyes simultaneously and was rapid in its onset. There was no gross oedema of the disks, and the whole appearance seems to resemble that seen in quinine poisoning in the optic pallor and narrowing of the vessels of the retina.

In the report of the special committee of the Medical Research Council the opinion is expressed that some ill effects of salvarsan are due to inorganic arsenic (a capillary poison), which is slowly broken down after injection, and the late action is thus explained. The reactions of salvarsan are classified as follows: (1) immediate—for example, diarrhoea, vomiting, fever, and headache; (2) encephalitis haemorrhagica—two to five days later; (3) liver affections—(a) jaundice, early and transient, or (b) jaundice, occurring several weeks after the end of the course of treatment, and running a long period, (c) acute yellow atrophy; (4) exfoliative dermatitis, which may be late, and may be fatal from septicaemia; (5) rare lesions—for example, acute nephritis, enteritis, polyneuritis, and aplastic anaemia; and finally,

(6) the Hershheimer reactions, from relapse of syphilis, owing to a sudden liberation of spirochaetal toxins. (These include nerve lesions, especially the cranial nerves, and are more likely to affect structures which have already been attacked by the disease. Such reactions may start after the first injection or after the end of a series.)

In the present instance the pathological site and mechanism are open to discussion. As far as was known there was no gumma or other gross lesion present, the solution of whose walls might set free spirochaetal toxins to attack the optic nerve. It would seem that it is more likely to have been a case where the arsenic itself has affected the optic nerve, the retina, or its blood vessels.

Clinical Memoranda

THE USE OF FASCIA LATA SUTURES

The particular method of obtaining a fascia lata strip is decided by two factors—namely, the difficulty or ease of the method and the after-effects on the patient. Leading authorities insist on the need of closing the gap left in the fascia lata after removing the strip, and this, of course, necessitates a skin incision corresponding in length to the length of the fascial strip obtained. Gallie and Le Mesurier¹ say that failure to close this gap results in "mild bulging muscle hernia, and some of these people speak of a feeling of moderate weakness in the thigh." Orrin² says that omission to close the gap "bequeaths to the patient a heritage or soreness, an aching, and a constant tiredness in the area and in the limb, and so impairs, in greater or less degree, the usefulness of the limb itself." In face of such authority it was with some trepidation that I employed for a small series of cases of hernia a fascial strip cut subcutaneously through small incisions in the thigh. This leaves, of course, the gap in the fascia lata unsutured, but the saving in time and trouble over suturing the gap in fascia and skin is considerable.

TECHNIQUE

The instrument used was that described by Lane and Austin,³ and known as the "Meath Hospital fascia cutter." It consists of a handle bearing a long rod, at the end of which is a strip with a knife-edge bent into a U shape. This cutting strip is introduced through a small skin incision into two small cuts in the fascia lata, marking out the width of fascial strip desired. Pushing the handle along then results in this strip being separated from the rest of the fascia on each side. It is claimed that the strip of fascia may be cut through the one small incision, the instrument being designed so that a turn of the handle cuts across the fascial strip at any desired length.

In actual practice two modifications will be found to save time. First, the overlying skin is bound down to the fascia lata by tough bands of fibrous tissue, and these should first be broken down and the skin and fascia separated over the area from which the strip is to be taken. This is best done by using the spatula-like handle of the fasciotome invented by Rowlands. The fascia separates easily from the underlying muscle as it is cut. Secondly, it will be found easier to cut the strip across at the upper end under direct vision through a second small incision.

RESULTS

I have traced twenty-five of my cases and examined them at intervals of from three and a half months to two years after operation. This number is small, but

¹ Gallie, W. E., and Le Mesurier, A. B.: *Canadian Med Assoc. Journ.*, August, 1930, p. 165.

² Orrin, H. C.: *Fascial Grafting in Principle and Practice*, 1928, p. 33.

³ Lane, T. J. D., and Austin, T. A.: *Lancet*, 1930, i, 622.

I felt some reluctance to use a method not approved of by leading authorities. The number is large enough, however, to allow some conclusions about the method to be drawn. All of the patients had a muscle hernia through the gap left unsutured. No one complained of weakness, and some were following the strenuous occupation of dock labouring. Twenty did not complain of any pain; the other five said they had occasional slight pain. So that, using this method, we may expect a muscle hernia in every case, no muscular weakness in any, and some slight pain in a few. The incidence of pain is probably no greater than would occur if a long skin incision had been used.

Whether a muscle hernia can be prevented is doubtful, even if the gap is sutured. Gallie and Le Mesurier⁴ have themselves shown that aponeurotic structures, no matter how they are sutured together, will separate if the line of suture is subject to strain, and they conclude that "edge-to-edge suture of aponeurosis or fascia should only be done where the tissues can be brought together without tension, and where the physiological strain will be slight." The strain on a suture line in the fascia lata when a portion has been removed must be frequent and considerable.

CONCLUSIONS

1. Fascia lata strips are most easily obtained by the subcutaneous method.
2. No serious after-effects result from this method.

My thanks are due to Dr. H. H. MacWilliam, medical officer of Walton Hospital, Liverpool, where these cases occurred, for permission to publish the results.

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DIABETIC GANGRENE IN A YOUNG WOMAN

It has been suggested to me by Dr. R. D. Lawrence that the following notes on diabetic gangrene in a girl 20 years of age may be interesting to some of your readers.

The patient, a confectioner, was first admitted to the Royal Lancaster Infirmary on May 8th, 1932. It seemed that her illness had commenced two weeks previously, with a feeling of malaise, dizziness, and vomiting. Her medical attendant, on finding glycosuria, immediately sent her into hospital. On admission she was very thirsty, dyspnoic, and the breath smelt strongly of acetone. Urine showed sugar ++++; blood sugar was 0.4 per cent. Under insulin the blood sugar came down, and she was discharged on a 1,700 calorie diet, with instructions to attend periodically for blood sugar estimations.

On December 4th, 1933, she was again admitted to the Infirmary, where she arrived in a comatose condition: urine—sugar +++, acetone +. Twenty units of insulin three times a day made the urine sugar-free and brought the blood sugar to 0.2 per cent. On 40 units a day she became sugar-free for a short time, but the dose had to be increased to 45, and finally to 50 units. She was discharged on December 16th with instructions as before, which unfortunately she failed to observe. She was exceedingly difficult to stabilize.

The patient was readmitted to the Infirmary on July 23rd, 1934, with the following history. She had been quite well until one week before, when, after bathing in the sea, she complained of chilliness and a feeling of numbness in both feet. Next day she had a severe headache, and went to bed. Two days later she developed a cold, and complained of severe malaise and a pain in the right chest. The numbness of the feet had now passed off and the malaise had subsided, but the left foot became distinctly blue, with complete loss of sensation.

On examination she was markedly dyspnoic, and the breath smelt strongly of acetone. Chest signs were those of the early stages of pneumonia. The left foot was cold and completely anaesthetic up to two inches above the malleoli. There was gangrene of all the toes for about one inch on to the dorsum.

Pulsation was absent in the popliteal, posterior tibial, and dorsalis pedis arteries: knee-jerks were present. The right foot was also cold and white, with no pulsation to be detected in the dorsalis pedis artery. The following day the gangrene in the left foot had extended considerably, and had reached the middle of the dorsum. The toes of the right foot had now become blue. A definite consolidation was present in both lungs; the patient gradually became weaker, and died on July 28th.

I wish to acknowledge my indebtedness to Sister Selkirk, who in the earlier treatment of the case was in charge of the ward, and to Dr. Kenneth Tattersall, senior house-surgeon, for his notes on the later stages.

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THE SWALLOWING OF OPEN SAFETY-PINS

I think it may be instructive to record two cases of very young children who swallowed open safety-pins. Both were admitted to the Victoria Central Hospital, Wallasey.

The more recent case was that of a child of 2 years. The pin stuck behind the cricoid, and the child was admitted crying and in pain, with its hand held over its mouth. It resolutely refused to swallow anything, no doubt because of the pain that any effort of deglutition caused. The child had been very sick after swallowing the pin, but without returning the foreign body.

The oesophagoscope was passed without any anaesthetic, local or general. The intention was to try and draw the pointed shaft into the oesophagoscope, and, having got it thus out of harm's way, to withdraw both pin and tube together. This could not be done. The keeper of the safety-pin was immediately found at the cricoid level, but the pointed shaft could not be seen even after prolonged search. As traction on the keeper would have drawn the point into the tissues, and the pointed shaft could not be found, I had no choice but to free the pin and try and work it into the stomach. I did not find this easy, but eventually I lost sight of the pin, and concluded it was probably in the stomach.

A little haemorrhage, however, made it difficult thoroughly to search the lower end of the oesophagus, and I was not very surprised, therefore, to find, on taking a further radiograph, that the pin was arrested at the cardiac opening of the oesophagus. The child could now, however, swallow fluids easily, and the pin was soon carried into the stomach, where it remained about two days. It subsequently travelled slowly and uneventfully downwards, and was voided on the sixth day.

As soon as the pin had been dislodged from the cricoid region, and the child was able to swallow, cotton-wool was given in the food and drink. The wool was teased into tiny pieces about the size and thickness of confetti, and freely mixed with the meals. Unless it is in very small pieces wool is easily detected in the food, and young children will extrude it from the mouth. Ordinary food was given and no aperient allowed. When found in the motion the pin was completely enveloped in wool. No particle of metal was discernible, and it was necessary to tear away the woolly covering to be sure the pin was within. The pin was 1½ inches long, and the span at the open end was 5/6 of an inch.

A very similar case was in the same ward a short time ago. In this instance the child was 3 years old, and the pin was not caught in the oesophagus. It was rather a larger pin, about 1½ inches long, with a wide gap at the open end. Cotton-wool was given in the same way, and the pin was voided completely enclosed in a woollen envelope.

The chief conclusions to be drawn from these cases are: (1) if an open safety-pin will pass through the oesophagus there is a good prospect of it making a safe journey through the whole alimentary canal; (2) the mixing of wool in the food will, certainly in many cases, cause the pin to become completely embedded in a matted cocoon-like covering.

Liverpool. COURTENAY YORKE, M.D., B.S., F.R.C.S.

⁴ Gallie, W. E., and Le Mesurier, A. B.: *Brit. Journ. of Surg.*, xii, 239.

Reviews

PRACTICAL ASPECTS OF ALLERGY

In *Allergy in General Practice*¹ Dr. S. M. FEINBERG has produced an account of the subject which is refreshing. Many books have been published in recent years on the subject of allergy, and it is difficult as yet to assess their relative merits. But it can be stated with confidence that this book is essentially practical, and the author has no particular theory to exploit. It is written with the object of enabling the medical practitioner to diagnose and treat a case of allergy with understanding, and this object is largely attained; it is not, and does not claim to be, a book for the research worker.

There are sections on the history of our conception of allergy and anaphylaxis, on the pathology, symptoms, and complications of asthma. The specific causes of asthma are adequately discussed, and the diagnosis and treatment of asthma are dealt with in detail; hay fever and its treatment also receive due attention. The account of the American pollens naturally will be of less value to European readers, but the principles underlying the conventional treatment of hay fever are clearly stated. A chapter is devoted to other allergic and possible allergic diseases, and is of interest in that the author does not overstate his case, and yet discusses such debatable subjects as the justification for including migraine and epilepsy in this group. The book concludes with an interesting series of case histories taken from the author's own experience, which should be a help to others in the management of similar cases.

The impartiality of Dr. Feinberg's judgement may be illustrated by the following quotation, in which he is discussing the nature of the asthmatic constitution:

"We may summarize by saying that of all the concepts explaining the constitution of the allergic individual there is no evidence for many, some evidence but no proof for some of them, and no absolute proof for any one of them. And yet there must be an allergic constitution!"

This attitude of the author adds greatly to the attraction of the book, as the limitations of our knowledge both of the causation and of the treatment of asthma and allied diseases is made manifest. This is a sound book, well printed, and should prove of value to anyone interested in the subject, especially from the practical point of view.

PROBLEMS OF DUST

The interesting and instructive monograph on *Dust*² by Dr. CYRIL BLACKTIN commends itself to meteorologists and students of the physical sciences and of problems of public health. The widespread distribution of dust on the earth's surface, and its diffusion through the atmosphere, give to the subject an importance which cannot be ignored. Dust, as the end-product of material degradation, assumes various forms consequent upon the attritional influence of physical forces upon the earth's surface, of chemical actions, and of industrial operations. It is composed of visible and invisible particles of matter, in such a fine state of subdivision that the particles are light enough to be easily raised, and carried as a cloud, by the wind. A diameter of 50 microns is the dividing line between visible and invisible units in the atmosphere. Once formed the tendency is for dust particles to decrease in size. It is the invisible particles which are the more important. Clear air may contain as many as 30,000 to

60,000 particles per cubic centimetre, which the ordinary tests of visibility might not affirm. Dust accumulates in certain territorial areas more than in others, so that the material is raised as sand-storms in the deserts or carried as snow-dust clouds over mountains, while in its minor quantities it is raised in the streets of towns by vehicular traffic, and in factories by the feet of the workers, the wear and tear of machinery, and the escape of products of manufacture in fine division. Instead of using the phrase "a dust-laden atmosphere" the author suggests the word "staubosphere" for the aerial surrounding medium which is coextensive and coexistent with the earth's atmosphere.

The question has on several occasions been asked as to how far, in the first instance, life was conveyed to the earth by clouds of meteoric dust, how far dust is of cosmic origin and the outcome of meteoric disintegration; but these questions need not detain us. It is enough for us to know that it plays an important part in mundane phenomena by precipitating rainfall, and by obstructing the penetration earthwards of certain of the sun's rays. Particles of dust contain solid nuclei, which are water-soluble or insoluble. The nuclei of city carbon dusts are mostly insoluble. Rain surrounds dust particles with a watery envelope, and, in falling, it depletes the atmosphere of solid particles. The liquid evaporating on the settlement, the solid particles remain. These are subsequently lifted by the wind and carried hither and thither, deposited in fresh areas, or wafted into the streams and carried seawards. Dust by facilitating rainfall clears and cleans the atmosphere, but in the neighbourhood of smoke-laden cities and industrial works, where the nuclei of the dust particles are carbonaceous or metallic, and the surroundings are soiled, rainfall will temporarily increase the dirtiness. Rain may contain slightly dissolved gases, and while it is pure when falling in remote country areas it cannot, in towns, for long remain thus. Dust is a medium for the conveyance of bacteria by adhesion. Polar air is free from micro-organisms; so, too, may be the hot air of the desert, although rich in dust. Ocean air is remarkably free from bacteria, partly owing to the large number of salt particles of which it is the bearer.

In the ordinary walks of life we cannot escape from dust, visible and invisible. In addition to dust raised in the streets as the result of traffic, the air we breathe is polluted with smoke from chimneys and the debris given off from the rubber tyres of motor cars and lorries. Dr. J. T. Dunn and Mr. H. C. L. Bloxam have drawn attention to the possible injury to health by exhaust particles escaping from motors. Analysing dust collected in the streets of Newcastle-upon-Tyne and grasses growing on roadsides leading to and from that city and much frequented by motor vehicles, these analytical chemists found lead and copper to the extent of 6.5 parts per million. The wearing down by friction of tramway and railway lines, also the chemical corrosion of exposed iron structures, not only impregnate the atmosphere with metallic dust, but are a serious economic loss to the country. A distinction is made between smoke and dust. Smoke particles are primarily large: they increase in size and agglomerate: later, ceasing to increase further in size, they disintegrate and become dust. There is, therefore, a continuous transition from smoke to dust, but never vice versa. Without dust, light itself would be invisible. It is the presence of dust which confers upon the sky its colour.

Dealing with dust in industry and technology the author divides dust into two types—nuisance and dangerous. The former is that found on the floors of factories and smithies, and in the neighbourhood of disintegrating colliery spill heaps: dangerous dusts, on the other hand,

¹ *Allergy in General Practice*. By Samuel M. Feinberg, M.D., F.A.C.P. London: H. Kimpton, 1934. (Pp. 339; 23 figures, 1 coloured plate. 21s. net.)

² *Dust*. By Cyril Blacktin, M.Sc., Ph.D., A.I.C. London: Chapman and Hall, 1934. (Pp. 296; illustrated. 15s. net.)

are those which are capable of inflicting considerable damage physically, for if disseminated through the aerial medium of a coal mine, for example, they create a highly combustible dust-laden atmosphere, capable of becoming ignited by an electrical spark and causing an explosion. Of all dusts that evolved from coal is the most dangerous, owing to its combustibility, the extent of its production, and the readiness with which it is fired and exploded in the presence of methane and hydrogen-air mixtures.

The earliest treatise dealing with metallic dust is, according to Blacktin, *De re Metallica*, by G. Agricola, published in 1556, several decades before Ramazzini was born. Since then the study of the subject has grown apace. It is not that dust alone is always the harmful agent to persons employed in industrial occupations, so much as that the particles are carriers of microbes. For over a century and a half the medical profession has been familiar with the harmfulness of the metallic dusts of industries and of mining. Mineral rocks rich in silica are the main sources of the lung diseases which affect rock-drillers, hence the term "silicosis." Silica and silicate dusts, when inhaled, stimulate the phagocytic activity of the large cells in the alveoli of the lungs. Industrial dusts may be swallowed or inhaled, but the principal and more dangerous portal of entry is the respiratory tract. When inhaled the particles may cause irritation of the tracheal and bronchial mucous membrane, and, by recurrent bronchial catarrh, a denudation of their protective mucous membrane, so that the finest particles of dust readily reach the alveoli of the lungs, and while many of these particles are phagocytosed and eliminated by expectoration, others of the dust-laden cells are retained in the alveoli, pass into the lymphatics, and are carried to and deposited in the glands at the roots of the lungs, while simultaneously the interstitial tissue of the pulmonary parenchyma is becoming overgrown and fibrotic. Dust diseases of the lungs have been so fully dealt with in the pages of this *Journal* that there is no call to consider now the symptomatology and pathology of the pneumoconioses. *Dust*, by Blacktin, is a wealth of carefully collected data; it bears the imprint of wide reading and of a discriminating personality.

TREATMENT OF SPASTIC PARAPLEGIA

Mrs. MARGUERITE K. FISCHEL records in *The Spastic Child*³ her experiences in the training of her paraplegic son, and shows what in a suitable case may be achieved by unremitting maternal devotion and paediatric skill. This record would have pleased William John Little, to whose work Mrs. Fischel refers, for he insisted strongly on the importance, even in apparently hopeless cases, of frequent manipulations and training directed to the overcoming of spasm and acquisition of muscular control. No exact account is given in this book of the extent or degree of spasm in the case in question, but we must infer from the results attained that the higher cerebral centres were not seriously affected, but that the disease affected only the spinal cord.

In this little book Mrs. Fischel describes the exercises and manipulations which, during sixteen years, were with unflinching perseverance carried out by her and her son with astonishing results. No surgical operation was performed and no orthopaedic appliance was found necessary, except for the treatment of an intercurrent compound fracture of the femur, the result of a motor car accident. Mrs. Fischel informs us that the boy's father, who is a surgeon, nevertheless took no part in the treatment here described.

³ *The Spastic Child. A Record of Successfully Achieved Muscle Control in Little's Disease.* By Marguerite K. Fischel. London: H. Kimpton. 1934. (Pp. 97; illustrated. 6s. net.)

MILTON'S BLINDNESS

To the perennial subject of Milton's blindness Miss ELEANOR BROWN has added a contribution of an intensely personal character,⁴ for her interpretation of Milton's life and writings is based on her own experience of blindness since childhood. On many points generally accepted by the sighted critic she differs considerably, drawing on the emotional reactions of the blind to emphasize her arguments. Most critics would agree with the estimate Rose Macaulay gave in her recent study of Milton that "he died a vanquished and embittered idealist, in a world with which he had never come to terms, nor could." It is also generally accepted that *Samson Agonistes* is almost a crypto-autobiography, in which the vanquished and embittered idealist wreaks imaginary vengeance on his enemies. There are also those who see autobiographical references in every mention of blindness in Milton's writings. With all this Miss Brown breaks radically. She argues persuasively that Milton was at peace with the world; that though he passed through a stage of agony during the development of his blindness, he had reached a serene resignation by the time he penned his sonnets on the subject; that he was complete master of his soul when he wrote *Paradise Lost*; and that so far from being autobiographical, *Samson Agonistes* with its complaints on blindness is the least autobiographical of Milton's writings, for the emotions portrayed are wholly at variance with the dispassionate resignation apparent elsewhere. She definitely makes a strong point in saying that his pride would never have allowed Milton to lament his blindness in the stark nakedness of *Samson's* complaints, and that anyhow Milton would not have given his enemies the satisfaction of such complaints. Miss Brown's view of Milton certainly conjures up a happier man, but one cannot help feeling that Milton was a more dynamic character and less at ease amongst men than the nice old gentleman that emerges from her studies.

The opening chapters of this able and very interesting study are devoted to a discussion on the nature of the poet's blindness. The author rightly dismisses the absurd view of Saurat that congenital syphilis was the cause, and Mutschmann's still more preposterous theory of albinism. Between the two possible causes—glaucoma, as held by W. H. Wilmer, and myopia with detachment, as argued by Arnold Sorsby—Miss Brown, like the wise critic she is, refuses to adjudicate.

WILDBOLZ'S TEXTBOOK OF UROLOGY

Anyone who has read Professor HANS WILDBOLZ's textbook of urology will rejoice at the appearance of a second edition.⁵ The original work was, in the reviewer's opinion, the best of the smaller textbooks on the subject, and the new edition is even better than the old. About one hundred pages of new matter and fifty illustrations have been added, yet all the good points of the original have been retained. Among the additions are a chapter on Bright's disease, which, the author mentions in his preface, has been made at the request of many readers, and an account of gonorrhoea in the male. The inclusion of the former in a work that is otherwise entirely surgical may be open to question, but there can be no doubt that the latter subject should be incorporated in a work on diseases of the urinary organs in both sexes, and of the genital apparatus of the male. These two additions account for about half the new matter, the remainder

⁴ *Milton's Blindness.* By Eleanor Gertrude Brown. New York: Columbia University Press; London: H. Milford, Oxford University Press. 1934. (Pp. 167. 12s. 6d. net.)

⁵ *Lehrbuch der Urologie.* Von Professor Hans Wildbolz. Zweite Auflage. Berlin: J. Springer. 1934. (Pp. 645; 218 figures. R.M. 64; geb., R.M. 68.)

being interpolations necessary to bring the book up to date.

The great charm of Professor Wildbolz's book, which applies to all his writing, is that he has the happy knack of making his meaning perfectly clear. There is never the slightest ambiguity in his statements. Moreover, his style is simple and his sentences short. The book can therefore be read easily by anyone with a limited knowledge of German, and can be recommended to those who wish to gain facility in reading medical literature in that language.

The book is divided into two parts. The first deals with the physical examination of the patient, the examination of the urine, cystoscopy, catheterization of the ureters, estimation of the renal function, and radiography of the urinary tract. It concludes with a chapter on general symptomatology—pain, changes in micturition, pathological conditions of the urine, urinary fever, etc. The second part, by far the longer of the two, is purely clinical, and is divided into sections according to the organ affected. The pathology and symptomatology of the different diseases are fully described. The operative methods are given in less detail, but their modifications to meet special conditions are carefully considered. The teaching is extremely practical, and is the result of great experience.

On the whole, the book is crammed with sound, useful information. There is no repetition or unnecessary verbiage. Although the matter in it is condensed, it is set forth in an interesting and readable form. There is only one fault to be found with it. The book, like many other German works, is too expensive. A paper-covered volume of less than 650 pages should not cost 64 marks. At the present rate of exchange this is approximately £5.

Notes on Books

A second edition has now been issued of *The Practice of Absorption Spectrophotometry with Hilger Instruments*,⁶ by Mr. F. TWYMAN and Dr. C. B. ALLSOPP. The subtitle of this book gives a sufficient indication of its scope—"An introduction to the theory of the subject, and guide to the technique of absorption measurement in the visible, ultra-violet, and infra-red regions of the spectrum."

Of the five articles in the September number of the *Annals of Medical History* two deal with European and three with American medical history. In an extremely complete account of Sir Dominic Corrigan and the water-hammer pulse, Professor George Dock, formerly of Washington University, St. Louis, now of Pasadena, who has written similar interesting footnotes to medical history, traces the origin of the familiar descriptive name "water-hammer pulse." It did not appear in Corrigan's original article in 1832; after a long search, in which for a time the earliest use appeared to be in an article by Galabin in 1876, it was found that another Guy's physician, Hilario Barlow, had in 1852 written about "the splashing or water-hammer pulse," and that Sir Thomas Watson may have anticipated him. At one time, like Sir Dyce Duckworth at St. Bartholomew's Hospital, Professor Dock always showed his students the water-hammer toy, but in 1915 he could no longer obtain one. Dr. W. T. Dempster of Ann Arbor completes his well-illustrated account of European anatomy before Vesalius, which he began in the July number of the *Annals*; he points out

⁶ *The Practice of Absorption Spectrophotometry with Hilger Instruments*. By F. Twyman, F.Inst.P., F.R.S., and C. B. Allsopp, M.A., Ph.D. Second edition. London: Adam Hilger Ltd. 1934. (Pp. 140; 40 figures. 12s. 6d. net.)

⁷ *Annals of Medical History*. New Series, vol. vi, No. 5, September, 1934. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Pp. 381-474; illustrated. Volume of six numbers, £2 15s.; single number, 12s. 6d.)

that with the exception of Leonardo da Vinci the serious-minded anatomists lacked the insight and appreciation of method which in succeeding centuries raised anatomy from a colourless discipline to a vigorous science. Dr. W. B. Howell of Montreal tells the story of the Hôtel-Dieu of Quebec, from its start as a small log cabin in 1639, with six nuns from the ancient Hôtel-Dieu at Dieppe to the present great teaching hospital, and relates how in the interval it has played its part in many troubles, including great epidemics of cholera and other infections a hundred years ago. Dr. Jonathan Forman of Columbus, Ohio, tells in detail the history of the first cholera epidemic in that town in 1833; and Dr. A. E. Fossier continues and concludes his history of medical education in New Orleans.

The August issue of *Arquivos de Medicina Legal e Identificação*⁸ is devoted to the proceedings of the Congress of Identification organized by the chiefs of the police of the Federal District of Brazil and of São Paulo, held at Rio de Janeiro from June 16th to 23rd, under the presidency of Professor L. R. Almandos of the University of La Plata. The issue is illustrated by portraits of the leading personalities of the congress and numerous photographs of the São Paulo Institute of Identification.

⁸ *Arquivos de Medicina Legal e Identificação*. Edited by Leonido Ribeiro. Rio de Janeiro: Imprensa Nacional. 1934. (Pp. 242; illustrated.)

Preparations and Appliances

WELLCOME INSULIN (CRYST.)

We have received a sample of Wellcome Brand Insulin (cryst.), which the makers (Messrs. Burroughs Wellcome and Co.) state is the first commercial insulin made from pure crystalline insulin. This is an interesting advance in the chemistry of endocrine products, and it is satisfactory to note that the price for the highly purified product is only 2s. 3d. per 100 units.

RHINITOL

Rhinitol is a preparation for nasal administration. It contains a mixture of volatile oils, together with ephedrine; they are dissolved in a vehicle which is stated to be an advance on ordinary liquid paraffin. The preparation has an antiseptic and vaso-constrictor action, and is recommended for use in a variety of forms of nasal infection. It is manufactured by E. T. Pearson and Co., Ltd., London Road, Mitcham.

"ALLENBURY'S" PRODUCTS

Allen and Hanburys Ltd. are putting two new preparations on the market. One is "Allenbury's" tannic acid jelly, a water-soluble antiseptic application containing 2.5 per cent. of tannic acid ready for immediate use in the treatment of burns; free from oil or grease—price 1s. 9d. a tube. The other preparation is "ferrédis" iron granules—chocolate-flavoured granules containing 1.75 per cent. of ferrous iron in glucose, suitable for children and adults—prices 2s. 3d. and 4s.

POCKET REFRACTOMETER

Bellingham and Stanley Ltd., 71, Hornsey Rise, N.19, announce the production of a pocket refractometer, primarily designed for the direct reading of the percentage of sugar in solutions. This instrument covers a range of from 0 to 25 per cent., and has a sufficiently open scale to allow of estimations down to 0.1 per cent. It is thought that it may have important uses in medical work for blood and urine estimations. Following in design that of the larger instruments, it consists of two glass prisms mounted in a hinged box. A drop of the liquid to be tested is placed between, and readings are made by an orthodox optical system upon a scale divided from 0 to 25 per cent. soluble solids. The refractometer is sent out correctly adjusted, with a check reading for water of 0 at 20°C. Three types of instrument are offered, and certain other ranges are available to suit special purposes. The overall length is 16 cm.; weight, 112 grams. Prices vary from £5 10s. to £6 10s.

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LA GRANULIE FROIDE

Nomenclature in medicine is not seldom a source of much misunderstanding. The French, keen observers, have often been responsible for labels descriptive of morbid anatomical appearance alone. Grancher's *splénopneumonie*, now better known as epituberculosis, offers a good example. When, however, Empis, in 1865, applied the term "*granulie*" to acute miliary tuberculosis, he clearly wanted to distinguish the condition from pulmonary tuberculosis. Although the tuberculous nature of the disease was soon recognized, the name *granulie* has persisted in France to the present day. In more recent years evidence from various sources has accumulated which indicates that the appearance of *granulie* did not necessarily imply rapid death, and in 1924 the "rumblings" were crystallized in a paper by Burnand and Sayé,¹ who attempted to differentiate a new clinical entity—*granulie froide*. Impressed by the fibrotic disseminated tubercles seen post mortem in the lungs of a boy of 12, who had ailed for four years, and shown fine granules in the chest skiagram when he came under observation fourteen months before his death, they collected over twenty cases, in both children and adults. In these, similar symmetrical fine shadows were revealed radiologically; the patients presented only mild constitutional symptoms and very slight or no fever—hence "*froide*"; and the clinical course lasted one, two, and even up to ten years. Finally, they suggested that such patients could probably completely recover. The term "*granulie froide*" was taken up with enthusiasm, but a recent discussion in Paris² has shown that considerable confusion still exists on the subject.

No one will deny that a clinical syndrome which in the living patient is primarily based on a chest skiagram must be accurately defined in that respect. For while the presence of tubercles in other organs is undoubted, they are not there so easily detected except in the later stages. Thus Duken,³ Hellgren,⁴ and Miller⁵ have published x-ray photographs of cases showing calcified tubercles in the spleen, liver, and mesenteric glands. Ameuille, Burnand, Debré and Lelong, and Besançon emphasized the care needed to exclude other conditions which may give an appearance not unlike *granulie*: pneumoconiosis, carcinomatosis, dissemination following haemoptysis, diffuse fibrosis, congestion, and even the sequel of lipiodol injection. Little difficulty should be experienced in the differential diagnosis, especially if one remembers to look for fine

nodules of similar size, symmetrically disposed in the whole of both lungs.

Inadequate attention was, however, drawn to two other aspects of the syndrome. Bacteriological control by guinea-pig inoculation of the gastric lavage centrifugalized deposit is a method widely employed on the Continent in children, and now practised by Clausen in Copenhagen and Sayé in Barcelona, even in adults. And the development of a lesion in one or more organs at some stage of the illness is not infrequent. Léon Bernard, disregarding anatomic-pathological evidence, concluded that it was unnecessary to distinguish a special clinical form "based entirely on an x-ray picture"—a picture "representing merely a certain type of lesion met with in many clinical forms and associated with other lesions." He thought that it was merely "a transitory state, often initial, of tuberculosis, but was not a special form." Debré and Lelong admitted the existence of such a special chronic form in children, but they considered it to be merely a transitory stage of acute miliary tuberculosis, and described eight cases in which it led to death within three to nine months. Their findings may, however, be influenced by the fact that they deal with acute illness in a children's hospital, as contrasted with the chronic and contact material of a dispensary like Sayé's. This argument also applies to Lesné *et al.*, who stated that a large number of cases of *granulie froide* in young children are really subacute slow forms and always fatal, although they admitted the existence of a much more chronic form in older children.

Can the position be clarified? At the basis of the subject lies the conception of the common haematogenous origin of chronic pulmonary tuberculosis—a conception long held in France, extensively studied of late years in Germany (for example, by W. Page⁶), and recently introduced into American literature by Miller.⁷ The rarity of a bacillaemia in these conditions—concluded by Wilson in his critical survey⁸—need cause no surprise, as Miller points out, when it is remembered that even in acute miliary tuberculosis it can only be demonstrated in 40 per cent. of cases. Clinically evidence is accumulating in favour of a prolonged second stage of Ranke, for the tuberculous origin of conditions like pleurisy, erythema nodosum, phlyctenules, and anal fistula is steadily being recognized, and tuberculous foci in bones, kidneys, and skin, occurring successively or simultaneously, are not uncommon. It would indeed be remarkable if the lungs, filters of the lesser circulation, did not frequently become involved. The chronicity of these conditions and the varied clinical forms they assume—of which *granulie froide* is but one—must presumably be attributed to humoral factors about which our knowledge is still incomplete. The question is, however, not one of mere academic interest. In the presence of a "miliary" skiagram the practitioner should search for evidence of haematogenous spread elsewhere and seek the aid of modern methods of bacteriological

¹ Ann. de Méd., 1924, xv, 363.

² Bull. et Mém. Soc. de Méd. de Paris, June 15th, 1934, p. 886.

³ Ergebn. d. inn. Med. u. Kinderh., 1931, xxix, 344.

⁴ Acta Paediatrica, 1932, xlii, 180.

⁵ Amer. Rev. of Tuberculosis, 1934, xxix, 489.

⁶ Ergebn. d. ges. Tuberk., 1933, v, 231.

⁷ Medical Research Council, Special Report No. 182, London, 1933.

control. However mild or chronic, these cases are of serious prognosis owing to the probability of fresh crops of tubercles and to the likelihood of one of these episodes becoming acute. Indeed, Pagel⁶ has found that acute milary tuberculosis almost always arises from pulmonary tuberculosis which has had a haematogenous origin. Hence with regard to treatment, which is thus also prophylactic in nature, attention must be drawn to the satisfactory results obtained by Sayé with sanocrysin.⁶ It would appear, therefore, that the subject merits further study to clarify much that is yet obscure, but a plea must be made for the rejection of an expression which has already caused too much confusion. Even "chronic milary tuberculosis" represents only part of the truth, so that in view of the relative rarity of pure examples of the condition perhaps some justification may be found for a term which, though cumbersome, accurately describes the syndrome—"chronic disseminated haematogenous tuberculosis with pulmonary localization."

THE BIOLOGY OF SOCIAL LIFE

The basis of the scientific attitude is the recognition that all life is one and that progress in the knowledge of one part may be made by reasoned analogy from another. This was the faculty that made Francis Bacon unique in his time and enabled him to lay the foundations of modern inductive reasoning. In an attempt to find a solution for the urgent sociological problems of the day, the British Institute of Philosophy has arranged a course of lectures on the importance of a philosophy of life for mental health.* Professor W. Langdon Brown, in his opening lecture, on November 1st, on "The Biology of Social Life," diagnosed and interpreted some of the outstanding modern political problems in terms of biology. The results of his inquiry are most interesting. It seems obvious that, man being a social animal, he must be subject to the biological laws which govern life in general and gregarious animals in particular, yet few writers have examined him in the light of this truth.

Professor Langdon Brown's theme is that the most striking quality about the living cell, from which all life starts, is its insistent urge to assert itself as strongly as environment will admit. The whole story of many-celled organisms is one of mutual adjustment between the different tissues. At first a number of single cells herded together for mutual support and each did the same work. In the next stage different groups of cells did different work, the central nervous system co-ordinating and controlling their efforts. The development of the invertebrate was checked by the fact that the nervous system could not develop without choking the digestive tract, and two ways of escape were found.

One was the gregarious habit in which each individual is absorbed into the community, like the bee or the ant; the other was the development of a vertebral column. The mesozoic vertebrates went in for mere size, and their central nervous system soon proved itself too rudimentary to control their vast bulk. As before, a substitute was found in gregariousness—co-operation between smaller individuals. The course of successful evolution has all along been to increase, not the size of the individual, but the size of the unit. For the mammal in general and for man in particular this has been a much longer, more painful, and more dangerous path than for the insect, because his brain is capable of so many different reactions. The development of communal life restricts the freedom of the individual, and man has not found this easy. As the unit has been enlarged from the family to the tribe, the tribe to the small nation, and the small nation to the empire, the individuals within the unit have been clamorous for self-expression and the small units within the empire for self-determination. There are two tendencies in eternal conflict: the general demand for enlargement of the unit, and the species-making impulse which attempts to segregate a particular type. The former instinct leads towards international co-operation; the latter towards the fanatic nationalism of many European nations to-day.

For the moment the segregating, species-making impulse has the upper hand. One of the most disturbing features of the present political situation, as Professor Langdon Brown sees it, is that the nations which have forsaken the higher ideal for the lower seem perfectly content. They appear even to have gained a new hope, a new faith, and a new stability. The new level is more suited to their evolutionary development and they are more comfortable in it. Liberty is regarded as a curse, tyranny as the way of salvation. Nevertheless he holds, and we agree, that the position is fundamentally unsound. Although human beings in a community are the equivalent of cells in an organism, they have achieved self-consciousness and individuality. If the repressing force upon their originating and creating powers is strong enough, these powers will die and degeneration will follow. The solution, he thinks, can only be found by a method which gives adequate freedom to the individual life within a large co-ordinated unit. If our civilization is not to go back to the melting-pot, its members must remorselessly strip off the labels from outworn symbols, resolutely adopt reality principles, and realize the latent possibilities in human life. In the willing co-operation of free individuals for the common weal lies the only cure for the world's ills. Professor Langdon Brown, to his great credit, is optimist enough to believe that man may find this way to salvation. Of one thing he is sure. If this civilization falls it will be succeeded by a long period of chaos. In the course of centuries another dominant blend will inevitably arise and found a new civilization, but this thought holds little consolation either for us or for our children.

⁶ *Crisoterapia de la Tuberculosis*, Salvat Editores, Barcelona, 1933.

* Further lectures will be given at 5 p.m. on November 8th, 15th, and 22nd, by Dr. William Brown, Dr. Emanuel Miller, and Dr. Crichton-Miller, at University Hall, 14, Gordon Square, W.C. Applications for tickets should be made to the Director of Studies.

GENERAL MEDICAL COUNCIL ELECTIONS

Practitioners in England and Wales should have received last week the voting papers for the purpose of an election of a direct representative on the expiration of the present term of office of Mr. Bishop Harman, who is a candidate for re-election. Voting papers for the purpose of an election of a second direct representative on the expiration of the present term of office of Sir Henry Brackenbury, who has also been nominated for re-election, will be issued on November 13th. The last day for the return of voting papers in the first election was October 30th; for the second election it is November 20th. In order to enable practitioners readily to distinguish between the two sets of voting papers, white papers were issued for use in the first election, and the papers to be issued for use in the second will be coloured.

Under Section 9 of the Medical Act, 1886, when a vacancy occurs in the office of President of the General Medical Council, the Council "shall elect one of their number to be president for a term not exceeding five years, and not extending beyond the expiration of the term for which he has been made a member of the said Council." Sir Norman Walker, who succeeded Sir Donald Macalister in the presidential chair on November 24th, 1931, comes to the end of his period of office as direct representative for Scotland on January 1st, 1935. Sir Norman has now been duly nominated again for the constituency which he has represented without a break since January 1st, 1907, and his re-election may, we hope, be regarded as a foregone conclusion.

Our *Supplement* this week contains at page 231 the election address of Dr. Leonard Kidd, who for more than twenty-eight years has served as direct representative of the practitioners of Ireland upon the General Medical Council.

THE MOUSE AND INFLUENZA VIRUS

Two years ago the medical profession was still deploring the fact that a suitable animal was not available for the experimental study of influenza. Then last year came the announcement by Smith, Andrewes, and Laidlaw¹ that the ferret was susceptible to the virus of this disease and the convincing demonstration by them that, as many had suspected, the prime cause of influenza was a filterable virus. The use of the ferret also enabled these workers to show the close relationship, if not identity, of the virus of human influenza and the virus isolated by Shope from swine influenza. A relatively inexpensive animal was now available for influenza work; this was a great step forward. But there was one drawback to the use of the ferret. Its susceptibility to this virus was such that infection passed readily from animal to animal, so much so that stringent quarantine measures were necessary to make the results of experimental transmission of any value, and not every laboratory could do this. Andrewes, Laidlaw, and Smith² have just published a further paper on

their influenza work which is probably of even greater significance than their first. They find that, contrary to what they first thought, the mouse can be infected with the virus of influenza. If the virus is administered by nasal instillation to mice under light ether anaesthesia a proportion of the animals develop a bronchopneumonia which in the majority of instances has a fatal termination. Serial passage has been achieved by them in mice with ferret strains of both swine and human influenza virus, and filtration and cultural experiments have shown clearly that the disease in mice was due to a filter-passer. Further, these viruses have been shown to produce typical influenza in the ferret after having undergone several mouse passages, and neutralization tests have given final proof that the disease produced in mice was due to influenza virus. It is interesting to note that the serum used to neutralize the human strain of influenza virus is one that has been prepared in the horse; further details of this serum are to be published shortly, and will be eagerly awaited. Another important point emerges from this new work. It would appear that influenza in the mouse does not spread from animal to animal as it does in the ferret, thus doing away with all the elaborate precautions which have to be taken when working with the latter animal. This is of the greatest significance; for, with such an easily handled and inexpensive animal as the mouse available for work on influenza, and with elaborate precautions against spontaneous spread no longer necessary, this line of research comes within the scope of most laboratories. Transmission to the mouse direct from man has yet to be achieved, but there seem to be no sound reasons for doubting the possibility of this. Should this prove to be so one can hopefully predict a rapid advance in our knowledge of influenza in the near future.

NEWCASTLE SCHOOL OF MEDICINE

We published a short account of the history of the Newcastle-upon-Tyne School of Medicine thirty-seven years ago,¹ and we now welcome the addition² made to the story by Professor G. Grey Turner and Dr. W. D. Arnison. Both are well qualified to continue the tale, for both are distinguished alumni of the school, and the book appears appropriately on the occasion of the centenary of the school's foundation. The history is wonderful, and is a remarkable example of North Country grit and perseverance in the face of every obstacle. The school is the outcome of a desire on the part of a small band of local general practitioners to provide better teaching in a rapidly developing locality which was remote both from London and from Edinburgh. It began in the humblest manner, and at first the teachers themselves paid for the privilege of lecturing. The school had its troubles in the early days, but it was always strong in the existence of the general hospital or infirmary, where there was a wealth of clinical material and a fairly constant supply of men able and willing to teach. The energy of the teachers and the background of the infirmary soon gained

¹ Smith, W., Andrewes, C. H., and Laidlaw, P. P.: *Lancet*, 1933, ii, 66.

² Andrewes, C. H., Laidlaw, P. P., and Smith, W.: *Ibid.*, 1934, ii, 559.

¹ *British Medical Journal*, 1897, i, 213.

² *The Newcastle-upon-Tyne School of Medicine, 1834-1934*, by G. Grey Turner, assisted by W. D. Arnison. Newcastle-on-Tyne: Andrew Reid and Co., Ltd. 1934. (10s. net.)

recognition for the school by the great licensing bodies of the time, the Society of Apothecaries, the Royal College of Surgeons, and later the University of London. The school itself became affiliated to the University of Durham, although the teaching was carried out at Newcastle-upon-Tyne, and in due course, as the Faculty of Medicine, became an integral part of the university. Professor Grey Turner and Dr. Arnison continue the story, and show in admirable language and with a wealth of excellent illustrations the position of the school at the end of one hundred years—well equipped in every department and with a first-rate reputation. They lighten the dry facts and statistics with sketches of a student life which has now passed away, though it is within their own personal experience. They deal—perhaps too kindly—with the foibles of the “characters,” Hare Philipson, Murphy, McBean, and many others who seem to have been indigenous. Of them we should like to have had some of the stories told or invented by their colleagues and the students. Their kind is non-existent now, and can never be reproduced. On the whole a most satisfactory book and well worth reading.

ENDOMETRIAL HYPERPLASIA

Severe and irregular uterine haemorrhage is a symptom the gynaecologist often encounters, and of recent years attention has been focused on the condition known as endometrial hyperplasia. Burch, Phelps, and Wolfe¹ have written a general review of the literature devoted to this condition and included observations from their own experience, and from this paper the following points are taken. The French knew of a polypoid condition of the endometrium as early as 1846. Seven years later Brennecke noted the absence of corpora lutea in the ovaries of patients suffering from this type of haemorrhage, and suggested that an ovarian disorder was the cause of the endometrial changes. In 1900 Cullen introduced the term “endometrial hyperplasia,” but it was not until after the classical paper of Hirschmann and Adler, describing the normal cyclical changes in the endometrium, appeared in 1908 that a clear conception of abnormal histological appearances in the uterine mucosa could be obtained. The view of Schroeder that the uterine changes before ovulation were caused by a hormone elaborated in the follicle and those after ovulation by one arising in the corpus luteum is widely accepted. In endometrial hyperplasia the corpus luteum is absent, so that the normal changes in the endometrium which immediately precede menstruation fail to occur. The thickness of the endometrium may be excessive or not greatly above the normal, and indeed in many cases the diagnosis is not made without difficulty. “In still other specimens the bleeding originates in an endometrium corresponding in time relations and histology to the type seen in the interval phase . . . yet there is an absence of corpora lutea as evidenced by the absence of progestational changes.” It is therefore clear that the histologist is often dependent on an exact gynaecological history for his diagnosis. There is usually an absolute increase in the number of cells and glands, which sometimes present bizarre forms. Small cysts are frequently

observed in the endometrium, as are patches of oedema and small areas of necrosis. The cause of the bleeding is not clear, and the areas of necrosis may be the cause or the result of the haemorrhage. The persistence of the haemorrhage is due to the fact that two or three months may elapse before desquamation of the endometrium occurs. Indeed, desquamation to the basal layer may never take place. It is natural that attempts should be made to implicate the pituitary gland. The ovaries themselves are frequently the seat of an old inflammation and contain cysts. In many cases only one functioning ovary is present. Wilfred Shaw believes “that the polypoid endometrium reacts upon the ovaries to produce an inhibition of follicle ripening or of ovulation or of full formation of the corpus luteum: in turn the ovaries respond by producing continuously a toxin, identical in type with that causing the disintegration of the premenstrual endometrium in normal menstruation. In consequence disintegration of the superficial layers of the polypoid endometrium occurs.” The abundance of observations and the variety of views make it manifest that as yet little is known concerning the cause of endometrial hyperplasia. It may occur at any time in life, but is decidedly more common at or near the menopause. There is no evidence that it may develop into cancer, and its only danger is that consequent on haemorrhage. The condition is frequently associated with fibromyomata of the uterus. In young women repeated curettage may be followed by normal menstruation and pregnancy, and indeed the condition may clear up of its own accord or after various forms of therapy. Some authors have obtained good results from the exhibition of hormones, while others have had success with thyroid medication. At the menopause either radium treatment or hysterectomy is indicated, though the authors propose to try an old remedy of packing the uterus with gauze soaked in pure formalin. Endometrial hyperplasia is therefore to be regarded as one of the causes of severe and irregular bleeding which probably arises as the result of hormonal disharmony. Histologically it is characterized by hyperplasia of the endometrium, which does not undergo the normal progestational changes initiated by the hormone elaborated in the corpus luteum. The difficulty in the diagnosis of endometrial hyperplasia is illustrated by the fact that Taylor, in a review of the microscopical material of the Roosevelt Hospital, concluded that out of 216 cases diagnosed as such only eighty-eight deserved to remain in that category. Such a conclusion surely means that from the therapeutic point of view endometrial hyperplasia is at present of greater academic than practical interest.

THE FIGHT AGAINST DISEASE

The fourth quarterly issue this year of *The Fight Against Disease*, issued by the Research Defence Society, opens with an article by Sir Leonard Rogers on the reduction in the sufferings and deaths of children from diphtheria due to the use of anti-diphtheritic serum treatment during the last forty years. After illustrating by statistical tables the fall in the death rates since the introduction of antitoxin treatment, and stressing the importance of realizing its comparative failure when

started after the fourth day, Sir Leonard puts forward an approximate and conservative estimate of the life-saving value of diphtheria serum, based on the data published by Dr. Graham Forbes. He shows that probably 80,000 children have been saved in each year from death due to slow suffocation, or approximately 1,680,000 individuals in only twenty-one years out of nearly forty during which the serum has been available. He then deals with the arguments often advanced by the opponents of antitoxin treatment, especially with the long-exploded but still exploited total mortality myth. Another article discusses medical research from a layman's point of view, and there is a note on anti-vivisection advertisements in sub-post offices. A letter is published from a correspondent who was formerly an enthusiastic anti-vivisectionist, revoking his previous views, but holding that experiments might be more frequently performed on human beings than is at present the case.

HALL INSTITUTE OF RESEARCH, MELBOURNE

The fifteenth annual report of the Walter and Eliza Hall Institute of Research, Melbourne, opens with an appeal for additional support amounting to £1,000 annually, failing which measures of retrenchment implying reduced usefulness will become inevitable. It is hoped that an investigation of virus diseases, particularly of those affecting the nervous system, will shortly be started in close co-operation with the Commonwealth Serum Laboratories, supported by the Rockefeller Foundation. The investigation of Australian snake venoms continues to occupy a prominent place in the report, information now being available about the mortality of the various species and the decrease in their yield of venom in captivity. A study of the bacterial flora of their mouths showed that, whereas direct smears from the mouths of newly caught snakes contained few or no organisms, after a month or two in captivity the smears are crowded with organisms, including coliform bacilli, *B. proteus*, other bacilli which do not ferment lactose, staphylococci, and some anaerobes. Freshly collected venom contains but few organisms, and drying kills off many of the lactose non-fermenters. These findings are important from the point of view of immunizing horses, it being necessary to filter or otherwise sterilize venoms before using them for injections, or to devise better methods of collecting the venom. Neutralization experiments *in vitro* on the protective power of pooled normal adult serum against the virus of poliomyelitis indicated that it had only about one-third of the power of convalescent serum. Experiments on the sterilization of catgut drew attention to the importance of not relying upon an alcoholic solution of mercury biniiodide for this purpose, and led to the recommendation of the method of impregnation with iodine. A review of the accumulated evidence regarding lead poisoning and nephritis in Queensland emphasized the primary factor of chronic poisoning in childhood. The weathering of lead paint on the outside of houses and veranda railings exposes young children to a definite lead hazard, while some poisoning may result from spraying fruit and vegetables with lead arsenate. There is no indication that hereditary influences, scarlet fever, congenital syphilis, or other infections play any important part in causing

the increased mortality from chronic nephritis in Queensland, except in so far as they conduce to diminished resistance. The lines of future work are indicated, including the correlating of pathological changes in the kidneys of persons dying before middle age from chronic nephritis with evidence of the storage of lead in the body. Further legislation against the use of lead paint is also necessary, particularly in respect of house painting, the supply of articles for the use of children, and fruit spraying.

CHRISTINE MURRELL FELLOWSHIP

The October issue of the *Medical Women's Federation News Letter* makes further reference to the project for founding a post-graduate fellowship in memory of the late Dr. Christine Murrell. The members present at the annual general meeting in Sheffield felt that the best way in which they could honour their former president and treasurer was by the provision of means whereby the living might be served. Dr. Murrell's interest centred itself in general practice, and it was her conviction that in this sphere, with all its difficulties, lay a great opportunity for women of the right kind. She also took a keen interest in the question of medical education, and felt strongly the need for all doctors to keep themselves abreast of modern methods and teaching. It was agreed that a fitting memorial to one who had so much at heart the welfare of women in general practice would be the creation of a fund to be used to enable young women general practitioners to benefit by a course of post-graduate study. Many of our readers, men as well as women, would wish to take some part in thus commemorating Christine Murrell, whose work for the profession as a whole was recognized by repeated election to the Council of the British Medical Association and (a few months before her death) by election to the General Medical Council as direct representative for England and Wales. Donations may be sent to the treasurer of the Medical Women's Federation, 9, Clifford Street, Bond Street, W.1.

Sir Humphry Rolleston will give the FitzPatrick Lectures before the Royal College of Physicians of London on Tuesday and Thursday, November 6th and 8th, at 5 p.m. The title is "History of the Endocrine Organs."

On Wednesday next, November 7th, at 5 p.m., Professor A. Castiglioni will read a paper before the Section of the History of Medicine of the Royal Society of Medicine. His subject is "Morgagni and the School of Anatomy of Padua," which should prove as attractive to anatomists and surgeons as to medical historians, and the president of the Section, Sir StClair Thomson, asks us to say that visitors will be welcome.

The 1934 Nobel prize for medicine and physiology has been awarded jointly to Professor George F. Minot and Dr. William T. Murphy of Boston, Mass., and Professor George H. Whipple of Rochester, N.Y., for their researches into liver therapy in connexion with pernicious anaemia.

HARVEY MEMORIAL AT HEMPSTEAD

THE UNFINISHED TOWER

A further appeal is being launched this week for funds to complete the rebuilding of the tower of Hempstead Church, Essex, as a memorial to William Harvey, whose remains are deposited there. This parish church, seven miles from Saffron Walden and some fifty miles from London, is a fourteenth century building of much interest; it was closely linked with the Harveys, and contains memorials to other members of the family who achieved distinction in varied walks of life.

On January 28th, 1882, two hundred and twenty-five years after William Harvey's death, the massive tower, with its clock and fine peal of bells collapsed towards the south-west, and the stones lay in dismal heaps in the churchyard until eighteen months ago. The smallness and the comparative isolation of the parish of Hempstead were such that it was not possible to collect enough funds to make good the damage; all that could be done, in addition to some urgent temporary repairs, was to gather and stack the stones and flints, in the hope of some day rebuilding the tower. The Harvey vault, with lapse of time, also fell into disrepair, and in 1883 the Royal College of Physicians of London removed the leaden shell containing the body of the immortal William Harvey and placed it reverently in a marble sarcophagus in the Harvey Chapel of the church, where it now rests.

During the last few years a committee, comprising representatives of the medical profession, of Caius College, Cambridge, and Merton College, Oxford, of St. Bartholomew's Hospital, and of the parishioners of Hempstead, has striven to raise funds to re-erect the tower as a visible memorial to Harvey, and it has obtained altogether about £3,000. This sum was not enough to restore the tower to its full height, but the committee decided to make a start, in the hope that further money would be forthcoming to rebuild the ringing-room and the belfry. On July 7th, 1933, Lord Dawson of Penn, President of the Royal College of Physicians, laid the foundation stone of the new tower at a ceremony in which representative members of the profession took part.¹

We reproduce on this page a drawing by the architect, Sir Charles Nicholson, whose design for restoring the tower is agreed on all hands to harmonize perfectly with the ancient church. The arrows and black line show the point at which the work of reconstruction has stopped for the time being. The part below the line has already been completed, largely with old stone and flints from the fallen tower. A further appeal for the sum of £2,000 is now made to finish the work. The members of the Harveian Society of London, to mark their centenary in 1931, instituted a special fund for reconditioning and

re-hanging the old bells when the tower is built to the top, and this fund is held in readiness to round off the pious task of associating the name of "the great exponent of the experimental method in biology and the founder of scientific medicine" with his resting place in a little English village.

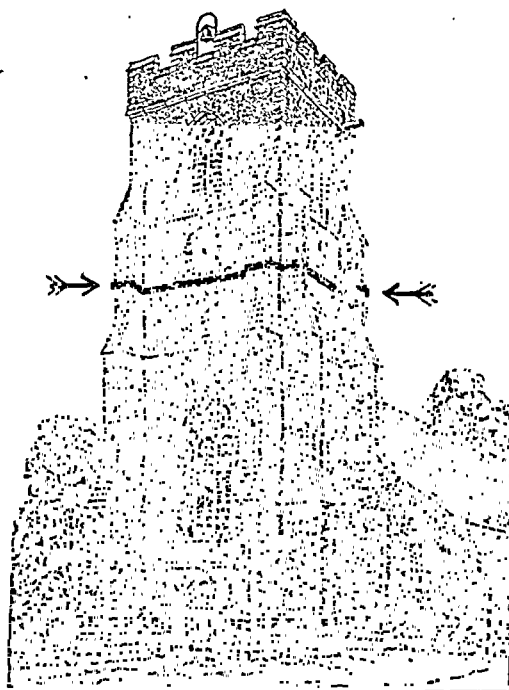
Donations are invited from members of the medical profession and others. They should be made payable to the Harvey Memorial Fund, and sent to Dr. G. de Bec Turtle, Royal College of Physicians, Pall Mall East, London, S.W.1.

The Chairman of the Harvey Memorial Committee is Sir John Rose Bradford, the vice-chairman is Lord Stanmore, the treasurers are Dr. Arnold Stott and Mr. A. W. Ruggles-Brise, and the honorary secretary is Dr. de Bec Turtle. Other members of the committee include the Bishops of Chelmsford, Colchester, and Barking, Sir Thomas Barlow, Sir Humphry Rolleston, Sir D'Arcy Power, Sir Archibald Garrod, Sir Farquhar Buzzard, Sir Charles Sherrington, Sir William Hale-White, Dr. Arnold Chaplin, Dr. Herbert Spencer, the Master of Caius, the Warden of Merton, the Master of the Apothecaries' Society, the Vicar and churchwardens of Hempstead, and the Editors of the *Lancet* and the *British Medical Journal*.

It is the earnest wish of the committee that the response to this appeal should be not only adequate in amount, but also thoroughly representative of the profession of medicine as a whole. The members of our profession are singularly qualified to estimate, at their real worth, the greatness and far-reaching character of Harvey's discovery, and to apprehend the truth and value of Harvey's exhortation to the Fellows of the College of Physicians, "to search out and study the secrets of Nature by way of experiment." It is to be hoped that the appeal will reach laymen

as well, for the name and fame of William Harvey are national possessions. His discovery of the circulation of the blood "remains to this day the greatest discovery of physiology, and its whole honour belongs to Harvey."

The first meeting of the new session of the Hunterian Society was held on October 15th, when Dr. W. H. F. Oxley delivered his presidential address, on "The Opportunities of General Practice." At the meeting of the society on November 19th, at the Cutlers' Hall, Warwick Lane, E.C., a discussion on "That the Lay Cult of Health has become Injurious" will be opened by Sir Ernest Graham-Little. The meeting on December 17th will be given up to a discussion on the diagnosis, prognosis, and treatment of coronary disease. The Hunterian Lecture, on "Rehabilitation Surgery," will be delivered by Dr. H. H. Kessler of Newark, New Jersey, on January 14th, 1935, and Professor John Eyre will give the Hunterian Oration on "Undulant Fever: A Retrospect," on February 25th. The annual dinner of the society will be held at the May Fair Hotel on February 14th, and the annual general meeting at Simpson's Restaurant on April 8th.



THE HARVEY TOWER, HEMPSTEAD CHURCH, ESSEX

¹ *British Medical Journal*, July 15th, 1933, p. 120.

C. LAMBRINUDI: ADOLESCENT AND SENILE KYPHOSIS

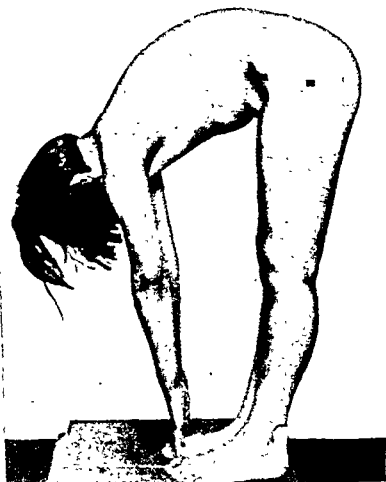
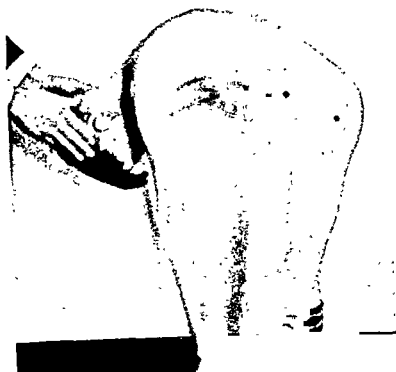


FIG. 1.—Normal child. Touching toes comfortably. Note anterior superior spine on same level as great trochanter.



FIG. 2.—Same child made to flex further. Note contour of the back unchanged. Anterior superior spine a little below level of great trochanter.



FIGS. 3 AND 4.—Cases to show how pressure on a child with short hamstring muscles hyperflexes the back and does not stretch the hamstring muscles.



FIGS. 5 AND 6.—Cases to show increased curve of back in children with bilateral shortening of the hamstring muscles.

C. LAMBRINUDI: ADOLESCENT AND SENILE KYPHOSIS



FIG. 7.—Child with short hamstring muscles. Left shorter than right. Note rotation of vertebrae to left.

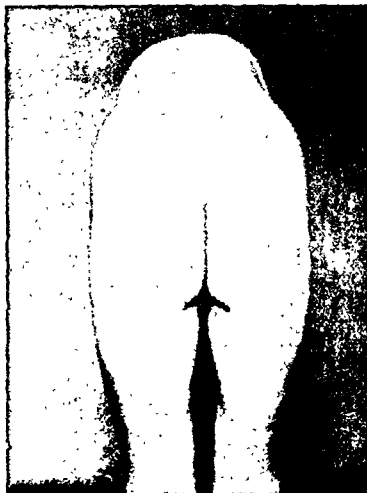
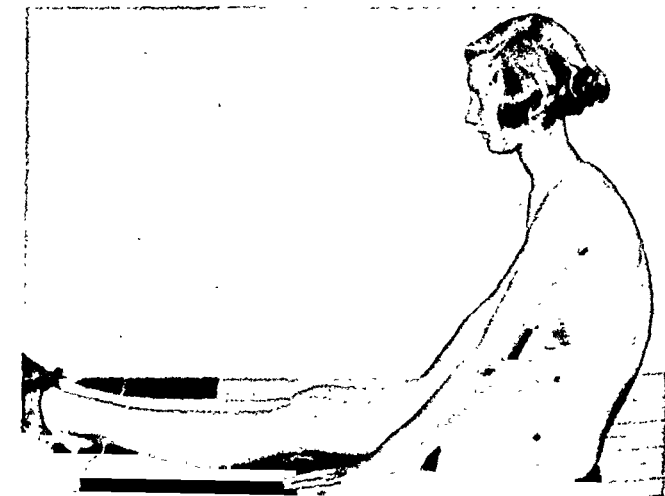
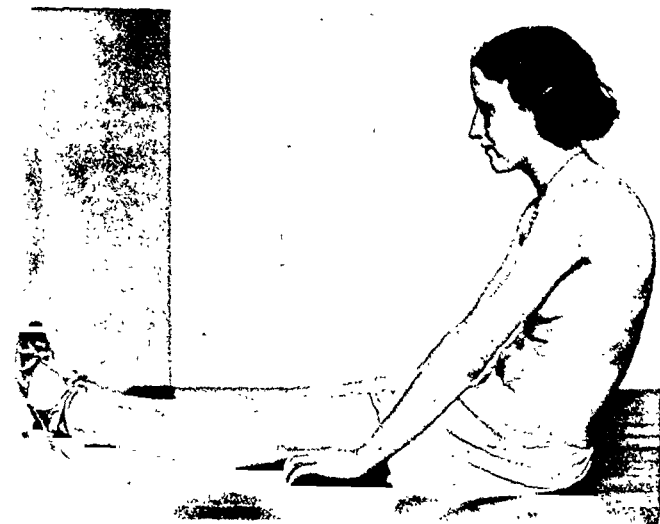


FIG. 8.—Bilateral shortening of hamstring muscles. Right shorter than left. Note rotation of vertebrae to right.



FIG. 9.—Right hamstring muscle shorter than left. Note rotation of vertebrae to right.



FIGS. 10, 11, 12.—Children with short hamstrings. The child in the middle is a continuous child with short hamstring muscles ought as a routine to be treated with knee.

DENIS BROWNE: X-RAY EXAMINATION OF EMPYEMA CAVITIES



FIG. 1.—Skiagram taken from side to side, with child lying upon sound lung, a fortnight after operation. A. Point of entry of de Pezzer catheter between ribs. B. Fluid level of emulsion, filling half cavity.



FIG. 2.—Skiagram of same child six weeks later, showing diminution of cavity. Letters A and B as in Fig. 1.

DENIS BROWNE: X-RAY EXAMINATION OF EMPYEMA CAVITIES

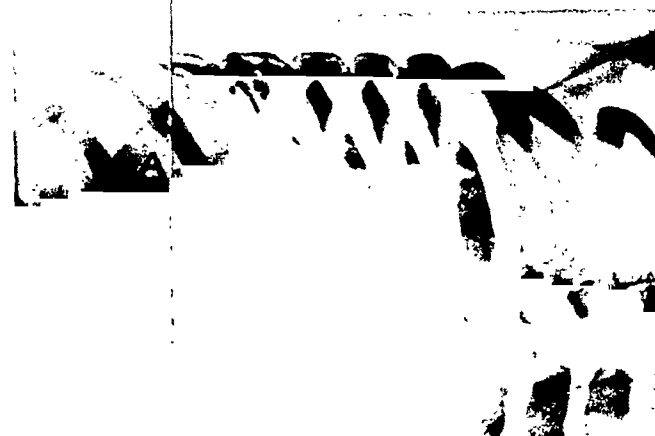
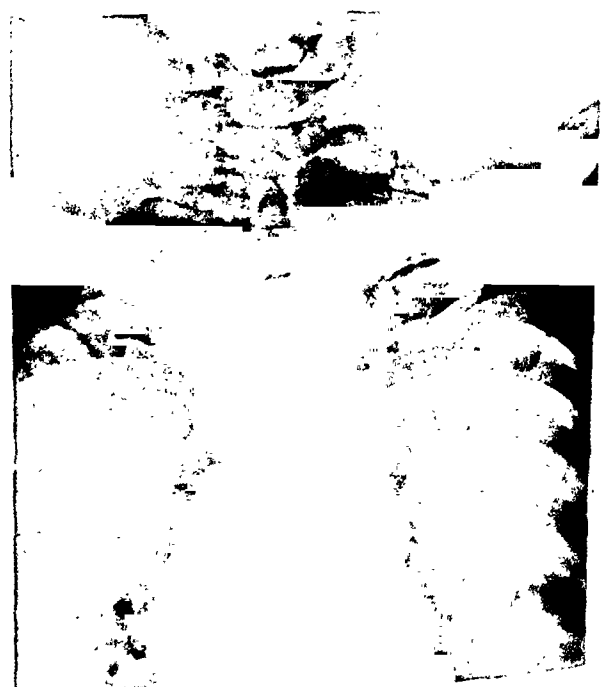


FIG. 3.—Skiagram of same child ten weeks after operation, showing typical final stage, with narrow cavity running upwards from point of drainage.

T. G. QUINN AND GEORGE DAVISON: LEFT SUBCLAVIAN ANEURYSM IN ASSOCIATION WITH CERVICAL RIB



MEDICAL USES OF RADIUM

MEDICAL RESEARCH COUNCIL'S REPORT

The Medical Research Council has issued this week the twelfth of its series of reports upon the radium treatment of cancer and of some non-malignant conditions, summarizing the reports from the research centres for 1933.¹ In addition to describing work done during the past year, it supplies statistical data relating to the after-histories of patients treated in previous years, and contains a section dealing with some purely experimental inquiries into the action of radium. There has been a marked increase in the use of radium without any surgical operation, other than that termed "the surgery of access." Collecting the data contributed by the research centres for the years 1930 to 1933 inclusive, it is shown that a total of 7,955 patients suffering from malignant disease have been treated. Of these, 2,275 were treated by surgery alone (29 per cent.), and 3,415 by radium alone (43 per cent.). In 1933, out of 2,434 patients, 554 were treated by surgery alone (22.8 per cent.), whereas 1,240 were treated by radium alone (50.9 per cent.).

CANCER OF THE BREAST

Surgery, however, still maintains its prominence in the field of mammary cancer, owing to its success in early cases. Yet, since invasion of the axilla reduces markedly the prospects of a satisfactory outcome, it is stated in the report that there is therefore a definite need of radiological methods being explored to the utmost in dealing with extensions to this region. Interstitial radium therapy has been much employed in this part of the body, but it is not a favourable site for this procedure, there being so many important nerves and blood vessels in the vicinity which may easily be damaged and are difficult to restore to healthy functioning. It is suggested that *x* rays may constitute a more suitable agent. In the research centres surgery and radiology are being employed to an almost equal extent. Some of the chief advances in radium therapy of breast conditions have been made in this country.

Radium has been applied interstitially at Aberdeen and at St. Bartholomew's Hospital, both the primary growth and its probable extensions being dealt with simultaneously. After six to eight weeks the primary growth has been removed for investigation. In the last two years at Aberdeen it has been shown that under certain definite conditions of irradiation there are found comparatively few actively growing malignant portions. Results obtained at St. Bartholomew's Hospital indicate that the five-year survival rate is approximately the same for the two branches of treatment, being in each case about 40 per cent. It has now been decided there to combine interstitial radiation with surgery, the breast and glands being excised after radiation, and to compare the five-year survival rate with those of operation and radium respectively. In addition, an intensive histological study will be made of the breast and glands after removal, in order to find out: (1) the histological effects of radium on carcinoma tissue; (2) whether the treatment has destroyed all the tumour cells or left some areas untouched; (3) whether carcinomatous glands are effectively treated by radium; (4) the optimum time for excision of the breast after radiation.

At the Marie Curie Hospital in London a change in procedure is being made. In cases not suitable for radical operation some primary tumours and most of the recurrent growths will be treated by radium alone. Other primary growths will have interstitial radium for the primary focus, and *x* rays for the glandular extensions. Recurrences in the supraclavicular glands will be treated by deep *x* rays. Selected cases of primary cancer will be treated by deep *x* rays alone. Since cancer of the breast belongs to the group of the generally less sensitive types of this disease, the methods employed will be according to the principles of therapy, with special reference to the view of cell maturation elaborated by Coutard.

¹ Medical Uses of Radium. Summary of Reports from Research Centres for 1933. Medical Research Council, Special Report Series No. 197. H.M. Stationery Office, 1934. (8d. net.)

CANCER OF THE CERVIX

At Aberdeen thirty-seven cases of cervical carcinoma were treated during the year, the Heymann technique being practised when possible, or modified as the local occasion demanded: No case of vesico-vaginal or recto-vaginal fistula is known to have occurred. The Marie Curie Hospital reports a steady improvement in the ratio of early cases. Treatment has been by intervascular radium alone. Histological grading has been studied intensively, and a separate report on this is to be published. No evidence was forthcoming that the adenocarcinomata were insensitive to radiation. Complications have been of rare recurrence, probably on account of slight improvements in the technique. There is still much doubt about the pathogenesis of these reactions. Obliterative endarteritis seems to begin the lesion, and the rectal ulceration is suggestive of a broken-down infarct. The sudden development of massive infiltration, with or without ulceration, which often subsides as suddenly as it appears, is difficult to explain. Radium reaction is less frequent now than formerly. The Scottish associations of the Medical Women's Federation complain, on the contrary, that patients delaying until the disease is very far advanced are still all too common.

CANCER OF THE BUCCAL CAVITY

At most responsible radium clinics in the country there has been comparatively little difficulty in dealing with primary lingual growths by radium, the treatment being either interstitial or by means of larger units (1 gram and upwards) applied externally. As regards the glands associated with buccal cancer, there seems at present to be about an even balance of opinion and practice between surgical removal and irradiation, either interstitially or externally by radium, or by *x* rays. From Birmingham comes the warning that radium therapy is being demanded by many advanced cases still, and that statistics must be considered to lie under this handicap. The radio-resistant nature of tumours arising in leucoplakic patches has been particularly noted there during 1933, and in three such cases it was found necessary to excise the growth by diathermy after irradiation had failed. A slight improvement in oesophageal cases has followed the distribution of large doses of radon seeds (eight instead of four of 3 mc. each) throughout the length of the growth, and not only in the upper part as previously. The opinion at Birmingham with regard to malignant glands is that the only really valuable treatment is a block dissection, with complete removal of the sterno-mastoid. A new technique has been designed for growths in the tonsil or side of the tongue extending over or round the ramus of the jaw. To avoid trismus resulting from resection of the ramus and needling of the growth, a separate incision is made over the temporomandibular joint, and the capsule and ligaments are cut. The effects have been remarkably good, especially in the case of large growths extending from the tonsil into the pterygoid and mandibular muscles.

OTHER RESEARCH

At Aberdeen an investigation into the radiation treatment of adenocarcinoma of the ampulla of the rectum is being conducted. Eight patients, of whom five were technically inoperable, were treated by unscreened radon. In two the growth completely disappeared; three are still alive, with considerable palliation of the symptoms and reduction of the growth; and three died, but in these cases evidence of destruction of the growth in part was demonstrated at the necropsy.

While many cases reported from the centres show the unresponsive character of these growths to radium, others indicate an extraordinary good reaction to properly directed radiotherapy. There remains work to be done in correlating radio-sensitiveness with histological character.

The Royal Free Hospital has obtained good results in cases of functional menorrhagia of middle and later life, menorrhagia accompanied by physical signs, and the menorrhagia of puberty. There were treated 134 cases of the first of these, fourteen of the second, and six of the third.

At the Strangeways Research Laboratory has been investigated the irradiation of chick tissue in the presence

of blood circulation. It was found that degeneration was most evident in areas of active cell division and absent from non-mitotic areas. This has been shown to be a direct effect, which is less apparent after the third day of incubation. A stickiness seems to develop in the circulating erythroblasts, although chemical constituents necessary for clotting are not yet present in the blood. The blood vessels of the area pellucida are more easily damaged than those of the area opaca. At the Middlesex Hospital work in connexion with the histological classification of squamous tumours of the mouth region has been continued, with a view to determining if there is any relation between the histological appearance of a growth and its subsequent clinical behaviour, especially with regard to the response to irradiation. Among other conclusions it is mentioned that liability to metastasis may depend as much on the anatomical site of the growth as on its histological character, a fact, it is remarked, which has been too little considered in assessing the value of histological gradings.

BIRMINGHAM HOSPITALS CENTRE

INAUGURATION BY THE PRINCE OF WALES

The foundation stone of the Birmingham Hospitals Centre at Edgbaston was laid by the Prince of Wales on October 23rd. This ambitious and promising scheme, for the co-ordination of hospital services in the capital of the Midlands, is being carried out on a site of 150 acres (provided by the generosity of Messrs. Cadbury Brothers, Ltd.) near to the University, with whose medical school the centre will be in close connexion. The scheme is expected to cost ultimately one and a quarter million pounds, but only the first instalment of the total enterprise, costing about half that amount, is at present beginning construction. This first instalment, which will be completed in three years' time, provides 500 beds, and the entire scheme is designed to provide 750 beds, together with a separate wing for one hundred paying patients, and the housing of all the appropriate services in a self-contained domain. One feature of the Hospitals Centre will be provision for the treatment of rheumatic diseases by a variety of balneological methods, which will virtually bring the resources of a modern spa to the threshold of Birmingham.

The stone-laying ceremony took place at the spot where the skeleton of the administration block is already rising. The Lord Mayor (Mr. H. E. Goodby) welcomed the royal visitor to the city, and Sir Charles Grant Robertson, chief of the executive board of the Hospitals Centre, as well as Vice-Chancellor and Principal of the University (and formerly, as the Prince remarked in his speech, his own tutor in history at Magdalen College), outlined the objects of the centre. In laying the stone the Prince acclaimed the enterprise as one worthy of the progressive spirit of Birmingham, a pioneer scheme, unlike anything else at the moment being planned or carried out in Great Britain. After remarking on the urgent need for further hospital accommodation in a great and growing city like Birmingham, he said that those concerned had also realized how essential was a working partnership between the hospitals and the medical faculty of the university.

"It is up to the citizens of Birmingham," said the Prince in conclusion, "to see this scheme through. It is a voluntary one, and it is financed without any grants from public authorities, except in so far as the city of Birmingham has contributed to the construction of the necessary roads over the site. When we think of the economic crisis through which we have passed since the original appeal was launched in 1930 the response has indeed been remarkable, but, needless to say, more money is still required. In view of the need for further hospital accommodation and facilities for medical research and training, I would like to think that it will be readily forthcoming, and that the scheme will start three years from now free of debt."

Among those who were presented to His Royal Highness were Sir Gilbert Barling, Bt., F.R.C.S., late Pro-Chancellor of the University, and Dr. Stanley Barnes, dean of the faculty of medicine, who represented Lord Dawson

of Penn, President of the Royal College of Physicians of London; and the company included Sir Holburt Waring, President of the Royal College of Surgeons of England, Mr. Horace H. Rew, secretary of the Conjoint Examining Board in England, Dr. C. John Bridge, H.M. Senior Medical Inspector of Factories, Home Office, and Dr. C. M. Wilson, dean of the Medical School, St. Mary's Hospital, London.

NEW MEDICAL SCHOOL BUILDING

After laying the stone the Prince received gifts for the Hospitals Centre Fund. Among those who handed in gifts and had the honour of being presented was Dr. Clement Belcher, who was the first student to receive a medical degree at the inaugural ceremony of the University of Birmingham in 1901. It was announced that the fund had reached a total of more than £735,600, a record for a hospital appeal in Great Britain. His Royal Highness then walked to the site reserved for the new medical school building of Birmingham University, and, at the request of Mr. Walter Barrow, the Pro-Chancellor, cut the first sod. By this double ceremony he inaugurated a scheme which it is the proud belief of the citizens will make Birmingham in the near future one of the greatest hospital and medical school cities in the world. Before leaving Edgbaston the Prince visited the Students' Union, and recorded his name in the visitors' book. He afterwards visited occupational centres for the unemployed, and saw other aspects of social service work in Birmingham. He was also taken to the areas marked for slum clearance, and visited several of the dwellings. It is not before time that Birmingham tackles its housing problem. A recently published survey, by a group of citizens, states that in the seven central wards 19,000 houses, or 41.6 per cent., were found to be below a decent standard of habitation in point of disrepair, insanitariness, or overcrowding.

PATENT MEDICINES LEGISLATION

• STATEMENT BY ROYAL COLLEGE OF SURGEONS

The views of the Royal College of Surgeons of England having been asked for by the Standing Committee on Scientific Research of the Economic Advisory Council, the statement printed below was adopted by the Council after receiving the report of a committee, and it now appears in the annual report for 1934, copies of which may be obtained by Fellows and Members on application to the Secretary of the College, Lincoln's Inn Fields, W.C.1.

SALE OF PATENT MEDICINES AND APPLIANCES

The sale of secret remedies has in this country reached very large dimensions, and it is desirable in the interests of the public that it should be placed under some control. Among the objectionable features of the uncontrolled sale of these remedies we may mention the following: (1) The remedy may contain some drug which is injurious, such as acetanilide (headache powder). (2) More generally the remedy is purely fraudulent, containing no substance of therapeutic value. (3) The claims made for the remedy are always exaggerated and are, in general, purely fraudulent.

In many other countries secret remedies are either not permitted at all or are only allowed under the most stringent control. Thus in Germany a large group of preparations can only be sold under medical prescription, and may not be publicly advertised. In Austria the composition must be disclosed. In France they can only be sold under Government approval, whilst in Italy the prescription must be approved by the Government and accompany every package. In the United States the sale of medicinal preparations is regulated by the Food and Drugs Act, and every package must carry a label with the exact prescription. In Australia both the medicines themselves and all printed matter related to them are strictly supervised, and, in general, the prescription must appear upon the label.

In England it would appear that there is no effective control either of the composition of secret remedies or of the claims made for them, and, in fact, proprietary medicines are definitely excluded from the operation of the Food and Drugs Act. The only restrictions are those relating to scheduled poisons and to remedies for venereal disease. The situation cannot be better expressed than in the words of the Select Committee on Patent Medicines in 1914:

"For all practical purposes British law is powerless to prevent any person from procuring any drug, or making any mixture, whether potent or without any therapeutic activity whatever (so long as it does not contain a scheduled poison), advertising it in any decent terms as a cure for any disease or ailment, recommending it by bogus testimonials and the invented opinions and facsimile signatures of fictitious physicians, and selling it under any names he chooses, with payment of a small stamp duty, for any price he can persuade a credulous public to pay."

RECOMMENDATIONS OF SELECT COMMITTEE

The Select Committee recommended: (1) That the administration of the law governing the advertisement and sale of patent, secret, and proprietary medicines and appliances be co-ordinated and combined under the authority of one Department of State. (2) That this department be the Ministry of Health. (3) That there should be a Register of Manufacturers, Proprietors, and Importers of these remedies and appliances, and that every such person should require to obtain a certificate of registration. (4) That an exact and complete statement of the ingredients of every such remedy, and a full statement of the therapeutic claims made for any remedy or appliance, be furnished to the Department. Such information to be regarded as confidential.

The Committee made various recommendations for machinery to ensure the enforcement of their proposals. After careful discussion they definitely rejected the proposal that each article should bear a label describing its composition. The Committee referred to the enormous sums spent on advertising patent medicines, and to the opposition which may be expected from the Press to any interference or control.

PROPOSED LEGISLATION

Based on the proposals of the Select Committee, a Bill was introduced by Viscount Astor in 1920, but was withdrawn. In 1931 Mr. Somerville Hastings introduced a Bill supported by the Public Health Advisory Committee of the Labour Party, but this also was dropped. A Bill is at present being considered by the Parliamentary Committee on Food and Health, the object of which is to prohibit the advertisement and sale of medicines or appliances for the prevention, cure, or relief of certain diseases and conditions, the use of fictitious testimonials, and the offer of diagnosis and treatment by correspondence. The representatives of the patent medicine trade declined to support any Bill on the lines of the Select Committee, but it agreed not to oppose a measure such as has now been drafted.

In the opinion of the Council of the Royal College of Surgeons the problem can only be adequately dealt with on the lines laid down by the Select Committee of 1914 by bringing the sale of proprietary medicines and appliances under the control of the Ministry of Health. Such a control should ensure: (1) That the article in question is not injurious. (2) That the description of its therapeutic action is not fraudulent. (3) That the sale of the article in question and the methods of its advertisement are not against the public interest. (4) That no medicine or appliance is advertised as a cure for any of the following diseases and conditions:

Blindness.	Epilepsy.
Bright's disease.	Fits.
Cancer.	Locomotor ataxy.
Consumption.	Lupus.
Diabetes.	Paralysis.

This opinion was duly communicated to the Committee on Scientific Research of the Economic Advisory Council.

Nova et Vetera

THE EXECUTION OF CHILDREN

The Children and Young Persons Act, 1933, in Clause 50, says: "It shall be conclusively presumed that no child under the age of 8 years can be guilty of any offence." In Section 53 it is enacted that sentence of death shall not be pronounced on or recorded against a person under the age of 18 years. As a contrast to present-day views it is interesting to consider the attitude to juvenile crime which prevailed in olden times, when the ferocity of the law allowed such atrocities as the hanging of a child of 8 for arson and the burning alive of a girl of 13 for murder. An account of a few selected cases will be of interest to doctors and sociologists, and all who are concerned in the treatment of the juvenile criminal.

At Bury Assizes in 1748 William York, aged 10, was convicted before Lord Chief Justice Willes of the murder of a girl of 5, and was sentenced to death. The Lord Chief Justice was doubtful whether he ought to allow one so young to be hanged, so he postponed the execution till he had an opportunity of consulting the rest of the judges.

The following were the facts of the case. Both the children were parish children under the care of a parishioner, with whom they lived. On the day the murder happened the man of the house and his wife went out early and left the children in bed together. When they returned from work the girl was missing. The boy, when questioned, denied any knowledge of her whereabouts. A search was made, and it was found that a heap of dung near the house had been recently disturbed. This heap was searched, and buried in it was found the body of the girl, cut and mangled in a terrible manner. The boy was at once charged with the crime. He denied all knowledge of it. He was closely questioned, and then said he would tell the truth. He said the little girl was wont to "foul" her bed, and had done so that morning. (The bed was examined, and this was found to be untrue.) He took her out of bed and carried her to the dung heap, and with a large knife mangled her body and buried it in the heap.

The judges, having considered all these facts, agreed unanimously

"that supposing the boy to be guilty there was clear evidence of a mischievous discretion and he was certainly a proper subject for execution and ought to suffer, for it would be a very dangerous consequence to have it thought that a child might commit such a crime with impunity. There are many crimes of the most heinous nature, such as in the present case the murder of young children, poisoning parents or masters, burning houses, etc., which children are very capable of committing; and which they may in some circumstances be under strong temptations to commit; and therefore, though the taking away the life of a boy of 10 years old may savour of cruelty, yet as the example of this boy's punishment may be the means of deterring children from the like offences; and as the sparing of this boy, merely on account of his age, will probably have a quite contrary tendency, in justice to the public the law ought to take its course; unless there remaineth any doubt touching his guilt."

In this general principle all the judges concurred. Two or three, with some slight element of mercy, suggested another reprieve for the boy, in case there might be any element of doubt as to his guilt. This was granted, but as the Lord Chief Justice received no evidence to help the boy he ordered his execution. However, the Secretary of State later granted him a pardon upon condition that he would enter the Navy, and thus the horrible tragedy of the execution of this child was averted.

At Abingdon in 1629, John Dean, aged 8, was tried for burning two barns in Windsor, and as it appeared he had "malice, revenge, craft, and cunning," he was sentenced to death and actually hanged.

At Dorchester, in 1794, a girl, Elizabeth March, was convicted of the murder of her grandfather, and was executed; and in 1828 a boy, Giles East, aged 17, was convicted at the Kingston Assizes for carnally knowing

a girl of 9 years, and was hanged. There is also recorded at a much earlier date the case of a girl of 13 who was burnt alive for the murder of her mistress. There is a record of a case of a child under 7 years who was tried for murder. The jury found that when the crime was committed the child was under 7, and a pardon was therefore granted.

The method of hanging in these old days was much more cruel and brutal than that of to-day. The victim was placed in a cart under the gallows, the rope put round his neck, and the cart drawn away, or he mounted a ladder, which was afterwards withdrawn. In all cases death was prolonged, and due to slow strangulation. Sometimes the friends (for executions were in public until 1868) or a kindly executioner would hang on to the feet of the victim, and thus bring about death more quickly. It was about sixty years ago that the method of the long drop was adopted; this caused instant death by breaking the neck. Some very good specimens of fracture-dislocation of the cervical vertebrae by execution are to be seen in the museum of the Royal College of Surgeons in Lincoln's Inn Fields, London.

L. A. PARRY.

England and Wales

Welsh National Memorial

In the twenty-second annual report of the King Edward VII Welsh National Memorial Association (Prevention, Treatment, and Abolition of Tuberculosis), which covers the twelve months ended March 31st, 1934, are included the reports of the council of the Memorial Association, the principal medical officer, the directors of research and education, the research bacteriologist, medical superintendents of hospitals, and area tuberculosis officers. Five clinical studies are published relating respectively to epituberculosis, milk infection in children, miliary tuberculosis at the clinic, an analysis of cases admitted to the South Wales Sanatorium in 1933, and hydatid disease of the lung in a child. The report concludes with medical statistics (Memorandum 37 T revised) concerning the work of the dispensaries and hospitals and the immediate results of treatment. Successful progress was made during 1933 with the work of erecting the new hospital at Hayes Farm, Sully, which will contain 300 beds. The extension programme of the council envisages the provision of 500 new beds, and it is proposed to place the remaining 200 in a hospital near Swansea. Discussion is proceeding as regards a suitable site. At a conference held in Carnarvon last November various practical recommendations were approved for submission to the councils of certain northern counties in Wales where there is a high tuberculosis death rate. Two Welsh-speaking health visitors were also appointed for the Anglesey and Carnarvon and the Merioneth and Montgomery areas respectively; they began work last March. Dr. D. A. Powell, principal medical officer of the association, records decreases in the numbers of new cases and of contacts examined, the latter being due partly to shortage of staff. There was, however, a rise in the incidence of, and the death rate from, pulmonary tuberculosis in young adults. A statistical table shows that the age period 15-25, and particularly the lustrum 20-25, is by far the most susceptible for pulmonary tuberculosis, and the decade 5-15 for non-pulmonary. It has been suggested that we are reaping the aftermath of the war, persons belonging to the most hardly hit age, about 20, having been born during the war years. A more important factor is thought to be the industrial depression, with its repercussions on physique, nutrition, and morale, on the ebb and flow of the population, and, therefore, on the individual make-up of that population as regards age, sex, and vigour. Professor

Cummins, director of research, states that acid-fast bacilli other than the tubercle bacillus have been receiving continued study in view of their appearance in the sputum of patients who were certainly not tuberculous. Two strains have now been cultivated and are under detailed examination. Investigations on sensitivity problems promise useful results; one series has cast doubt on the value of the subcutaneous test in tuberculosis, a considerable number of positive reactions having been obtained in patients free from any of the signs or symptoms of tuberculosis, though probably infected to a greater or less extent in a degree consistent with health. Dr. R. Owen Morris, director of education, contends that emphasis should not be laid on the negative policy of avoiding disease, but rather on the positive virtue of keeping well. The laws of health should be more widely taught to the young, who alone have sense to profit therefrom, and have not yet contracted faulty habits of thought. As in previous reports of the association, a wide range of topics is covered in the various incorporated statements by medical officers of hospitals and dispensaries. Dr. R. J. Matthews of Mid-Glamorgan, for example, expresses the view that tuberculosis officers should devote themselves to treatment rather than to differential diagnosis, which could be left more economically to medical practitioners and hospitals. He also thinks that hospital dietaries could be made more palatable and less monotonous, with therapeutic benefit, while institutional regulations could be relaxed with similar advantage. Dr. R. M. Hiley of Pontypridd and Rhondda stresses the value of the dispensary as a unit in the tuberculosis scheme when associated with good domiciliary work. Others suggest that, while present-day patients are seeking medical advice earlier than used to be the case, the disease is more extensive when first detected, indicating that it is now of a more acute type. Reference is made to the importance of realizing that a definite history of pleurisy in adults means in a very large proportion of cases definite—not threatened—tuberculosis, with the disease in its most favourable form for treatment. Moreover, prolonged or frequently recurring respiratory attacks in young persons should be regarded with suspicion and the patients subjected to careful examination. The steady advance of pneumothorax as a valuable line of treatment is noted. In these and many other respects this annual report sheds light on the way in which the treatment and the prevention of tuberculosis are advancing side by side, the conclusions being reached by a survey of an adequately large number of patients by physicians of varying outlook and long experience.

Cerebro-spinal Fever in England and Wales

In a communication to the Office International d'Hygiène Publique, published in the September *Bulletin*, Dr. M. T. Morgan gives the following survey of the incidence of cerebro-spinal fever in England and Wales. The notifications, which in 1931 had amounted to 2,157 in a population of about forty millions and in 1932 were 2,136, fell to 1,695 in 1933. In the West Riding of Yorkshire, where the increase was greatest, the notifications in 1933 were not half the number of those in 1931. The general incidence of the disease, therefore, though still above the normal, shows a well-marked decline. Examination of the serological type of meningococci from 169 cases of cerebro-spinal fever during the period April 1st, 1933, to March 31st, 1934, showed that 112 (66 per cent.) belonged to Group I and fifty-seven (34 per cent.) to Group II, whereas during the war the epidemic of cerebro-spinal fever was caused by meningococci belonging to the two groups in about equal proportions. During the period 1931-4 the epidemic showed little tendency to

spread beyond the West Riding, although the disease showed some degree of abnormal frequency in the adjacent county of Derbyshire. The cases in which meningococci of Group II were isolated did not differ clinically from those due to Group I, though that may partly be due to the disease being principally found in infants. In 811 cases in which serum treatment had a fair chance of acting the fatality was 26.9 per cent., although in many of these cases it was not employed until late in the disease.

The Health of Holborn

The report of the medical officer of health for Holborn for 1933 contains many reminders of the late Dr. C. W. Hutt's wide outlook and his enthusiasms, as well as of his attention to detail. It is interesting to note, in view of some of his previous reports, that nuisances arising from litter on the public highway have been mitigated, following steps taken by the dust inspector to secure the use of properly covered ashbins in streets where the refuse is put out on to the footway. Efforts have also been made to prevent the turning over of the refuse by children. Routine inspections were made of 533 factories, 614 workshops, and 3,376 workplaces. It is remarked that workshops are automatically converted at a very small cost into factories by the installation of a small electric motor; the health conditions then may no longer be inspected by the staff of the borough council, except as regards sanitary accommodation. The more important industries carried on in these factories are printing, engineering, bookbinding, and metal work. There were 1,046 inspections of market streets containing stalls at which meat, fish, fruit, and vegetables are sold. This regular inspection helps to secure the sale by stallholders of sound food only, and also discourages casual and unsatisfactory hawkers who generally avoid streets that are under strict supervision. The large day population in the borough calls for many eating-houses ranging from the "cookshop," where cheap meals are provided, to the high-class restaurant. Inspection of the kitchens of such places has become a routine but important part of the work of the public health department. Generally, it is stated, the kitchens are found to be satisfactory and the food clean and wholesome. Now and then, however, some action is needed to ensure compliance with a reasonable standard of efficiency. The report refers to the urgent need of establishing definite standards for cream, cheese, and other foodstuffs; a small permanent committee or board of reference should be appointed with power to make recommendations or amendments. The great advances in the scientific investigation of foodstuffs have made new standards imperative. Such a body should be in a position to consider the new methods of examination which are constantly being evolved, and to prescribe the appropriate value to be attached to them in determining the purity, or otherwise, of articles of food.

Conference on Mental Welfare

A conference on mental welfare will be held in the Great Hall, British Medical Association House, Tavistock Square, W.C., and at the Royal Agricultural Hall, Islington, N., on Wednesday to Friday, November 21st to 23rd, inclusive. Arrangements have been made to hold this conference in the same week as the Public Health Congress, so that the Central Association for Mental Welfare may collaborate with the committee of that congress for one session, and also that the travelling expenses of delegates may be saved. An exhibition of the work of defectives who are being taught under the scheme organized by the Central Association for the Middlesex County Council in occupation and industrial centres, and in their own homes, will be on view in a room adjacent

to the conference hall at B.M.A. House. On the first morning there will be a joint session with the Public Health Congress at the Royal Agricultural Hall on boarding out from mental hospitals, when the chair will be taken by Mr. L. G. Brock, chairman of the Board of Control. The morning of the second day will be devoted to a discussion on modern tendencies and developments in work for mental defectives, with special reference to institution care, community care, and research. In the afternoon Mr. Brock will preside over a discussion of the voluntary provisions of the Mental Treatment Act. Friday morning is left free for delegates to be able to attend a session of the Public Health Congress on voluntary sterilization and the report of the Departmental Committee on Sterilization. Friday afternoon will be spent in a discussion of the work of the educational psychologist, and of some experiments in the training of the retarded child. Mr. Herwald Ramsbotham, Parliamentary Secretary to the Board of Education, will give an opening address. Tickets, at 10s. 6d., to include advance copies of the papers, will also admit to the Wednesday and Friday morning sessions of the Public Health Congress. They can be obtained from the secretary of the Central Association for Mental Welfare, 24, Buckingham Palace Road, S.W.1. A luncheon for delegates will be held at the Hotel Russell on Thursday, November 22nd, at 1.15 p.m., when Sir Hilton Young, Minister of Health, will speak. Luncheon tickets, price 6s., must be obtained beforehand from the offices of the Central Association.

Instrument Manufacturers at Dinner

The annual dinner of the Surgical Instrument Manufacturers' Association (Incorporated) was held at the Holborn Restaurant, London, on October 26th, with the new president, Mr. H. Guy Drew (Down Brothers, Ltd.), in the chair. Mr. W. H. Ogilvie, in proposing the health of the association, contrasted the progress of surgical instrument manufacture with that of the motor-car industry, the latter seeming to him to typify all that the former should not become. The consumers in the motor-car industry were becoming every year less skilled in technique and more desirous of appearance and speed. Cars were turned out by mass production, in which craftsmanship was sacrificed. On the other hand, the making of surgical instruments was still a craft, even though routine work had to be done to some extent. Its products were built to meet special needs, and the user and the manufacturer were continually in counsel. The making of surgical instruments demanded long training, hard work, the best materials, and the most scientific testing. The maker had to be an expert in wood, leather, metal, glass, something of a physicist, perhaps a chemist, certainly a mathematician, and also a fashion designer. In Mr. Ogilvie's view the fourth age of surgery was near. The first age was the primitive one, extending into the lifetime of some of those present, when, although it was true that bones were set, limbs amputated, and stone removed, the patient very often died, and the instruments used were not greatly different from those employed in Pompeii. The second age started with Lister and ended with the war. The third age was one of consideration and criticism, the collection of enough experience to be able to abandon bad methods and eliminate unnecessary steps, until technical skill had reached a stage when it seemed to some it could not go further. But in the new epoch, with finer contrivances, new opportunities for the surgeon would arise. Already there were available instruments which reduced considerably the time spent on major operations, or enabled stitches to be put with mechanical exactitude into hitherto inaccessible positions. He concluded with an expression

of his own personal gratitude to the surgical instrument maker. He had taken him on occasion some Heath Robinson-like drawings, and from them the instrument maker had contrived something exactly to his purpose—really his (the surgeon's) own instrument, though he was probably the only person who could recognize it as such. Mr. Drew, in response, spoke of the astonishing number of new patterns which, at the call of the profession, the instrument makers were required to produce. In view of this great fertility of invention it was important that the industry should be as free as possible from restrictions and the domination of outside interests. He mentioned that it was proposed to form an institute to look after the education of those entering the industry. In reply to the toast of "The Guests," proposed by Dr. A. N. Gardner, Dr. G. C. Anderson, Medical Secretary of the British Medical Association, also spoke of the service which the craft had rendered to the profession, and through them to the community. He mentioned that the hosts of that evening had co-operated with the British Medical Association and other bodies in furthering a Bill to prevent the indiscriminate advertising of surgical and other appliances. Although the proposed measure was not as far-reaching as had been hoped, yet the Bill, if it could be got through, would do much to redress a very present evil. Dr. Anderson also mentioned that the register of medical auxiliaries, with which the British Medical Association had had much to do, had taken a wider connotation, and he hoped that in course of time all who were occupied in any branch of work ancillary to the medical profession would be placed on a national register.

Duration of L.C.C. Specialists' Sessions

The London County Council as recently as June last decided that a session in relation to the employment of all consultants and specialists should be a period of approximately two and a half hours' duration. The Hospitals and Medical Services Committee, however, has decided that the request of an assistant physician for x-ray work at one of its hospitals that the length of his sessions should remain at two hours is one that should be granted, his remuneration remaining unaltered. In this particular case the duration of the session was two hours under the terms and conditions of service laid down by the late authority at the time of the specialist's appointment. He also, in order to economize time, owing to the necessity for "tuning up" the x-ray apparatus before it can be used on each occasion, works in double rather than single sessions, and it is stated that the work can be done in sittings of four hours each. The situation of the hospital requires a journey by car of about an hour each way from and to Harley Street, for which no travelling expenses are payable.

Reconstruction of a London Fever Hospital

The Hospitals and Medical Services Committee has submitted to the London County Council proposals for reconstructing and modernizing the North-Eastern Hospital for Infectious Diseases, South Tottenham. At present the hospital contains 661 beds, of which 509 are in temporary buildings. The new buildings will provide for 608 patients, making, with the 152 beds in existing permanent buildings, a total of 760, or just upon one hundred more than at present. The work is to be spread over three or four years, so as not to affect materially the patient accommodation at the hospital. The new buildings will comprise eight two-story general ward blocks, two two-story isolation blocks, and four single-story buildings, containing patients' receiving and discharge sections and other departments. Each of the general ward blocks will contain sixty-two beds, and on

each floor there will be twenty beds in open wards divided by dwarf glazed screens into bays of four beds each, also five one-bed and three two-bed isolation wards. A T-shaped plan has been adopted for the open wards, so that from a centrally placed combined ward kitchen and duty room most of the patients can be kept under observation. The planning of the new blocks will secure the maximum of sunshine, together with effective ventilation, as a folding type of casement window will be provided to enable practically open-air conditions to be secured without movement of beds. At the outer ends of the wards sun verandas will be provided. Each of the isolation blocks will contain fifty-six single-bed rooms, with a centrally planned entrance, duty room, and sanitary unit. An operations block is to be erected, containing on the ground floor an operating theatre, anaesthetizing room, sterilizing and preparation rooms, and an x-ray and light treatment unit with separate entrance; and on the upper floor a teaching section, with lecture room, demonstration room, library, and laboratory of three rooms. The estimated cost of the work is £209,443.

Scotland

Biology in Education

A Scottish national conference on "The Place of Biology in Education," organized by the British Social Hygiene Council, met in the City Chambers, Edinburgh, on October 19th. Sir Basil Blackett acted as chairman, and the Rt. Hon. Sir Godfrey Collins, Secretary of State for Scotland, opened the conference, which was attended by some 160 delegates representing Scottish Government departments, universities, local authorities, and educational institutes. Professor F. A. E. Crew, in a paper on "Biology Applied to Human Problems," said that a serious disability of the modern world was the sense of purposelessness which was encountered on all sides, and it was important to remove this from the minds of those to whom the future belonged. To numbers of young people the present seemed to be meaningless, with the result that they were apt to cultivate a harmful hedonism or to attack enemies created by their own ignorance and imagination. In the teachings of the biological sciences there might be discovered serenity, hope, and purpose, which could give enjoyment to the acts of living, and of all the adventures of to-day the greatest was to be found in the search for knowledge. Man had performed remarkable feats in the past by changing the characters of domesticated animals and cultivated plants to his own advantage, and by the same methods mankind might be refashioned if it only knew what it wanted, and wanted this sufficiently ardently. There was nothing in biology which denied that the universe would continue to be as creative in the centuries to come as it had been in the past, but development and differentiation must be controlled and directed by man. Mankind was able to destroy or control all living competitors for supremacy, but the continuance of mankind was not necessary for the advancement of life, and if man did not continue to advance, some other form of life would occupy his place. The future might see types of humanity and of social organization very different from those existing to-day. Professor James Ritchie (Aberdeen) said that attempts to make a school course in biology a kind of attenuated university course were sure to end in disaster. The teacher of biology at present required to have an honours degree in science, but this was a useless requirement for teaching biology in the schools. The honours year for a degree in science was a year of

specialized research, which could have very little bearing on the teaching of biology to school children. If a student had taken a particular science subject, he could be regarded as having the necessary qualifications for teaching that subject, and an extra year would be more profitably spent on an intensive study of common British animals and plants than on doing honours work. This study should not be of the structure and differentiation of animals and plants, but should be an investigation of their life-histories and environment. Sir Thomas Holland, Principal of Edinburgh University, who presided at the afternoon session, said with regard to the study of biology that there was at present the difficulty that students had to take this as an extra subject, and some means must be found of getting over this difficulty, as, for instance, by co-operation between the universities and the schools. He was not sure that it would not be a good plan to make biology a subject for entrance to a university course. Professor James Ritchie considered it was an astonishing sign of the times that, whereas at every stage of education biology was being accepted as a necessary ingredient, the General Assembly of the Church of Scotland should, in 1934, have abolished the only chair of natural history in the Church colleges, which had been occupied in succession by Professor Henry Drummond and Professor J. Y. Simpson. The suggestion that natural science could be adequately taught to divinity students by the professor of another divinity subject showed a strange ignorance of the progress of the study of life and of the equipment desirable in men who were to guide the people in the ways of religious and social advancement. Dr. J. B. Orr, Director of the Rowett Institute, Aberdeen, who summarized the day's discussions, said that they were moving on to a time of a higher material standard of life, but also to a time of a higher intellectual outlook. There was especial need in the direction of affairs of men who had a biological outlook, and all who set themselves to guide and direct the people should have a systematic training in biology. On his recommendation a resolution was adopted by the conference requesting educational and administrative authorities to do their utmost to secure greater prominence for general biology at all stages of education.

University of Edinburgh

At the half-yearly meeting of the General Council of the University of Edinburgh, held on October 26th, the Business Committee reported that the total enrolment of full-time students in the universities of Great Britain for the session 1932-3 had been 50,155, of whom 74.3 per cent. were men and 25.7 per cent. women. The medical faculties in the British universities had shown an increase of 807 students. Of the total students 35,813 were in England, 10,975 in Scotland, and 3,367 in Wales. This showed a considerable excess of university students in Scotland as compared with England in proportion to the total population. The total disbursements for Edinburgh University during 1933 had amounted to £293,764. Principal Sir Thomas Holland, in a survey of the university during the year, said that out of the total of 4,478 students in British universities from outside the British Isles Edinburgh had 505, while Oxford had 524 and Cambridge 538. It had been agreed at a universities congress in Edinburgh in 1931 that as a general principle students from over-seas should, as a rule, be discouraged from coming to British universities to take a first degree, but that they should be encouraged to come for special training or post-graduate instruction. In Edinburgh an adviser of over-seas students had been secured in the person of Mr. Gaudin, a former master at Merchiston, and Sir Thomas thought that the distant parent or

guardian had now no good cause for feeling alarmed about the life and comfort of the boy who came to Edinburgh University. Since the 350th anniversary celebration last year of the foundation of Edinburgh University, over 1,000 new members had joined the Graduates' Association. There had also been up to date an increase of 174 in the number of students in the faculties of medicine, science, law, divinity, and music, although there had been a fall in those joining the faculty of arts. A special feature in the university had been the progress made in the various forms of physical training instituted five years ago under the control of Colonel Campbell. Physical training for the ordinary student was of more importance than record breaking by recognized athletes. With regard to accommodation, the provision of hostels was increasing, and 527 students were now provided for in this way, or 14 per cent. of the total. The increase of modern transport facilities meant, however, that a larger number of students lived at home in the districts surrounding Edinburgh, or 47 per cent. of all the students. Of the remaining 39 per cent. there were many who would gladly enter hostels if accommodation were available.

Glasgow Graduation Ceremony

At a graduation ceremony held in Glasgow University on October 20th, Principal Sir Robert Rait conferred degrees on 116 students, including 104 students of medicine. In congratulating the graduands the Principal said that the progress of knowledge in their own time had added greatly to the burdens which fell upon the student of medicine. While students of other subjects could choose what they would study, there was a tendency for the layman to demand that his doctor should know everything about every disease. As fresh discoveries were made and new discussions arose, the universities and the General Medical Council would have to consider important questions about the length and nature of the medical curriculum. Students did not pass from an exacting training to an easy life, and they must not consider the layman unreasonable in his demand. The latter trusted them because of the long and glorious tradition of the medical profession. To every generation the profession had given a response by increasing its power to heal. The exercise of the will to heal included continuance of studies as opportunities might serve. It also included the duty of keeping fit, the display of unwearying patience and self-restraint, the power of inspiring hope, and the sacrifice of ease and comfort.

Life Statistics in Scotland

A supplement to the seventy-eighth annual report of the Registrar-General for Scotland, which was summarized in these columns on October 20th, 1934 (p. 736), contains a report on life tables by the Government Actuary. It is pointed out that no complete official life tables based on Scottish statistics have appeared since those contained in the nineteenth annual report of the Registrar-General for Scotland based on the census of 1871 and the deaths of that year. The population of Scotland at the 1931 census was 4,842,980; this was a decrease in the ten years since the previous census of nearly 40,000. This census population was smaller by some 12,000 than the calculated figure. It was found that the mortality of married men was much lighter than that of single men or widowers, and that the mortality of widowers was heavier than that of either of the other classes. There was less difference in the case of females. At every age, however, the rates of mortality of widows were appreciably heavier than those of single or married women. The mortality experience was investigated in Edinburgh and Glasgow, in the twenty-

four large boroughs excluding these two cities, in the northern counties where the population is sparse, in the central counties, which form the industrial area, and in the southern counties, which are predominantly rural. It was found that the mortality rates for Edinburgh were more favourable than those for the country generally at the lower ages in both sexes. The heaviest rates were found in Glasgow, where at every stage of life the mortality was less favourable than that of the country as a whole. As the population of the city of Glasgow was approximately one-fourth of the total population of Scotland it followed that this mortality experience affected materially the rates shown in the Scottish national tables. Density of population, accompanied presumably by a considerable element of unsatisfactory housing and environment appeared to be the factor to which excess of mortality over the average of the whole country was traceable, and incidentally created a comparatively high national average because the population to which these unfavourable conditions were applicable included 2,631,320 persons as against 2,211,660 living under more favourable conditions. It is apparent from comparative tables that between the censuses of 1921 and 1931 there was a substantial improvement in the vitality of the people of Scotland. The probability of a child, whether male or female, dying in the first year of life decreased by nearly 12 per cent. The decrease in the mortality rates was most marked at the younger adult ages, and at the age of 30 amounted to over 20 per cent. At the advanced ages, however, there was evidence of deterioration, and the death rates at ages over 80 were greater in 1931 than in 1921. The supplement to the report may be obtained from H.M. Stationery Office, 120, George Street, Edinburgh (price 1s. net).

Extension of Glasgow Mental Hospital

At the commencement of operations for the building of an extension to Hawkhead Mental Hospital, Glasgow, it was pointed out that the Glasgow Health Department now controlled 9,000 beds, which accommodated 50,000 patients annually. When the present scheme was completed there would be provision for a further 200 beds for mental cases, and a nurses' home with accommodation for 124 nurses. These buildings would cost about £120,000. A new experiment was being tried of eliminating the boiler house and heating the water for the institution by electricity, which, it was thought, would be cheaper than the coal fire.

The nineteenth annual report of St. Dunstan's for the year ended March 31st, 1934, is able to record successes which justify its appeal for more money. The institution still looks after about 2,000 men in one way or another, and nineteen new cases of war blindness were admitted during 1933, including five gas cases, the pernicious effects of which had been delayed for over fifteen years (see *British Medical Journal*, October 27th, 1934, p. 769). In addition to the 2,000 St. Dunstan's looks after about 5,000 of their dependants. More work has been found for blinded masseurs, telephone operators, and other commercial and business men, while home-workers and craftsmen are still assisted. More than a quarter of a million articles made by them were sold last year—about the same number as in 1932. The large convalescent and holiday home at Brighton is also a training centre, and the wide variety of occupations which are available now for skilled men, though blind, is illustrated well in the report. More than a hundred are qualified masseurs, either attached to hospitals or in private practice. Nearly 200 poultry farmers are at work, many having been trained in the St. Dunstan's model poultry farm at King's Langley. Between 200 and 300 are keen gardeners, and all who wish are taught during their general training to play some musical instrument. The institution has its own dance band and singers.

Reports of Societies

PROGNOSIS IN CORONARY OCCLUSION

At the meeting of the Section of Medicine of the Royal Society of Medicine on October 23rd a discussion took place on the ultimate prognosis of coronary occlusion.

Professor JOHN HAY of Liverpool, in opening, said that prognosis was the most difficult task in medicine. A statistical approach, of course, was available, but it was primarily actuarial in its usefulness. A long series of cases helped one to assess with some confidence the true prognostic value of the various factors. There were two essentials in arriving at an opinion as to the future of a patient suffering from coronary occlusion: (1) a clear conception of the actual happenings in the heart, the underlying pathology, the changes preceding and following the coronary block; (2) the history of the disease condition. The future efficiency depended upon the extent of the necrotic area, the relative proportion of muscle fibre involved, and the integrity of the remaining myocardium. Occlusion might come suddenly and without warning, or there might have been an increasing liability to anginal pain or cardiac failure of the congestive type. Coronary occlusion having taken place, the patient might die suddenly from shock, or death might occur within a few weeks from ruptured heart. Cardiac failure of the congestive type might develop—rapidly from the onset of the occlusion; later on, slowly from the general deterioration of the myocardium. Those who survived the shock did so with a gravely crippled heart, and, of course, with the factors still persisting which had predisposed to the original occlusion. On the other hand, the patient had had his lesson, he was probably under medical supervision, and was prepared to live within his limitations.

The chances of surviving the first attack were difficult to assess because many of the milder cases escaped diagnosis, and those in which death occurred suddenly at the onset were often not included in the published statistics. The initial mortality was heavy. Carey Coombs, in a total of 144 patients, reported forty-nine deaths in or very shortly after the initial attack; of the surviving patients, thirty-two died within twelve months. A number of figures, not greatly different, from other observers were quoted. Of the survivors it could be said only that sooner or later they would die a "cardiac death." They could be divided into two groups. The first consisted of those in whom the cardiac disability was shown by an increasing tendency to dyspnoea and a gradual drift towards failure of the congestive type. Pain was not the dominant feature with these patients. In this group could be included those whose cardiac reserve was still further hampered by auricular fibrillation, which might have originated in the attack of occlusion or have appeared later and become permanent. The outlook for the patients in this group was bad from the start. Their future was measured by months. The second group consisted of those who made a satisfactory recovery, and were able to lead reasonably useful lives, though rarely entirely free from some form of cardiac distress. They learned, however, to live within their limitations, and sometimes showed surprising longevity. They eventually succumbed to some kind of cardiac difficulty: of course, they were liable to die from intercurrent disease, but it was remarkable how relatively few died from other than a cardiac cause. The life of the members of this group might be measured by years instead of months. If the first critical stage could be weathered, their expectation was two to five or more years. A classic example was John Hunter, who had his first attack of coronary thrombosis twenty years before his death, when he was 45 years of age; three years later he had a second attack, and during the last few years of his life was liable to recurrent attacks of effort angina; yet his life continued at high pressure throughout. Amongst his own patients the speaker had had one who died last year at 70, fourteen years after his first attack; he was

liable to slight angina of effort. On careful scrutiny two facts stood out: (1) the frequency with which life was ended suddenly, presumably by a terminal thrombosis, and (2) the significance of a progressive tendency to dyspnoea and congestive failure. The age of onset might modify the prognosis. The younger were more apt to recover, and, having recovered, their expectation of life was a little longer. He could not satisfy himself that any reliable inference was to be drawn from blood-pressure findings after the attack was over. If anything, persons with lower blood pressure fared worse. Electrocardiograms were of far more value in the diagnosis of coronary occlusion than in its prognosis. In his own cases glycosuria of a mild type did not appear to add to the difficulty or diminish the expectation of life.

Dr. T. F. COTTON said that the occlusion syndrome was very easy to recognize. When the patient was seen during an acute illness the clinical features were characteristic. It was said that half the patients died rapidly during the acute illness. If that statement were accepted there must be included in the group patients who died from a recurrence of thrombosis. To forecast the course of recovery from the acute illness was difficult. A good deal of useful information could be obtained by observing and recording the notes on those patients who presented themselves with a history of angina before it was known that the angina was a sequel of coronary thrombosis. Of the last 200 anginal cases of which he had notes, seventy-three gave a history of past occlusion or had occlusion at the time he examined them. Of this number, thirty-three had angina after the occlusion. These anginal cases after occlusion seemed to suffer an increasing disability from angina of effort, or spasmodic angina, or recurring thrombosis. He had not seen one case of good functional recovery in this anginal group, and of the total number he knew that twenty patients were dead. Of the other forty cases of occlusion, but not angina, sixteen patients were noted as having made a recovery. Of the patients who recovered from the acute illness, therefore, a large number would have angina and die as a result; but patients who had coronary thrombosis and did not get angina might be expected to make a good functional recovery. Prognosis was distinctly more grave in the anginal group after occlusion.

Dr. B. T. PARSONS-SMITH remarked that the title of the discussion implied recovery from a catastrophe which until moderately recent times was regarded as invariably fatal. As a result of clinical observation on the part of many workers, a reasonably clear-cut conception of coronary thrombosis was nowadays recognized, and although the differential diagnosis of the condition was at times a matter of extreme difficulty one could not fail to be struck by the universally accepted prevalence of the malady, even allowing for the fact that errors might arise. Particular attention should be paid to subjective symptomatology, which might vary from a trifling degree of effort syndrome to serious manifestations of circulatory embarrassment, giddiness, breathlessness, and physical fatigue. In a large number of cases retrosternal pain would be complained of as a prominent symptom; its later recurrence must always be viewed with alarm. A comprehensive study of physical signs was essential to correct understanding of the course of the disease. Unfortunately, there was no reliable method of estimating the functional capacity of the heart in anything approaching a concrete form. For these reasons every case should be investigated on its individual merits, obvious discrepancies being noted and their significance assessed. Well-known signs of circulatory incompetence might proclaim their presence in unmistakable fashion. He had notes of several cases in which a relative asystole, observed by x-ray examination, proved to be a valuable sign of developing atheroma. Another sign was cardiac arrhythmia, to which special attention must be devoted. Some 50 or 60 per cent. of all cases of coronary thrombosis were immediately fatal; a relatively small number of patients recovered completely, and the remainder, roughly 40 per cent., might be expected to make a partial recovery. Their prognosis might be determined to some

extent by careful investigation of the circulatory efficiency and its reserve capacity, always remembering that complications might develop in a disease the pathological basis of which was coronary atheroma associated with myocardial dystrophy.

Sir MAURICE CASSIDY said that there was one factor which he thought was important in producing a coronary thrombosis or thrombosis elsewhere than in the coronary circulation—namely, infection. There could be no doubt that many thromboses were infective, and probably the fever and leucocytosis which were seen so often in coronary thrombosis were part of the evidence of its infective nature. This was a factor that could be modified by suitable treatment, sometimes with very satisfactory results. He agreed that the electrocardiogram was very disappointing so far as prognosis was concerned. Serial electrocardiograms, with the noting of progressive changes in the myocardium, might afford valuable information, but he did not think that a serious prognosis ought to be based entirely on electrocardiographic changes.

Dr. EVAN BEDFORD said that post mortem it was frequently found that the heart was blocked by a recent thrombosis, with nothing to be seen in the myocardium at all. It was these cases which were so often the subject of coroners' inquests; they formed a large percentage of all cases of coronary occlusion. The next most common thing found post mortem was hearts with healed fibrous infarcts, and the rarest thing to find at necropsy was infarcts of less than two months' duration. The type of case which accounted for the heaviest mortality was one which was rarely seen clinically. The question was, on seeing clinically a case of coronary thrombosis, what to say to the anxious relatives. The truth was that during the acute stage no one could give a prognosis, though the chances were three to one in favour of recovery from the attack. People who died suddenly after an attack of coronary thrombosis often died within the first twenty-one days, and when the patient had survived that period his chances might be said to be definitely better. It was not always the patient who lived longest who had the best health; sometimes people lived for several years in a most precarious condition. Persistently low blood pressure indicated that the myocardium as a whole was insufficient—that is to say, probably the infarct was very large, and therefore the outlook was bad.

Dr. T. S. KEITH said that out of the last 200 coroners' post-mortems in which he had been interested, 111 revealed cardiac conditions, and of this number fifty-one cases showed definite diseases of the coronary artery. Twenty of these had generalized atheroma, and the remaining thirty-one had either an infarct or a clot. The most interesting point was the previous history of these coronary cases. In twenty of them there was no history whatever—the man was found dead and there was no story of previous illness; in nine of the remaining cases the deceased person had complained of indigestion, and had had treatment of some sort; six had had shortness of breath for a matter of months before death. Only two had any story of heart disease which had been diagnosed as such. Sixteen of them had fibrous infarcts, but in spite of that no cardiac history beforehand. Professor PLESCH said that so long as all angina and coronary troubles were regarded as the same not much progress could be expected in either prognosis or diagnosis. He pleaded for a more discriminating study of the arteries. It was most desirable to build up a better understanding and a more widely recognized pathology of angina pectoris. Dr. PHILIP ELLMAN asked a number of questions. What was the relative prognosis in coronary thrombosis when there was clinically a comparatively healthy heart and when clinically there was a diseased heart? What was the relative prognosis with and without cardiac aneurysm? What was the significance of the persistent Q wave in these cases?

Professor HAY, in reply, said that to make a statement as to the prognostic significance of aneurysm would require a very much larger number of recorded cases than were available at present. The only significance of a persistent

Q wave was that it might help in diagnosing the previous existence of coronary thrombosis; it had no prognostic value. As for the prognosis when coronary thrombosis occurred in a healthy heart, he could only say that it was most unlikely to occur in a healthy heart, unless due to embolism. On the general question, as to the attitude to be adopted towards inquiring relatives, he thought that during the acute attack one could only talk of possibilities; after the acute attack, probabilities might be discussed. He hoped there would be another discussion in the Section in five years' time, when this whole subject, which was now perhaps a little premature, might be approached with greater confidence.

THE ANAEMIAS AND THEIR TREATMENT

At the Medical Society of London on October 22nd, with Dr. HOPE GOSSE in the chair, a discussion was held on "The Anaemias and their Treatment."

Dr. LESLIE WITTS, in an opening paper, traced the work done since 1926, in which year several noteworthy contributions were made, including that of Minot and Murphy on the treatment of pernicious anaemia by special diet, establishing the curative properties of liver. The merit of these authors in discovering the liver treatment had rather overshadowed their work on the reticulocytes, which had made possible a useful means of assessment of the value of therapy in various types of anaemia. Of anaemias due to defects of diet he gave two examples: the nutritional anaemia of infancy and tropical nutritional anaemia. The most important anaemias due to condition deficiencies, apart from pernicious anaemia, were sprue and idiopathic steatorrhoea. Since 1926 the nutritional aspects of anaemia had preoccupied the attention of clinicians and research workers, but the first-fruits in this field were quickly gathered, and attention was now directed to the way in which the ripening of the blood cells might be inhibited by infection and other agencies. The effects of infection on blood formation were complex; for example, it had a definitely inhibitory effect upon the utilization of iron. The inhibition of the ripening of the red cells by infection was well seen in syphilitics artificially inoculated with malaria, also in those suffering from natural malaria. Among unusual anaemias was a striking one produced by the ingestion of radium salts; this had been seen in girls engaged in painting luminous watches and accustomed to point the brushes with their lips. After giving other examples, Dr. Wits said that it was evident that in addition to anaemias due to increased destruction of blood, as from haemolysis and haemorrhage, and those due to chemical and bacterial poisons, there was a third and most important group, due to disturbances in the growth of the red cells, and in which the marrow, although perhaps anatomically extensive, was functionally ineffective, delivering few cells into the circulation. The cause was most often an insufficient supply of materials for blood formation, either through faulty diet or alimentary disease, but it might be an inhibition of the utilization of the raw materials by infection, toxic substances, or malignant disease. Drugs which contained the benzene ring were potent agents in producing agranulocytosis, and this condition might be expected to be more frequent with the wider use of these forms of medication. The same general principles as applied in diseases of the red cells applied also in leucopenia. Dr. Wits concluded by saying that there were few fields in which the relation between nutrient factors and orderly tissue development could be seen so clearly as in the haemopoietic system.

Dr. F. J. POYNTER, who mentioned incidentally that Galen used liver for the treatment of anaemia, asked a question concerning remissions. Some years ago he saw a young girl with secondary anaemia who did well on ordinary treatment, but came back to hospital nine months later with a profound anaemia of the pernicious type. Her red cells diminished to between 500,000 and 750,000. At that time liver treatment had just been established, but she was too ill to take liver, and appeared moribund. Then, without liver treatment or drugs, she

showed some improvement, was able to take liver, recovered, and was well for several years, dying eventually of pulmonary tuberculosis. It was difficult to understand a condition which presented such a picture.

Mr. ZACHARY COPE said that anaemia troubled the surgeon as well as the physician. He recalled the case of a boy who had pelvic peritonitis resulting from appendicitis, and it was necessary to perform enterostomy. This served for a time, and then the inflammation spread up the gut, and it was necessary to do an enterostomy higher up. The patient was extremely toxic and collapsed, but he got over it, and two years later developed anaemia of the pernicious type. Was it possible that the toxæmia might in some way have affected the liver or bone marrow, leading to pernicious anaemia? He responded to liver treatment for about a year, but ultimately died two years after the onset.

Mr. EARDLEY HOLLAND said that anaemia also interested the obstetrician and gynaecologist. The simple anaemia of pregnancy seemed a very common thing, and he wondered whether it might not fall into the category of nutritional anaemias. Not all the simple anaemias of pregnancy, however, were nutritional, for sometimes they were found in women who lived extremely well. It was a common fallacy that meat was not good for the pregnant woman, and some anaemias might be traced to abstinence in this respect. At about the age of the climacteric irregular and profuse menstruation often occurred, and it was frequently supposed that the anaemia was secondary, but that was not necessarily so; some of these patients had a primary anaemia. Dr. F. PARKES WEBER asked as to the frequency of aplastic anaemia. He had once seen a case of acute aplastic anaemia in which there was no opportunity to do transfusion. The patient died, and the bone marrow, examined post mortem, was found to have practically no red blood-forming tissue left. This type of anaemia seemed to be exceedingly rare. Many cases supposed to be of aplastic anaemia were of an atypical disease allied to leukaemia.

Dr. G. W. GOODHART said that he had been "horrified" by the advice given by the Ministry of Health that small infants who were anaemic should be given doses of iron with their food. This seemed to him unbiological. The proper thing was to give iron through the mother, not some iron salt to the infant by mouth. He also mentioned that the large majority of women who had anaemias after abortion did not need transfusion; they did perfectly well on ordinary treatment with iron. Mr. V. B. GREEN-ARMYtage referred to megalocytic anaemia found among young women returning to this country from the Tropics. Liver was practically useless. The only treatment he knew of in such cases was marmite. If in the case of these pregnant women a blood transfusion was done, and more than 100 to 200 c.cm. of blood was given, they practically always had an abortion or premature labour.

Dr. P. H. MANSON-BAHR discussed some tropical anaemias, including the anaemia associated with ankylostomiasis. It was said that worms of the *Ankylostoma* genus were the most potent source of anaemia in the Tropics, but there were natives in the Pacific Islands heavily infected with ankylostomiasis who showed no signs of anaemia. The anaemia did not appear if the people were well fed and well housed. With regard to the history of liver therapy, he mentioned that Sir Patrick Manson, who discovered sprue in 1880, was in the habit of giving liver in sprue anaemia, and said that he got the idea from the Chinese, who attributed it to Confucius. Dr. W. BURTON WOOD described a patient who was quite symptomless, but whose white count remained obstinately low notwithstanding all kinds of treatment. Was this likely to be a case of agranulocytosis?

Dr. WITTS, in reply, said that the remissions which occurred in the pernicious and other forms of anaemia might be attributed to changes in gastro-intestinal function. In many nutritional and metabolic disorders, such as rickets and scurvy, similar remissions were noted. Any gross disease of the small intestine might easily lead to severe anaemia, and to remove more than six feet of the small intestine was inviting trouble in the future. The

idea that meat should be cut down in the diet of the pregnant woman was a fallacy which ought to be combated strongly. There would be far less anaemia and chronic ill-health in pregnancy if the mother was better fed. It had to be borne in mind that she had to give iron to the foetus which would serve the infant until weaning, for iron was not given to any great extent in the milk. He did not know why Dr. Goodhart should be horrified at the idea of giving iron to infants. He was not so certain that the feeding of the mothers would preserve the children from anaemia. The majority of children took iron quite well. He agreed that aplastic anaemia was a very unusual disease; at Guy's two or three cases were seen in a year. Transfusion was much too readily resorted to nowadays; it was a more dangerous operation than was generally supposed. With regard to the treatment of patients with chronic leucopenia, he usually put them on a diet with plenty of vitamins and plenty of such foods as sweetbread, liver, and kidneys, and was extremely careful to inquire into their history and the possibility of their having taken any toxic drugs. Beyond advising general hygienic measures and care to avoid as far as possible intercurrent infection, there was not a great deal to be done.

MEDICAL SERVICES AT HOME AND ABROAD

At a meeting of the Royal Society of Tropical Medicine and Hygiene at Manson House on October 18th, with the president, Sir LEONARD ROGERS, in the chair, Professor W. W. JAMESON read a paper on "The Medical Services at Home and Abroad," in which he recounted his impressions gained from a tour of India, Ceylon, and Malaya.

As a background Professor Jameson gave in outline the history of the public medical service of Great Britain from its beginnings just one hundred years ago, when the reformed Poor Law gave England its first general medical service, to the present day, with its public health service founded on sound sanitation, and aiming at the improvement of conditions of living throughout the country and the raising of the general level of health of the community by every available means. In India and in most of the Colonies official medical services owed their origin either to some form of military medical organization or to the need for medical care for European residents. Only in comparatively recent years had attempts been made to extend the benefits of public medical services to native populations. The early bias towards curative medicine was reflected in the costly hospital system established in many parts of the Empire, making undue demands on the money available for medical services, but having little effect on disease prevention or on the raising of the general standard of hygiene in the Tropics. The importance of establishing medical schools in suitable centres had been universally admitted. From them would come the medical officers who would one day form a large proportion of the medical staffs of the Colonies. Such schools gained from close association with Government institutions, but should be given as large a say as possible in the management of their own affairs, and not be regarded merely as a division of the Government medical department because they were paid for out of local revenues. It was now realized that maternity and child welfare work was best carried on as part of a general public health programme. Malaria and the diarrhoeal diseases as the chief causes of infant deaths must be got rid of if the high infant mortality rates were to be reduced. Improved sanitation was the real remedy. Better midwifery required the provision of trained midwives in selected areas, their registration and supervision. This was being achieved in parts of Malaya. In India the problem was unbelievably difficult in rural areas. The tendency was to diffuse effort over too wide an area. Maternity and child welfare work must be concentrated to be successful; to give a certain amount of training to a native midwife and then send her out to practise without supervision was of little or no value. Midwives and

health visitors must be public health "missionaries" first and foremost.

The value of active preventive measures against leprosy was now recognized; mere segregation of infective cases was no longer considered sufficient. Ceylon's scheme of a leprosy survey, involving careful records of cases, examination of family contacts, and supervision of non-infective cases by the public health staff, offered great hopes of success. Tuberculosis, now as serious a killing disease in parts of the Tropics as in Europe, called for more accurate information. Work on the lines of that carried out by Scott in Hong-Kong, by the Rockefeller Foundation in Jamaica, and by Wilcocks in East Africa was needed as a preliminary to any special action in the East. All other tropical diseases dwindled in comparison with malaria. The amount of man-made malaria due, for example, to uncontrolled jungle clearance or to engineering work carried out without consultation with the medical department was astounding. It was unfortunate that information made available by the Malaria Survey of India had not been put to more practical use by the public health departments in India itself. The impression gained in India was that too much attention was paid to arrangements, never adequate, for the wholesale distribution of quinine, while measures directed against anopheles took a second place. In striking contrast was the attitude of managers of many commercial undertakings in India, Assam, and Malaya to antimalarial work. Some of the railways, some of the gardens in Assam, and some of the rubber estates in Malaya, where there was close co-operation with the Government medical department, were an object lesson in the much-vaunted co-operation between science and industry. As regards general sanitation, upon which the control of so much tropical disease depended, there seemed a tendency in some quarters to prefer methods of control based on laboratory findings to sound sanitary measures. Anti-typhoid, anticholera, and antiplague inoculations had a place in preventive work, but good sanitation was a permanent safeguard. The need of India particularly, from this point of view, was good sanitary engineering, and plenty of it.

The organization of medical services at home and in India presented striking contrasts. In England the bulk of public medical work was directed by whole-time medical officers of health, appointed with the approval, and not dismissible without the consent, of the Ministry of Health, which in its turn maintained a technical staff whose services were available to local authorities in cases of difficulty. India had no comparable organization. Unfortunately there was no provision in its constitution for a strong central department with health as its concern. The Public Health Commissioner with the Government of India works practically single-handed at New Delhi with very limited official right of entry to any of the Provinces. The Indian Medical Service was based essentially on the military needs of the country, and lacked the necessary flexibility for civil administration. It had been allowed to develop rather on clinical lines, and the old-established custom of allowing private practice still held. Most of the large medical schools in India had special institutes for the training of post-graduate students in public health, but at least two of those visited were conducting no such courses of instruction owing to lack of demand for health officers. It was to be hoped that the All-India Institute of Hygiene, recently opened in Calcutta, would stimulate India to fresh efforts by training men and women for public health appointments in that country.

Progress in the medical services in the Colonies had been most marked since the war. The regulations of the recently unified Colonial Medical Service envisaged a service of whole-time officials whose primary duty was to the State, and no entrant to the service would be entitled to a right to private practice. In Malaya and Ceylon a real attempt was being made to hold a proper balance between the claims of curative medicine and of sanitation. Most Colonies now trained sanitary inspectors locally, and to assist in this and to relieve medical officers of a good

deal of work experienced European inspectors were needed. As an encouragement to young medical men to undertake service abroad it needed to be made known that conditions were good, that abundant opportunities for original work offered themselves, and that the standard of professional work was often as high as at home. The quality of the laboratory work done was admirable, but the wisdom of keeping a man too long on research work in the Tropics, away from contact with fellow research workers in his own and similar fields, was questionable. Here was a matter for the Medical Research Council to consider now that their sphere of operation had been made Empire-wide. Perhaps it was too much to envisage for the future a Government medical service which would include within its scope service over-seas as well as service at home, but the result would be well worth any expenditure of effort in overcoming the administrative difficulties.

DISCUSSION

Sir JOHN MEGAW said that England's sanitary victories were achieved because of public co-operation, and because the economic standards of life were improving as the work of disease prevention was proceeding. The example of Japan, where magnificent public health efforts had not achieved success, was more applicable to India, and showed that the new wine of scientific sanitation could not be poured into the old bottles of antiquated custom. Modern sanitation was obviously a mockery to people who were ill nourished, and, as long as the provision of the necessities of life did not keep pace with the reproduction of children, must remain so. The public health officers belonging to the I.M.S. had not organized a co-ordinated policy of public health for India because they had been deprived by the administrative system of India of even the limited influence they once had in the affairs of the central Government. More than twenty years ago the late Sir Pardey Lukis had put forward an admirable scheme for a public health organization for the whole of India which had good prospects of being taken up by Government, but the war came and stopped everything.

Sir MALCOLM WATSON said that when criticizing the I.M.S. one must remember that the Indian Government itself had never put the public health of the people first. The I.M.S. perhaps had its greatest opportunity thirty or forty years ago, but at that time the civil service and the military service in India were more concerned with the first duty of a Government, which is to preserve peace. In Malaya peace was never a problem, so that health had been the concern of the Government from the beginning, and it had been prepared to hand out money in a most generous way for sound health purposes.

Surgeon General P. J. KELLY said that he had found in British Guiana that it was easier to educate and to instil public health measures in races such as the descendants of African slaves, without long years of culture, than in races such as the Indians, with a culture of their own. Dr. A. R. PATERSON thought that to form and influence the policy of Governments it was necessary to get across to them somehow a knowledge of the actual condition of the peoples in the Tropics—how truly appalling it was—and that nothing in the way of maternity services, health centres, etc., was going radically to alter that condition. Group Captain H. E. WHITTINGHAM instanced the wide-awakeness of the Colonial Medical Service in sending a certain number of Colonial medical officers to the Royal Air Force for special training in aviation medicine.

Sir RICKARD CHRISTOPHERS pointed out that the money available for public health in India was too small for anything at all to be done in India, of the type of public health work done in England, without the most careful thought and knowledge and continued policy. He agreed that there was no prospect of any permanent benefit in India, except through what Professor Jameson had spoken of as somebody doing the driving. Sir LEONARD ROGERS said that the ordinary expenditure in India for the whole of the work—teaching, hospitals, schools, and sanitation—had to come from an income of two or three shillings per head of population.

DENTAL PROBLEMS OF MEDICAL INTEREST

At a meeting of the Liverpool Medical Institution on October 18th, with the president, Dr. J. MURRAY BLEIGH, in the chair, Mr. ROBERT KENNON read a paper on "A Few Dental Problems of Interest to the Medical Profession."

He said that whereas caries was often considered to be the result of starch and sugary food, the modern child was indulging in far more sweets than formerly in order to combat acidosis. Serious infection from the teeth was rare in childhood, apart from concurrent infectious fevers, when the mouth should be watched carefully for development of caries. In adults acute pulpitis might lead to extensive osteomyelitis. More frequently the apical abscess had led to decalcification of bone over a long period of time, so that cortical sequestra were more common. The fact that the molar roots were beneath the mylohyoid ridge meant the early approach of abscesses to the neck, and these should be opened before extensive cellulitis had developed. In dental cysts the whole sac should be removed. In trismus gags were necessary, and relief might be obtained by a spring over the head pressing lightly upon the infected joint. Ill-fitting dentures were a source of leucoplakia and carcinoma. The life of a denture should not be more than five years.

Mr. J. A. WOODS agreed with Mr. Kennon as to the importance of retaining deciduous teeth when possible. The early loss might in some cases seem an immediate gain, but it frequently led to serious irregularities later on. He stressed the great importance of normal breathing, and pointed out some of the evils seen by the dental surgeon in "mouth-breathers." He had found that an abscess caused by the upper lateral incisors frequently caused oedema on the palate (and from a development point of view that was easily explained); on the other hand, an abscess from the upper central incisors more frequently caused oedema in the sulcus of the lip. He quite agreed that where a large number of extractions was necessary it was very important that it should be done in several stages. The more septic the mouth the more important this became.

Mr. J. COSBIE ROSS pointed out the occurrence of large sequestra in the region of the mental foramen of the mandible, following an alveolar abscess of the posterior molar. Normal bone was present in these cases between the original alveolar abscess and the residual sequestrum, and it was possible that thrombosis of the inferior dental artery, and the subsequent diminution of blood supply to the bone, was the cause of the necrosis. Mr. ROSS also emphasized the association between the wearing of ill-fitting dentures and carcinoma of the mouth, and the appreciable percentage of cases where a definite causative relationship could be established. He quoted one case where a man had worn a very large denture for eighteen years, during which time an indurated crack had developed at the corner of the mouth on both sides owing to excessive stretching of the mouth required to permit the denture to be removed. When this case was seen by the speaker recently an epithelioma (confirmed by microscopical section) had developed at the site of the crack on both sides.

Mr. A. E. BURROUGHS drew attention to the connexion between dental caries and inflammation of the ciliary body, cyclitis. This was an extremely obstinate, deep-seated inflammation, due to sepsis, and one of the first foci to be thought of was in the teeth. If dental caries was the cause the case should be referred to a dental surgeon for investigation. In these cases dental treatment would generally cause the cyclitis to clear up quickly and an eye be saved which would otherwise surely be lost. Dr. RAWDON SMITH stressed the importance of team work, and agreed that adrenaline more often caused trouble than cocaine or one of its derivatives. He further thought that reactionary haemorrhage was more common after local than after general anaesthetics. He was glad to know that dentists were becoming more conservative by not agreeing to wholesale extractions in cases of chronic rheumatism.

Dr. G. GRAHAM MACPHEE said that he remembered when glucose, and particularly glucose in cheap sweets, was considered to be the chief factor in dental caries, yet nowadays glucose appeared to be regarded as an essential constituent of the diet of the growing child. Perhaps both views might be reconciled if the necessary glucose and sweets were eaten only at meal-times and the teeth cleaned immediately afterwards. Dr. Macphee said he was glad that Mr. Kennon had stressed the importance of alveolar abscess. There certainly were cases where removal of the offending tooth was not indicated, but in most cases if the tooth concerned was unsavable it should be extracted at once, without "waiting for the swelling to go down." He instanced a case with a history of discharging external sinus of eighteen months' duration which was cured by extracting two septic roots; yet although five doctors had treated the case nobody had looked inside the mouth. Dr. Macphee then showed slides of radiographs which proved deposition of new bone in the apical region of two upper lateral incisors after appropriate root-canal treatment. He could not agree that post-extraction haemorrhage did not occur after a general anaesthetic had been used, having seen two cases in hospital only that afternoon. In the treatment of true dental cysts he had obtained good results by simply removing one wall of the cyst and bringing the buccal mucous membrane into apposition with the epithelial lining of the cyst. Dr. Macphee felt sure that all dental surgeons would agree with Mr. Kennon that dentures should be renewed more frequently. Patients did not realize the harm that might be done by dentures which no longer fitted their shrunken gums. A particularly pernicious practice was to continue wearing temporary dentures long after they had ceased to fit. Here again was an opportunity for more co-operation between physician and dental surgeon.

Professor HENRY COHEN also supported the plea for closer co-operation between general medical and dental practice. Many diseases had oral presenting symptoms. Six cases of adult scurvy had applied to the Dental Hospital for treatment in the past three to four years. Emphasis should be laid on the part played by the salivary glands as excretory organs for the products of intestinal putrefaction, especially of indoxyl compounds, which were responsible for the stains often seen in the molar region of an upper denture in the constipated female. A simple support in facial paralysis could be made from a pipe-cleaner and inner-valve tubing, bent so as to hook round the affected angle of the mouth and ear on the same side.

MANGANESE POISONING

Dr. DONALD OWEN, in a short paper on "Manganese Poisoning," first outlined the various commercial uses of manganese, and gave a brief description of the manufacture of the metal and its separation from other ore. The history of chronic manganese poisoning dated back to 1837, when Couper described five cases. Only fifteen cases had been recorded up to 1913, and these were found in France, Germany, and the United States. Esdall in 1919 reported further cases, but it was not until 1922 that the first publication on this subject appeared in our own literature, by J. R. Charles of Bristol. The pathology was practically unknown, and animal experimentation had failed to assist, with few exceptions. Findlay was able to produce cirrhosis of the liver in rabbits, and Mella changes in the corpus striatum and globus pallidus of monkeys, following administration of manganese chloride. In June and July, 1934, the speaker saw four cases of chronic manganese poisoning at the Bootle General Hospital, occurring in men working in the same manganese works. The appearance of symptoms of intoxication to the metal was in one case after only eight months' work, and in the other three after two and a half, six and a half, and eight years respectively. The clinical picture in each case was indistinguishable from that of chronic post-encephalitic Parkinsonism, but the extent of involvement of the extrapyramidal system varied in each. Signs and symptoms of hepatic cirrhosis were not found.

CORRESPONDENCE

Treatment of Haemoptysis

SIR,—I was pleased to see Drs. Morlock and Pinchin's condemnation of the use of morphine in the treatment of haemoptysis (*British Medical Journal*, October 27th). At final examinations in medicine, candidates, when asked about the treatment of haemoptysis, invariably reply that they would inject morphine. If further pressed they may mention calcium lactate, and then seem to be at an end of their resources. In my experience the most effective immediate remedy for haemoptysis is the sub-cutaneous injection of 1 c.cm. of pituitrin. My house-physicians use it as a routine method in cases brought to hospital, and rarely have any trouble from recurrence. It is surprising that its use is not more widely known. It is not mentioned in textbooks. In the *Extra Pharmacopoeia*, under the heading of "Pituitary," there is a reference to an article of mine in the *Clinical Journal* (January 24th, 1923). At first sight a drug which raises systemic arterial pressure would seem contraindicated; but we know little about the action of drugs on the pulmonary circulation. Pituitrin is said to lower the pressure in the pulmonary vessels. In the treatment of haemoptysis it has the great advantage of being a drug usually carried in the practitioner's bag, and therefore available in an emergency.—I am, etc.,

Birmingham, Oct. 30th.

W. H. WYNN.

Congenital Pyloric Stenosis

SIR,—On reading the excellent article by Dr. H. L. Wallace and Mr. L. B. Wevill, analysing 145 cases of pyloric stenosis (*Journal*, June 30th; p. 1153), we were surprised at the high mortality rate recorded therein, and therefore decided to analyse a series of our own cases to see how the various features of the disease compared with those recorded by Wallace and Wevill. We have collected and tabulated a series of 120 cases, operated on within the last ten years; fifty-six were operated on by one of us (P. L. H.) and sixty-four by the other (L. G. T.). Most of the cases were operated on at the Royal Alexandra Hospital for Children, Sydney, N.S.W.

Out of the total number of cases there were ninety-five males and twenty-two females, the sex not being stated in three. The average age at time of operation, which generally coincided with the age at which the diagnosis was made, was 5½ weeks. The average weight at time of operation was 7 lb. The average age at which the projectile vomiting appeared was 3 weeks, the range varying from birth to the age of 11 weeks. Visible gastric peristalsis was present in all; as this is such an unequivocal diagnostic feature it was not considered necessary to determine the presence of a tumour. No case has been included in the series in which the diagnosis was not confirmed at operation. There were five deaths in the 120 cases, a mortality of about 4 per cent.

We consider that gastric lavage should be carried out in every case immediately before operation, otherwise infants will be lost either at or immediately after operation, owing to asphyxia from regurgitated stomach contents. Most of our patients were given saline solution per rectum soon after operation, and this was repeated at four-hourly intervals as long as seemed necessary. In most instances the infants were placed in a specially warmed shock ward immediately after operation, and were given breast-milk from a spoon or pipette as soon as they could swallow. The simple Rammstedt method without modifications was the operation in every instance. The operations were all done under general ether anaesthesia, and this was usually given by a resident medical officer, who had had

no special experience in administration of anaesthetics beyond the experience gained by a short period of residence in hospital. The majority of the cases were operated upon as soon as possible after the diagnosis was made, and very rarely was any special preliminary treatment given, excepting gastric lavage, as mentioned before.—We are, etc.,

P. L. HIPSLEY, M.D., F.R.A.C.S. Sydney,
Honorary Surgeon, Royal Alexandra Hospital for
Children, Sydney.

L. G. TAIT, M.B., Ch.M.,
Honorary Assistant Surgeon, Royal Alexandra
Hospital for Children.

Sydney, Australia, Sept. 29th.

* * The writers of this letter have submitted tabular records of the cases operated on by them.—Ed., B.M.J.

Ether Convulsions

SIR,—The spasmodic correspondence about ether convulsions goes on without apparently providing any real conclusions, and I take this as my excuse for writing to you. Though not an anaesthetist, I have had some experience of giving ether, first of all in New Zealand; and then from time to time I have had to give it over here.

In some 1,000 cases in which I gave open ether in New Zealand, either by the drop method or with Shipway's apparatus, I never saw anything suggesting convulsions; and I never, while I was in practice there (some four years), heard of anyone else doing so. At first in England I also never saw any suggestion of them so long as I used the procedures I was accustomed to—namely, drop-bottle alone or a Shipway worked by a bellows. Lately, however, I had begun to use oxygen with a Shipway, and on two occasions I saw definite facial twitchings. Fortunately, neither case went further. The coincidence of the appearance of the twitchings with my first use of oxygen instead of air struck me forcibly; so on the second occasion I used CO₂ as well. Again it may have been only coincidence, but with pure oxygen twitchings appeared; on changing to CO₂ they went, but returned once more with the oxygen. It really seemed as if they were heralded each time by the appearance of a bright pink colour.

Naturally one can place very little confidence in observations on only one case; but it has been noticeable in the previous correspondence that oxygen is always used. Some writers have queried its responsibility, only to rule it out as being of good quality, etc. May not the cause lie in the three factors—susceptibility, ether vapour, oxygen above the content of atmospheric air?—I am, etc.,

London, S.W.13, Oct. 24th. L. A. RIDDELL, F.R.C.S.

Motor Backache and Neuralgia

SIR,—The letter on this subject from "G. H. A." is most interesting as it describes a condition that has been very common in recent years, and with the increasing popularity of motoring is likely to be a frequent cause of disability.

I agree with "G. H. A." that the bucket-seat, so popular in all cars to-day, is the cause of the trouble, and he would add greatly to the value of his letter if he can suggest a type of seat that will retain the advantages of the adjustable bucket-seat and at the same time allow the muscles in the lumbo-sacral region to relax during a long drive. My own observations suggest that such a seat must be deep enough to support the thigh, and by means of "wings" that grip the pelvis prevent tilting and rotation in the lower lumbar vertebrae when cornering.

It may be that a seat with these features is already on the market, and "G. H. A." would be doing a great service to the motoring public and the motor designers if he will give his experience.—I am, etc.,

Shrewsbury, Oct. 29th.

B. A. ASTLEY-WESTON.

SIR,—The letter of "G. H. A." regarding motor backache in the *Journal* of October 27th (p. 791) prompts me to write this. During the last two years I have done 40,000 miles in a popular 9-h.p. saloon car, in both town and country work and long-distance journeys, the longest being 490 miles in fourteen hours, with stops only for petrol and oil. During that period I have never yet experienced any undue fatigue or backache. I attribute this to the type of seat I have. It is a bucket-seat, with a back practically upright. It has an air cushion not very tightly inflated, and with the front edge slightly higher than the rear edge. I sit square in the middle of the seat, leaning neither to one side nor to the other, with the lower part of the spine pressed against the back of the seat, and the result is that my whole spine is comfortably supported in its entirety.

The point I would stress is the importance of sitting erect and not slouching, as one sees so many drivers do nowadays. Some cars I have driven have given me backache within a few miles due to faulty seats.—I am, etc.,

Liverpool, Oct. 27th.

T. W. G.

Residual Infection of the Jaws

SIR,—Is not the picture painted by Mr. A. M. Nodine in your issue of October 20th badly out of perspective? The occasional occurrence of residual bone infection and the advantages of so-called "surgical" removal of teeth in certain cases have long been recognized by the dental profession; but to suggest that "teeth that are removed by the ordinary pulling method" (as he contemptuously terms it) "in most cases only stir up the infection . . . while the infecting process continues undisturbed" is surely gross distortion of the facts of everyday experience.

The vast majority of infected teeth are removed by forceps, with a minimum of trauma, often under gas-and-oxygen anaesthesia, the "whiff" in the hands of a competent anaesthetist extending to whatever length of time the dentist may need for the careful and deliberate execution of his work, and usually the expected relief of symptoms is obtained.

To substitute for a comparatively simple operation, as a routine method, one much more extensive and severe, and often involving painful and prolonged convalescence, would hardly seem to be in the best interests of patients generally. A good case is marred by over-statement.—I am, etc.,

London, W.1, Oct. 29th.

J. H. BADCOCK.

SIR,—Mr. A. M. Nodine's letter on residual infection of the jaws seems intended to give the impression that extraction carried out with the forceps is an unsurgical procedure, calculated to leave in the majority of cases an aftermath of residual infection. If this is his contention I feel that it should not pass unchallenged, but that the medical profession should know that this opinion, which is held by a relatively small body of American ultra-specialists, is not accepted by the majority of dental surgeons in this country, whether engaged exclusively in general practice or on the staff of teaching hospitals, and therefore having special facilities for, and experience in, that side of dentistry which borders on "oral surgery." There would seem to be two main points in Mr. Nodine's letter. One is that no tooth should be removed in the direction of its long axis, but by prising it out

sideways after the removal of the entire outer bony wall of its socket, and thereafter trimming away the resulting sharp corners of bone and stitching the gum over the wound. The other point is that where a tooth is removed because it is infected, either through pyorrhoea or because it is apically septic, the zone of infection in the surrounding bone should be removed in its entirety at the same time.

With regard to the first point, surely the best method of removing a tooth is that which combines the greatest ease and simplicity with the minimum of trauma, both local and psychic, and the absence of undesirable sequelae. A considerable proportion of dental extractions can be performed in a few seconds with the forceps under local or general anaesthesia, with little force beyond that required to rupture the periodontal membrane, with no damage to, or loss of, surrounding bone, and with such complete absence of after-pain that the patient is only reminded of the extraction by the consciousness of the gap left. When difficulty is expected more elaborate methods may be used in order to avoid bruising of the bone and gum, and such methods may vary from the preliminary separation of divergent roots to the removal of less or more bone, even up to the full rigours of Mr. Nodine's operation; though the last, I contend, is only rarely necessary.

That this more conservative method of dealing with the teeth is justified by the results is exemplified, in the case of impacted wisdom teeth, by the lessened after-pain and greater rapidity of healing which follow removal by deliberately splitting the tooth into pieces, which can be taken out without the extensive cutting of bone which would be necessary to permit its removal whole. Nor must the time factor be ignored. When general anaesthesia is used the advantage of rapidity is obvious; where a local injection is preferred a more or less prolonged operation, under presumably aseptic conditions, is a considerable ordeal as compared with extraction by forceps, equal skill being assumed in each case. With regard to shaping a suitable bony base for dentures, it is true that the "surgical" method offers certain advantages, but the same end is attained by the simpler and quicker method of trimming away the sharp margins of the socket after extracting the tooth.

Mr. Nodine's second principle relates to the removal of infected bone. It would be of interest to know how Mr. Nodine determines the precise extent of infection in a given case, and whether he removes all this bone and a trifle more to be on the safe side, and whether in the case of infected bone near the antrum he has the courage of his convictions and removes it even at the expense of opening the antrum. I feel that in the last case he would do what most of us do in this and other cases—he would leave the infected bone there, and trust Nature to deal with it *secundum artem*. Does she not do so in the case of osteomyelitis of the long bones once drainage is established, and in the case of an incised boil? (Or should we excise boils completely, and save Nature any responsibility in the matter?)

My reference to the antrum is not frivolous. I have had the opportunity of examining microscopically a large number of sections of human maxillae showing the molar teeth *in situ*, and noted that a quite moderate degree of pyorrhoea led to round-celled infiltration of large tracts of bone, extending frequently to the near neighbourhood of the antral floor.

If Mr. Nodine could show that, in a high percentage of cases treated by simple extraction, infected areas of bone persist for a long time, to the detriment of the patient's health and comfort, I think he would have a strong case for removing bone where radiographs show it to be abnormal, though it must be remembered that up

to the present we do not know with certainty how to interpret many of the abnormal x-ray appearances of alveolar bone, though work on these lines has been commenced in the Hale Research Laboratory of the Royal Dental Hospital. I submit that so far clinical evidence is all the other way; the great majority of edentulous alveoli give rise to no reasons, local or otherwise, for suspecting trouble within, and experimental evidence is entirely lacking on either side.

It is true that areas of infection are found in edentulous jaws from time to time, and that conditions as serious as trigeminal neuralgia have been benefited by Warwick James, Bowdler Henry, and others by the removal or diathermy of such areas, but to use this fact as an argument in favour of replacing present methods by one so much more elaborate and so liable to abuse seems to me quite unjustifiable.—I am, etc.,

London, W.1, Oct. 29th.

NORMAN J. AINSWORTH.

"German Measles": A Plea

SIR,—My attention has recently been drawn to the unsuitability of the term "German measles," used to describe rubella. I believe the word originates from "germane," meaning "closely allied to." But the diagnostic differences between measles and german measles are distinct enough to warrant the use of a better name for the latter.

The use of this term is misleading to the public in many ways. It confuses in their minds a comparatively mild infection with one which may be serious. It also leads to a false impression as to immunity. The parent vaguely knows that a child has had "measles of some sort or other, German or English, I don't know which"; and therefore has a false sense of security and thinks him adequately protected against further infection with either disease. I have even heard of practitioners not troubling to differentiate between these different diseases, leaving the parent in ignorance.

Cannot the medical profession lead the way—educate the public—by themselves consistently using the word "rubella," or by fixing upon some other suitable name? Surely the usage of the term "German measles" by medical men and women is far from the accuracy which should be the basis of scientific nomenclature.—I am, etc.,

Bromfield, Oct. 22nd.

G. M. L. SUMMERHAYES MACRAE.

* Unfortunately, the official *Nomenclature of Diseases*, drawn up by a joint committee appointed by the Royal College of Physicians of London (H.M. Stationery Office, 1931), gives "German measles" first, with "rubella" and "röteln" in parentheses, as admissible synonyms.—Ed. B.M.J.

Local Treatment of Coryza

SIR,—A recent recruit to the stage of medicine is the theory that a general infection is less dangerous to the organism as a whole in proportion to the extent of any local reaction it produces on an individual mucous membrane or tissue.

This *enfant prodigue* is commended to our attention by such distinguished sponsors as Lord Horder and others, and it must be said that there are strong grounds for admitting that there may be "something in it" in spite of its suspicious resemblance to our old but rather *démodé* friend the fixation abscess, or even to that old reprobate of Victorian days known as "laudable pus." The comparative safety of pneumonia with a good solid lobe and of puerperal infections with a determined parametritis are cases in point.

It would appear, however, that certain practical applications of this proposition have not received sufficient attention. For example, the common cold, that ever-present reproach. This normally attacks the nose, and admittedly makes the sufferer uncomfortable and perhaps ridiculous. It is nowadays considered *de rigueur* to attack the sufferer's nasal mucous membrane with oils, inhalations, sprays, pastes, and snuffs whereby the beneficial and harmless local reaction in the nose is greatly diminished, but a severe bronchitis or other manifestation takes its place, and may prove most obstinate, and even dangerous. As we are unable to cut it short by local means, ought we not rather to encourage and welcome a streaming cold in the nose as the best and most harmless means of overcoming the infection and producing an immunity at least for a season? If so, we must consider all local curative treatment as dangerous, and confine our efforts: (1) to promoting the general resistance, and (2) to protecting the lungs and bronchi by the means and remedies which in our experience are useful for these ends.

Similarly, it may be that the prevalence of "mastoids" in our schools might be less if, instead of doing the universal "T. and A.," we contented ourselves with removing the A. where they are causing obstruction and merely "hoovering" the T. Again, is a chlorine mixture worse than useless in typhoid? Certainly intestinal disinfectants are useless in acute dysentery.

Other similar examples of acute infections where local treatment is contraindicated or clinically useless will readily occur to mind—as erysipelas, diphtheria, meningitis—but it is towards acute coryza that I desire to direct attention.—I am, etc.,

East India United Service Club,
London, Oct. 23th.

W. C. SPACKMAN.

Alkali Reserve in Asthma

SIR,—With reference to Dr. James Adam's letter in the *Journal* of September 15th (p. 531), I may state that a condition of lowered alkali reserve (acidosis) with low blood sugar content in asthma was reported by B. C. Roy and myself in 1923 (*Calcutta Medical Journal*, March, 1923, p. 1). Since then many cases of asthma have been treated with sodium bicarbonate and glucose, often with very good results.—I am, etc.,

Biochemical Department, Carmichael
Medical College, Calcutta, Oct. 9th.

H. N. MUKHERJEE.

Concurrent Varicella and Herpes Zoster

SIR,—In connexion with the clinical memorandum on the relation between herpes zoster and varicella by Dr. Douglas Robertson, published in the *Journal* of October 20th (p. 721), a case presenting the combined appearance of the rashes of herpes zoster and varicella is sufficiently rare to warrant recording.

A mechanic, aged 31, was first seen on October 10th, 1934, complaining of shooting pains under his left arm and a rash on his chest, which first appeared on October 7th. Examination showed a typical herpes zoster, localized to the second and third thoracic segments of the left side and along the cutaneous distribution on the inner aspect of the left upper arm. The temperature was 98.4°. On October 13th the patient was again seen, when he complained of a further rash, which had first appeared on October 11th. Examination showed that in addition to the herpes zoster a further rash was present, consisting of papules, vesicles, and pustules, being thickest on the trunk, and also present on the face, scalp, proximal portions of the limbs, soft palate, and fauces. The forearms and distal parts of the legs were quite free from the rash. The temperature was 101.4°, and a diagnosis of varicella was made.

In this case there was no history of any previous exposure to herpes zoster or varicella, and if it may be presumed that the virus causing herpes zoster can infect another person and cause varicella, then it is interesting to note that this virus can presumably cause the two clinical conditions in the one person.—I am, etc.,

London, N.W.2, Oct. 19th.

M. FISHMAN, M.B., B.S.

Whither General Practice?

SIR,—While we realize that in these days of hurry and bustle it is not possible to observe many of the courtesies previously believed in, surely it is still possible for a certain degree of professional etiquette to be maintained. May I cite one of my experiences as a general practitioner?

A panel patient was treated by me for pleurisy with effusion, and was warned as to the possible underlying cause. On x-ray and further examination during convalescence no definite evidence of tuberculosis was obtained. After a holiday he was very well, and his weight was increasing. He was allowed to return to light work and was to report weekly, pending a second x-ray investigation and examination by the tuberculosis officer. After an absence of fourteen days he came to my surgery with the following information. His firm had insisted on his return that he saw another medical man. I received no intimation of the examination from the firm or the doctor. The patient, however, was told by him that he was to see the tuberculosis officer at once, and have another x-ray examination. As it happened, it was during the week in which he failed to call that I intended sending him for these examinations. His absence was explained by the fact that he had been sent for a holiday by his firm at their examiner's request.

I think it is widely accepted that there is a growing tendency on the part of the general public to criticize the abilities of the general practitioner, particularly the panel doctor. Surely, therefore, this practice of examining another doctor's patients without his consent is much to be deplored? I may add that the above case is only one of several in my own experience, and from what I have been told by other practitioners it is a fairly common occurrence.—I am, etc.,

Cheshire, Oct. 23rd.

E. M. DAVIES.

Medical Benevolence

SIR,—Dr. A. J. Hawes, in his letter to you of October 20th, gives me the opportunity, as Sir Thomas Barlow's "Assistant Tormentor," of thanking him: first for writing to you about medical charities, a form of propaganda in which we rejoice; and secondly, for being a direct subscriber to the Royal Medical Benevolent Fund (a) through our Charities Committee, and (b) via a banker's order so many years. How I wish every one of the 52,000 men on the Scottish and English Registers would do likewise: if these did his grievance would at once be abolished, and my wished-for increased subscription list would be attained.

So, Sir, you see now why Dr. Hawes has never been approached in person and asked to subscribe. We only go to the delinquents who do not attempt to do anything for their poorer brethren, and such splendid fellows as Dr. Hawes, who don't require reminders, we avoid "tormenting" as much as possible.

With regard to local secretaries, we are always asking for more help in this direction, so that the personal application which Dr. Hawes suggests can be effectively made, but I regret to say that we have only had two answers in reply to our request for local secretaries which

was sent out in the last annual report. Could he not help us in this direction?—I am, etc.,

LEWIS G. GLOVER,

11, Chandos Street, Cavendish Square, W.1, Oct. 23rd.

SIR,—It is good to see that the subject of medical benevolence is attracting more attention in your columns. Perhaps it might more correctly have been headed "The Lack of Medical Benevolence," for surely the inadequacy of support given to the leading medical charities is a blot on the profession. There are now more than 56,000 names on the *Medical Register*, and the income of the Royal Medical Benevolent Fund last year from subscriptions was £11,856. Comment upon these figures is superfluous.

The medical profession to-day provides a good living for its members, but when the cost of buying a practice, life insurance, education, and the deep dip into the banking account every few years to buy a new car are taken into account the difficulties of accumulating capital to provide for old age and the widow and orphans are obvious. From the exacting nature of our work it is inevitable that the number of those who break down in health, or die early, must be considerable. The importance of the Royal Medical Benevolent Fund having adequate funds at its disposal, with which to assist cases of necessity, is surely a duty which the profession owes to itself.

I have been impressed by three lines in Dr. Hawes's letter; he says that "in eighteen years of qualified life I have never once been personally approached and asked to subscribe to the fund." That, I believe, is the secret of the apparent apathy in the profession to the needs of the Royal Medical Benevolent Fund and other medical charities. It is the personal appeal that is necessary. What can be done is illustrated by my own experience as Charities Secretary in this Division—one of the youngest and smallest in the Association.

By personal appeal, during the five years of its existence, I have raised a sum of nearly £100 for the Royal Medical Benevolent Fund. Every practising colleague contributes, and I have rarely to ask a second time for the now recognized yearly subscription. I might add that I am careful not to make my appeal synchronize with that of the income-tax collector.

What can be done in this Division can be done in others, but the personal appeal is essential. I feel certain that it is not apathy to the needs of the less fortunate members of our profession and their dependants but the distractions of a busy life that has been the real reason for the meagre support given to our own particular charities.

The British Medical Association itself is so busy flying flags, *re* hospital policy, public medical services, and other schemes for socializing the profession, that it has little time to devote to the needs of medical charities. It would, however, do a good service to the profession if it would urge a little more vigorously upon the Divisions the necessity of having an active charities secretary. To those who are willing to undertake the task of collecting subscriptions for the Royal Medical Benevolent Fund I can promise, from personal experience, the warmest appreciation and thanks from the committee of that Fund.—I am, etc.,

W. G. HARNETT,

Charities Secretary, Barnet Division, B.M.A.
Haddeney, Oct. 23rd.

SIR,—The questions with which Dr. A. J. Hawes opens his letter on this subject may be answered comprehensively in a sentence. It is apparently *not* the desire of the majority of the profession to provide decently for its own

poor. The excellent machinery of the Royal Medical Benevolent Fund is there for the purpose. In many areas there are already local secretaries appointed, who try to practise the suavity and persistence recommended by Dr. Hawes. And with what result? A generous cheque from a minority, some expressed irritation and even downright opposition from a few, and a stony unresponsiveness from the majority.

All that Dr. Hawes desires could be achieved if every medical man with a modest income subscribed a guinea yearly to the Royal Medical Benevolent Fund, well-to-do and wealthy practitioners proportionately higher. The implied reproaches, the begging letters, and the unrelieved distress of our own poor would then all vanish together. Now then, non-subscribers! Why not sit down and write that cheque now?—I am, etc.,

HONORARY LOCAL SECRETARY, R.M.B.F.

Scotland, Oct. 23rd.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on October 19th the degree of Master of Arts was conferred upon the new Professor of Anatomy, Henry Albert Harris, D.Sc., M.D.Lond.

UNIVERSITY OF LONDON

A meeting of the Senate was held on October 24th, with the Vice-Chancellor (Professor L. N. G. Filon) in the chair.

Dr. L. J. Witts was appointed to the chair of medicine, and Professor Geoffrey Hadfield to the chair of pathology, at St. Bartholomew's Hospital Medical College, both from January 1st, 1935.

The following appointments to readerships (indicated in parentheses) at the British Post-Graduate Medical School, from November 1st, were also made: Dr. R. S. Aitken (medicine); Mr. Lambert Rogers (surgery); Dr. J. Chassar Moir (obstetrics and gynaecology); Dr. A. A. Miles (bacteriology); Earl J. King, Ph.D. (pathological chemistry).

Dr. Alexander Haddow was reappointed to the Laura de Saliceto Studentship.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Annual Meeting of Fellows and Members

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields, W.C., on Thursday, November 15th, at 3 p.m., when a report from the Council will be presented. Fellows and Members can obtain copies of the report on application to the secretary, and can, if they so desire, have their names placed on the list of those to whom the report is sent annually. Motions to be brought forward at the meeting must be signed by the mover, or by the mover and other Fellows and Members, and must be received by the secretary not later than November 5th. A copy of the agenda will thereafter be issued to any Fellow or Member who may apply for one.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A quarterly comitia of the Royal College of Physicians of London was held on October 25th, with the President, Lord Dawson of Penn, in the chair. Dr. J. R. Charles, Dr. C. E. Lakin, and Dr. W. W. C. Topley were elected councillors. Sir Raymond Crawford was elected a representative on the Committee of Management, and Sir Comyns Berkeley a representative of the College on the Central Midwives Board.

The College decided to revise the regulations for the Licence so as to preclude the possibility of foreign medical graduates obtaining the diploma, by an indirect channel, with less than three years' clinical study in this country.

The College approved, by an overwhelming majority, a report from its special committee, which was in general agreement with the recent report of the Departmental Committee on Sterilization.

The President announced the following appointments: Dr. F. Ridehalgh, as Prophit Scholar for the Tuberculosis Survey Scheme; Dr. E. L. Middleton, as Milroy Lecturer for 1936; and William Richard Lambert Harrison, late of Epsom College, as Jenks Scholar for 1934.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Henry Howarth-Bashford, M.D.Lond., L.R.C.P., Philip Graeme Benthif, M.D.Camb., L.R.C.P., Stanley George Bradfield, M.B. Sydny, Ernest George Brewis, M.D.Durh., Felix Warden Brown, M.B.Oxf., Sushil Chandra Chatterjee, M.B.Calcutta, L.R.C.P., Hugh Richard Jarvis Donald, M.B.Oxf., L.R.C.P., Cyril Percy Donnison, M.D.Lond., L.R.C.P., Clarence Michael Guiney, M.B.Sydny, John Fullford Jarvis, M.B.Lond., L.R.C.P., Bhagwan Singh Khurana, M.B.Punjab, Frank Graham Lescher, M.C., M.D.Camb., L.R.C.P., Harry Stephenson Lecaft, M.D.Ed., Samuel Nevin, M.D.Belf., Carlyle Thornton Potter, M.D.McGill, Lawrence Orred Roberts, M.B.Lond., L.R.C.P., Ibrahim Shawky, Rupert Sykes, M.B.Lond., L.R.C.P., Padukotah Sreenivasachari Varadarajan, M.B.Madras, Herbert John Williams, M.D.Birm., L.R.C.P., Rupert Allan Willis, M.D.Melb., Frederick James Wright, L.R.C.P.

Licences

Licences to practice were conferred upon the following 123 candidates (including eight women) who have passed the final examination in medicine, surgery, and midwifery of the Conjoint Board, and have complied with the necessary by-laws:

A. S. Amsden, N. Angel, T. G. Armstrong, J. C. Baillie, C. R. Barker, G. Batts, D. M. Blomfield, C. H. T. Bond, A. C. E. Breach, D. M. Bressler, Margaret M. B. Carey, R. C. F. Catterall, F. B. Champion, Dora J. A. Clark, J. H. Li. Conway-Hughes, T. Csato, R. H. Dale, S. M. Davidson, D. A. Davies, G. B. Davis, E. W. Dunkley, A. G. Edwards, J. K. Elliott, R. S. Ellis-Brown, E. A. Evans, R. Farncombe, A. Fearnley, S. Y. Feggetter, H. P. Fernandes, B. W. Fickling, I. Finer, C. M. Fysh, A. B. F. Gibson, N. C. Griffin, D. L. Griffiths, P. K. Guha, W. H. C. M. Hamilton, E. B. Harvey, G. R. Hawkes, C. F. Heys, J. R. Hill, R. C. Hill, A. H. Hunt, R. Hussain, F. Janus, G. O. Jelly, P. G. C. Jones, T. E. Jones-Davies, H. Kaplan, A. R. Kennedy, A. W. Khan, M. D. Kiddon, J. H. Lawrence, B. Lawson, A. P. R. Lewis, J. A. Lewis, S. Lilienfeld, G. M. Lloyd, R. Lyons, J. C. McAvoy, E. B. McDowall, J. G. Mathias, K. M. Mayall, M. L. Meade-King, B. M. Merriman, J. R. Miles, C. Mitchell, Elizabeth C. Morris, J. H. Moseley, R. F. Mowll, S. Mullick, R. M. Noordin, D. G. Oshlers, H. E. Osen, M. L. Pan, Edith A. S. Parry-Evans, H. F. Patrick, S. Paul, W. H. Phillips, Lilian M. Pickford, F. W. M. Plant, M. R. Preston, Kathleen G. Priestman, A. W. Probert, E. J. Prynn, J. Rapoport, C. Ratnayaka, J. W. Redgate, J. H. Rees, M. G. R. Robinson, J. S. Ross, L. M. Rouillard, A. J. Rouse, B. D. Sachdeva, J. I. Seidman, R. H. Shah, D. B. Shulman, C. W. T. Shuttleworth, J. A. Sidebottom, L. W. Spratt, I. K. Thomas, Nest Thomas, B. Thorne Thorne, T. G. Tregaskis, J. L. Treneman, R. C. H. Tripp, R. J. Vakil, W. Waks, P. A. Walford, H. A. Wallace, F. H. Weston, F. C. H. White, C. T. H. Whiteside, N. Whittaker, S. M. Whitteridge, C. W. K. Willard, E. G. K. Williams, T. M. Williams, W. Wilson, P. L. E. Wood, L. S. F. Woodhead, R. F. Wyatt, Winifred F. Young, R. Clarke, J. R. Dickinson.

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons, to the following:

M. R. Burke, J. O. F. Davies, Joan Goodger, Margaret I. Porteous, K. Rai, A. W. Russell, A. Singh, J. T. Wybourn.

A Diploma in Gynaecology and Obstetrics was granted, jointly with the Royal College of Surgeons, to Hussein Yousri Gohar.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examinations indicated:

DIPLOMA OF L.R.C.P.ED., L.R.C.S.ED., L.R.F.P. AND S.GLAS.—M. F. Schneekloth, J. L. Jackson, F. Anschacher, M. Gruenbaum, H. Lipschutz, F. Dannheisser, F. M. Abeles, J. Levy, S. L. Last, L. Wislicki, H. Winter, H. Davidsohn, S. James, P. Resenthal, H. Goldschmidt, I. H. B. Ghosh, G. Friedlander, A. B. Sternberg, F. Besser, F. Whyte, O. E. Manasse, K. H. Lepchne, P. L. Rothschild, P. V. J. Solomon, P. A. Printz, C. H. Goldmann, C. H. Straughan, G. Wolff, M. Rakofsky, D. C. L. Stevenson, M. Kraus, A. Ehrlich, W. Cohen, W. Grunstein, H. K. Rosenkranz, R. E. Elkan, J. Puller, Li R. Studebaker, A. B. Morrison, O. S. Kohnstamm, G. Kesak, Erka Schwabacher, T. C. A. Wilson, F. Auerbach, Else F. Meyer, A. Rossmann, R. E. Wilson, H. W. Beetham, W. Buky, F. Muller, M. E. Tausend, R. Friedlander, H. F. D. Whitelaw, T. G. B. Bhagavat, H. Nusbaum, H. Kai-Gee Wong, F. Bernstein, F. Leviv, F. Hussan, Y. Carask
D.P.H.—J. A. Guy, Barbara C. Welsh, J. W. Brydon, H. A. Raeburn, H. Somerville, J. Macfarlane.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—T. D. R. Aubrey, G. A. Bell, W. McC. Graves-Morris, D. W. Houldless, A. Lassman, A. G. Manley.

MEDICINE.—J. W. D. Bull, F. M. Kerry, J. A. McClintock.

FORENSIC MEDICINE.—G. A. Bell, J. A. Carter, W. McC. Graves-Morris, C. C. Joannides, O. C. John, J. C. Pateron, D. Reya-Jones.

MIDWIFERY.—J. H. Bentley, N. Bickford, R. Fleming, C. McK Johnston, H. N. Levitt, A. Ponder, R. C. Sen.

The diploma of the Society has been granted to T. D. R. Aubrey, G. A. Bell, R. Fleming, A. G. Manley, and J. A. McClintock.

Obituary

Sir HAVELOCK CHARLES, Bt., G.C.V.O., LL.D., M.D.

Major-General I.M.S. (ret.)

We regret to announce that Major-General Sir Richard Henry Havelock Charles, Bt., G.C.V.O., K.C.S.I., Bengal Medical Service (retired), died in London on October 27th, aged 76.

He was born on March 10th, 1858, the sixth son of David Hughes Charles, M.D., of Cookstown, County Tyrone, and was educated at Queen's College, Cork, and University College, London, subsequently studying in Paris, Berlin, and Vienna. In 1881 he graduated M.D. with honours and gold medal, and B.Ch. in the Royal University of Ireland. He entered the I.M.S. on April 1st, 1882, passing first into the Service, and at Netley gained the Herbert prize as best man of the year, the Montefiore prize in surgery, and the Parkes gold medal in hygiene. He was, as usual, posted to military duty for the first few years, during which period he served with the Afghan Boundary Commission of 1884-6, afterwards writing a *Report on the Hospital Service of the Commission* in 1886. On his return he was appointed professor of anatomy in the Lahore Medical College; in 1894 he was transferred to the same chair in the Calcutta Medical College, and second surgeon to the Medical College Hospital, and subsequently professor of surgery and first surgeon. He became lieutenant-colonel after twenty years' service, and retired on March 20th, 1908.



In 1906 he was placed on special duty with the Prince and Princess of Wales, now Their Majesties the King and Queen, for their tour in India, and appointed physician-in-ordinary to the Prince of Wales. King George, on his accession to the throne in 1910, appointed him serjeant-surgeon to the King, an ancient post which requires the holder to attend the King when he goes on active service. He held this post till 1928, when he resigned it, and was appointed honorary serjeant-surgeon.

On his retirement Sir Havelock Charles was appointed member of the Medical Board of the India Office from December, 1907; on February 28th, 1913, he became president of the Board, and from June, 1916, also medical adviser to the Secretary of State for India. On becoming president of the Board he was promoted to the rank of major-general. He held these offices up to 1923. He had a long list of honours and titular distinctions. In 1894 he became F.R.C.S.I. In 1906 he received the honorary gold medal from the Royal College of Surgeons of England, and was created K.C.V.O. He received the G.C.V.O. in 1912, a good service pension on October 22nd, 1917, the K.C.S.I. on January 1st, 1923, and a baronetcy on January 2nd, 1923. He also received the LL.D. from Queen's University, Belfast, in 1923. He was dean of the London School of Tropical Medicine in 1916, and president of the Society of Tropical Medicine and Hygiene, and a knight of St. John of Jerusalem. He had been a member of the British Medical Association for thirty-six years. As medical adviser to the Secretary of State for India he attended the Annual Representative Meeting at Cambridge in 1920, during the discussion on naval and military business, and thanked the B.M.A. for what it

had done for all the Medical Services, explaining how conditions of pay, service, and pension of the I.M.S. had been greatly improved, mainly owing to the action taken and the support given by the Association and its Naval and Military Committee.

In 1886 he married Gertrude Seton, daughter of Adam Annand Gordon of Aberdeen; she died in 1923, leaving two sons—Allen Aitchison Havelock, captain Royal Fusiliers, who succeeds to the baronetcy, and Noel Hughes Havelock, M.C., who is in the Diplomatic Service.

[The photograph reproduced is by Elliott and Fry, Ltd.]

DAVID ROGER MOIR, M.A., M.B., Ch.B.

Late Surgeon, Hull and Sculcoates Dispensary

We regret to record the death at Thornccliffe House, Hessle, East Yorks, on October 15th, of Dr. David Roger Moir at the age of 60. Dr. Moir had practised in Hull for the past thirty-four years. He was held in the highest esteem by all his colleagues and patients, and had taken a prominent part in the work of the British Medical Association in East Yorkshire.

Dr. ALEX. URQUHART, Shepperton-on-Thames, writes: As an old friend, fellow student, and fellow graduate of the late Dr. David R. Moir, I wish to pay a tribute to one who was outstanding not only in sound medical knowledge and skill, but also as a man of quiet but impressive influence upon all with whom he came in contact. We entered Aberdeen University together. He was one of the youngest students of his year, only 15, but he was very high up in the bursary competition, showing marked ability in classics, and gaining a special bursary for the excellence of his Latin papers. In all classes he took a good place, and the M.A. degree in 1893. In the same year we entered Marischal College as medical students, and became still closer companions. As students we joined the Volunteer Medical Staff Corps, and there he laid the foundation for his special interest in ambulance work, in which he became later a lecturer and examiner for the St. John Ambulance Association. All through the medical curriculum he was a hard-working and deep-reading student, and in the practical and laboratory work he was very persevering in mastering all details. Owing to the fact that during his student career he did a great amount of teaching and coaching, he did not take honours, but was generally regarded as one of the best graduates when he obtained his M.B., Ch.B. in 1898. After graduation our ways lay apart. He settled in Hull, where he built up a large practice in the course of the years, and was universally respected both on account of his medical skill and as a man of sterling character. He took his full share in the work of the Hull Royal Infirmary, and as a president of the East Yorkshire and North Lincolnshire Branch of the British Medical Association, the Hull Medical Society, and as surgeon to the Hull and Sculcoates Dispensary. In these capacities he was a friend and helper of all classes, and he gave of his best. It was a disappointment to him that he was unable to serve overseas during the war, but he was fully employed at home examining disabled men for the Ministry of Pensions and in many other ways. He was kindly, gentle, and sympathetic to all, a real "David" against the "Goliath" of adversity, and a helper of men and women in times of trouble. Dr. Moir was married, and leaves two daughters and a son, who is a medical student in London.

Dr. JOHN DIVINE writes: In the death of Dr. David Roger Moir, which came as a shock to most of his colleagues, Hull has lost one of a type of men she can

badly spare, and the medical profession one who was an exemplar of its purest ethics: He came to Hull in 1900, well equipped for the work of his life. Settling on Hessle Road, where he practised actively till within ten days of his death, he built up a large practice, and to all of his patients, of whatsoever degree, he gave service the same—his best. He early interested himself in the St. John Ambulance Association and Brigade, and up to the last was an active and valued lecturer and examiner.

At the inception of medical benefit under the Insurance Act in the beginning of 1913 he was elected a member of the Local Medical and Panel Committees, and his sound judgement and knowledge of industrial practice aided these committees along with the Insurance Committee in the smooth working of the Act which distinguished Hull, particularly in the very early days, when points of friction were rife. The dark days and years of the war came. Along with others he offered himself for the Army, but was not accepted for active service. The weary four years were filled by him to the brim with work as physician at the Naval Hospital and as medical examiner of recruits at the City Hall. From the end of 1917 till the end of 1919 he was examiner of disabled men for the Ministry of Pensions, and many wrecks of the war will remember with gratitude their passing through his just but kindly hands. He was a good classical scholar, and well and widely read in English literature. Older members of the Hull Medical Society will recall with pleasure his presidential address on Le Sage's doctors in *Gil Blas*. He was an ex-chairman of the Hull and East Yorkshire Division of the British Medical Association, and ex-president of the East Yorkshire and North Lincolnshire Branch, in each position handling well the helm in the interests of the Association and of the public it has to serve. There has gone a good man and a true.

WALTER GEORGE LOWE, M.D., F.R.C.S.

Consulting Surgeon, Burton-on-Trent Infirmary

We regret to announce the death, on October 21st, of Dr. W. G. Lowe, after a long and distinguished professional career at Burton-on-Trent. He had been a member of the British Medical Association for sixty-two years.

Born in 1848, the son of the late Dr. George Lowe of Burton, he received his medical education at St. Bartholomew's Hospital. He graduated M.B.Lond. in 1870, and in the same year obtained the diplomas M.R.C.S., L.R.C.P. Five years later he advanced to the Fellowship of the Royal College of Surgeons by examination, and in 1876 proceeded M.D. From a house-physicianship at St. Bartholomew's Hospital he returned to Burton, where he practised until his retirement in 1921. He was for many years one of the surgeons at Burton Infirmary, and was subsequently elected consulting surgeon. He became a member of the British Medical Association in August, 1872, was president of the Staffordshire Branch in 1886 and 1909, and was a representative at the Annual Meetings of the Association at Swansea in 1903, Oxford in 1904, Leicester in 1905, and London in 1910. He had also been president of the Midland Medical Society in 1898-9.

Apart from his professional activities, Dr. Lowe took a deep interest in many local concerns. His association with the administration of the Education Act continued for thirty years, for he had been uninterruptedly a member of the local authority—first the old School Board, and later the Borough Education Committee—since 1885. When the present Education Act came into force in 1902 he was co-opted a member of the newly constituted education committee for the borough, and became its vice-chairman in 1912. He was for several years chair-

man of the subcommittee in charge of post-elementary school instruction, and took special interest in the work of evening classes, the School of Science and Art, and the public lectures in the Town Hall. He was also a member of the General Purposes, Juvenile Employment, Elementary Education, and School Attendance Subcommittees, and was for some time a governor of the Burton Endowed Schools. He gave great help to various philanthropic enterprises, and, like his father before him, was a strong and active supporter of Holy Trinity Church.

Dr. Lowe was a surgeon colonel of the old 2nd Volunteer Battalion of the North Staffordshire Regiment, and received the Volunteer Decoration. He was a vice-president of Burton St. John Ambulance Association, and put in much work on its behalf. In Freemasonry he attained Provincial Rank, and he had been Provincial Grand Master of the District in the Manchester Unity of Oddfellows. He was president of numerous sports clubs. When he left Burton he had sat on the borough bench of justices for just over twenty years, and had been a county magistrate for nearly as long. He was buried at Birchington-on-Sea, where he lived after retirement.

Dr. THOMAS NASH THOMAS died at his residence in Solva, Pembrokeshire, on October 22nd, at the age of 74. He had been a member of the British Medical Association for over forty years. He received his medical education at the London Hospital, where he was contemporary with Sir John Lynn-Thomas. After obtaining the M.R.C.S., L.R.C.P., and L.S.A. he settled down in Leicester, where he had a very large practice. So successful was he that at a comparatively young age he was able to retire and to lead the life of a country squire in his native Pembrokeshire. He farmed there on a large scale, but was not allowed to do so for long, inasmuch as his services as a doctor were soon in demand. Dr. Thomas was a master of the art of prescribing. According to the local chemists, his prescriptions were a joy to behold. He deplored the modern habit of tablet prescription. He was a man of wide experience and large sympathies, and his work in Leicester and Pembrokeshire will be long remembered. He leaves a widow, the constant companion and inspiration of his life.

We regret to announce the death, after a long illness, patiently borne, of Dr. SAMUEL JOHN COLE of Bideford, at the age of 78 years. Dr. Cole was a student at the London Hospital, and qualified M.R.C.S., L.R.C.P. in 1887. He was a Fellow of the Royal Institute of Public Health, and had been a prosector of the Royal College of Surgeons; he also occupied the post of school medical officer of the administrative county of West Suffolk. For a short time he was in practice in Pentonville, London. For many years, owing to ill-health, Dr. Cole was obliged to curtail his activities. During the war he did good work in North Devon by filling the vacancies and carrying on the practices of local medical men who were called up for war service.

The death on October 13th, at Fazakerley Sanatorium, Liverpool, after a very brief illness, of Dr. BRERETON GEORGE ELLIOTT, removes a lovable personality from the medical profession. He was the son of the late Rev. John Elliott of Armagh, a brother of Dr. John Trimble Elliott of Smithborough, Co. Monaghan, and a nephew of Colonel C. J. Trimble of Preston. Dr. Elliott had his earlier medical career in private practice in Cherrytree and Witton, Blackburn, where he founded the Blackburn Division of the St. John Ambulance Association. During the Great War he saw active service in two theatres. He had been an officer of the 5th Battalion East Lancashire Volunteers, and on the outbreak of hostilities he accompanied the East Lancashire Territorials, as they had then become, to Egypt. Thence he proceeded with them as a combatant officer to Gallipoli, where he was

promoted to the rank of major. His health becoming impaired on active service he was returned to Egypt to command a military hospital there; subsequently he served at Kimmel Camp. After the war Major Elliott served for a number of years as a resident medical officer at Fazakerley Sanatorium. In these various spheres of activity he quietly won by his kindly disposition, human sympathy, and administrative wisdom, the respect and affection of his soldiers, colleagues, and nursing staffs in hospital, and of the ex-service men, who had always in him a warm friend. Those who knew him well will always remember his quiet drollery and wit.

W. M. K.

The following well-known foreign medical practitioners have recently died. Dr. COURO, professor of clinical medicine and perpetual president of the Academy of Medicine at Rio de Janeiro, foreign associate of the Académie de Médecine of Paris; Dr. MARIO SANATUCCI, professor of the Institute of Hygiene of Rome; and Dr. CECILIA GRIERSON, the first Argentine woman doctor to be qualified (in 1889), who founded the first school for nurses in the Argentine Army and the Argentine Society for First Aid.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Both Houses of Parliament reassembled on October 30th, when the Commons discussed the Incitement to Disaffection Bill. Mr. Ramsay MacDonald promised a day to discuss the reports made by the commissioners dispatched by the Government to the distressed areas.

The Kenya Native.—On October 30th Sir PHILIP CUNLIFF-LISTER informed Dr. O'Donovan that the Governor of Kenya had no doubt that the institution of research on the lines foreshadowed by Dr. H. L. Gordon would assist in the solution of many of the administrative, social, and political problems of the colony, though the state of the colony's finances still made it impossible for the Colonial Government to find the necessary funds. Sir Philip was considering whether there was any means by which the question could be further investigated.

London Refuse.—Sir HILTON YOUNG stated on October 30th that the Advisory Committee on London Refuse had made an interim report dealing with the disposal of house and trade refuse. The Metropolitan Boroughs Standing Joint Committee, of which the committee in question was a subcommittee, has asked for the observations of the Common Council of the City and of the metropolitan borough councils on the report.

Exhaust Fumes in Streets.—Asked to give the result of any recent investigation concerning the effect of exhaust fumes of motor vehicles in crowded thoroughfares, Mr. HORT-BELISHA told the House of Commons on October 30th that he had no information to give beyond that conveyed in a statement of July 30th.

Poor Relief in Scotland.—On September 15th, 162,142 poor persons, with 209,535 dependants, were in receipt of poor relief in Scotland. These include vagrants and persons in receipt of outdoor medical relief.

Imported Foods.—Dr. ELLIOTT announces that exporting foreign countries had agreed to reductions in their quotas for shipments of cream and condensed milk to the United Kingdom. Butter is not included in this arrangement. A measure of co-operation has been secured for regulating meat shipments to the United Kingdom till March 31st.

Slum Clearance.—At September 30th, 60,242 houses in clearance areas in England and Wales were included in clearance or compulsory purchase orders submitted for confirmation or in agreements for purchase. The total number of new dwellings approved for rehousing was 54,524, of which 26,926 had been completed, and a further 19,391 were under construction.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

ASSISTANTS AND LOCUMTENENTS

The doctor who contemplates engaging an assistant or locumtenent will naturally satisfy himself that the newcomer is trustworthy and reasonably competent. He should also, however, pay attention to two important legal implications of the relationship. One is that, as the newcomer is his agent in law, he may in certain circumstances be held responsible for damage caused by the negligence of the assistant or locumtenent. (The extent of his liability was discussed in a former article.¹) The other is that unless the principal and his assistant or deputy make an express agreement to the contrary, there is nothing in law to prevent the latter, on the termination of his contract of service, from practising in the neighbourhood and competing with his former principal.

The only practical way in which a practitioner can avert the great expense and harm that may result if an aggrieved patient brings an action for negligence is to require any registered assistant he employs to be a member of a defence society. He is covered by his own society against claims arising out of the acts of his locumtenent but not those of his assistant, and he will be seriously inconvenienced if his assistant gets into legal difficulties. The intervention of a defence society is, moreover, sufficient in the vast majority of cases to discourage a potential litigant from proceeding any further. He may protect himself—though not his assistant—against claims arising out of the work of his assistant by paying a small extra subscription. The two largest defence societies have a reciprocal agreement by which each will defend a member in an action arising out of the act or omission of an assistant or locumtenent who is a member of the other society. The subject of restrictive covenants has already been dealt with.²

It follows that a practitioner who employs an assistant or a locumtenent without entering into a written agreement is taking a great and quite unnecessary risk. Moreover, the contract—like all agreements between medical men—should be drawn up by a solicitor with experience of the legal pitfalls of medical practice. Barnard and Stocker give a useful form,³ and the British Medical Association⁴ suggests that the agreement should contain the following conditions:

1. The assistant to give diligent and faithful service.
2. The assistant to give his whole time and attention to the practice under the direction of the principal.
3. The assistant to receive from the principal periodic payment for his services, at an agreed rate.
4. The assistant to keep just accounts and pay over to the principal all moneys received on behalf of the practice.
5. Provision for a holiday for the assistant.
6. Provision for the determination of the agreement.
7. Period for the duration of the agreement.
8. A restrictive clause as to practice by the assistant during and after termination of the agreement.
9. A provision that both the principal and the assistant should be members of one of the medical defence societies during the whole period covered by the agreement, and also one for the settlement of disputes by arbitration.
10. That if the assistant's name is placed upon the medical list of the National Health Insurance Committee the assistant must agree that either the assistant shall not accept any insured person other than in the name of and on behalf of the principal, or if any insured persons are accepted in the name of the assistant he shall take every possible means to ensure the transfer of those persons to the list of the principal on the termination of the agreement.

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), the fourth on July 21st (p. 141), the fifth on September 22nd (p. 574), the sixth on October 6th (p. 660), and the seventh on October 20th (p. 730).

¹ British Medical Journal, 1933, i, 1029.

² Ibid., October 20th, 1934, p. 750.

³ Medical Partnerships, Transfers, and Assistantships, 1913, p. 59.

⁴ Handbook for Recently Qualified Medical Practitioners, British Medical Association. (38, 61.)

One authority advises the principal to demand from the assistant at the beginning of his service a signed form requesting the transfer to the name of the principal of all patients who have been accepted by the assistant in his own name. He can, if necessary, make use of this form when the contract of service expires.

ASSISTANT WITH A VIEW TO PARTNERSHIP

When a young man looking for a practice meets an older man who is not quite certain whether or not he wants to sell a part of his interest, the suggestion often arises that the younger shall act as assistant to the older with a view to becoming a partner later on. The British Medical Association recommends a young practitioner to become an assistant with a view to partnership, regarding this as a good and practical way of making himself familiar with the work of the practice. Moreover, it gives the older man an opportunity of assuring himself that the young man will make the kind of partner he wants. The arrangement seems, on the face of it, a good one, but Barnard and Stocker do not recommend it. These authors say that, as a matter of experience, only about one assistant in every twelve who begin with partnership in view ever becomes a partner. If, they suggest, the principal really wants the assistant as a partner, and the assistant really wants and can afford to become a partner, and they agree on the terms of the partnership articles before they start work together, there is no fault to be found with the arrangement. Unfortunately, one of its chief attractions is that it gives both parties an excellent pretext for shelving the difficult and delicate task of settling terms of partnership. The fulfilment of the project is occasionally, they say, prevented by some unforeseen circumstance, but more usually because one of the parties becomes conscious of an objection about which he could equally well have made up his mind at the outset. The disadvantages to the principal of an abortive attempt of this kind are that the practice suffers a decrease in value; to the assistant they are that to work for a considerable time, to find everything satisfactory, and then to be refused a partnership after all is annoying and may be discouraging.

Doctors contemplating this relationship must therefore form their own opinion on whether the risk is one which they care to take. Where the parties are practically certain that they want to enter into partnership together, they may find it useful to make an agreement to do so on a certain date, with a stipulation that if either refuses to do so without good and sufficient cause he will pay to the other a named sum as damages. The following point is serious enough to deserve memorizing. If an assistant is wrongfully dismissed the courts will probably hold that, as the employer has broken an important term of the contract, the whole contract is at an end. The natural consequence is that the restrictive covenant no longer binds the assistant (General Bill Posting Company v. Atkinson, 1908) and he is free to come and set up in practice as near his ex-principal as he likes. A doctor who wishes to dismiss his assistant should therefore be very careful not to run the risk of breaking his contract in doing so. It may, in fact, be well worth his while to seek legal advice before he takes any drastic step. A competitor who combines a strong personal grievance with an intimate knowledge of the practice is able to be a disturbing factor in any doctor's environment.

Under the Workmen's Compensation Acts an employer is bound in certain circumstances to compensate a "workman" for personal injury, and "workman" includes anyone who has made a contract of service. A doctor employing an assistant or locumtenent at a salary should therefore remember to insure himself against the risk of having to pay compensation under these Acts. If, however, the assistant or locumtenent is receiving more than £350 a year, he is not a "workman."

An assistant who is remunerated by receiving a share of the profits has a right to overhaul his employer's accounts and books, although he has none of the other rights of a partner. A practitioner may enter into an agreement with the widow of a deceased practitioner to carry on the practice for her for a salary, she to be

financially responsible for the practice and to take the profits. If, however, she interferes with the conduct of the practice or practises herself, the General Medical Council may consider him to be guilty of the offence of "covering," an unqualified person and remove his name from the *Register*. Such arrangements, according to one large defence society, do not usually work well for very long.

A locumtenent² is the confidential agent of his employer and is bound in law, as well as in honour, to try to serve the interests of his practitioner and to maintain a good relationship with patients and the other doctors of the neighbourhood as assiduously as though he himself were the owner of the practice. He may make no profits of any kind from the work other than that which he has agreed to accept from his principal, and if he retains for himself any money given him in return for professional services, he is not only liable to pay his principal damages to the value of this unlawful profit, and the costs of the action, but may also be prosecuted under the Prevention of Corruption Act, 1906, which lays down that an agent, on pain of fine or imprisonment, may not accept for himself any profit without the knowledge of his principal. It is grossly unethical for a locumtenent to set up in practice in a place to which he has first come in that capacity, but it is only a legal wrong if he has signed a covenant binding him not to do so.

Medical News

On Tuesday, November 6th, Professor F. A. E. Crew of Edinburgh will deliver the Lloyd Roberts Lecture, on "Medicine and the Further Evolution of Society," at the Manchester Royal Infirmary.

The annual general meeting of the West Riding Association of Graduates of the University of Edinburgh will be held at the Great Northern Hotel, Leeds, on Wednesday, November 14th, at 6.45 p.m. The annual dinner will follow at 7.30. The guest of the evening will be Mr. John Wheeler Dowden. Graduates please take note of this date. Applications for further information to the honorary secretary, 33, Manor Row, Bradford.

The Glasgow University Club, London, will dine at the Café Royal, Regent Street, W., on Friday, November 23rd, at 7.30 p.m., with Professor Alexander Macphail in the chair. Any Glasgow University men who, though not members of the club, desire to attend are asked to communicate with the honorary secretaries, 62, Harley House, N.W.1.

A public lecture under the Chadwick Trust, on "Fifty Years of Public Health Progress," will be given by Dr. Matthew B. Ray at Huddersfield Technical College on Friday, November 9th, at 7.30 p.m.

A lecture on the theory and practice of contraception will be given to medical practitioners and students who have completed their gynaecological course by Dr. Gladys Cox on November 16th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Demonstrations will be given on November 23rd and 30th at 6 p.m. and 7 p.m. (those attending are asked to bring rubber gloves). To cover expenses of lecture and demonstration a fee of 5s. is charged. Tickets admitting to the lecture are to be applied for in advance.

The 1934-5 session of the West Kent Medico-Chirurgical Society opened on October 12th at the Miller General Hospital with the annual general meeting. The following lectures have been arranged: November 9th, Mr. G. John Sophian, "Physiology and Pathology of Menstruation"; December 14th, Sir Humphry Rolleston, "Shifting Sands of the Architecture of Medicine"; February 8th, 1935, Dr. H. Stanley Banks, "Serum Treatment of Scarlet Fever, Diphtheria, and Measles"; March 5th, Mr. A. Lawrence Abel, "Common Diseases of the Rectum and Anal Canal." On April 12th there will be a debate on

"That Surgery is the Method of Election for the Treatment of Peptic Ulcers." For the motion, Mr. C. A. Joll, seconded by Dr. H. V. Morlock; against, Dr. Harold Pritchard, seconded by Mr. R. C. B. Ledlie.

The following lecture-demonstrations have been arranged by the South-West London Post-Graduate Association at St. James's Hospital, Ouseley Road, S.W., on Wednesday at 4 p.m.: November 7th, Dr. W. G. Wyllie, "Pulmonary Fibrosis and Bronchiectasis in Children"; November 14th, Dr. Stanley Wyard, "Tuberculosis in Children"; November 21st, Dr. C. E. Lakin, demonstration of medical cases; November 28th, Dr. Braxton Hicks, "Some Mutual Difficulties of the Clinician and the Pathologist"; December 5th, Mr. V. Z. Cope, demonstration of surgical cases; December 12th, Mr. L. Phillips, "Some Medical Aspects of Gynaecology."

A course of three lectures on "Newer Aspects of Gastritis and its Consequences" will be given by Dr. Knud Faber, professor of medicine in the University of Copenhagen, at Guy's Hospital Medical School, London Bridge, S.E., on November 6th, 8th, and 9th, at 5 p.m. Dr. Arthur Hurst will take the chair at the first lecture. Admission free, without ticket.

The 1934-5 session of the North London Medical and Chirurgical Society opened on October 10th, when Dr. H. Letheby Tidy gave an address on some modern views on anaemia. The programme includes clinical demonstrations on November 15th, 1934, and February 14th, 1935, and the following addresses: December 14th, Dr. Rubens Wade, "Some Aspects of Anaesthesia"; January 16th, 1935, Sir William Wilcoxon, "Common Functional Disorders of the Liver"; March 13th, Mr. Eric Lloyd, "Scoliosis."

The Cancer Hospital (Free), Fulham Road, S.W., announces that a series of lectures on cancer will be given in the lecture theatre of the hospital on Thursdays at 4 p.m. from January 3rd to April 11th, 1935, inclusive. No charge is made for attendance at the course, which is open only to medical practitioners.

A discussion on the bed-bug as a housing problem will be introduced by Mr. A. W. McKenny Hughes at a meeting of the Royal Sanitary Institute at 90, Buckingham Palace Road, S.W., on Tuesday, November 13th, at 5.15 p.m., when Lord Balfour of Burleigh will preside. The opening paper will deal with the disinfection of houses and furniture, and the prevention of infestation.

At the official opening ceremony of the West Lane Hospital Nurses' Home, Middlesbrough, on October 30th, the mayor said that the past year had been memorable, especially in regard to hospital and public health services generally, both at the Holgate Municipal Hospital and at the Poole Sanatorium, as well as at the hospital in West Lane. He paid a warm tribute to Dr. C. V. Dingle, the medical officer of health, who had worked for several years towards the fulfilment of a scheme to provide these necessary extensions.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 6th and 13th at 2.30 p.m. In the series of lectures on diet and dietetics, on Wednesdays at 8.30 p.m., at 11, Chandos Street, W., Dr. E. G. B. Calvert will speak on diet of the diabetic, on November 7th, and Dr. F. W. Christie on diet of the obese and thin, on November 14th. On November 10th, at 3 p.m., there will be a special demonstration of surgical cases by Mr. C. E. Shattock, at the National Temperance Hospital, Hampstead Road, N.W. Forthcoming courses of instruction include venereal disease at the London Lock Hospital, November 12th to December 8th; gynaecology at the Samaritan Hospital, November 17th and 18th; proctology at St. Mark's Hospital, November 19th to 24th; and an evening course in rheumatism at the British Red Cross Clinic on Tuesdays and Thursdays from November 20th to December 6th. A special M.R.C.P. course in diseases of the chest will be given at the Brompton Hospital between December 17th and January 11th. A panel of teachers is available daily for individual tuition in various branches of medicine and surgery.

² B.M.A. Handbook for the Newly Qualified, 1923, p. 11.

The first Rumanian Congress of Medical Radiology and Electrolgy will be held at Bucarest from November 8th to 10th under the presidency of Dr. Severeanu. The subjects for discussion will be cholecystography, x-ray diagnosis of intrathoracic tuberculosis, radiotherapy of mammary cancer, and actinotherapy of erysipelas. The general secretary is Dr. G. N. Giurea, Str. Stirber Voda 108, Bucarest.

The council of the University of Manchester has equipped a laboratory of surgical research at 20, York Place, immediately adjacent to the Royal Infirmary. Applications to work in the laboratory should be made in the first instance to Professor E. D. Telford.

The High Commissioner for India has been asked by the Indian Research Fund Association to invite applications for the post of Director of Nutritional Research at Coonoor, in the Madras Presidency. Candidates must be graduates in medicine with a wide experience of nutritional research, both in the field and in the laboratory, who have made original contributions on the subject. They must be of sound constitution, and not more than 45 years of age. A notice giving further particulars appeared in the advertisement columns of the *British Medical Journal* of October 13th (p. 50). Applications must be made on the prescribed form, copies of which can be had from the High Commissioner, India House, Aldwych, W.C.2. Completed forms must be received by November 30th.

Professor Sudhoff of Leipzig, who recently celebrated his eighty-first birthday, has resumed the editorship of the journal which is henceforward to be known as *Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften*, in collaboration with Professor Dr. J. D. Achelis.

A square in front of the Salpêtrière, Paris, has recently been named after the late Mme Marie Curie.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring **REPRINTS** of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

Aerophagy with Meteorism

"PERPLEXED" asks for suggestions regarding a case of aerophagy in a man, aged 40, with ensuing meteorism. The condition is always worse when the patient is excited or nervous, and occasionally occurs after a long railway journey. There is marked distension of the abdomen, and intense discomfort. After a couple of hours or so the air becomes gradually expelled, per rectum. Nothing organic can be discovered.

Treatment of Ménière's Disease

"INQUIRER" writes from Northern Ireland: Could any of your readers suggest treatment for a case of Ménière's disease? The patient is a man of about 50, and has been suffering from this complaint for from three to four years. Bromides and luminal appear to have little, if any, effect on the onset of attacks.

** An annotation on this subject was published in the *Journal* of October 27th (p. 779).

Trichophyton Infection

Dr. J. F. BRISCOE (London S.W.1) writes: Tinea tonsurans in the Victorian age was a most common malady of children's heads, and if not treated promptly became an intractable complaint. The fungus in chronic cases, growing deeply, resisted ordinary medicaments. At one of our large public schools glacial acetic acid was introduced as an ideal remedy, and the acid was well rubbed in, perhaps once, or maybe twice. If it was a small patch the drug proved effective. At that period, too, short of blistering, many cases gave prolonged trouble. To-day, disease is caught so early that ringworm can be readily dispatched, since children's heads are now "drilled" at and after school hours. Moreover, in my opinion, singeing the scalp may interrupt the growing spores and the filamentary mycelium threads, and I am positive it stays baldness. Dhobi itch, and all the contagious tinea, may be treated successfully in the same routine method as tinea tonsurans. With the acetic acid, white precipitate ointment, even an application of liquor potassae, and hyposulphite of soda in tinea versicolor are remedies out of fashion which are not to be despised. Changing linen and woollen vests, and especially the pants, needs careful attention; while trousers long worn are like the old women's petticoats, needing the sterilizing chamber. To be certain of success the secret of the treatment of all the fungoid eruptions of the skin is to get your application below the epidermis.

Income Tax

Payment of Annuity

"J. B." writes: About three months ago I wrote to you about a claim for repayment of income tax by a relative to whom I pay an annuity. I would like to let you know that I followed the advice you were good enough to give me in the *British Medical Journal* for July 14th (p. 98). A reply has just come from Somerset House to the effect that they agree with the inspector that, having regard to the form of the agreement, the annuitant was not entitled to the repayments in question, but they do not think that in the circumstances they can claim a refund of the amounts overpaid. "No further application for a refund will therefore be made." May I offer my sincere thanks for your help in the matter.

Motor Car Replacement

"E. B." has had the following car transactions in 1933-4: On April 1st, 1933, he owned a 12-h.p. "A" car, written down value £41; on April 25th he sold it for £70 and bought an 18-h.p. "T" car for £295; in June he sold the "T" car for £225 and bought an "S" (new) car for £235; in November he sold that car for £90 and bought an "A" car for £30. He has been allowed £40 for the loss on the "T" car and £30 for the loss on the "S" car.

* The latter item (£30) is, of course, much less than the loss incurred on the "S" car, which was £235 - £90 = £145. The difficulty is that the allowance is not specifically for the loss on the car replaced, but is for the expenditure on the new car—to the extent of the loss incurred on the old one. As £30 only was spent on the purchase of the last car, that limits the allowance in respect of the replacement of the new "S" car to that sum.

"W. H." runs two cars; one is an 8.3-h.p. "R" car, bought second hand for £55, and he intends to sell it for, say, £15, and buy a new 9.8-h.p. "H" car for £179. What is his best course as regards income tax allowances?

* He can claim a replacement allowance of (£35 - £15 =) £20 as an expense of the year 1934. That, however, will preclude him from claiming the depreciation allowance of (£179 at 22 per cent. =) £39 for 1935-6. He can, however, claim that allowance—that is (£140 at 22 per cent. =) £31, for 1936-7, and so on for future years. When the "H" car is replaced he should claim obsolescence allowance—that is, £179 less the amount received on sale.

and less the aggregate depreciation allowances, but *excluding the non-effective allowance for 1935-6*. He will then have received the full amount due in law and in equity.

Private Motoring Expenses

"J. F. M." has in the past been allowed running expenses and wear and tear in respect of his car; the inspector of taxes suggests that one-tenth of each kind of deduction should be treated as applicable to private use. Should the wear and tear allowance be added to the expenses claimed, which cover the whole cost of running, etc.?

*. Whether one-tenth is reasonable or excessive depends on the extent of private use of the car, and varies so much that no rule of thumb is of much use as a guide. If that is a fair ratio it does apply to the wear and tear allowance as well as to the out-of-pocket expenses. That allowance is correctly treated as an addition because it is in anticipation (wholly or in part) of the cost of replacement.

Expenses of an Attack of Scarlet Fever

"E. M." contracted scarlet fever in the course of discharging his professional duties; are the resulting expenses allowable?

*. We fear not, though the point is not beyond doubt. The statute forbids the deduction of sums "not being money wholly and exclusively laid out or expended for the purposes of the . . . profession." In such a case as this it is arguable that the expenses are incurred because the practitioner cannot exercise his profession, and the word "exclusively" is awkward to get round in this connexion. The Board of Inland Revenue allows the cost of the services of a locumtenent, but that is as far as it is apparently willing to go. The deduction is worth claiming, but we could not advise "E. M." to carry his point to appeal.

Purchase of Practice

"G. H." purchased a practice in May, 1934; prior to that he was employed as an assistant elsewhere. He has had a notice of assessment for 1934-5, apparently based on the estimated profit of the practice.

*. He is chargeable to tax (a) under Schedule D, on the current year's earnings; (b) under Schedule E, on the previous year's basis for the proportion of the year to the date when his employment ceased. Thus suppose it ceased and he took over the practice as at May 5th, 1934, then he is liable (a) on the earnings for the eleven months to April 5th, 1935, and (b) on 1/12 of his employment earnings for the year to April 5th, 1934.

Surgery, etc., at Private Residence

"W. H. H." pays rent and rates amounting to £110 + £31 = £141, and hitherto has been allowed one-half of that expense as applicable to professional purposes. The local inspector of taxes now claims to restrict it to two-fifths—that is, £57—and "W. H. H." is considering the question of an appeal.

*. It is difficult in this sort of case to give definite advice, as so much depends on the exact circumstances—for example, the amount of rent which covers the garage, whether the "professional" maid has a separate room, etc. One useful criterion is whether the three-fifths borne privately is reasonable—for example, would the practitioner obtain similar private accommodation for £84 rent and rates to that which he enjoys now? A formal appeal is probably not worth while, but a personal discussion of the details with the inspector might be useful.

LETTERS, NOTES, ETC.

Infantile Eczema

Dr. R. CHALMERS (Darlington) writes: In a review in the *Journal* of October 13th (p. 680) you quote the findings of Dr. Péhu and Dr. Aulagnier, both of Lyons, as to the aetiology of the condition referred to above—namely, an allergic condition due to an enterococcus, which these workers treat with a vaccine. An experience I had in June, 1932, may be of interest in this connexion. A baby, about 9 months old, was brought to me covered with eczema from head to foot. The history was that it had

been quite well until it went to the seaside a week or so before. No change had been made in feeding. The urine was alkaline, and showed organisms + +. I put the child on to mist, acid, sodii phos, cum hexamine, with tab. parathyroid (1/20 grain) daily, calamine lotion to the skin, and only olive oil to be used in place of soap and water for cleansing. In one week the whole condition had entirely cleared up.

An Irish Medical MS.

Dr. WINIFRED WULF (Templeogue, Co. Dublin) writes: I should like to thank you for the kind notice of my book, *A Handbook of Gynaecology and Midwifery* (Irish Texts), which appeared in your issue of September 22nd (p. 555). There is one point I should like to make clear. Your reviewer does not appear to realize that the Irish version of *Trotula* and John of Gaddesden is a faithful translation—indeed, a literal translation, except in a few minor details—of the Latin as it appears in the printed edition, and which is here printed side by side with the Irish. Since the Irish translation was made, as your reviewer correctly states, some two hundred years before the Latin edition was published, it is interesting to note how closely the translator has kept to the original Latin manuscript. As the book is intended for scholars it was not considered necessary to translate either the Latin or the Irish into English.

Eustace Smith's Sign

Though in itself of little practical value, the above sign is a good example of a single eponym striving to capture the personality of a man who has left his mark on a multitude of scientific problems. It was first described in a short paper entitled "On the Diagnosis of Enlarged Bronchial Glands in Children" in the *Lancet* (1875, ii, 240), and consists in a venous hum heard over the upper part of the sternum when the child bends back its head. The original description is quoted by Dr. W. R. Bett in the current issue of the *British Journal of Children's Diseases* (July-September). Eustace Smith was one of the first physicians in this country to specialize in children's diseases, and for forty-three years he was associated with the East London Hospital for Children, Shadwell. He was a fine clinician and a skilled percussor, whose deft touch remained unimpaired till the very end. A faithful believer in drugs, he was fond of big doses. His emphasis in a doubtful case of whooping-cough on the disproportion between the violence of the cough and the signs in the chest is still regarded as a useful aid to diagnosis. The culminating point in his career was his election to the presidency of the Children's Section at the International Congress in 1913.

Corrigenda

In the footnote to our review of Harrow and Sherwin's *Chemistry of the Hormones* (October 27th, p. 773) the price of the book was given as 1s. 6d. This should have been 11s. 6d.

Dr. A. J. HAWES wishes to correct a slip in his article on the death of Mauriceau's sister published last week (p. 782). The title of the book referred to is *De la Perte de Sang*.

Boots Pure Drug Co. Ltd., Nottingham, have issued a well-illustrated booklet on "bismostab," their 20 per cent. suspension of bismuth (B.P.) in isotonic glucose solution, for injection in cases of spirochaetal diseases. A feature is the complete course outlined for the routine treatment of adult syphilis with this preparation by the "concurrent" and "alternate" methods. A copy will be sent free of charge to medical men who apply.

The Medical Supply Association Limited (Gray's Inn Road, and 95, Wimpole Street) have issued two new booklets, one on electrotherapy apparatus and the other on the "medisun" lamp ultra-violet ray generator. Copies will be sent on request to any medical practitioner or accredited assistant.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 55, 56, 57, 58, 59, 62, 63, and 64 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 60 and 61. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 236.

BRITISH MEDICAL JOURNAL

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TOXIC GOITRE: A SURVEY OF 125 CASES TREATED SURGICALLY

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This paper is based on an analysis of 125 consecutive and unselected cases of toxic goitre treated by operation. All the cases came under the charge of one surgeon during a period of sixteen years. A few of the cases were treated as far back as 1918, but the majority have been operated on during the last six years. It is not our intention to present in any detail the symptomatology of toxic goitre or the operative technique, but rather to record the results of operative treatment in a representative series of consecutive cases. We are fortunate in that the great majority of the patients have been able to report periodically at hospital, so that it has been possible to make regular observations of their progress. All but a few were treated in the wards of the Royal Infirmary; cases treated privately have also been included to enlarge the series.

To simplify description cases have been divided into two groups—primary and secondary toxic goitre. Primary toxic goitre signifies toxic symptoms occurring as a result of pathological changes in a previously normal thyroid, giving rise in the majority of cases to typical exophthalmic goitre. The group classed as secondary toxic goitre includes those cases in which some simple form of goitre preceded the development of toxic symptoms, and the cases in this group correspond closely to those formerly described by Plummer as toxic adenoma. This classification, though it may be open to objection, is simple and comprehensive.

In our series of 125 cases 105 were classified as primary toxic goitre and twenty as secondary toxic goitre. On account of the difficulty of allocating some cases, these figures should be regarded as being only approximately accurate.

Sex and Age Incidence

Of the 125 cases 109 were females and sixteen were males: a sex ratio of 6.8 to 1. The largest number of cases occurred at the age period 20 to 40, the average age for the whole series being 33 years. Seven patients were under 20 and sixteen were over 50 years of age.

Duration

The duration of symptoms prior to operation varied from a few months to eighteen years, with an average of thirty-two months. In our experience it is not infrequently difficult to estimate the exact duration of symptoms, since patients with toxic goitre are apt to be

vague in their statements and tend to underestimate the duration of their illness.

Severity of Cases

Since the severity of toxic symptoms may have an important bearing on the results of treatment, we have graded our cases as severe, moderate, and mild. In the severe group are included patients who at the time of operation were extremely toxic, bed-ridden, and entirely incapable of even the lightest activity. The moderate group comprises patients who showed very definite toxic symptoms and were unfit for their employment, but who managed with difficulty to "remain on their feet" and perhaps carry out the easiest household duties. In the group classed as mild are patients who showed only comparatively slight toxic symptoms and who were able to perform their various duties, although with some considerable effort.

In the following table the number of cases allotted to each group is shown:

Severe	...	...	...	...	33, or 26.4 per cent.
Moderate	...	...	...	...	65, or 52.0 " "
Mild	...	...	...	...	20, or 16.0 " "
Not classified	...	...	...	...	7, or 5.6 " "

Previous Medical Treatment

A considerable proportion of the cases in this series had undergone a systematic trial of medical treatment before they were finally submitted to operation. Out of the total of 125, eighty-two had received prolonged courses of treatment in the medical wards apart from the usual pre-operative preparation. Such treatment consisted in long periods of rest in bed with iodine medication, and in some cases irradiation with radium had been tried. In the remaining forty-three cases, although we have no record of any intensive medical treatment prior to operation, we have reason to believe that the majority were treated with iodine and rest in their own homes.

Operation

Pre-operative Treatment.—Apart from the earlier cases in this series iodine has been given pre-operatively in the form either of Lugol's solution in doses of from 5 to 15 minims daily or of potassium iodide, 2 to 4 grains daily, over a period of from ten days to three weeks. When the symptoms have been severe larger doses of iodine have been found necessary. This regime has been

employed in both primary and secondary cases. Operation was performed when the maximum benefit seemed to have occurred, usually within ten to twenty-one days. The striking benefit which usually follows the administration of iodine is not as a rule maintained; it is therefore an advantage if the iodine is discontinued for some time before the patient is admitted for preparation for operation. The diet given in the average case has a caloric value of between 2,800 and 3,000. No effort is made to force diets of 5,000 calories as such forced feeding tends to disturb digestion. The patient is encouraged to take glucose drinks during the pre-operative period and, during the two days immediately preceding operation, receives 100 grams of glucose daily.

Anaesthesia.—In the earlier cases in this series either open or intratracheal ether anaesthesia was employed; later, gas and oxygen were preferred when a general anaesthetic was indicated. Local anaesthesia has, however, been employed in the majority of cases, and during the last six years has been regarded as the method of choice. Anaesthesia is induced by local infiltration of the operation area with 1 per cent. novocain solution and by regional block of the branches of the cervical plexus at the posterior border of the sternomastoid muscles. Care is taken to introduce the solution around the upper poles and above the isthmus of the gland. Local anaesthesia alone has been used successfully in ninety-seven of the cases in this series, and in only nine of these was it necessary to supplement it with light general anaesthesia. General anaesthesia alone has been used in twenty-eight cases. It is an advantage of local anaesthesia that the operation must be done with gentleness, and with the minimum of trauma, and that the patient can phonate at any stage of the operation if the integrity of the recurrent nerves requires to be decided. After operation under local anaesthesia the patient can take fluids at once, and there is a lessened tendency to respiratory complications. In order to perform the operation satisfactorily a pre-operative sedative is advisable. On the night before operation the patient receives 6 grains of veronal and 5 grains of aspirin. One and a half hours before operation one-third of a grain of omnopon is given, and one hour later, depending on the patient's reaction to the first dose, a second injection of omnopon is given if necessary. With omnopon as a pre-operative sedative the patient remains conscious and lies quietly during the operation. We have not observed any diminution of the respiratory rate in any of the cases in which omnopon has been used such as occurs with morphine and heroin. The use of omnopon has helped to strengthen our faith in the advantages of local anaesthesia in all types of toxic goitre, including those cases which at best can only be regarded as bad subjects for operation. Earlier experience with morphine and hyoscine was not uniformly satisfactory, as in some cases the hyoscine excited rather than quieted the patient. In a few cases avertin was used, but with it it was found impossible to perform the operation under local anaesthesia. The combination of avertin and light general anaesthesia, however, gave satisfactory results in the cases in which it was employed.

Operative Technique.—In the following tables are shown the types of operation performed in this series.

(A) Primary Toxic Goitre

	Cases
(1) Subtotal thyroidectomy	97
(a) One-stage operation	93
(b) Preliminary ligation of superior thyroid arteries with subsequent subtotal thyroidectomy	2
(c) Subtotal thyroidectomy in two stages	2
(2) Resection of one lobe	7
(3) Ligation of superior thyroid arteries	1
Total ...	105

(B) Secondary Toxic Goitre

	Cases
(1) Bilateral resection	10
(2) Enucleation of adenoma	7
(3) Resection of one lobe	3
Total ...	20

It will be noted from the above tables that one-stage bilateral subtotal thyroidectomy was performed in a very high proportion of the cases. The following is a brief outline of the technique employed in this operation:

After reflection of the skin and platysma, exposure is facilitated by wide separation of the skin flaps with a self-retaining retractor. The depressor muscles are freely separated in the mid-line. Transverse division of the muscles is seldom necessary. At the outset the upper pole of the right lobe is exposed and the superior thyroid vessels are ligated and divided. The lobe is drawn medially, and the middle thyroid vein and other accessory veins are secured at the lateral aspect of the lobe. The lower pole is finally drawn forwards, and after the thyroid sheath has been separated the inferior thyroid veins are ligated and divided, and the trachea is exposed. The left lobe is dealt with in a similar manner. After the whole gland has been freely exposed the isthmus is divided between clamps and each half is dissected laterally until the anterior part of the lateral surface of the trachea is exposed on either side. The greater part of each lobe is removed by sharp dissection with the knife from the medial to the lateral side, leaving a strip of the postero-medial part of each lobe with its capsule intact. The margins of the thyroid remnant are sutured together with catgut. In very toxic cases the amount of thyroid tissue left on each side is approximately equal in size to one-third of a normal lobe. When involution is well marked more tissue is conserved. In our experience there is a tendency to remove too little rather than too much gland tissue. A small glass drainage tube is inserted through a puncture in the pre-thyroid muscles on each side into the lowest part of the space around the trachea. The drains are brought out laterally between the lips of the wound, the edges of which, including the platysma, are approximated by fine catgut sutures and Michel clips.

Post-operative Treatment.—After operation the patient is encouraged to take fluids freely by the mouth. Six ounces of glucose-saline are given per rectum four-hourly during the first two days, a total of 50 to 100 grams of glucose being given during the first twenty-four hours. While the patient remains in the surgical ward the same dose of iodine is given as was taken before the operation, and thereafter the iodine is discontinued unless the pulse rate remains high. The drains are removed in twenty-four to forty-eight hours, and the clips on the third day, when the edges of the wound are painted with collodion to maintain apposition. After leaving the surgical ward the patient is usually transferred to a medical ward or convalescent home for a further period of rest. Patients who return direct to their homes are advised to continue to rest in bed for a few weeks, and to resume normal activities very gradually.

Post-operative Complications

Shock.—Although shock is exceptional, the blood pressure may be reduced as a result of the operation, particularly in chronic cases in which the gland has been unusually vascular and friable. In these circumstances we have given a transfusion of blood at the conclusion of the operation, which has had the immediate effect of restoring the patient to a safe condition.

Sepsis.—No serious infection occurred in the series. In six cases a mild infection developed; these were all cases in which there was a collection of serum which necessitated the reinsertion of a drain. In none of the cases was complete healing delayed for more than a few days. In these cases with mild infection the average

number of days in the ward was 19, as compared with twelve days for the whole series.

Conjunctivitis.—This complication is liable to occur in cases with severe exophthalmos in which the eyelids fail to close during sleep or when the patient is under the influence of a sedative. Slight conjunctivitis occurred in a few of the early cases of this series. Subsequent experience has shown that it can readily be prevented by using some suitable eyewash and by protecting the eyes at night with a vaseline dressing kept in position by means of a bandage.

Dyspnoea from Pressure of Blood Clot.—In two cases the patient, who was perfectly comfortable and in good condition after returning to bed, developed after a few hours rapidly increasing dyspnoea with stridor. The rapidity with which the dyspnoea developed was such that both patients were soon in a critical condition. The stridor, which could be heard outside the ward, suggested bilateral abductor paralysis of the vocal cords. Within a few minutes of the onset of the dyspnoea in both cases the wound was opened up, and some clots under tension were evacuated from the retrosternal space. No bleeding points were seen, and there was no evidence of compression or collapse of the trachea. Within a few minutes the breathing became quieter, and within an hour it was normal. On examination of the larynx on the following day the vocal cords in both cases were found to move perfectly. Both patients made a satisfactory recovery. Somewhat similar symptoms, which, however, did not cause anxiety, developed in a third case, in which laryngoscopic examination proved that the vocal cords moved equally and well, and that the stridor was due to oedema of the hypopharynx and the upper part of the glottis. In this case the front of the neck seemed swollen as a result of accumulation of blood clot. On opening up the wound completely a large amount of clotted blood was found under tension, and a minute persistent oozing vessel on the front of the trachea was secured. The moderate degree of dyspnoea present was relieved by removal of the clot, and the patient's breathing was perfectly normal within a few hours. The details of these cases have been related in order to draw attention to a complication which may be encountered occasionally in any long series of thyroidectomy cases, and to emphasize the necessity for prompt recognition and immediate treatment.

Recurrent Nerve Paralysis.—No instance of either temporary or permanent paralysis of a vocal cord occurred in any of the cases in this series. In three cases limitation of one cord was noted on laryngoscopic examination before operation. In two of these recovery of movement of the cord was noted at a subsequent date.

Mental Symptoms.—Mental depression occurred in one case. The patient, who had suffered from primary toxic goitre for several years, was perfectly normal mentally until the tenth day after operation, when she became acutely melancholic and suffered from delusions. She was transferred to a mental home, from which she was discharged after a period of six weeks, having completely recovered her mental stability.

Tetany.—There were two cases of post-operative tetany. In the first case the symptoms were transient, and were confined to slight stiffness of the fingers, observed only on the first and fourth days after operation. Parathyroid extract and calcium were given for a period of two weeks. Thereafter no further signs of tetany were observed, and the patient has remained in excellent health. The second case was remarkable in that the symptoms of tetany did not appear until four months after operation, and no trace of parathyroid tissue could be detected in the resected lobes. Large doses of calcium were needed to

control the symptoms, and although it is now three years since her operation, the patient still requires to take calcium regularly. The general health is excellent, and the patient is in regular employment.

Myxoedema.—Signs of myxoedema developed in one case. There was no indication of thyroid insufficiency until three and a half years after the operation, when the weight became excessive and mental apathy was noted. This patient is now in excellent health, and requires to take only $1\frac{1}{2}$ grains of thyroid daily.

Results of Treatment

Since the main object of this paper is to present the results obtained by operative treatment in toxic goitre, we shall consider these in some detail. Out of a total of 125 cases 104 were examined personally by us when they presented themselves at hospital to report progress; a further ten patients were unable to report owing to distance or to family ties, and questionnaires were sent to these regarding their present state of health. In nine cases the operation has been performed too recently to allow of their inclusion in this section dealing with after-results. Two cases are untraced. Thus if we omit the nine cases which have been operated on during the last few months, we are left with a total of 116 cases, and we have information regarding the present state of health in 114 of these. For the purpose of discussing the after-effects of treatment, therefore, 114 will be taken as the total.

When an attempt is made to assess the results of treatment in a condition such as toxic goitre it is important to have some standard by which each individual case may be judged; and while, no doubt, we can to some extent gauge the degree of improvement by the disappearance of certain symptoms and signs, we are strongly of the opinion that the most valuable criterion of success or failure is the patient's general health and well-being. In this section dealing with the results of operative treatment, then, we shall first of all assess the patients according to their general health and fitness for work at the present time, and then the effect of operation on various symptoms and signs of toxic goitre will be considered. For the purpose of a general assessment certain symbols have been employed as follows:

S+++. The patients included in this group were completely symptom-free, and stated that they were able to carry out their usual employment without any effort.

S+. These patients stated that they were feeling very well and fit for their work, but still showed slight evidence of hyperthyroidism.

S. The patients thus classified showed definite improvement as a result of the operation but did not feel capable of a full day's work, there being definite persistence of toxic symptoms.

S-. This group comprises the failures, and includes patients who obtained little or no relief from their symptoms following operation or who showed definite signs of a recurrence of thyroid enlargement.

The above classification, founded as it is on personal impression, must necessarily be merely approximate. We would state, however, that great care was exercised both in the examination and in the questioning of each patient before the final assessment.

The following table shows the number of cases included under each heading and, in addition, the number of deaths is shown. These latter cases, in which the patient died as a result of the operation or on some subsequent occasion, are discussed further in another section.

S+++	...	...	...	72 or 63.2	} \$6.9 per cent.
S++	...	...	...	27 or 23.7	
S+	...	...	...	7 or 6.1	} per cent.
S	...	...	...	1 or 0.9	
Dead	...	...	...	7 or 6.1	"

This table reveals that 63.2 per cent. of those operated on are now completely restored to health and a further 23.7 per cent. are able to do a full day's work and remain practically symptom-free. Thus it may be said that highly satisfactory results have been obtained in 86.9 per cent. of cases.

Brief consideration of the patients in these groups may be of interest. Those classified S++ and S+ have been pronounced fit for their employment and, since the majority are women, the largest number are naturally engaged in housework. It is important to note that all the patients thus employed expressed themselves capable of the heaviest duties concerned with the management of their homes and not merely light household work. Regarding the time which elapsed following operation before the patients were able to resume their work our information is, unfortunately, incomplete. It is known, however, that 50 per cent. of the patients who are now fit for work were fully engaged in their various duties within one year of operation, and 30 per cent. were working within six months of operation. It is highly probable that these figures are considerably on the low side, and that resumption of work may usually be expected within six months of operation in successfully treated cases.

In the S group there are seven patients, and four of these are fit for light employment. The remaining three are able to go about, but any attempt at arduous work causes early fatigue. Study of these seven cases reveals that three have suffered from severe influenza or bronchitis since operation; two have had gynaecological operations, and two have had all their teeth extracted. The patients in this group have all gained weight since operation and show definite improvement in their general health, although persistence of a considerable degree of hyperthyroidism does not allow of their inclusion among the operation successes.

One patient has been classified S-, since, although there was some improvement following operation, there is now recurrence of thyroid enlargement and persistence of toxic symptoms.

Correlation of severity of symptoms with results of treatment may be conveniently shown thus:

	S++	S+	S	S-	Dead	Totals
Severe	15	9	2	0	5	31
Moderate	37	14	4	1	2	58
Mild	15	4	0	0	0	19
Unclassified	5	0	1	0	0	6
Totals	72	27	7	1	7	114

As would be expected, it is obvious from the above table that the best results are obtained in the moderate and mild cases.

Operation Mortality

In this series of 125 cases, four died as a result of the operation, representing a mortality rate of 3.2 per cent. In three of the cases death occurred on the day of operation, and the fourth died two days after operation. A brief description of these four cases may be of interest:

Case 1.—Mrs. C. W., aged 58 years. Duration, five years. Confined to bed for two years. Very feeble and exhausted, and weighed only 5 st. 3 lb. Operation: ligation of superior thyroid arteries under local anaesthesia. The decision to operate on this case was almost certainly an error of judgement.

Case 2.—Sarah D., aged 28 years. Duration, one year. B.M.R. + 90 per cent. Severe toxic symptoms. Operation: preliminary ligation of superior thyroid arteries followed by subtotal thyroidectomy with general anaesthesia. Post-mortem: fatty degeneration of liver with commencing necrosis of liver cells.

Case 3.—Andrew McL., aged 27 years. Duration, two years. B.M.R. + 59 per cent. Severe toxic symptoms. Operation: subtotal thyroidectomy with local and general anaesthesia. In this case death was possibly due to the pre-operative sedative, the patient appearing to have an idiosyncrasy to morphine and hyoscine.

Case 4.—Mrs. V., aged 50 years. Duration, two years, during which time she was confined to bed. Marked cardiac enlargement with auricular fibrillation. Operation: subtotal thyroidectomy under local anaesthesia. Died three hours after operation from sudden heart failure.

It will be noted that the operation fatalities occurred in the severest type of case. The four patients mentioned above had all received long courses of medical treatment without success before being referred to the surgical ward, and operation was only undertaken as a last resource.

In addition to the four patients who died as a direct result of the operation three have since died from other causes: two from diabetes mellitus, one and four years after operation respectively, and one from cardiac failure two years after operation. These three cases are not included under operation mortality, since, so far as can be determined, death was not in any way connected with the operation on the thyroid.

Effect of Operation on Certain Symptoms and Signs

When the patients reported at hospital following operation, notes were made regarding the presence or absence of certain of the commoner signs of toxic goitre. We would again emphasize, however, that we do not lay great stress on individual symptoms or signs, but rather on the patient's general well-being and fitness for work.

Exophthalmos.—In seventy-four cases where exophthalmos was present before operation we have information regarding the present state of affairs. This may be conveniently shown as follows:

Absent	Less	Unchanged	Total
25	41	8	74

It will be noted that exophthalmos was found to have disappeared in twenty-five out of seventy-four cases, or in 33.8 per cent., and in a further forty-one cases the degree of exophthalmos was considerably less than before operation.

Pulse Rate.—The pulse rate was recorded in each case before operation and on reporting at hospital after operation. The average rate for the total series before operation was 103 and after operation ninety-one—a difference of twelve per minute. It should be stated that these pulse rate figures are not strictly comparable, since the rate before operation represents the resting pulse rate after preparation for operation, whereas the post-operative rates were estimated when the patients reported at hospital, in some cases after a considerable journey. It was noted in a number of cases that tachycardia persisted for some months following operation, despite the fact that all other signs of hyperthyroidism had disappeared. A curious feature in connexion with the persistence of this symptom was that, in the great majority of cases, it did not appear to give rise to any discomfort and, in fact, the patients were usually quite unaware of its presence.

Auricular Fibrillation.—Auricular fibrillation was noted in ten cases at the time of operation, and we have information regarding all of these at the present time. In seven the pulse is now perfectly regular, and in one case the irregularity still persists eighteen months after operation, although the general health is excellent. The remaining two patients died, one on the day of operation and the other from cardiac failure two years after operation. Of the seven patients in whom the fibrillation ceased, five are now doing a full day's work without any discomfort and the remaining two are as yet only convalescing after their operation.

Weight.—A striking feature which was noted in almost every case was the gain in weight following operation. The average weight for the total cases before treatment was 120.5 lb., and the present average weight is 143.6 lb. Thus it will be seen that the average gain in weight amounted to nearly two stones. A point of interest in connexion with the weight is that many of the patients intimated that their weight rose rapidly during the first few months after operation and then tended to fall and become stabilized. The figures quoted here represent the stabilized weight and not the early rapid rise referred to.

Intercurrent Infections, etc.

When the patients reported they were questioned as to whether they had suffered from any illness since the operation on the thyroid. It transpired that thirty had suffered from some infection or prolonged worry subsequent to operation. Included in this number are two patients who have been confined and two who are at present in the late stages of pregnancy. A number of patients were found to have suffered from trivial ailments, but these have not been included, and it is only cases where confinement to bed for a considerable period was necessitated which are considered here. Out of the thirty patients mentioned above, twenty-three now enjoy excellent health and are fit for their employment despite intercurrent illness since operation. The remaining seven patients, to whom reference has previously been made, are all classified "S," and are not in a satisfactory state of health, although they assert that they feel better now than they did prior to operation. A point of interest arises in connexion with this question of intercurrent infection, since many of the patients remarked on their freedom from infections such as influenza and tonsillitis after the removal of the thyroid. Whereas previously they had been subject to frequent influenzal attacks, and the like, thyroidectomy appears to have increased their resistance to such infection.

Commentary

The treatment of toxic goitre is a subject which has given rise to much controversy in the past, and it is only in comparatively recent years, in this country at any rate, that surgery has been regarded with favour. Those who are averse to surgical intervention maintain that many cases may be cured by non-surgical measures, or that the operative risk is too great in proportion to the results obtained. There can be little doubt that many cases of toxic goitre may be greatly improved and even completely cured by medical treatment alone, but the admission of this fact should neither justify the adoption of medical treatment as a routine nor condemn operative treatment, since in most cases we are concerned not only with restoring the patient to health but with doing so as quickly as possible. Herein lies one of the great advantages of surgical treatment, since a high proportion of the patients thus treated are rapidly restored to good health and are enabled to return to their employment within a few months of operation. With non-surgical treatment, on the other hand, the patient may remain an invalid for many months, and at the end of this long period of inactivity there is no guarantee that she will be in a fit state to resume her normal activities. It is the uncertainty of medical treatment which is, in our opinion, its greatest disadvantage, since not only may there be little or no improvement as a result of such treatment, but there is a risk in some cases of actual deterioration in health with the lapse of time.

The question is frequently asked—What are the indications for operation in toxic goitre? It is now generally agreed that operation is indicated as a routine measure in all cases of secondary toxic goitre. It is in the

primary case that opinion is so divergent regarding the advisability of operative intervention. The decision for or against operation in any particular case must be a matter largely of personal opinion. We believe that, in our present state of knowledge, toxic goitre must be regarded as essentially a surgical condition, and as such should be treated by operation with the minimum of delay. This view is no doubt open to criticism, but it is felt that many patients are lost as a result of prolonged attempts to save them from the ordeal of operation by continuing measures which too often are of little or no avail. It is surely preferable to advise a patient with toxic goitre to submit herself to the slight risk of operation when her general health is comparatively good, rather than to temporize until perhaps there is permanent cardiac damage, and resistance is at its lowest ebb, and then as a last resource be compelled to advise surgical intervention.

The problem of operative risk is one which must always be considered when advising treatment in toxic goitre. If surgery is to be successful, scrupulous attention must be devoted both to the operative technique and to the details of the pre-operative and post-operative periods. The operation mortality of 3.2 per cent. in this series cannot be regarded as a very serious risk, and yet it is probable that this figure would have been lower if the patients could have been treated at an earlier stage of their illness. A considerable number came to operation in a very poor state of health, in spite of careful and prolonged medical treatment, and all the fatalities occurred in this type of case.

We would suggest that if the best results are to be obtained in the treatment of toxic goitre to-day, operation should be recommended at an early stage in all cases. Timely resort to surgery would ensure the complete restoration of health in the vast majority, and the number of fatalities would be reduced to a minimum. Furthermore, permanent cardiac damage as a complication would, in these circumstances, be almost entirely eliminated.

Summary

The results of surgical treatment are presented in a series of 125 consecutive cases of toxic goitre. Approximately 90 per cent. of the patients operated on are now fit for regular employment.

The operation of choice was subtotal thyroidectomy, performed under local anaesthesia with omnopon as a pre-operative sedative.

The operation mortality rate was 3.2 per cent. All the fatalities occurred in severe, long-standing cases which had been resistant to medical treatment.

It is suggested that, in our present state of knowledge, toxic goitre should be regarded as essentially a surgical condition, and that if this were done the operation mortality would be reduced to an extremely low figure, and rapid and complete restoration of health would be achieved in the vast majority of cases.

Changes have been made in the method of subscription by non-members to the afternoon lectures at the Royal Institution, 21, Albemarle Street, W. In future single lecture tickets will be sold at a charge of 3s. each. The new arrangements apply to all the afternoon lectures, except the Christmas lectures. Subscribers to a course will receive a book containing the appropriate number of single lecture tickets, the rates being 7s. 6d. for a course of three lectures and 10s. for a course of four. The tickets will be transferable, and a single lecture ticket not used for the course for which it has been issued will admit to a lecture of any other course. Season tickets will also be obtainable. The privileges of members of the Institution are not affected by these changes. Members are admitted without ticket to the afternoon lectures, and they can purchase books of single lecture tickets, to admit their friends, at privileged rates.

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WITH A COMMENT ON MATERNAL MORTALITY

BY

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The rectal examination made, the nurse holds the soiled finger under a stream of water until the gross soil is removed, and then proceeds to scrub her gloved hands in the manner described, soaks them in biniodide, powders them, and takes them off. The sterile outside of each glove becomes the inside on the next occasion they are used. After again testing them for punctures the gloves are replaced in the tin. The insistence on invariably using the nail-brush is because vernix caseosa and blood cannot be removed without its aid. Two gloves are always worn when making a rectal examination.

This method of sterilizing gloves, described by Theobald and Bigger,² has been successfully used in many institutions in different parts of the world. Apart from the value of the method in obstetric practice the saving on glove expenditure in a large hospital is very considerable. Colebrook³ has confirmed our findings. The gloves can not only be made absolutely sterile, but definitely antiseptic. Oxley does not use rubber gloves, and I agree with him that they are not essential for normal midwifery, providing it can be guaranteed that all the patients are clean. Halsted introduced gloves for the protection of the sister who afterwards became his wife. I do not know whether many patients at the East End Maternity Hospital suffer from acute venereal disease or gross vaginal discharge, but I am convinced that gloves are essential, primarily to protect the midwife, and secondarily to protect subsequent patients.

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Anti-streptococcal Serum*

It has already been stated that every patient delivered on the ground floor and nursed in the suspect ward was given an injection of 40 c.cm. of anti-streptococcal serum. In 1926 I reported that seventy-six consecutive cases admitted to the Leeds Maternity Hospital, after gross interference outside, were given this amount of serum, and of this number four patients died and fifty-seven had a normal puerperium. Since then I have regularly employed it in all contaminated cases. The extraordinarily low morbidity rate obtained in the suspect ward, which for many reasons was extremely difficult to run, confirms the view that the prophylactic use of anti-streptococcal serum is of immense value.

Abortion and Miscarriages

It is only because I believe that the late Dr. Remington Hobbs would wish truth to take precedence of sentiment that I venture to make the following remarks about the glycerin treatment. In his day this treatment was given to every woman after confinement, and I can only conclude that it in some measure contributed to the high morbidity rates he recorded. No maternity patient has been given glycerin during the last twelve months and only four simple intrauterine douches with weak lysol, followed by flavine 1 in 500, have been given.

I hesitated to stop this treatment for abortion and miscarriage, and was open to be convinced of its efficacy. A large number of patients are admitted to the gynaecological ward in whom abortion or miscarriage is inevitable. The vast majority of them are single women, and in nearly every case the abortion is due to criminal interference. Some women take drugs for which they pay an extortionate price. Others douche themselves with soap-water or lysol, and most succeed in introducing the nozzle into the cervical canal; while still others favour the use of sticks of slippery elm, which they introduce into the cervix. Still others pay large sums of money to doctors, midwives, and abortionmongers, and the latest method in vogue is to introduce a "lamp" into the vaginal. Many of the patients were admitted with a high temperature. Now the glycerin treatment of such a patient is laborious, costly, and of long duration. The temperature often remains high for days, and even rises some days after the treatment is begun. Further, the placenta does not always come away. Glycerin is not irritant, neither is it definitely antiseptic, while its hygroscopic action is too weak to have any effect on the tissues. We have therefore gone back to the old-fashioned treatment. Every patient admitted with bleeding is examined per vaginam. If abortion is inevitable the uterus is emptied with the gloved finger with or without an anaesthetic. The uterus is not douched for fear of carrying the infection into the Fallopian tubes. Each patient is given 40 c.cm. of anti-streptococcal serum. The results obtained by this treatment are summarized as follows. Of 113 patients admitted between January and September of this year only one died. She was admitted moribund and in extreme pain, and died a few hours later. In the majority of cases the temperature fell as soon as the uterus was emptied, and the average stay in hospital was short.

Only one patient was drained. Two or three hours after the placenta had been removed from the cervical canal, without an anaesthetic, Dr. Craig decided that she had pus in the abdominal cavity. A small incision was made in the abdomen, through which a drainage tube was inserted. It is of interest to note that this was one of the few patients who had not attempted to terminate the pregnancy whether *per alia* or *per se*.

* Streptococcus antitoxin (concentrated), Scarlatina. L.C.C. Belmont Laboratories.

There can therefore be no doubt that the best method of treating cases of inevitable abortion which do not terminate spontaneously is to empty the uterus, using the finger and eschewing the curette and the douche. There can also be little doubt that the prophylactic use of anti-streptococcal serum is of great value, for convalescence was not as a rule complicated by pyrexia.

Maternal Mortality

During the first twelve months of this arrangement 846 patients were delivered of 856 babies, 393 of the women being primigravidae and 453 multigravidae. Of this number 746 were delivered on the top floor and 100 in the suspect ward. Of the patients delivered in the hospital four died.

CASE RECORDS

The first patient, a 2-gravida, was a case of "failed forceps," admitted from outside and with a badly ruptured uterus. She survived hysterectomy, performed the same day (but after the onset of peritonitis), six weeks, and then died from toxic absorption.

The second case was that of an ante-natal patient who died from eclampsia. She only paid three visits to the ante-natal clinic, the last being fourteen days before her death. At that visit nothing abnormal was discovered. Three days later she apparently fell ill, complained of headache and severe abdominal pain, and sent for her doctor. She did not come to the hospital until ten days later, during the whole of which time she had been ill. Shortly after admission she had a fit, and within two hours of this convulsion died, undelivered. The liver showed the classical lesions, and the right ventricle of the brain was occupied by a large haemorrhage.

The third patient died of circulatory failure. She was a 3-gravida, 32 years of age. Early in pregnancy she had a severe attack of pleurisy. She was repeatedly urged to come into the ante-natal ward, but refused, and insisted on remaining under the care of her own doctor. On admission oedema extended from the feet to the umbilicus. She was cyanosed and dyspnoeic. Labour was very short and easy, and her condition appeared to improve during the subsequent three days. Marked oedema of the right leg then developed; the urine contained albumin 0.9 per cent.; mental symptoms supervened; and she died on the twelfth day after delivery, her temperature having remained normal. This patient ought to have been sterilized after her last confinement, but there can be little doubt that pregnancy merely hastened the inevitable by a few months at the most.

The fourth patient was a primigravida 28 years of age. The pelvis was large; nevertheless the foetus died *in utero* a few hours after the rupture of the membranes. Later a well-marked contraction ring could be seen through the abdominal wall, just below the umbilicus. Under an anaesthetic the cervix was found to be fully dilatable, but the hand could not be passed above the contraction ring. Both arms were extended, and the cord was twisted twice round the neck. Two ampoules of amyl nitrite were broken under a mask and delivery effected, much difficulty being experienced with the shoulders. The blood pressure fell incontinently after the amyl nitrite had been given, and remained at an extremely low level, in spite of all treatment, until death occurred within two hours after delivery.

Maternal Morbidity

Of the 846 patients only fifteen were morbid as judged by the B.M.A. standard.⁴ Seeing that this standard is no less abused than used its definition will be given:

"The table of puerperal morbidity should include all fatal cases and also all cases in which the temperature reaches 100° F. on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery."

It is, moreover, demanded that the temperature be taken in the mouth, and that the thermometer be left in the mouth for four minutes. In this unit half-minute thermometers were employed and kept in the mouth for three minutes. Further, four-hourly temperature charts were kept for each patient, so that no morbidity escaped unnoticed.

Of these fourteen patients no fewer than seven were admitted with pyrexia. The case of ruptured uterus has been mentioned: the six others had booked for the maternity wards of other hospitals. Two patients were admitted with lobar pneumonia, in one case complicated by otitis media; one had acute pulmonary tuberculosis; one was a case of influenza and bacilluria; one had acute venereal infection of the vulva; and the sixth had severe haematuria, albuminuria, and pyuria, possibly due to drugs taken with a view to terminating the pregnancy. If these seven cases and the other three deaths be excluded it will be seen that of 836 cases only five were morbid. In one case the temperature was definitely due to an influenzal cold, and in another to a right pleural effusion, which occurred on the seventh day of the puerperium, and was almost certainly tuberculous.

Operative Intervention

Induction of Labour.—The uterus was emptied early in pregnancy on two occasions, once for old-standing and severe chorea, and once for active tuberculosis with rapidly extending lupus. The membranes were ruptured at term on three occasions, twice because of changing presentation associated with pendulous belly and a slight excess of liquor amnii, and once in a multigravida whose first baby was born dead, as the simplest means of avoiding post-maturity. Quinine was given on many occasions to induce labour at term to prevent post-maturity and bed wastage. On no occasion was induction of labour carried out as a therapeutic measure because of either contracted pelvis or toxæmic symptoms.

Caesarean Section.—Caesarean section was performed once for central placenta praevia in a primigravida, aged 34, whose baby weighed over 8 lb.

The Forceps.—The forceps were applied on twenty-nine occasions, twenty-two of the patients being primigravidae and seven multigravidae. In nearly every case the head was at the outlet before the forceps were applied. Two infants were born dead, and two died on the fourth day from intracranial haemorrhage. The forceps rate was therefore under 3.5 per cent., but nevertheless, in my opinion, too high.

Infant Mortality

The fact that over 800 confinements were conducted without recourse either to Caesarean section or to the induction of premature labour for contracted pelvis makes it necessary to prove that the conservative treatment was not associated with a high foetal mortality.

DETAILS OF CASES

Sixty-one babies were either born dead or died in the hospital. Of this number, twenty-six were of thirty weeks' gestation or under (no fewer than twenty-four being admitted as emergencies); fourteen were dead on admission, eight being macerated; one premature infant was stillborn, and five others died in hospital; one hydrocephalic skull was perforated; and one microcephalic infant died from atelectasis. This leaves thirteen cases to be accounted for. One was a breech; two babies were lost through torsion of the cord. Three infants with normal vertex presentations were born dead after easy labours, and post-mortem examinations did not reveal the causes of death: one infant weighed 13½ lb., the head was born normally, but delay occurred with the shoulders. An infant with a face presentation was lost because one arm was in the posterior nuchal position, and the cord was not only round the neck, but also round the trunk, where it was tightly clutched in the infant's hand. One primigravida had an extremely pendulous abdomen, and was mentally deficient. She refused to wear a binder or do as she was told. Somewhat late in labour I decided to perform internal version, but difficulty with the anaesthetic at a crucial point in the operation resulted in death of the infant before the version was completed. Subsequent delivery of the breech was not difficult. Two infants died from cerebral haemorrhage four days after delivery with the forceps.

Two infants delivered with the forceps were stillborn; in one case the woman had already had two living babies, and the difficulty was probably to do with the shoulders; the other was a case of primary uterine inertia. The forceps were applied many hours too late. The head was well down in the pelvis from the commencement of labour. The foetus of the patient who had a contraction ring died *in utero*.

Thus, of sixty-eight stillbirths and neo-natal deaths, twenty-six occurred in pregnancies of thirty weeks or under (most foetuses weighing about a pound); fourteen were dead on admission; one was hydrocephalic and another microcephalic; and six were markedly premature (three being twins). A careful review of the remaining thirteen cases does not reveal any case where the death of the foetus was due to lack of operative intervention.

A considerable number of cases of contracted pelvis were, however, delivered normally. One patient—whose external measurements were interspinous 9½ in., inter-crystal 10½ in., and external conjugate 6 in.—delivered herself normally of a female child weighing 6 lb.; while two patients who had previously been subjected to Caesarean section because of contracted pelvis were allowed to go to term. The one delivered herself spontaneously, and the other was delivered with the forceps.

During the year thirteen infants were delivered in the occipito-posterior position, three of the mothers being primigravidae and ten multigravidae. In only one case—that of a primigravida, was the application of the forceps necessary. The largest baby to be born spontaneously in this position weighed 9 lb. 12 oz., and more than half the number weighed over 7 lb.

Manceuvre for Estimating Whether Head will Pass Through Pelvis

I do not believe in the trial of labour, because I am convinced that it is possible to decide at the thirty-sixth or the thirty-eighth week of pregnancy whether the head will be able to pass through the pelvis or not. It may be necessary to put the patient under an anaesthetic, but this was not found necessary in any of these cases. There would appear to be no doubt that the commonest source of error in making this estimation is to be attributed to the anteriorly projecting promontory of the sacrum.

The external measurements may be small. The head feels very large and hard, rides in front of the pubic bone, and cannot be pushed into the pelvic inlet. The patient is placed in the lithotomy position. Two or more fingers of the right hand are introduced into the vagina, while the left hand grasps the head by a reversed Pawlik's grip. The assistant sinks both hands behind the fundus of the uterus and lifts it forwards.

By this manceuvre, which I have not seen described elsewhere, the head can be pushed into the pelvic inlet. If the assistant merely pushes the fundus downwards the head overrides the pubic bone. It is for this reason that a binder during labour, advocated by some writers, is strongly contraindicated. Instead, the woman should sit up or adopt any convenient attitude which allows the fundus to fall forwards. In this type of case the head tends to remain well above the pelvic inlet until the cervix is at least half dilated, and until after the rupture of the membranes. It follows that in such a case a "trial of labour" is useless unless the attendant waits until an hour or two after the rupture of the membranes. I think, too, that the width of the pubic bone gives some help in estimating the difficulty of any given labour.

Comment and Discussion

I have reported what I believe to be the lowest morbidity rate that has been published by any maternity unit or hospital in the country, and have shown that

over 800 consecutive confinements could be conducted without resorting either to induction of labour or to Caesarean section in the treatment of contracted pelvis or of the toxæmias of pregnancy. The forceps rate, which I admit as being too high, was under 3.5 per cent. An analysis of the stillbirths and neo-natal deaths compares very favourably with those of other institutions whose reports I have studied. It can, moreover, be fairly claimed that the material was of more than average difficulty. A very high proportion of the patients were unmarried, and many of them tried to hide themselves during pregnancy and received no ante-natal care. Many were sent in as emergencies, and not a few who were booked for other institutions were sent to this hospital.

The peculiar problems associated with the management of an obstetric unit are not fully appreciated by practitioners of other branches of medicine. That obstetrics is a subject which deals entirely with emergencies is forgotten. The very fact that 90 per cent. of all cases can be dealt with by midwives merely makes the art of dealing with the abnormal cases more difficult to acquire, while the constant stream of normal cases is apt to put the obstetrician off his guard. Whitridge Williams laid it down that a man could not obtain an adequate training in obstetrics unless he resided for at least three years in a maternity hospital, where he assumed he would have the opportunity of expert guidance and instruction by day and by night. Jellett, in his book *Maternal Mortality*, stresses the same point.

There is another aspect of the question. Of recent years more than a thousand ante-natal clinics have been opened in England and Wales, and Browne¹ estimates that at least 80 per cent. of all pregnant women receive ante-natal care. More than 7,000 beds are devoted to maternity cases, many "consultants" and "specialists" have been appointed, and millions of pounds have been expended. Sensible changes in clothing, various Factory and Shop Closing Acts, and the increasing pursuit of open-air exercise have contributed to improve the physique and health, if not the stamina, of the women throughout the country. Thanks to the work of Mellanby, serious rickets is yearly becoming rarer, and is hardly encountered in the South of England. In spite of all these factors the maternal mortality rate for 1933 was the highest for many years. Even the mortality rate from the toxæmias of pregnancy shows no decline, while the ratio of stillbirths to live births is not decreasing. Browne (1934) has quoted figures which suggest that the mortality rate from eclampsia shows a slight improvement in the years 1931 and 1932. Reference to the *Manual of the International List of Causes of Death*, however, reveals that a transference of causes of death in the toxæmic group was made from one heading to another, and this change first appeared in the statistical reports in 1931. The heading "Puerperal albuminuria and convulsions" does not include the same certified causes of death as in previous years, and it is therefore necessary, in order to obtain comparable rates, to add the mortality rates from "Puerperal albuminuria and convulsions" to those for "Other toxæmias of pregnancy." It will then be seen that the mortality rate from the toxæmias of pregnancy was higher in 1932 than in 1921.

Unless my view is correct,* that the toxæmias of pregnancy are deficiency diseases and may be prevented by seeing that each woman takes at least a pint of milk, a dessertspoonful of cod-liver oil, and vitamin B in some form or other throughout pregnancy, and is given an injection of calcium gluconate at the thirty-sixth and

thirty-eighth weeks of pregnancy, then there is no evidence that the mortality rate from this cause can be affected by ante-natal care as at present organized. Nobody can deny that ante-natal care is in itself ideal and proper, particularly if it is supported by an adequate number of ante-natal beds. Neither can anybody deny that the results obtained by the Rotunda Hospital, the East End Maternity Hospital, the Queen's Jubilee Nurses, and other institutions, prove conclusively that no 'change in the habits and customs of the woman is responsible for the increased maternal mortality. The argument that the higher proportion of primigravidae confined is responsible for the worsening results is for the same and other reasons unconvincing. The logical conclusion of the whole matter is that the increased mortality is due to increased operative intervention.

I would submit that there are two fundamental questions which require answer from the obstetricians and medical statesmen: (1) Is it true that unnecessary operative intervention inevitably leads to increased morbidity and mortality? (2) Is it true that an individual cannot acquire a sound conservative knowledge of obstetrics unless he resides for at least three years in a large maternity hospital under expert guidance? If these two questions be answered in the affirmative then it follows that the more money spent, the more ante-natal clinics opened, the more maternity beds provided, the more "consultants" and "specialists" appointed, the more certainly will the mortality rate from childbirth exceed five per thousand in 1944.

Summary

1. Over 800 patients were confined without resorting either to Caesarean section or to induction of labour in the treatment of contracted pelvis or of the toxæmias of pregnancy. Twelve out of thirteen infants were born spontaneously with the occiput in the posterior position. The forceps rate was under 3.5 per cent.
2. The morbidity rate was, it is believed, the lowest recorded by any hospital in this country.
3. The methods used in the labour ward can be carried out in any tenement dwelling in the country, no sterile gowns, towels, masks, or stockings being required.
4. A manoeuvre for estimating whether a head can pass through the pelvis is described.
5. It is suggested that rendering the urine alkaline during the puerperium by administering potassium citrate is of importance in preventing morbidity.
6. A technique for preventing mastitis and breast abscess is given.
7. The value of the prophylactic use of anti-streptococcal serum is stressed.
8. It is suggested that the maternal mortality would be lessened if midwives were not allowed to make vaginal examinations.
9. It is further suggested that the increasing maternal mortality rate must be attributed to increased operative intervention. If the present policies are continued a still further increase may be anticipated during this decade.

In conclusion, I desire to record my appreciation of the cordial co-operation afforded by the medical superintendent, Mr. J. Carver, and I should like also to thank his deputy, Dr. N. S. Craig. I am indebted to Miss P. N. Hooper and Miss E. M. Carless, who have done most of the hard work. Last, but not least, my warmest thanks are due to the sisters and nursing staff, and, in particular, the senior sister, Miss G. Williams.

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* I am indebted to the Registrar-General of Births and Deaths for this information.

DIPHTHERIA IMMUNIZATION IN A SCHOOL

BY

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Vaccination against small-pox has the supreme merit that in almost 100 per cent. of cases it develops complete protection against small-pox in a period shorter than the incubation period of the disease. Schick immunization, unfortunately, requires for its development a period greatly in excess of the incubation period of diphtheria. Hence Schick immunization is of itself an imperfect means of eliminating an outbreak of diphtheria without further mortality or morbidity. Greatest stress is therefore correctly laid on the importance of Schick immunization as a prophylactic procedure prior to the appearance of diphtheria in a community. But the value of Schick immunization as a factor in the rapid stamping out of an actual outbreak of diphtheria should not be overlooked.

This communication about an outbreak of diphtheria with which I became concerned in February, 1933, may serve to emphasize the advisability of applying the Schick procedures without delay, in conjunction with other appropriate measures as outlined below, whenever diphtheria appears in a community not previously Schick-immunized. Incidentally, it lays stress on the peculiar virtue of Schick-prophylactic T.A.F. as an efficient immunizing agent characterized by great freedom from undesirable general or local secondary reactions.

The Epidemic Described

The residential school in question had 310 boys, aged from 8 to 16 years. The physical condition of the boys was excellent, and they were extremely well cared for; but unusual facilities for droplet infection existed, owing to the close proximity of the beds in the very large dormitories; moreover, scarlet fever had been endemic in the school for some time. The stage was surely set for a considerable outbreak of diphtheria should the infection be introduced.

The first three cases of diphtheria were notified to me on the afternoon of February 5th, 1933, when N. M. and T. P. were admitted to Ottershaw Isolation Hospital under my care. The third patient, R. S., had died on February 3rd after a short illness; the diagnosis in his case was confirmed by a posthumous report concerning his throat swab, which had been taken just prior to his death. N. M. had a severe attack of faucial diphtheria, from which he made an uneventful recovery. T. P. had an extremely severe attack of diphtheria, from which he made an unexpected recovery.

A possible source of the infection was a fourth pupil, P. T., who, during the subsequent routine examinations, was discovered to have incipient paralysis of his soft palate; he subsequently developed complete paralysis of his soft palate and a severe degree of paresis of the legs; his paralytic complications kept him bed-ridden for several months. P. T., within a few days of his arrival home in London for the Christmas holidays, had developed a "sore throat." The only swab taken was negative for Klebs-Loeffler bacillus, and the diagnosis of diphtheria was not made. As this strong athletic boy was kept in bed at home for three weeks with a "sore throat," it is probable that his undoubted attack of diphtheria was severe from the onset.

Thus of the first four cases of diphtheria at this school one died, one almost died, one developed severe and long-lasting post-diphtheritic paralysis, and the fourth had quite a severe illness. It was obvious that the diphtheria which was presenting itself was of a virulent

nature. Dr. Cooke, the school medical officer, who was more than fully occupied with an epidemic of influenza in his private practice, kindly gave me a free hand to make my own arrangements at the school.

I visited the school on February 6th, and by the next morning had the following measures under way: (a) Schick-testing and immunization, (b) detection and control of carriers, and (c) institution of daily routine examination of pupils to ensure early detection of any new cases of diphtheria.

Institution of Schick-testing

On February 7th and 8th I Schick-tested 310 pupils and twenty-seven members of the staff. Since I proposed to use T.A.F. as the immunizing agent, and had therefore no apprehensions about undesirable secondary reactions, I did not perform any control test with heated toxin, nor did I carry out the Moloney test. This was in accordance with my usual practice, and anyone who agrees that 337 intradermal injections in two consecutive afternoons is a monotonous business may consider the simplification of the test procedure permitted by the subsequent use of T.A.F. as an additional valuable feature of T.A.F. One week after the test injection ninety-seven pupils and fourteen members of the staff were found to be Schick-positive, and were given the first intramuscular injection of 1 c.cm. T.A.F. The second injection of 1 c.cm. T.A.F. was given after a further interval of four weeks. No Schick-negative boy subsequently developed diphtheria.

Owing to pressure of work I did not retest the Schick-positives until October 31st—that is, almost eight months after their second injection of T.A.F.—when eighty-five of the ninety-seven original Schick-positive pupils were retested and with one exception found negative; the one exception gave a faint positive reaction. These results were in harmony with the clinical findings, as none of the original Schick-positives developed diphtheria after they had received two injections of T.A.F.

Detection and Control of Carriers

Dr. Ferguson, county medical officer of health for Surrey, kindly placed at my disposal the services of Miss Draper, the assistant superintendent of health visitors. She examined the noses and throats of all pupils in the school daily for about a fortnight, referring all suspicious cases to me. We discovered sixteen nasal carriers with rhinorrhoea and positive nasal swabs. Virulence tests were not carried out because they would have cost 15s. each, and in the circumstances I would not have modified my treatment of any reputed avirulent carrier.

Swabs were taken only from pupils with suspicious clinical signs. Wholesale swabbing appeared out of the question, as at 3s. per swab a nose-and-throat swab per pupil would have cost over £90; by careful daily clinical examination for a fortnight, combined with judicious swabbing for confirmatory purposes, we at any rate succeeded in detecting the carriers most likely to be the source of massive infection. My own impression is that careful repeated clinical examination outrivals routine bacteriological examination as a method of detecting dangerous diphtheria carriers in a community as much as careful clinical examination outrivals swab examination as a method of diagnosing the illness diphtheria. The sixteen nasal carriers, who were all Schick-negative, were segregated from the other pupils until the Schick-positives had received their course of immunizing injections. They were then released from isolation as soon as their rhinorrhoea had cleared up, no swabs being taken until then, and only one negative swab being required. The majority of the carriers were back at school within six weeks, though two were detained for three months.

The head master was informed that I did not guarantee, and indeed did not expect, that all of these sixteen boys had ceased to be carriers; it was considered that the risk of massive infection from them had, at any rate, been eliminated, and, moreover, that after all the Schick-positives had received a course of immunizing injections it might be advantageous to turn some carriers loose among them to encourage the development of complete herd immunity, even at the expense of an isolated case or two of mild clinical diphtheria.

A Daily Routine Examination

With the object of ensuring early detection of any new case of diphtheria a daily routine examination of all pupils was for the first fortnight included in Miss Draper's search for carriers. Thereafter the daily examination was carried out by the school nursing staff, and was limited to the Schick-positives, who were examined daily for another three months. Dr. Cooke or I was informed immediately of any clinical condition suggestive of diphtheria. In this way there were discovered three cases of faucial diphtheria, H. S., E. S., and A. P., whose illnesses commenced respectively on February 22nd, March 2nd, and March 12th, 1933. All three were Schick-positives who had received the first injection of 1 c.cm. Schick-prophylactic T.A.F. All three had comparatively mild attacks of diphtheria, and made very rapid recoveries. This may be contrasted with the course of the illness of the first four patients, of whom one died, one almost died, one developed severe and long-lasting post-diphtheritic paralysis, and the fourth had quite a severe illness.

While the comparative mildness of the diphtheria exhibited by H. S., E. S., and A. P. was probably due in large part to the relatively early administration of the anti-diphtheritic serum, by clinical impression was that their diphtheria was of a mild nature from the onset. If this clinical impression is correct, possible alternative explanations are that, as a result of the first injection of T.A.F., they had developed either a considerable degree of immunity or facility to develop it rapidly when required, or that, owing to the removal of the frankly clinical diphtheria carriers from the school community, they had received relatively small doses of the diphtheria organisms from missed carriers.

Summary and Conclusions

In this residential school of 310 pupils, with exceptional opportunity for droplet infection in the somewhat crowded dormitories, and a synchronous prevalence of scarlet fever, a threatened epidemic of virulent diphtheria was stamped out within five weeks without further fatality and with very little further morbidity. Three agents were used to secure this result: (a) Schick-testing and immunization, (b) detection and temporary isolation of carriers, and (c) routine daily examination of pupils for new cases over a period of three and a half months.

All three agents played a vital and separate part in securing the good results obtained. The Schick-immunizing agent employed was T.A.F.—two 1 c.cm. injections being given at four weeks' interval. No general or local secondary reactions of any magnitude were observed. From the administrative point of view it should be emphasized that the great virtue of T.A.F. as an immunizing agent is that it seldom causes any undesirable secondary reaction. A diphtheria-immunizing agent capable of producing immunity with one injection and with greater rapidity than T.A.F. is greatly to be desired; but unless such an agent compares favourably with T.A.F. in respect of secondary reactions it should not replace it for general use. We do want a diphtheria-immunizing agent comparable with small-pox vaccination for certainty and

speed, but not at the expense of comparison with vaccination for severity of general and local reaction.

The experience outlined above suggests that Schick-testing and T.A.F. immunization, combined with detection and temporary isolation of carriers and adequate precautions to ensure early detection of new cases of diphtheria, will suffice to stamp out quickly a threatened epidemic of virulent diphtheria without further mortality, with little further diphtheria morbidity, and with no appreciable undesirable secondary reactions, in any community where the necessary administrative procedures can be carried out efficiently. If T.A.F. can do so much it should not be too readily discarded for "one-shot" diphtheria-immunizing agents until, as already stated, one is secured which compares favourably with T.A.F. in regard to absence of undesirable secondary reactions.

UNDULANT FEVER AND CONTAGIOUS ABORTION IN NORTHUMBERLAND

BY

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The results of the examination of a first series of Widal sera for agglutinins to *Br. abortus* were recorded in a previous note (Messer, 1932). The investigation has been continued, and in the past three years sera from 425 patients have been examined: In sixteen (3.7 per cent.) of these a diagnosis of undulant fever was considered justified on serological and clinical grounds, the serum titres being as follows:

1 in 125 ...	2 cases	1 in 1,500 ...	5 cases
1 in 250 ...	1 case	1 in 2,000 ...	2 cases
1 in 1,000 ...	2 cases	1 in 3,000 ...	2 cases

In the remaining two cases complete agglutination occurred in a serum dilution of 1 in 250, but the end-titre was not ascertained; fifty of the sera agglutinated *R. typhosus* and eighty-nine *B. paratyphosus* B in significant titres. The bacterial suspensions used were those supplied by the Oxford Standards Laboratory and the minimum "reduced titre" observed among the sixteen cases of *abortus* infection was 62.5.

Some discussion has centred round the significance of the agglutination reaction in the diagnosis of undulant fever. The consensus of opinion, however, with which the experience here recorded agrees, is that the test has much the same value and limitations as the Widal reaction in enteric infection. Both tests require to be interpreted in the light of what is known of the distribution of antibodies in the population at large, and having regard particularly to the occurrence of agglutinins resulting, in the case of enteric infection, from preventive inoculation, and, in the case of undulant fever, from the latent infections which are especially liable to occur in certain occupational groups. The difficulties thus arising are, however, simplified to some extent by the fact that a majority of active *Brucella* infections are accompanied by antibodies reacting in high dilution—1 in 1,000 or more—and such titres may usually be accepted as diagnostic. Equivocal results can frequently be elucidated by means of repetition of the test at intervals.

Clinical Features

Clinically, the cases that have been met with may be roughly divided into two groups. The first consists of six cases of a more or less mild—even ambulant—type in which the chief symptoms were headache, fatigue, loss of appetite, weakness, and sweating, especially at night.

Although mild, several of these cases ran a prolonged course. The remaining cases constitute a heterogeneous group in which the illness was of a more acute nature with a very varied symptomatology. Among the initial diagnoses tentatively advanced were enteric fever, tuberculosis, gall-stones, and arthritis. Brief notes of some of the more interesting of these are appended.

CASE I

Male, aged 74, clerk in drapery store. Illness began in August, 1931, with loss of appetite, asthenia, and persistent temperature. No other symptoms or physical signs. Temperature ran a curious course, consisting of sharp febrile bouts initiated by a rigor and lasting five or six days, alternating with varying periods of normal temperature, the illness being described as somewhat resembling malarial attacks. Patient became progressively weaker, and the illness terminated in January, 1932, with rigor, delirium, and death. Serum titre against *Br. abortus*, 1 in 3,000 on November 3rd, 1931.

CASE II

Male, aged 44, dairyman. In October, 1931, complained of pain in right hypochondrium and was sent to hospital with diagnosis of gall-stones. After being under observation for a few days was operated on, but nothing was found. Was transferred to a medical ward till temperature settled, but after return home had haemoptysis, and later numbness of left hand, especially middle, ring, and little fingers, with loss of power for gripping. These symptoms gradually disappeared and he was ultimately able to return to work, the total duration of his illness being about twelve months. Serum titre against *Br. abortus* on November 11th, 1931, 1 in 250. The dairy herd with which the patient worked consisted of tuberculin-tested cattle. Specimens of blood were obtained from all the animals in the herd—twenty-eight cows, one bull, and six calves. Of the twenty-eight cows the serum of two agglutinated *Br. abortus* at 1 in 2,500, ten at 1 in 1,000 (four had been vaccinated), two at 1 in 1,500, two at 1 in 250 (one had been vaccinated), three at 1 in 50, and one at 1 in 25; eight were negative. The serum of the bull was negative. Of the six calves the serum of one agglutinated at 1 in 25, one showed a trace only at 1 in 25, and the remaining four were negative.

CASE III

Female, aged 41, housekeeper on a smallholding. Duties included milking. On October 30th, 1932, suddenly seized with acute abdominal pain and sickness and very severe rigor. When seen was collapsed and shivering. Temperature 101° F., pulse rapid and poor. Complained of severe gastric pain. Next day very much better, and by November 4th insisted on commencing work. Seen again on November 17th. Was then looking very miserable and complained of always feeling cold and tired. Temperature 101.6°. Admitted to hospital for observation and nursing. After admission only symptoms were weakness and night sweats, temperature ranging from 97° to 98° in the morning to 102° to 103° at night. Serum titre against *Br. abortus*, 1 in 2,000 on November 23rd, 1932. Four of the six cows which this patient milked were subsequently found to give positive agglutination reactions.

Contamination of Milk Supply

Since attention was first directed to the occurrence of *Br. abortus* infections in this country a number of observers have reported on the extent to which the milk supply is contaminated with this organism. As regards ordinary market milk the percentage of positive samples varies in different circumstances from about 20 to 40, and recent work by Pullinger (1934) indicates that certified and Grade A (T.T.) milks are equally liable to be infected. During 1932-3 a series of milk samples sent to this laboratory for examination for *B. tuberculosis* was also examined for *Br. abortus*. The method adopted was the demonstration of agglutinins in the serum of guinea-pigs inoculated subcutaneously with the deposit obtained by centrifuging 50 c.cm. of the sample for thirty minutes at 3,000 revolutions per minute, the

animals being killed after six weeks. Two animals were used for each test for *B. tuberculosis*, but only one of each pair was examined for *abortus* agglutinins. A serum titre of 1 in 20 or higher was accepted as evidence of infection. Of 720 samples so examined 145 (20.1 per cent.) were positive; thirty of the samples were of Grade A milk, six (20 per cent.) being positive, while the only sample of certified milk included in the series was also positive. In addition, eighteen (23.6 per cent.) of seventy-six samples from individual animals suspected by veterinary officers to be suffering from tuberculosis were found to contain *Br. abortus*.

Pullinger reports that of 105 samples of non-graded milk from herds in Cheshire thirty-nine (37 per cent.) contained *Br. abortus*, while of 104 similar samples from Somerset only twenty (19.2 per cent.) were positive. He suggests that this difference may be largely accounted for by variation in the size of the herds, though the possibility that the incidence of the disease is actually greater in the former county cannot be excluded. The present investigation affords some results bearing on this point which may be of interest. The majority of the samples were collected directly at farms in the county. In 401 instances the number of animals constituting the herd was stated, and the following table shows the proportion of positive samples according to the size of the herd. Smith (1932), who, however, used a more thorough technique and included cultural as well as agglutination tests, has published data on similar lines relative to Aberdeen, and although the size of the herd was stated in terms of the daily supply in gallons, Smith's figures may be modified for purposes of a rough comparison with the present results as shown in the table, if it be assumed that the average yield per cow is two to two and a half gallons per day.

Number of Cows in Herd	Aberdeen *			Northumberland		
	No. of Samples	No. +	% +	No. of Samples	No. +	% +
1-9	58	24	24.4	225	21	10.2
10-19	102	26	25.5	122	24	19.6
20-29	51	19	37.2	49	18	36.7
30 +	28	10	35.7	25	10	40.0
Totals	279	79	28.3	401	73	18.1

* Modified from Smith.

Epidemiological Considerations

From the epidemiological standpoint no wholly satisfactory account of undulant fever appears to be possible as yet. Foreign opinion seems inclined to regard the disease as an occupational one, but the evidence collected by Champneys (1933) strongly suggests that in this country, while a small proportion of cases are due to direct contact with cattle, the majority result from the consumption of infected milk. Other possible sources of infection, such as contact with pigs, sheep, horses, dogs, or the consumption of milk products such as butter, cheese, ice-cream, are probably unimportant (Smith, 1934). There are certain difficulties in the way of accepting milk as the vehicle of infection, the chief being, first, that the number of (clinical) infections appears to be extremely small in proportion to the number of persons who may be presumed to be at risk, and secondly, that the incidence of the disease falls chiefly on adult males. By way of explanation of the paucity of cases it is suggested that a process of latent immunization takes place analogous to that known or conjectured to occur in other infections, and the age and sex incidence is accounted for

on the supposition that women and children are larger consumers of milk than men and consequently form a more highly immunized group in the community.

This hypothesis, however, itself creates a difficulty, since naturally acquired immunity postulates contact with the infecting agent, and clinical disease may be expected to occur most frequently among those undergoing the immunization process—that is, as regards undulant fever, those having close contact with cattle and those most accustomed to drink milk, presumably children. It has been demonstrated that latent *abortus* infections are much most frequent in the occupation group mentioned than in the population as a whole (Wilson, 1932), and there is some reason to suppose that clinical disease occurs among them more frequently than the recorded incidence would suggest. In this respect, therefore, the hypothesis outlined may not be greatly at variance with the facts. But among children both latent infection and clinical disease are apparently very uncommon, a remarkable circumstance having regard to the known incidence of *abortus* infection of milk. It is possible that the disease manifests itself in a somewhat different manner in children, and in them a mild febrile disturbance is perhaps more likely to escape adequate investigation, its real nature remaining undiscovered. On the other hand the validity of the assumption that children are in fact large consumers of milk may be worth reconsideration. Inquiries such as those of Savage (1926), Gellatly (1933), and Burns (1933) in Somerset, Cambridgeshire, and Durham respectively suggest that the use of milk as a beverage in this country is decidedly rare. One wonders, indeed, whether the

drinking of milk, so far from being common among children, is not rather a habit acquired by adults, and one is led to speculate on the results which may follow the contemplated widespread distribution of raw milk in schools.

It has been suggested that the virulence of *Br. abortus* for man is being gradually increased by animal passage, and that ultimately case-to-case infection may follow and a fresh public health problem arise. Contagious abortion of cattle, however, appears to be a disease of some antiquity. Hull (1930) states that it was recorded by Moscall as long ago as 1567, and quotes from *The Complete Farmer* of 1807 instructions for dealing with infected animals. Any abrupt exaltation of virulence at this stage appears unlikely, but it does seem possible that the virulence of the *Brucellae* may be maintained through the exchange of strains between different animal species.

I desire to express my thanks to Drs. J. C. Yeoman, R. L. Dagger, and J. C. Mackay for permission to publish the clinical notes of their cases, and to Professor T. J. Mackie for advice and criticism in preparing this memorandum for publication.

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PROGNOSIS OF HAEMATEMESIS

A STATISTICAL REVIEW

BY

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When considering the prognosis of any disease it is necessary to carry out a statistical investigation of a large number of cases of the condition. In the case of haematemesis this has been done frequently with conflicting results.

Hurst¹ (1928) gives a mortality of 2.5 per cent. among cases of haematemesis following peptic ulcers at Guy's Hospital, and suggests that the stomach should be washed out with ice-cold water. At the Bellevue Hospital, New York, Hinton² (1931) found a mortality of 20 per cent. among fifty-two cases of gross haemorrhage. Gordon-Taylor³ (1934) states that at the Middlesex Hospital the total mortality of haematemesis following peptic ulcers treated medically was 24 per cent., and that the mortality in those cases in which a second large haemorrhage occurred was 78 per cent. Aitken¹ (1934) divided the cases of haematemesis at the London Hospital into two groups—moderate and severe. The total mortality of both groups was 11 per cent. Most of the moderate cases recovered, whereas twenty-seven out of sixty-three severe cases died (43 per cent.). Meulengracht⁴ (1933) has recently treated 119 cases with a liberal diet immediately after the haematemesis: there were only two deaths in this series. This appears to be an entirely new method of treatment, the value of which it is difficult to assess. Chiesman⁵ (1932), at St. Thomas's Hospital, reviewed 191 cases of haematemesis and gross melaena following peptic ulcers (occurring during the period 1925 to 1931 inclusive). The total mortality was 27 per cent., but in cases in which the haemorrhage was continued or repeated within twenty-four hours after commencement of treatment a mortality of 74

per cent. was shown. He did not distinguish between the severity of the different cases.

Cases Analysed

We have made a complete analysis of those cases which were admitted to St. Thomas's Hospital during the years 1924 to 1933 inclusive on account of, or with a history of, significant haematemesis or gross melaena occurring within fourteen days before admission, and also of those cases which developed significant haematemesis or gross melaena in hospital.

By significant haematemesis or gross melaena we mean that which is the obvious result of acute bleeding into the intestinal tract, thereby excluding a large number of cases which vomited small quantities of blood or had slight melaena. We have not divided the cases into aetiological groups, because of the difficulty of deciding the cause immediately following admission, and because even on discharge the cause is not proved in a number of cases. This difficulty is emphasized by Shaw⁶ (1933), who referred to Gutman's⁷ figures, in which in 21 per cent. of the cases no cause could be found.

We have divided the cases into two groups, according to their condition on admission to hospital, or (in the few cases which bled in hospital) immediately after the occurrence. Post-operative cases were excluded.

Group 1. Severe.—The cases whose clinical condition led one to suppose that the haemorrhage was severe, or those in which the examination of the blood showed the haemoglobin to be below 20 per cent.

Group 2. Moderate.—The cases whose clinical condition was not grave, or in which the haemoglobin was above 20 per cent.

By employing a strict definition and subdivision of haematemesis and melaena we have excluded a large number of cases which vomited up small quantities of blood or had slight melaena. Further, a number of cases have been placed in the moderate group which, with

Number and Type of Case	Total Mortality		Repeated Haematemesis			Treatment								
						Medical			Transfusion			Surgery		
	Number of Deaths	Per cent.	Number of Cases	Mortality		Number of Cases	Mortality		Number of Cases	Mortality				
				No.	Percent.		No.	Percent.		No.	Percent.			
Severe ... 153	69	45.1	78	49	61.5	125	55	44.0	26	13	50.0	2	1	50.0
Moderate ... 238	15	6.3	23	7	25.0	223	10	4.9	11	1	9.1	4	4	100.0
Total ... 391	84	21.5	105	56	52.8	348	65	18.7	37	14	37.8	6	5	83.3

a less strict subdivision, might have been included with the severe cases. It is obvious, therefore, that the total mortality, as well as that of both groups, has been raised by this strict definition. Five cases were discarded owing to death from incidental disease, leaving 391 cases, of which 153 were severe and 238 were moderate. The total mortality was 21.5 per cent. (eighty-four cases), composed of severe cases, 45.1 per cent. (sixty-nine deaths), and moderate cases, 6.3 per cent. (fifteen deaths). In cases of repeated haematemesis—that is, cases which suffered more than one large haematemesis before or after commencement of treatment—the total mortality was 52.8 per cent. (fifty-six deaths among 106 cases), the severe cases showing a mortality of 61.5 per cent. and the moderate cases 25 per cent. The results are shown clearly in the accompanying table.

Result of Treatment

The effect of treatment is difficult to assess. All cases received medical treatment (rest in bed, morphine, rectal salines, and nothing by mouth): 348 cases received no additional treatment, and showed a total mortality of 18.7 per cent., severe cases (125) giving a 44 per cent. mortality and moderate ones (223) 4.9 per cent. Transfusion was performed in thirty-seven instances, with a total mortality of 37.8 per cent.; of these twenty-six were severe and showed a mortality of 50 per cent., and eleven were moderate and showed a mortality of 9.1 per cent.

Surgery was employed in an attempt to control the bleeding in only six cases, five of which died. In the successful case a posterior gastro-enterostomy was performed. There was marked pyloric obstruction in this case, in addition to haematemesis. Of the five fatal cases two were treated by transfusion and infolding of the ulcer; one by transfusion, infolding of the ulcer, and ligation of the coronary artery; one by transfusion and partial gastrectomy; and one by laparotomy and transfusion only—no ulcer was found.

The cases receiving surgical treatment are so few that useful deductions cannot be drawn.

Conclusion

1. In this large series of consecutive cases a strict definition of haematemesis and gross melaena is employed, and it appears that the total mortality from significant haematemesis and gross melaena is 21.5 per cent. This corresponds to Chiesman's and other recent figures, but differs from the earlier statistics.

2. The cases suffering from repeated haematemesis showed a mortality of 52.8 per cent., which is approximately the same as the severe cases.

3. The subdivision of cases into severe and moderate appears to be of value. In severe cases the mortality is approximately 50 per cent., whether treated medically with or without transfusion. In moderate cases treated medically the total mortality is 4.9 per cent. Most of

the cases receiving transfusion had "repeated haematemesis," thus accounting for the increase in mortality (9.1 per cent.).

We are indebted to the staff of St. Thomas's Hospital for permission to examine the records of the cases admitted under their care, and particularly to Dr. H. L. Tidy for his interest and encouragement.

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Clinical Memoranda

TUBERCULOUS MENINGITIS WITH RECOVERY

I think the accompanying report of a case of tuberculous meningitis with recovery may be of interest.

On June 19th, 1930, I was called to see a girl of 14, a boarder in a public school. She complained of a sore throat; her temperature was 102.6° F., and her general condition was good. On account of the appearance of the throat I took swabs on two successive days, but they were negative for diphtheria. The throat quickly cleared up, and by the 24th the patient said she felt quite well. Her temperature remained about 99.4°. Examination failed to reveal any other septic focus or any tuberculous focus.

On the morning of the 25th, and after a peaceful night, the patient awakened about 4.30 with severe headache. I saw her at 10.30 a.m., when there was no improvement in the headache, and there was a marked ptosis, especially left, which increased during the day. The pupils were equal, reacting, and slightly dilated, and all reflexes were normal. By the evening the left knee-jerk was very sluggish, the plantar reflex was flexor, and Kernig's sign was negative; there was no head retraction, but there was pain at the back of the head and neck when bending the head forward. During the day she lay motionless, and only spoke when spoken to, or to ask for drinks. Her temperature rose to 102°, her pulse was good, and her respirations were quiet and normal.

By the evening of the following day the patient was semi-comatose. The knee-jerks had disappeared; the plantar reflexes were probably flexor, but doubtful; and Kernig's sign was positive both sides. There was stiffness and pain in the back of the neck, severe ptosis, and the headache was extreme; there was also some earache. In view of this last symptom, and especially as the condition followed immediately upon a septic throat, I called in a consultant ear and throat surgeon for an opinion as to whether the meningitis was aurial in origin, but he reported that the ears were normal.

At 10 p.m. a lumbar puncture revealed cerebro-spinal fluid under great pressure and clear, and immediately after its withdrawal the patient became more comfortable and alert

and spoke intelligently. Thanks to the kindness of Dr. Parry Morgan, who examined the fluid at 11 p.m., it was found that the cell count was increased, that lymphocytes were in excess, and also that there was an excess of globulin. He expressed the opinion that it was almost certainly tuberculous, and this was confirmed the following morning by the finding of tubercle bacilli in the clot which formed. By this time the patient was definitely better, the temperature had dropped, the headache was less severe, and the ptosis not so marked; there was no change in the reflexes, and she was fairly alert.

From then on there was steady improvement, and a week later the knee-jerks were present both sides, Kernig's sign was lessening, there was no headache, no neck stiffness, and she felt well. The pulse rate, which had fallen to 40 per minute, was slowly and steadily rising. At the end of four weeks from the onset of meningitis she was taken home, and at that time her temperature and pulse were subnormal, her knee-jerks were sluggish, and Kernig's sign had not absolutely disappeared. She felt quite well, but easily became excited, and so was advised to remain quietly in bed for a few more weeks.

Repeated inquiries as to her health since then have always brought satisfactory answers, and recently I sent for her to satisfy myself that her recovery was really complete after an interval of four years. I found her more healthy-looking than before her illness, and quite normal in every way. She never suffered from headache, but had not returned to school after the twelve months' holiday I had prescribed.

Cardiff.

CONSTANCE L. PARRY, M.B., CH.B.

RUPTURE OF THE SIGMOID FROM COMPRESSED AIR

This case is recorded to call attention to the great danger of careless or thoughtless handling of the compressed-air apparatus which is now being used in factories and workshops to an increasing extent for the purpose of cleaning by driving sawdust or dirt out of inaccessible corners. The air is driven through a pipe ending in a nozzle at a pressure of 100 lb. to the square inch, and if the nozzle is held within a few inches of the anus the sphincters are not sufficient to prevent the air from entering the rectum. The rectum itself, probably due to its fixation as well as to its thicker muscular wall, always, it would seem, escapes, but the sigmoid flexure is liable to rupture.

As a rule the accident happens as the result of practical joking. A few cases only have occurred in this country, but more have been reported from America, where Block and Weissman, in 1926, collected twenty-seven cases, of which no fewer than nineteen proved fatal. They consider that immediate operation, within two hours at the outside, gives the only possible chance.

The case now reported, that of a man aged 26, did not arise from practical joking, but from misapplied ingenuity in using the apparatus as a clothes brush. He stated that the nozzle just touched the buttocks, and he felt the air enter the bowels. Pain was immediate, and very severe, but he was able to get home with help, and was sent to the Southampton Hospital the next day. His general condition on arrival was quite good, but there was tenderness and slight rigidity in the left iliac fossa, where a thickened sigmoid was palpable. At the operation a quantity of blood-stained fluid was found in the pelvis, and the whole pelvic colon and mesocolon were thickened with oedema and effusion of blood. Fortunately there was no complete rupture, but in five or six places the outer coat of the bowel had given way, exposing the sub-mucosa bulging through the rent. The largest area was about two inches in length, the others being one-half to one inch; the whole sigmoid loop was affected. No lesions were found in the rectum or descending colon. Recovery was rapid and uneventful.

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Reviews

THE ARCHITECTURE OF PHYSIOLOGICAL FUNCTION

It used to be said of biology that it could hardly be regarded as a science until biological observations were expressed in precise numerical form. The accuracy and delicacy of measurements which abound in current physiological literature have rendered the contention at least obsolescent. The reluctance to admit physiology to the group of exact sciences is now based on different grounds, which may perhaps be indicated by the complaint that no generalizations of such wide application that they could fairly be called natural laws have yet emerged. There is, of course, no question that the wider generalizations of physiology cannot as yet profitably be formulated in mathematical terms; but Professor BARCROFT has shown in a new and important contribution to his subject¹ that such generalizations are gradually crystallizing, and that their range of application in different fields is much more extensive than even most physiologists would have supposed.

Progress in the detailed knowledge of physiological processes is bewilderingly rapid. A new physical or chemical technique and an appropriate animal preparation happen to appear together, first in the mind and then in the laboratory of a physiologist, and a new group of problems is launched. A small band of workers assails the problems, while the rest of the physiological world regards its work with admiration and sympathy but hardly with understanding. Specialization has developed to a point where, but for this book, one might have feared that no one man could appreciate the kernel of the problems fashionable in more than a few of the many branches of physiology.

Professor Barcroft shakes himself clear of the deluge of impersonal reports on what new methods can tell us about bits of animals, and wonders what are the things it would be really interesting to know about in connexion with how the body and its components work. The sort of thing that interests him is the astonishing constancy of certain fundamental properties of an organism, despite the spectacular changes continually proceeding, changes such as the intake of oxygen and food and the output of heat and work. He surveys the mechanisms which contribute to the maintenance of this physiological equilibrium, and finds that they fall into fairly definite classes. Starting, for example, with the processes in the blood, the kidney, and the respiratory apparatus, which ensure an almost unchanging hydrogen-ion concentration, the principles governing the mechanisms which ensure the steady state are formulated. They include adaptations of two kinds, evasion and correction, the principles of maximum activity, and of duplication of mechanism, and so on.

Overriding the significance of any particular class of adaptation, is the consideration that the reaction of an organism to a change almost invariably involves the interaction of a large number of mechanisms. The notion of a single cause, which was serviceable in the early history of the physical sciences, is peculiarly inappropriate in biology. One of the most-needed developments in the theory of physiology, a development which is hardly yet in sight, would be the discovery of the laws governing the integration of the elementary responses of the different mechanisms which co-operate in a single adaptation. Till such laws have been formulated in logical terms, the

¹ *Features in the Architecture of Physiological Function*. By Joseph Barcroft, CBE, M.A., F.R.S. London: Cambridge University Press, 1934. Pp. 278, 106 figures. 2s. 6d.

influence of the teleological argument will persist, owing to its indisputable success as a guide in research; and physiology will remain a little more of an art and a little less of a science than is entirely comfortable for the intellectual integrity of those that pursue it.

But to describe the book as a philosophical treatise would be to convey quite a false impression. For into the somewhat slender analytical framework is built a critical review of the more significant of the current trends of physiological discoveries. The enunciation of principles leads immediately to a discussion of the interpretation of experiments; the reader is put in possession of the leading facts, and feels he is invited to discuss with the author the merits of the case, much as if he were present in the laboratory. The mastery with which this extremely attractive technique of presentation is carried out is only possible because the author has had vivid personal experience in so surprisingly many fields, and has amplified it by a quite unusual insight into what his colleagues in his own and other laboratories are doing and thinking.

To the physiologist the book is a joy for its novel points of view, its innumerable happy ways of expressing them, and the vitality of constructive and critical thought; for anyone who has forgotten nearly but not quite all his physiology there is no book which will so surely revive his interest in it, and bring up to date his information about most of those branches of the subject which, for the moment, seem to matter.

PHYSICAL DIAGNOSIS

Diagnosis and treatment are the two essential parts of the practice of medicine. The treatment to be adopted—that is, the *raison d'être* of medicine—depends on the diagnosis. Diagnosis, therefore, should inform us how to act; it should search out the underlying causes of the disease and so give indications for sound therapy. A discussion of the methods to be used in diagnosis and the deductions to be drawn from the observations made is the subject of several good books, which, from the nature and bulk of the matter to be discussed, are necessarily large. Of this class perhaps the best known and most widely used in British schools of medicine is the book on diagnostic methods by Hutchison and Rainey, the popularity and value of which are attested by the demand for edition after edition. Books which deal mainly with the physical signs of disease that may be elicited by simple means, and which leave out discussion of elaborate instrumental (x-ray, etc.) or biochemical methods are, however, neither numerous nor popular. And this is understandable; since the knowledge of physical signs, especially those elicited by means of the established methods of visual, tactile, or auditory investigation, is best gained in tutorial classes at the bedside. Nevertheless, the student is grateful to have a good summary of what he has learned which he may refer to and study at leisure, and this he will find in a well-written and handy book² by Professor Buck, who is an instructor in physical diagnosis at his own medical school in Boston. The subject-matter covers not only the ordinary ground of the physical signs of the chest, but also those in the head, neck, abdomen, and extremities.

After an introductory section on methods of examination and forms for case records, the author has a commendable chapter on the deductions to be drawn from observation of the patient as a whole. As he says, a good deal can be learned of the personality of the patient from his expression, manner of speech, dress, and actions. And

these observations are not in any sense irrelevant. Not only are a third of the patients who consult the average physician sufferers from personality disorders, but even the symptoms of peptic ulcer and their treatment depend quite as much on the person who has them as upon "the mechanical and chemical physiopathology concerned." A sound description of the physical signs of disease and their interpretation follows. The book will be useful to students beginning their clinical studies, and to teachers of physical diagnostic methods.

HUMAN WORM DISEASES

The earliest concrete theories of disease in man recognized that the worm parasites were among the chief causal agents, but the work of Pasteur and the development of bacteriology relegated the worm theory of disease to an insignificant position. Manson and his school, however, rediscovered the important part helminths play in tropical pathology, and the discoveries made in that field have again directed attention to parasites in temperate lands. Nowadays it is fully realized that, although the bacterial and virus diseases are of major importance in human medicine in Northern Europe, helminths play a distinct, although minor, part in medicine. These are more important on the Continent than in the British Isles, and it is therefore appropriate that the first textbook dealing with human worm diseases should be published in Germany.³ This is essentially a textbook for the physician rather than for the specialist, and it covers all aspects of the subject. An introductory section deals with general principles of parasitic diseases, methods of diagnosis, and general therapy. The major part of the volume considers the individual parasites which are known to occur in man in north temperate lands. It begins with a systematic table of all the helminths recorded from all parts of the world—there are 124 of them—in which the twenty-four treated subsequently in the book are printed in heavier type. Of these, the great majority are parasites of lower animals which are only accidentally found in human beings; many of these are absent from Great Britain and Ireland. In each case the authors discuss morphology, life-cycle, methods of infection and invasion, clinical symptoms and pathology, therapeutics and prophylaxis. Each section concludes with an adequate bibliography. The book is well illustrated with 156 half-tone photographs and drawings, and is printed on glazed paper. It is accurately written, and forms a most useful contribution to our medical libraries.

SURGICAL ANATOMY

The output of textbooks on surgical anatomy, as compared with those on pathology, is very limited, especially as regards works dealing with the subject with any considerable degree of completeness. Among the latter kind may be included the *Surgical Anatomy* of Professor C. LATIMER CALLANDER, which was published last year.⁴ Although the author expressly states that the work is intended to be explanatory and utilitarian rather than encyclopaedic, it has taken ten years in the preparation, and its eleven hundred quarto pages contain a tolerably complete presentation of the subject. It aims at meeting the demands of the practitioner confronting everyday surgical problems. This requires a knowledge of the regional anatomy of the whole body. The primary

³ *Leitfaden der einheimischen Wurmkrankheiten des Menschen*. Von L. Szidat und R. Wigand. Leipzig: G. Thieme. 1934. (Pp. 212; 156 figures. M. 15.50; geb., M. 17.50.)

⁴ *Surgical Anatomy*. By C. Latimer Callander, A.B., M.D., F.A.C.S. With a foreword by Dean Lewis, M.D., Sc.D., LL.D., F.A.C.S. Philadelphia and London: W. B. Saunders Company. (Pp. 1,115; 1,280 figures. 63s. net.)

² *The Essentials of Physical Diagnosis*. By Robert W. Buck, M.D. Philadelphia and London: W. B. Saunders Company. 1934. (Pp. 259; 21 figures. 12s. 6d. net.)

consideration is therefore a satisfactory classification of the entire body into suitable regions, first in relation to the surface and secondly in relation to the body cavities and their contents. The classification varies somewhat in different textbooks; that chosen by the author is thoroughly practical and well adapted for the topographical description of the anatomical surgical approaches, the paths of extension of pathological processes, and the steps of the commoner operations. In addition, special relationships are considered, such as that of the lymphatic channels in relation to their central connexions and to the lymph glands, the relations of muscles to bones explanatory of the displacement of fragments after fractures, and of ligaments to joints in relation to the reduction of dislocations. Further, embryology is to some extent called for in explanation of surgical malformations, and is of special importance as regards the gastro-intestinal tract and peritoneum, the development of which is described at great length and explained with the aid of numerous illustrations.

As to the general plan pursued by the author, the anatomy of the region or organ is first described, and then, under the separate heading of "surgical considerations," the surgical application is fully discussed and the commoner pathological processes liable to occur in the region described. The volume is illustrated by a large number of well-chosen figures, completely explanatory of the text, and there is no doubt the work will take its place as a standard on the subject. The opinion is expressed in the preface by Professor Dean Lewis that as anatomy has come to be regarded more and more as an abstract science its direct application to medicine and surgery has been neglected. In the medical schools the surgical department should therefore hold itself responsible for the proper approach to gross anatomy, and as early as the second year should attempt to develop an interest in anatomy which has a direct application in the clinic.

UNMASKING THE MYSTIC EAST

Lieut.-Colonel R. H. ELLIOT, diverging from his accustomed paths of ophthalmology, has published an interesting volume on *The Myth of the Mystic East*.⁵ Some of the chapters have previously appeared, but others, on snakes and snake-bites, on witchcraft and the notorious Indian rope trick, afford entertaining reading. As the title of the book suggests, the author, by rigorous and rational investigation, is led to conclude that there is no such thing as "the mystery of the East," that fiction and fable have been built up on "the uncritical acceptance of popular superstitions." He thus dismisses "the rope trick," and with the knowledge of an expert conjuror and the eye of a detective he either explains on rational grounds or rejects as clever trickery sword-swallowing, well-jumping, fire-walking, and snake-charming. In many instances much suffering is no doubt endured or ignored by the devotees of some religious cult. Colonel Elliot is richly endowed with what Heine called "the instinct of distrust," and under his sceptical scrutiny witchcraft, occultism, and sorcery are exploded or reduced to rational explanation. The chapters on snakes are full of interest, and are based on years of experience, dating from the author's early co-operation with Professor Fraser of Edinburgh. He regards the dreaded cobra as a gentle reptile unless frightened or irritated; he considers permanganate of potash an unreliable antidote to venom, and looks to specific antivenenes as the most hopeful treatment against infection from snake-bites. In a chapter on the mongoose

and the cobra, Colonel Elliot describes in a dramatic fashion the manner in which the former succeeds in attack on the hooded snake, and attributes the relative security of the mongoose against cobra venom to its skill, alike in onslaught and defence, rather than to any inherited or acquired immunity.

Notes on Books

To the writing of diabetic manuals and primers there is no end, and two new editions have just appeared from two American clinics. From the Mayo Clinic Dr. R. M. WILDER has now reached a fifth edition of his *Primer for Diabetic Patients*.⁶ It covers all the usual ground—diet, special recipes, insulin, urine tests, etc. With slight differences one might be reading Joslin's manual all over again. To refer the reader to Bulletin 28, United States Department of Agriculture (1898), is archaic. From the Cleveland Clinic Dr. HENRY JOHN has produced an extended and revised edition of his *Diabetic Manual*.⁷ It is comprehensive and sound, and, as the author's personality stamps its mark on every page, interesting to the doctor as well as useful to the patient. Dr. John answers the question of "cures" with a straightforward negative, and gives his own views on the diabetic child and wife. We feel that mention should have been made of insulin 80 units per c.cm. (most useful to patients on large doses). And surely the diagram on page 93, which shows orange to contain more carbohydrate than potato, is inaccurate, and should be adjusted. But these are minor criticisms of an interesting and helpful book.

Principal Drugs and their Uses,⁸ by A. L. MORTON, is a pocket dictionary of drugs written for the benefit of nurses, which gives notes on the nature and uses of all the important drugs. The object of the book is to provide elementary information regarding the medicaments in common use, and it seems very well designed for this purpose.

A little book on nursing, under the title "Elementary Précis of the Care of the Sick, Wounded, and of Infants," has been issued in France by the Red Cross Association. Dr. E. K. CONTE has done his work, in compiling this manual, extremely well, and maintains throughout a very practical outlook. The major difficulty of teaching practical work in a theoretical manner has been largely surmounted by a series of excellent line illustrations.

Newnes's *Chemistry in Commerce* is a work for students and practical chemists, to be completed in about thirty-two weekly parts at 1s. each, under the general editorship of Mr. Edward Molloy, with Mr. M. D. Curwen as advisory editor. The first part includes an article on the chemistry and pharmacy of vegetable drugs by Mr. Noel Allport, assistant analyst to British Drug Houses, Ltd., and a short account of first control tests on milk and milk products.

On September 10th, 1932, we printed a notice of Sir JOHN LYNN-THOMAS's pamphlet *Key of All Wales*, in which he set forth the grounds for his belief that Levantine tribes had once occupied the estuary of the River Teifi in Cardiganshire. He has now published a sequel, and copies of this second pamphlet may be obtained from the office of the *Western Mail and Echo* Cardiff (price 1s.). Sir John holds that the discoveries he has made around his home are of great archaeological importance; but he has so far failed to convince the "present holders of the three ring-fences surrounding our Ancient Monuments" that his graven stones, Irish elk bone, triple landing stage, etc., prove a Phœnician occupation of the area between 1500 and 1000 B.C.

⁶ *A Primer for Diabetic Patients*. By Russell M. Wilder, M.D. Fifth edition, reset. Philadelphia and London: W. B. Saunders Company, 1934. (Pp. 173; illustrated. 7s. 6d. net.)

⁷ *Diabetic Manual for Patients*. By Henry J. John, M.A., M.D., F.A.C.P. Second edition. London: H. Kimpton, 1934. (Pp. 222; 47 figures. 8s. 6d. net.)

⁸ *Principal Drugs and their Uses*. By A. L. Morton. London: Faber and Faber Ltd., 1934. (Pp. 112. 2s. 6d. net.)

⁵ Paris: Masson et Cie. 1934. (Pp. 176; 72 figures. 8 fr.)

⁵ *The Myth of the Mystic East*. By Lieut.-Colonel Robert Henry Elliot, M.D., Sc.D., F.R.C.S. Edinburgh and London: W. Blackwood and Sons, Ltd. 1934. (Pp. 301. 7s. 6d. net.)

British Medical Journal

SATURDAY, NOVEMBER 10th, 1934

POLIOMYELITIS

The recent epidemic of poliomyelitis in Denmark has again drawn attention to the measures available in the prevention and treatment of this disease. Prophylactic antiviral serum prepared from the horse has already been sent by the Lister Institute to Professor Madsen in Copenhagen, and it is hoped that some facts of statistical value may be obtained as a result. The subject of convalescent serum continues to be a thorny one, and doubts as to its efficacy in treatment seem, on the whole, to have increased with its continued use. These have been emphasized by the therapeutic experiences of Park,¹ the critical analysis of Walshe,² and the excellent statistical survey of Harmon.³

There now seems to be general agreement that the causal agent of poliomyelitis is a virus gaining access through the nasopharynx and undergoing an axonal transmission. Faber and Gebhardt⁴ have, in fact, experimentally traced the course of the virus, after intranasal inoculation, from the olfactory bulb to the cells of the spinal cord, and the first-named author has shown that the symptomatology in man can be explained on the hypothesis of a primary nervous infection. Toomey,⁵ contending that early intestinal and vesical disturbances are due to peripheral paralysis of bowel and bladder, has recently revived the conception of infection of the central nervous system from the gastro-intestinal tract along axons of the sympathetic system. Seeking to prove the contention experimentally, he states that injection of virus into a clamped segment of the bowel produces poliomyelitis in the monkey, and that the development of the disease produced by inoculation of virus is accelerated by the addition of faecal filtrates. Much further work will, however, be needed to assess the value of these observations. Virus has not been isolated from the blood stream in man, and only rarely, and after massive injections, in monkeys. According to this view the three classical stages—systemic infection, meningeal irritation, and paralysis—have no pathological basis, and the separation of abortive and non-paralysed cases is without justification. The possibility must, however, be admitted that the interpretation of the experimental disease in monkeys may not be allowable in judging the disease as it affects man. Martin⁶ argues that a stage of general invasion running parallel to, but having

varying time relations with, the nervous infection does exist in man, and by discarding cerebral and ataxic forms of the disease he simplifies its classical equation into spinal, brain-stem, and abortive types.

Since Levaditi and Landsteiner first showed that the serum of monkeys convalescent from the disease neutralized virus *in vitro* the history of the rationale and development of serum therapy has often been recapitulated in these columns. The only hope of treatment consists in bringing viricidal substances in sufficient concentration into contact with virus before cellular destruction occurs, but if virus is already within the neurones it would appear to be beyond the reach of immune substances. Harmon⁷ concludes from his analysis of a large number of collected case records that treatment with serum has no influence upon the outcome in preparalytic cases. He demonstrates that there is little difference in the incidence of non-paralytic poliomyelitis in untreated and treated preparalytic cases (71.5 per cent. and 70.4 per cent. respectively, of 531 and 2,244 cases during the years 1916 to 1931). Tabulating the results of treatment of preparalytic and early paralytic cases with convalescent serum and Rosenow's antistreptococcal serum, he finds no essential difference either in the mortality rate or in the incidence of the same grades of paralysis. Obviously, intravenous administration is the only method which can bring serum into rapid contact with cells, yet Harmon shows by statistics that the issue is unaffected by the route of therapy. Because of the false perspective in which results were viewed, many treatments have been vaunted, but the uniformity of outcome shows the ineffectiveness of each, though marked general improvement and fall of temperature is observed following the administration of serum.

The conclusive therapeutic experiment has yet to be made, and in the light of present knowledge the most fervent humanitarian can scarcely object to the practice of withholding serum from properly chosen controls. It seems likely that more hope lies in the passive immunization of uninfected children; and the reports of Davide⁸ and Park,⁹ who used convalescent serum, and of Brebner,¹⁰ who injected parental whole blood, are very encouraging, though it is of interest to note here that in Philadelphia,¹¹ of 2,255 children treated during an epidemic with convalescent serum or whole blood, twelve developed the disease. Probably a number of these cases were infected before serum was administered. Finally comes the question of active immunization as a method of prophylaxis. Dr. Maurice Brodie¹² recently presented a preliminary report on his experiences with this method to the American Public Health Association. He pointed out that in 1918 Abrahamson and Gerber immunized monkeys by injec-

¹ Park, W. H.: *Journ. Amer. Med. Assoc.*, 1932, xcix, 1050.

² Walshe, F. M. R.: *British Medical Journal*, 1933, ii, 1197.

³ Harmon, P. H.: *Amer. Journ. Dis. Child.*, 1934, xlvii, 1216.

⁴ Faber, H. K., and Gebhardt, L. P.: *Journ. Exper. Med.*, 1933, lvi, 933.

⁵ Toomey, J. A.: Quoted in leading article, *Journ. Amer. Med. Assoc.*, 1934, ciii, 840.

⁶ Martin, J. P.: *British Medical Journal*, 1933, ii, 1200.

⁷ Harmon, P. H.: *Loc. cit.*

⁸ Davide, A.: *Bull. Off. Internat. d'Hyg. Publique*, 1928, xx, 74.

⁹ Park, W. H.: Quoted by J. B. Neal in *Poliomyelitis*.

¹⁰ Brebner, W. B.: Preliminary Report of the Results of Administration of Normal Adult Serum in the Prophylaxis of Poliomyelitis during the 1932 Epidemic, footnote 59, p. 529.

¹¹ Heney, J. N., and Johnson, G. E.: *Journ. Amer. Med. Assoc.*, 1934, ciii, 94.

¹² Brodie, M.: *Lancet*, 1934.

tion of formalized virus suspension. Having proved the absence of harmful reactions on himself and other volunteers, including Dr. Park, he administered this vaccine to twelve children. Preliminary tests have indicated the production of antibodies, though whether these will protect against natural infection cannot yet be determined.

THE CHANCES OF MORBID INHERITANCE

"Ought I to get married?" "If I get married ought I to have children?" "If I get married and have children what are the chances of their inheriting my disease or a disease which occurs in my family?" These are questions, says Dr. C. P. Blacker, general secretary of the Eugenics Society and editor of a symposium¹ recently issued, which are likely to be addressed to the physician more and more often in the future. It is to meet this need, by setting forth the principles which should govern a genetic prognosis in many different diseases or groups of diseases, that this valuable book has been written. It is composed of eighteen contributions, each by a specialist and acknowledged authority on the subject with which he deals.

In his brief introduction Sir Humphry Rolleston refers to the great fall in the birth rate during the last sixty years as being due to the progressive adoption of the practice of birth control, "chiefly by those qualified and likely to practise birth control, whereas the families in the other category"—that is, the feckless and improvident—"while as large as before, show a much higher survival rate than formerly as a result of the philanthropic care which has been lavished on them so widely. The aim of eugenics is to counteract this recent and racially harmful development of civilization." The aim of this book, however, greatly to its gain, is limited to practical issues and needs, and its arguments and conclusions are based, not on general assumptions of racial degeneration and a conjectured increase of mental and physical defect, but on observed and carefully assembled fact. Eugenic prognoses are especially likely to be sought by those concerned in such conditions as mental disorder and defect, epilepsy, cancer, and tuberculosis, etc., and therefore a greater amount of space is devoted to these subjects than to other and rarer conditions—for example, haemophilia, albinism, amaurotic family idiocy, etc.—in which the modes of hereditary transmission are well known and the results of mating accurately predictable. Professor Ruggles Gates, who has given the main ascertained facts with regard to the inheritance of normal and abnormal conditions in man in his book *Heredity in Man*, provides here in the opening chapter on "Genetic Principles" sufficient for the practical purposes of this work concerning Mendelian inheritance and the applications to man of the main genetic principles. These principles, he says, are highly elastic and apply with

much greater force to some diseases than to others; also, knowledge is still imperfect in many diseases. Therefore advice given by the physician in some cases can only be of a general character. Again, in certain cases outstanding desirable qualities may so outweigh the presence of certain serious inherited defects that in the last resort "it comes to a judgement regarding probabilities and the weight to be attached to particular beneficial or defective qualities." Advice against procreation should be given, he says, only when the perpetuation of serious defects is involved—that is, when the victims would be handing on their burden to later generations.

Conformably with the principles laid down each author in this deeply informative and interesting series first states the problem and its particular difficulties in the morbid processes with which he deals; then discusses the respective roles in each type of disorder played by inheritance on the one hand and environment on the other; the mode of transmission, if known; and, lastly, the principles on which advice to the inquirer should be based. The work is of so wide a compass—embracing the inheritance of nervous and mental diseases and mental defect; inheritable diseases and abnormalities of the eye, ear, skin, kidneys, blood, and vessels; diabetes, tuberculosis, neoplasms, cretinism, etc., each contribution by a master of his subject—that adequate notice of the whole is impossible here. As, however, advice regarding the risks of transmitting mental disorder or mental defect to offspring is so frequently sought and as these are subjects so much to the fore to-day, the two papers by Dr. Aubrey Lewis and Dr. Henry Herd may be specially mentioned as examples both of the careful and unbiased treatment of rather controversial matters and of the reasoned practical advice which distinguishes the whole number of articles. The extreme difficulties in the way of genetic research into the mode of transmission of mental disorders are widely recognized, and in consequence, as the recent Departmental Committee on Sterilization found, there is nothing like certainty or unanimity of opinion in this matter. But, as Dr. Lewis says in his exposition of inheritance of mental disorders, the discovery of Mendelian relations does not matter so much to the physician who has to give a genetic prognosis. "For him empirical means of predicting the mental quality of offspring are more useful than disputable statements about recessive polymerism and the like. For the last few years investigations have been directed more to this practical end, comparable to the work of an insurance actuary; and arguments about the applicability of Mendelian rules are, for the moment, in the background."

This empirical assessment of probabilities, arrived at mainly by the results of mass investigations of non-related but similarly affected families, certainly throws into high relief the "familial" occurrence of certain mental disorders as compared with their occurrence in random samples of the general population. Thus, to take one example out of many, one investigation quoted

¹ *The Chances of Morbid Inheritance*. Edited by C. P. Blacker, M.D. London: H. K. Lewis and Co. Ltd. 1934. (15s.)

(Luxemburger, Schulz) made upon the siblings (brothers and sisters) of one hundred patients with dementia praecox, one hundred with manic-depressive psychosis, a like number with epilepsy, with general paralysis, etc., as against in each category the siblings of the same number of the general population taken at random, showed that the possibility of manic-depressive psychosis is twenty-five times as great as in the general population, of schizophrenia (including dementia praecox) six times as great, and of epilepsy nine times as great. The intensity of inheritance is thus strongest for manic-depressive psychosis, less for dementia praecox and epilepsy, while for general paralysis inheritance is negligible in comparison with environmental factors. In the concluding twelve pages of a notable contribution to the subject Dr. Lewis discusses the application to the individual of the probabilities of occurrence of various mental disorders among the children, siblings, grandchildren, nephews and nieces, and cousins of affected parents so far as these have been thrown up by investigation. His whole exposition is admirable in manner and treatment, and goes far to justify his remark that the last twenty-five years' painstaking work of a few men, foremost among whom is Rüdin, has wiped away the reproach that genetic psychiatry was bad psychiatry and bad genetics. It will be read widely and with much profit; for even if, as Dr. Lewis says, "the physician's eugenic advice is perhaps oftener sought than followed, for loyalty, love, plighted obligation, wilful optimism that is blind, social or economic advantage may in their degree prevail against mere assurances of probability, and assurances of probability are all the physician can offer," it is also true "that it is not to be supposed that he acts only by deprecating: he can also reassure and encourage."

CONTROL OF SECRET REMEDIES

The English are a conservative people, with no love of logic. But though hard to move in matters of sentiment or opinion, and patient almost beyond belief, they have a way of accommodating themselves in double-quick time to a new order once it has been put into force. To illustrate this point we need only mention daylight saving, conscription and food control in wartime, women's suffrage, roundabout traffic, and now the prohibition of the use of motor horns at night in "built-up areas." All these things were said to be impracticable, or worse, and a hundred objections bobbed up beforehand. Yet each proved to be workable, and in the twinkling of an eye the people of this country got accustomed to it. In short, we are a law-abiding race so long as the law is believed to be made in the general interest and appears to touch all alike. The hard task is to get a good measure on to the Statute Book: there is little difficulty in enforcing it. The things that stand between Britain and many long-overdue reforms are the vested interest, the timid or time-serving politician, and the newspaper proprietor with one eye on what big advertisers will do and the other on what he pretends to imagine his readers

will stand. If, for example, the patent medicine business were cleaned up to-morrow and all the worst offenders swept into bankruptcy, there would be no outcry from the poor and ignorant whom the nostrum-monger exploits, but there would be some further unemployment and much loss of advertising revenue. A great deal of dishonest nonsense is talked about "not legislating ahead of public opinion." If reform had always waited upon public opinion we should still be having public executions.

The case for the control of secret remedies is unanswerable. It was put plainly by the British Medical Association in its evidence before the Select Committee on Patent Medicines, and the Select Committee's report, issued as a Blue Book in 1914, was an uncompromising document—which the newspapers ignored. It is true that that report had the bad luck to appear on August 4th; but if there had been no war we take leave to doubt whether the lay Press in general would have given it any publicity, notwithstanding its obvious "news value." One of the first things Dr. Addison did as Minister of Health was to father a Bill based on the Committee's proposals, and Lord Astor introduced it in the summer of 1920. It never reached the Commons. Eleven years later Mr. Somerville Hastings introduced a milder Bill with the support of the Labour Party's advisory committee on public health. This, too, was dropped. Now a still milder measure is under consideration by the Parliamentary Committee on Food and Health—and its mildness may be judged by the fact that the patent medicine trade has agreed to offer no opposition. The Council of the Royal College of Surgeons of England, whose statement on patent medicine legislation we reproduced last week at page 822, has informed the Committee on Scientific Research of the Economic Advisory Council, in answer to an inquiry, that in its opinion the problem can only be adequately dealt with on the lines laid down by the Select Committee of the House of Commons in 1914. This is also the view of the British Medical Association, and was declared to be so by the Annual Representative Meeting in 1915.

INTRINSIC NERVOUS MECHANISM OF THE HUMAN LUNG

Whilst the greater part of our knowledge of the mechanism of respiration has been obtained by physiological experiments, the contributions made by the anatomist and histologist have been the starting-point in many directions. The significance of many physiological experiments becomes either more apparent or more difficult to see according as the results can be correlated with anatomico-histological findings. Anatomical bases for well-known physiological phenomena are still lacking. It is therefore gratifying to see that certain workers are persevering with the finer definition of pulmonary innervation. Such work has recently been published by J. B. Gaylor.¹ The nerves of the lung, derived from the pulmonary plexuses, enter at the hilum and present two separate and distinct

¹ Brain, 1934, lvii, 143.

symptoms—the vagal and the sympathetic. Gaylor divides his observations into those on the bronchial plexus, the epithelial innervation, the nerve endings in the plain muscle of the bronchi and bronchioles, the innervation of the glands, and the pulmonary vessels. The large and middle-sized bronchi are very richly supplied with nerve fibres, and the plexus can be traced far down to the terminal bronchioles. The complexity of the bronchial network and the free intermingling of the fibres lead this author to consider it as one unit, and not as divisible into an intrachondrial and an extrachondrial. Along the course of this plexus are found nodes which may or may not contain ganglion cells, but ganglia may also exist on the course of the nerves at other places than these nodes. So complex is the arrangement of the fibres that it is impossible to trace an individual fibre for any considerable distance. A peculiar fact is that fibres may pass straight through a ganglion without loss of the medullated sheath, whereas others are related to the ganglion as pre- and post-ganglionic fibres. This plexus supplies the bronchial epithelium, the bronchial muscles, and the bronchial glands, and Gaylor considers that the non-medullated fibres have to do with the innervation of the vessels of the bronchial capillary bed. The nerves supplying the bronchial muscles are non-medullated, which appear to be motor in function, and medullated, which appear to be sensory. The latter are without doubt vagal in origin, and impulses derived from stimulation of the endings travel via the bronchial plexus into the main vagal trunk. The sensory endings associated with the plain muscle are found at the junction of the muscle bands. It must be recalled that the bronchial muscle is not a continuous sheet but a network of bands, some running transversely across the bronchus and some obliquely or even parallel to the long axis. This arrangement is such that during contraction of the muscle there will be, in addition to some constriction of the bronchial airway, a definite shortening of the bronchial tree. Now the position of the sensory endings is such that maximal stimulation of them will be produced when the bronchial muscles are stretched and the meshes of the muscular network widened—that is, during inspiration. In support of his contention Gaylor points out that the sensory endings here considered are morphologically of the type found in the carotid sinus, which are specially adapted to respond to stretch, and also that the position of these endings is at points of division of bronchi, where the greatest amount of movement occurs. It is reasonable to regard these sensory endings as sensitive to stretch of the muscles, and further that they are the receptors for the well-known Hering-Breuer reflex. This leads the author to a hypothesis of the mechanism of bronchial asthma. Whereas it is often considered that many of the symptoms of asthma result from stimulation of the endings in the bronchial musculature, Gaylor is disposed to believe that the contraction of these muscles prevents the normal stimuli of stretch to which the afferent endings are susceptible. He suggests that in addition to the mechanical difficulty of expiration in bronchial spasm there is a nervous upset. The relatively greater difficulty in expiration is partly explicable by the fact that the capacity of the chest works against the spasm in inspiration and with it in expiration. The greater inspiratory effort required to

produce an adequate stimulation of the afferents may be such that expiration may become a voluntary act. The author makes certain interesting suggestions as to the significance of collaterals of the vagal afferents in the bronchial wall. As it appears unlikely that a single fibre gives rise to several sensory endings he concludes that they are rather of the nature of "intrinsic pre-ganglionic fibres," and that stimulation of a single sensory ending will, by means of an axon reflex, cause a local capillary response, and, in addition, a more extensive response via the collaterals and the nodal ganglia. Such a mechanism (and it has the merit of being supported by careful histological evidence) would make clearer the widespread effects (for example, secretion of mucus, contraction of the bronchial muscles) which accompany the coughing reflex when a local irritant stimulates the bronchial mucous membrane.

THE SEMON LECTURE

The Semon Lecture for 1934 was delivered on November 1st by Mr. Herbert Tilley. The occasion was exceptional, because it is an open secret that Mr. Tilley was reluctant to accept the lectureship. This reluctance arose in part from the fact that, since the lectureship was established in 1911 during the lifetime of Sir Felix Semon, Mr. Tilley has always taken the chief part in its management, and a natural delicacy restrained him from assuming the mantle of lecturer himself. The unanimous desire of all connected with British laryngology that its most popular personality should not be debarred from the honour of the Semon lectureship has at length induced him to overcome these scruples and to yield to the universal demand. The audience therefore had the double satisfaction of having the lecturer whom above all others it wished to hear on this occasion, and of listening to the wisdom gained from a ripe experience in the subject of which he has made a long and particular study. As the management of the lectureship was entrusted to the University of London, the many services of Mr. Tilley both to the University and to laryngology have received an appropriate recognition, for in addition to his pre-occupation with the Semon lectureship they include a large share of responsibility in the establishment of the M.S. London with laryngology, and of the D.L.O. of the Royal Colleges. Mr. Tilley dealt with his chosen subject from a broad standpoint, but he was careful to stress some aspects which even now do not always receive sufficient recognition. The spread of infection from the antrum is not always by surface transmission, by which direct spread to adjacent tissues is implied, but also by vascular convection, which includes transmission by both lymph and blood vessels. The lecturer illustrated this by radiographs showing spread of infection in this way from the antrum to the tissues of the mediastinum. This chronic catarrh of the antrum is a condition which is not uncommonly overlooked, and its influence may extend to distant parts. Mr. Tilley also laid emphasis on a pathological condition which is often not included in the usual descriptions of the various changes affecting the antrum. When the periosteum becomes implicated the infection passes by vascular channels into the osseous capsule of the sinus. It is, in his opinion, the failure to recognize this condition (which Mr. Tilley was able to demonstrate from

pathological material prepared by Dr. Albert Gray at the Ferens Institute of the Middlesex Hospital) that accounts for many post-operative recurrences and failures to obtain complete healing. A study of the lecture, of which a full report appears at page 869, will show that Mr. Tilley succeeded in extracting much interest and some novelty from an apparently rather threadbare subject.

SNAKE VENOM FOR HAEMOPHILIA

Haemophilia is a condition which causes much misery to patients and their relations, and anything which can be done to relieve it is to be welcomed. The prominent feature in the condition is the time which the blood takes to clot, and the poor quality of the clot which is formed. Hitherto no styptic has proved of any value in stopping the haemorrhage, and it has often been necessary to perform a blood transfusion lest the patient should bleed to death after a trivial injury. The preliminary report of the recent work by Dr. R. G. Macfarlane and Dr. Burgess Barnett¹ suggests that a styptic has been found which may be of great value. It has been known since the work of C. J. Martin in 1893² that when snake venom was injected into animals it might cause extensive intravascular clotting. G. Lamb in 1903³ showed that it would also clot citrated blood. Macfarlane and Burgess Barnett, at the suggestion of Professor H. Hartridge, have now demonstrated that snake venom has a very powerful action on haemophilic blood. They have found that the venoms of all kinds of vipers coagulate blood, but that they differ considerably one from the other in various ways. The venom of Russell's viper clots haemophilic blood more quickly than any other venom, although it is not so efficacious as other venoms in clotting citrated blood. The amount required is very small: one drop of a 1 in 1,000 solution of the venom, when added to ten drops of haemophilic blood, caused clotting in seventeen seconds, and a 1 in 100,000 solution caused clotting in sixty seconds, although the blood itself took thirty-five minutes to clot. The actual clot is tough and firm, and quite unlike that of haemophilic blood clotting by itself. Much work has already been done to enable this discovery to be used for human beings. It has been observed that when the venom is injected into animals in a dilution of 1 in 1,000 it does not cause haemorrhage, oedema, ulceration, or destruction of the tissues. When gauze soaked in venom was applied to a wound no delay in healing occurred, as compared with the control animal. The solution is easily sterilized by filtration through a Berkefeld filter, and does not lose any of its strength in this procedure. The venom maintains its potency unchanged when it is dry, but it soon deteriorates in dilute solution. The tests on human beings, not very numerous as yet, are very striking. In a normal person haemorrhage from a tooth socket and tonsil bed and capillary oozing in an abdominal wound are controlled at once. Three patients with haemophilia have been treated, two for tooth extraction and one for a wound. In each case the haemorrhage stopped at once when the tooth socket and wound were lightly plugged with gauze soaked in

venom 1 in 100,000. The haemorrhage recurred some twelve or twenty-four hours later, but ceased again on a further application. It does not seem likely on the present evidence that the venom will have any effect in reducing the coagulation time to normal and so cure the disease, and it is also doubtful whether it can be employed for checking the haemorrhage into joints and subcutaneous tissues. Nevertheless an important step forward has been taken by the discovery of a substance which will control the local haemorrhage which has caused the death of so many patients. The authors are to be congratulated on their discovery, and it is to be hoped that some way will soon be found of enabling a preparation of venom to be available in all hospitals, and for all doctors who look after haemophilic patients.

VARIATIONS IN THE NORMAL BLOOD COUNT

In an earlier issue this year (March 31st, p. 586) we commented on the findings of R. H. Simpson¹ in a study of the normal blood count. The object of this work was to determine the limits of variation in the normal count in order rightly to assess the significance of early changes in the blood of radiologists. His findings were that the leucocyte count in the normal subject varies within wider limits than are generally recognized, and that these fluctuations apparently follow none of the causes to which they are usually assigned, but occur rapidly and capriciously. The steps taken to verify the accuracy of the method used, including simultaneous counts yielding concordant results, betrayed no inherent liability to error such as would invalidate the conclusions drawn. The only possible deduction from these findings was that the limits of the normal leucocyte count must be set more widely, and that no single count exhibiting minor variations can be credited with any certain significance. In subsequent correspondence this conclusion was contested, and it was suggested that the method used by Simpson for counting the total leucocytes is liable to inaccuracy; in particular, attention was drawn to the work of Ponder, Saslow, and Schweizer,² who studied the relation between the number of cells counted and the reliability of the results obtained. A subsequent publication by Harvey and Hamilton³ lends support to the attitude of these critics. It deals with the results of one hundred counts on each of two subjects, one of whom was normal, the other an asthmatic. These results are analysed and presented in a number of different ways, of which the most illuminating is the ogive graph: this indicates at a glance not only the extreme limits of variation but the frequency of intermediate values. In the strictly normal subject the extremes of the total leucocyte count were 5,500 and 8,500 per c.mm.; and the great majority of the counts fell within narrower limits than this; in the asthmatic the limits were wider, the lower being 7,000 and the upper 15,000 per c.mm. An important fact is that no count fell below 5,500 per c.mm.; a leucopenia determined by these observers would therefore possess a significance denied by Simpson for his own observations. Since it has been stated by Mottram⁴ that a

¹ *Lancet*, November 3rd, p. 885.

² *Journ. Physiol.*, 1933, xxxii, 207.

³ Scientific Memoirs by Officers of Medical and Sanitary Departments of the Government of India, New Series, 1903, No. 3.

⁴ *Brit. Journ. Radiol.*, 1933, vi, 705.

⁵ *Quart. Journ. Exper. Physiol.*, 1931, xxi, 21.

⁶ *Edin. Med. Journ.*, 1934, xli, 465.

⁷ *Lancet*, 1931, i, 42.

lymphocyte count of less than 1,500 per c.mm. is a danger signal in radiologists, it is of interest that in Harvey and Hamilton's normal subject this count was below this figure on several occasions; perhaps the limit should be placed lower. In any case the difficulty of interpreting early changes in the blood of radiologists, although distinctly reduced by assuming something nearer constancy in the leucocyte count, is still considerable, and seems to call for repeated counts before serious action is taken. With one of Harvey and Hamilton's conclusions not everyone will agree—namely, that the examination of a film alone can to some extent take the place of a complete count. It is true that a very rough estimate of the total leucocyte count can be made from a well-made film, but the ability to make good films rarely exists without the opportunity and capacity to perform a total count as well, and to countenance this omission seems a retrograde policy.

CHILD GUIDANCE IN LONDON

In the four and a half years of its existence the London Child Guidance Clinic has now dealt with nearly 1,900 cases. In the beginning its organization was largely experimental, but it has now evolved the lines upon which it intends to progress. It was designed from the outset to serve two functions—the treatment of children and the training of students—and early in 1933 it was divided into two separate departments for treatment and training. Each child is treated by a team consisting of a psychiatrist, a psychologist, and two social workers; the same psychiatrist handles each case throughout to ensure continuity of treatment, and the unit members deal directly with the doctor, teacher, or parent referring the case. The course of training includes lectures, discussion groups, and seminars held at the London School of Economics, and supervision of the practical work of the clinic. The report of the clinic for the years 1932 and 1933 states that students who complete this course are being widely accepted for responsible posts where a trained social worker is required, for it is being realized that some such training is necessary to equip workers in psychiatric and child guidance clinics and out-patient departments of hospitals. The clinic also gives candidates for the academic diploma in psychology of the University of London their practical work in child guidance, and supervises and instructs students attending the course in child development at the Institute of Education, who come to the clinic for observation of play groups and for instruction in remedial teaching. The division into two sections has increased the efficiency of both aspects of the work. Members of the clinic have travelled all over England delivering lectures on child guidance, with the result that knowledge and acceptance of the subject have widely increased. The number of children seen at the clinic has steadily grown, and in 1932 an extra psychiatrist and a social worker were appointed. The children have come from all over the British Isles, but the practical difficulties in the way of lodgings near the clinic for regular attendance are great, and satisfactory treatment will be possible for all only when clinics are available throughout the country. During the two years under review the clinic dealt with 973 cases. Children tend to be referred at an increasingly early age—a satisfactory development.

Many are sent from the schools and school care committees of the London County Council, and by magistrates and probation officers. A considerable number of cases attended only for examination, and a large number were given some special type of service, including individual psychotherapy, remedial teaching, or education in play groups. The clinic claims to have secured adjustment in the mentality of about half the children it has treated. About a quarter are discharged partially adjusted, and about one-fifth cannot be improved. These results seem fully to justify the expenditure of time, energy, and ingenuity. The progress of child guidance work in this country has been slower than in some others. This is not altogether a bad thing in an enterprise which is so novel and which is capable of such extremes of theory and experimentation. There is a refreshing absence in the report of the effervescence which is apt abroad to discourage sympathizers with the movement. The clinic shows great promise of success in this important necessity of modern civilization. This particular method of tackling the problems of modern childhood came to us from the other side of the Atlantic, under the auspices of the Commonwealth Fund. The time has now come when that Fund may legitimately say, and does in fact say, that the clinic has either proved its worth or its worthlessness, and that the people of this country must either support it or close it down.

DIXON MEMORIAL LECTURE

Following the death of Walter Ernest Dixon, M.D., F.R.S., of Cambridge in August, 1931, a memorial fund was collected, and the committee thereof, under the chairmanship of Sir William Willcox, handed to the Royal Society of Medicine a capital sum in order to establish a lectureship in therapeutics and pharmacology in memory of Professor Dixon. The first Dixon Memorial Lecture will be given by Sir Henry Dale, M.D., F.R.S., in the Barnes Hall of the Royal Society of Medicine on Tuesday, December 11th, at 5 p.m. The subject of his address will be "Pharmacology and Nerve Endings." No tickets of admission are necessary.

GENERAL MEDICAL COUNCIL ELECTIONS

The result of the election of a direct representative for England and Wales has been that Mr. N. Bishop Harman, F.R.C.S. (with 10,980 votes), has been elected for five years from November 26th, 1934. The unsuccessful candidate, Dr. E. A. Gregg, obtained 3,702 votes. Sir Norman Walker and Dr. Leonard Kidd have been returned unopposed as direct representatives for Scotland and Ireland respectively. We would remind readers once more that voting papers for the election of a second direct representative will be issued on November 13th. Sir Henry Brackenbury has been nominated for re-election. The letter announcing his candidature for re-election was printed in the *Supplement* of October 13th (p. 193). The other nominations received by the Council for this vacancy are Dr. E. A. Gregg and Dr. Mabel L. Ramsay.

The Medical Research Council has appointed Mr. F. J. Marquis, B.Sc., and Professor W. W. Jameson, M.D., F.R.C.P., to fill vacancies in the membership of its Industrial Health Research Board.

CHRONIC PYOGENIC INFLAMMATION OF MAXILLARY ANTRUM AND OTHER ACCESSORY SINUSES

SEMON LECTURE BY MR. HERBERT TILLEY

The Semon Lecture, under the auspices of the University of London, was delivered in the Barnes Hall of the Royal Society of Medicine on November 1st by Mr. Herbert Tilley, M.D., F.R.C.S., consulting surgeon, Ear and Throat Department, University College Hospital, whose subject, illustrated by many lantern slides, was "Chronic pyogenic inflammation of the maxillary antrum and other nasal accessory sinuses: Some clinical manifestations of its pathology." Mr. W. M. Mollison, president of the Laryngological Section of the Royal Society of Medicine, presided.

Mr. Herbert Tilley, after a graceful tribute to the late Sir Felix Semon, by whom, he said, more than by any other one individual, the foundations of the honourable position of British laryngology were truly laid, first reminded his audience of some of the fundamental anatomical features and physiological attributes of the nasal accessory sinuses or air cells. He believed there was no region of the body where normal topographical relationships were subject to such frequent and almost limitless variation as might be presented by these sinuses. They reminded him of the Irishman's definition of bridge as "A game with no rules, but a mighty lot of exceptions." It was this anatomical complexity which frequently determined one or more of the clinical manifestations of an inflamed sinus.

DEFENCE MECHANISMS AND TRANSMISSION OF INFECTION

So far as present knowledge went, the mucous membrane of an accessory sinus had three defensive agents: (1) the thin film of mucus which enmeshed such invaders as atmospheric dust and micro-organisms; (2) the cilia of the epithelium which tirelessly lashed the mucus towards and through the "ostium" into the nasal cavity, from which it was driven by the same mechanism into the nasopharynx; and (3) secretions which found their way to the surface from the glandular nodules and other cells of the stroma. The lecturer dwelt on these factors of mucosal defence, first, because they were the foundations in which alone lay the explanation of the clinical manifestations of inflammation of the nasal cavities and their paranasal air cells, and, secondly, because the occasion afforded him an opportunity of entering a plea for a conservative attitude when surgical measures were called for in the treatment of such a delicate protective mechanism, which in its structure and functions had no counterpart elsewhere in the body.

It was common knowledge that when pyogenic infection had become established in the mucous membrane of an accessory nasal sinus its intrinsic or immediately local signs and symptoms might be accompanied or even overshadowed by evidences of transmission of organisms or their toxins or both to near or remote regions. Further, the clinical manifestations of such dissemination would largely be determined by the channel through which the infective agents reached their destination—namely, "surface transmission," implying progressive involvement of tissues in immediate and direct anatomical continuity with those of the already infected sinus muco-periosteum, or "vascular convection," an expression which he preferred to "blood-borne," because it included the lymph vessels. When the superficial tissues of a sinus muco-periosteum were involved, infection tended to spread by tissue continuity, while a more rigid confinement of sepsis in the deeper layers of the stroma, the periosteum, or in the bone would more probably be conveyed by vascular

ANTRAL INFLAMMATION OF DENTAL ORIGIN

The lecturer went on to describe briefly the course of acute antral inflammation of dental origin. Progressive caries in the crown of a bicuspid or molar tooth eventually reached and infected the contents of its pulp cavity; the consequent inflammation spread to the adjoining root canals, and from these, by way of their apical foramina and root canaliculi, to the periosteum of the root sockets and the cancellous bone of the alveolus in their immediate neighbourhood. In the course of these changes a septic granuloma or apical abscess might develop above the infected root, and by progressive inflammation and absorption of the surrounding cancellous bone reach the mucous membrane lining the alveolar groove of the antrum, ulcerating through, and establishing antral infection. It had long been the lecturer's conviction that extensive pyorrhoea of a tooth socket might alone be responsible for the conveyance of infection by vascular channels to the air cell. For a long time his was a solitary voice in this matter, but later the possibility of vascular transmission of infection from a septic root socket to the antrum had become accepted.

A septic tooth which had slowly become devitalized might infect the antrum without any preliminary acute dental symptoms. It was a good rule, therefore, to have the teeth radiographed in all cases of acute and chronic antral inflammation before deciding the extent to which a dental factor should influence treatment. During dental infection the patient's general condition was often satisfactory, and the lesion in the air cell was limited to ulceration of a comparatively small area of muco-periosteum, through which the abscess contents escaped. The rest of the mucous membrane might only be inflamed superficially, and probably not to such a degree as entirely to inhibit ciliary activity. As a consequence of this, inflammatory secretions passed with comparative freedom into the nasal cavity. Removal of the offending tooth, followed by irrigations of the sinus, would, as a rule, soon restore the tissues to their normal condition. It followed that when symptoms of inflammation developed in and around an upper bicuspid or molar tooth appropriate treatment should be instituted. Prolonged delay might result not only in antral infection, but, what was more important still, in the involvement of a comparatively extensive area of cancellous bone in the alveolus which, in the event of ultimate tooth extraction, would often render futile all efforts to close a possible bucco-antral fistula. In the meantime, general symptoms indicative of a mild chronic toxæmia or some distal and more or less localized manifestation of "focal sepsis" might have developed.

INTRANASAL INFECTION OF THE ANTRUM

If an antrum were infected by the virulent organisms of one of the acute specific fevers the chief pathological features would often be a generalized and intimate inflammation of all the constituents of its muco-periosteal lining and the nasal fossa of the corresponding nasal cavity, more particularly tissues in and around its middle meatus—a condition which hindered free drainage from the sinus. Within the antrum the consequent congestion and oedema might be so pronounced as entirely to obliterate its lumen, and by inhibiting ciliary action add a further hindrance to the escape of inflammatory secretions.

The early stages of infection, when general oedema of the muco-periosteum was pronounced, were manifested by severe pain in the cheek and surrounding regions coupled with nasal obstruction on the same side. An endeavour to relieve these symptoms by puncture irrigation of the antrum would not infrequently fail if the end of the cannula were embedded in the jelly-like mass of inflamed tissues. This difficulty might sometimes be overcome by applying cocaine and adrenaline solutions to the swollen and obstructing tissues of the middle meatus, and then scarifying them freely. Children suffering from an acute specific fever were by no means exempt from infection of the paranasal air cells, but, of course, were often too young to draw attention to, or describe, local symptoms,

and such clinical manifestations of sinus infection as nasal obstruction and muco-purulent discharge from the nostrils were liable to be regarded as due to adenoids.

CHRONIC ANTRAL CATARRH

Mr. Tilley defined this as a low-grade infection of the superficial layers of the mucous membrane accompanied by excessive secretion of mucus or muco-pus, but not by general symptoms of toxæmia or local manifestations of blood-borne infection. In its simplest forms the most characteristic feature was a semi-translucent thickening of the mucous membrane, which was particularly evident over the alveolar groove, in the angular recesses of the air cell, and in the neighbourhood of its "ostium." In more advanced conditions oedema-like swellings or definite polypoid projections were usually present. The chief histological features in the early stages were a certain amount of surface-cell desquamation, extensive serous infiltration of the subepithelial connective tissue, distension of its lymphatic spaces and glandular elements, and perivascular concentration of mononuclear and polynuclear cells. The chief, and often the only, symptoms were an excessive discharge of mucus or muco-pus from the nose and some degree of nasal obstruction. Transillumination was particularly unreliable in diagnosing mild types of chronic antral catarrh, and most misleading if too powerful a lamp was used; puncture irrigation was much more informative, but did not give a clue to the degree of involvement, and here came in the inestimable value of Proetz's "displacement" method, followed by radiography of the opaque fluid. A mild degree of mucous membrane involvement would probably respond to from six to twelve irrigations or even to a course of autogenous vaccines, while polypoid transformation could only be treated successfully by radical intervention through the canine fossa, with the establishment of permanent antro-nasal drainage.

If it seemed that undue attention had been given to this mild type of chronic antral inflammation the lecturer's excuse was that of all forms of sinus infection it was, in his experience, the one most frequently overlooked, because the patient's diagnosis of "chronic nasal or post-nasal catarrh" was too frequently accepted as an entity without further confirmation, but recurrent infections almost inevitably led to definite pyogenic infection of the air cells. In any case the catarrhal symptoms were annoying. Temporary symptomatic relief might be afforded by nasal washes followed by a nebulized oily spray containing menthol or chlorotone. But if valid reasons had been given for regarding such symptoms as typical manifestations of mild infection of the paranasal sinuses, it was obvious that these air cells, and particularly the antra, should be carefully investigated in every case.

PATHOLOGY AND CLINICAL EVIDENCE OF PYOGENIC INFECTION

After some remarks on dietary defects as a predisposing factor in reducing resistance against microbial infection, in which he quoted McCarrison and other authorities, Mr. Tilley turned to a discussion of the pathology, saying that when chronic pyogenic infection had become established in any of the air cells, the histopathology of the muco-periosteum would frequently reveal that the morbid changes were not always uniformly spread throughout the structure, but rather tended to predominate in one or more of its constituent elements. He described the four categories in which le Roy Schall placed the pathological changes—namely, oedematous, infiltrative, fibrotic, and cystic; and to these he himself added a fifth—namely, that in which the infection, having implicated the periosteum, had passed by vascular channels into the bone tissues of the sinus capsule. He then related the clinical manifestations to these five types. The signs and symptoms of the oedematous type were those described in dealing with chronic catarrh of the antrum, adding only that any distal clinical manifestations to which it might give rise were due to surface rather than to vascular transmission of infection. The

infiltrative type included a large majority of the cases of chronic pyogenic sinusitis so familiar to nasal surgeons. If infection were limited to the more superficial tissues of the muco-periosteum there would often be present, in addition to the ordinary local signs and symptoms of chronic antral suppuration, those which resulted from surface transmission of infection to adjacent or more distant regions. If and when superficial transmission of antral infection passed beyond the confines of the nasal cavities and their air cells, it might reach the conjunctivæ by means of the lachrymal ducts, the nasopharynx, the middle-ear clefts via the Eustachian tubes, and, passing downwards, involve the mucous membranes of the pharynx or larynx, lower air passages, and stomach.

The essential feature of the fibrotic and cystic types was fibrosis of the mucous membrane, with diminution of its cellular and glandular elements, the changes being most obvious in the deeper layers of the muco-periosteum. The local symptoms of this type of chronic pyogenic sinusitis were so familiar to nasal surgeons as to call for no comment, and the same assumption might be made concerning systemic symptoms of a toxæmic nature and such distant and localized manifestations as neuritis, myositis, certain types of arthritis, and cardiac disabilities.

OPERATION FOR INFECTIVE SINUSITIS

It must be within the experience of all nasal surgeons that many cases had been cured by a simple intranasal antrotomy, but for many years it had seemed to him that such results were due to luck rather than good management. The operator was working in the dark, and could not see the nature or extent of the disease which it was his duty to remove. These essentials could only be obtained by a full exposure, such as was afforded by the Caldwell-Luc procedure in antral sinusitis, or an external operation, such as Howarth's, for combined frontal sinus and ethmoid suppuration. That complete extirpation of an infected mucous membrane from an accessory nasal sinus might be followed by necrosis of bone or some other complication was a groundless fear, for it was known that within two or three months a new normal ciliated muco-periosteum would replace that which was removed. It was a little more than thirty years ago (1903) that he himself had emphasized this method of repair, in a paper before the old Odontological Society, and during the past ten years it had been amply verified by histopathological research carried out by a number of workers.

POST-OPERATIVE RECURRENCES

Finally, the lecturer turned to what he described as the most important phase of his task—namely, to endeavour to answer the question why well-executed operations for chronic pyogenic sinusitis were not infrequently followed by a recurrence of symptoms. During the last few years he had become more and more convinced that the continuation or recurrence of symptoms after the operative treatment of this condition was due to a residual infection in the bone tissues of a sinus capsule, and that it was one of the most potent foci for the vascular transmission of septic organisms and their toxins. This view had received less practical recognition from rhinologists than from dental surgeons, and the present occasion seemed opportune for laying further emphasis on this factor. If and when pyogenic organisms could be demonstrated in the inflamed osseous tissues, such a residual infection would surely explain why free drainage and complete removal of the muco-periosteum might not suffice to prevent a recurrence of symptoms. Material additional to his own was collected from all the nasal sinuses and investigated by Dr. Albert Gray in the Ferens Institute of the Middlesex Hospital. Mr. Tilley showed some convincing photomicrographs of the histopathological sections so skilfully obtained.

He was not aware of any clinical manifestations of chronic "silent" osteitis of an air capsule which were pathognomonic of that condition, but it might be suspected when spontaneous local pain was a prominent symptom or if the bone was tender to pressure. It

was in such cases that general or localized evidence of blood-borne infection might overshadow local manifestations of suppuration.

With regard to treatment, if on removing a pyogenic membrane from a nasal accessory sinus, pus or even pinpoint collections of it were seen beneath the periosteum, the adjoining bone should be uncapped, and if found infected removed until healthy osseous tissue was reached. If no evidence of subperiosteal osteitis were detected during the primary operation, and there was recurrence of symptoms, bone infection should be inferred and prompt measures taken to remove it. Nasal washes, local applications, and all such meddlesome interference would be of so little avail that the long-suffering patient might well exclaim with the Psalmist, "My bones are vexed, my soul also is sore vexed," and the cynic might be prompted to utter again that opprobrious dictum, "Once a sinus operation, always a sinus operation."

CHARING CROSS HOSPITAL MEDICAL SCHOOL

INAUGURATION OF CENTENARY APPEAL

The first public appeal since its foundation one hundred years ago was launched by the Charing Cross Hospital Medical School at the annual presentation of prizes, held at the hospital on November 1st. The inaugural address was to have been given by Air Marshal Sir John M. Salmond, but owing to illness his place was taken by Air Vice-Marshal C. A. H. Longcroft. The proceedings were presided over by Major Colin Cooper. The report of the dean (Mr. Eric A. Crook) was congratulatory to many members of the staff and students on receiving distinctions. It also mentioned, among other items of interest, that this year the Huxley Memorial Lecture had been delivered by Professor Julian Huxley, grandson of T. H. Huxley, who was one of the most famous of the school's past students, David Livingstone being another.

INAUGURAL ADDRESS

Air Vice-Marshal Longcroft, after presenting the awards to the successful students, read the speech which Sir John Salmond had intended to deliver. He said that for a hundred years Charing Cross Hospital Medical School, by its teaching and assiduous research work, had advanced the cause of science without any public appeal. The founder was Dr. Benjamin Golding, who, in 1823, conducted a general infirmary and dispensary in Villiers Street, close to the present hospital. The foundation stone of the present Charing Cross Hospital was laid eight years later, and the hospital was formally opened at the beginning of 1834 by the reception of in-patients; the medical school was inaugurated in the same year. He added that it was a tribute to the foresight of the founder that when the Royal Charter was granted fifty years later no alteration was found necessary in any detail of the original constitution. The financial and administrative regulations made so long ago for combining the hospital and medical school had stood the test of time and were still operative. From twenty-two students a hundred years ago the number had grown until there were now 150 full-time students on the books, and the school had its own building, laboratories, lecture theatre, and museum. No organization of value to the common weal, Sir John Salmond added, could stand still; it must either expand to meet the ever-increasing requirements of the modern world or it must contract and fade away. On the technical side, with the existing facilities, only the requisite minimum of instruction could be given in pathology. Nor could a building established sixty years ago meet the essential requirements of to-day. Therefore an appeal was being made for £7,500 to extend the school building; £2,500 to liquidate the debt; £10,000 to complete the establishment of a chair in pathology; £20,000 for the provision of a hostel for students; and £10,000 towards the endowment of scholarships. He reminded the company that Huxley, of immortal fame, might have

languished as an apothecary's assistant had it not been for the opportunity of gratuitous tuition. Unlike other appeals for hospital facilities, said Sir John Salmond in conclusion, this first public appeal for the modest total of £50,000 was to strengthen and increase the flow of healing waters at their source.

VOTE OF THANKS

A vote of thanks to Air Vice-Marshal Longcroft was proposed by Dr. Gordon M. Holmes and seconded by Mr. Philip Inman, managing governor of the hospital; a further vote of thanks to the chairman was proposed by Mr. J. Bright Banister and seconded by Mr. Norman Lake.

Major Colin Cooper, in reply, said that the appeal would be launched to bankers, business houses, and public institutions, to all friends of Charing Cross Hospital, and to the great charitable British public. It was most important that the progress made by Charing Cross Hospital during the last hundred years should not be arrested in this generation. As an appeal should have a good send-off, he desired, in memory of those who fell in the Flying Corps during the war, to start it with £1,000.

The guests were afterwards entertained to tea in the refectory of the medical school, and a demonstration was given in the Institute of Pathology. An excellently produced appeal brochure was distributed, containing illustrated historical notes on the hospital and school, and specifying, in more detail, the objects of the appeal. With regard to the provision of hostel accommodation, which is one of the objects of the appeal, it is stated that there exists near the school a site on which a building could be erected to accommodate thirty-five or forty students. In connexion with the establishment of a chair in pathology, which is another of the objects, a fund already bequeathed for this purpose is expected to produce £600 a year, which will have to be supplemented in order that the occupant of the chair may receive a minimum salary of £1,000. The £10,000 asked for towards the endowment of scholarships will be used to provide for the award of entrance scholarships of £50 each, or £10 a year for five years; open scholarships of £75 each, or £25 a year for three years (covering the clinical period only); and clinical scholarships of £120 each, or £40 a year (equal to the whole of the tuition fees) for three years.

PREPARATORY SCHOOL SCHOLARSHIPS FOR SONS OF MEDICAL MEN

We take this opportunity of drawing the attention of medical men to the annual award of two scholarships of £100 each at Port Regis Preparatory School, Broadstairs, Kent. These scholarships were recently founded by Sir Milsom Rees, and the next examination will be held on March 5th, 1935. Candidates must be under 9 years of age at the time of competing, and the scholarships are normally tenable till the holder leaves the school. They will be selected at an interview in London from among those boys who have done best in some simple examination conducted in or near their homes.

Applications for these scholarships must be addressed to the Head Master, Port Regis School, Broadstairs, to reach him not later than February 20th, 1935. Full particulars may be obtained from him.

At a meeting of the Continental Anglo-American Medical Society held in Paris on October 6th, with the vice-president, Dr. Leonard Robinson, in the chair, it was agreed that a scientific programme should be given on the Riviera at a time and place to be decided by members practising there, preferably during the Christmas vacation, and that a clinic should be given at the American Hospital by the Paris members during the meeting next May. The exact date of these gatherings will be announced later. British and American graduates travelling, or residing in the neighbourhood, are invited to attend.

THE BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

ANNUAL DINNER

The fourth dinner of the British College of Obstetricians and Gynaecologists was held at Claridge's Hotel on November 5th, Dr. JOHN S. FAIRBAIRN presiding.

MR. BALDWIN'S SPEECH

The toast of "The College" was proposed by Mr. Stanley Baldwin. He said that the College hoped to do for obstetrics and gynaecology what the College of Physicians did for medicine and the College of Surgeons for surgery. Until recently obstetrics and gynaecology had had no body to speak on its behalf. There was no doubt that, with all the social work that had been done in connexion with sanitation, housing, and old-age pensions, the question of maternal mortality and child welfare had come before the country in a way it had not done previously, and not before it was necessary. During the present century the general death rate had been reduced by a third, as had the tuberculosis mortality, and infant mortality had been reduced by nearly one-half, but the maternal death rate was slightly increasing. The Departmental Committee on Maternal Mortality had found that one-half of the maternal deaths in this country were preventable. That was a terrible indictment. For all the deaths that occurred there were, as a result of neglect, also the disabilities in later life among women who had borne children. He had been told that if all the women in Britain received proper attention before, during, and after childbirth the occupation of beds in the women's wards in hospitals would be reduced by one-half. There were black spots in this country where maternal mortality had reached appalling proportions.

The College might be of invaluable service to the country in connexion with hospitals for women and welfare centres for children. The standard of the College was high and must always be high, and he would urge it to seek closer co-operation with the Medical Research Council, and to direct research into the question of maternal mortality. It seemed to him as a layman that there might be some factor to account for the high figures of mortality in childbirth which had hitherto eluded their vigilance, and that there must be something to be discovered. He would say to them: "Get to it." Also, he wanted to see the day come when the best form of anaesthesia for use in childbirth should be within the reach of every woman in the kingdom. In conclusion, Mr. Baldwin said there was an immense amount of work to be done to reduce maternal mortality, and that if the Government could help in any way it would be glad to do so; somehow or other it meant to clear this blot off the national slate.

THE RESPONSE

In response to the toast the President, Dr. FAIRBAIRN, on behalf of the College, thanked Mr. Baldwin for coming to dine with them. A young society like theirs, with only a future before it, needed some support from the State. During the five years of its existence the College of Obstetricians and Gynaecologists had made good progress, and now had a house and a library of its own. This in large measure had been made possible by their benefactor, Lord Riddell. The desire to be of public service had been in the minds of the founders of the College and its first council, but of necessity they had been much preoccupied with questions of organization. Due tribute must be paid to the former Obstetrical Society of London, now the Section of Obstetrics of the Royal Society of Medicine, for its good work in connexion with the

maternity services and the education of midwives in this country. Dr. Fairbairn then outlined, in some detail, the various activities of the College, and referred to the institution of the diploma, which was to encourage general practitioners to act as consultants in midwifery in those areas in which specialists were not available, particularly in the black areas in the North of England.

The toast of "The Guests" was proposed by Professor C. G. LOWRY in a speech happily blended with wit and good sense. Sir GEORGE BUCHANAN, Master of the Society of Apothecaries, replied.

Doba et Vetera

ANCIENT HINDU-ARYAN MEDICINE

The following is an abridged version of the presidential address by Dr. E. W. Lewis which he gave to the Lancashire and Cheshire Branch of the British Medical Association at its recent annual general meeting.

Following my house-surgeoncy days, I spent seven years in hospital work in South India. Now and again I came across customs and treatments that made me interested in the history of Indian medicine. I soon discovered that from 1000 B.C. until A.D. 100 the condition of medical culture and teaching, and the success and extent of medical treatment, were higher than in any other country. Why did India not continue to develop her medical learning? Why did the medical knowledge of the Indo-Aryans retrogress?

Three epochs are definable: the Vedic, extending from the first migration of the Hindus into the Punjab to about 800 B.C.; the Brahminic, representing the Indian Middle Ages, the Golden Age of Indian medicine; and the third, which began about A.D. 100, with the Arabic invasions. The Rig-Veda (about 1500 B.C.) contains definite medical instruction, and reveals the origin of medicine in theurgy and empiricism. There is an attempt to distinguish such conditions as vertigo, dropsy, epilepsy, heart disease, jaundice, and hemiplegia. On the surgical side the extraction of arrows, the dressing of wounds, the making of artificial limbs, and castration are dealt with. Medical treatment was carried out by means of charms and medicinal herbs. Among the earliest remedies described were those for promoting conception, aphrodisiacs, and abortifacients. Isopathic and homoeopathic principles were in use, such as the employment of yellow plants in jaundice; hydrotherapy held high place. The Brahminic epoch was remarkable for the highly esteemed class of physicians, independent of the priesthood. These men were scientifically instructed, belonged to the high mixed caste of Ambastha or Vaidya, and were descended from Brahmins on the father's side. There was also an inferior class of assistants, the Vaisyas. Anatomy, materia medica, hygiene, dietetics, and surgery reached a high standard. With the coming of the Arabic invaders the theories and practice of Ayur Vedic medicine were submerged by the Yunani system. Progress in investigation ceased, the standard of practice and training declined, and incapable men and quacks multiplied.

The second epoch deserves fuller consideration. The two chief sources of information are the books written by Charaka and Sushruta. The choice of the profession of medicine was conditional on good descent, preferably from a medical family; manual dexterity; and the possession of certain physical as well as moral and intellectual endowments. Training lasted six years, was based upon a recognized and approved textbook, and comprised the learning of precepts, clinical instruction, visiting the sick, and undertaking surgical procedures. It was laid down that medicine and surgery had to be mastered equally, since "the physician who lacks knowledge of one of these branches is like a bird with only one wing." The physician was enjoined to widen his knowledge through intercourse with his professional brethren, so that the light of wisdom should not be hidden from him. The instructions regarding fees are interesting. "Price will

vary with the rank and condition of the patient. Money will be the recompense bestowed by the rich; friendship, reputation, increase of virtue, prayers, and gratitude will be that of the poor. When a Brahmin or a religious mendicant, a relative, a humble and good friend, or one without relations consults a physician, he must not accept of any pecuniary recompense; his reward in such cases will be an increase of knowledge and the gratification of his desires in having had an opportunity of performing a good action." Warning is given repeatedly about treating incurable cases. For instance, in treating serious abdominal conditions, the cause of which was doubtful, an Indian physician was instructed before commencing treatment to inform the friends that the disease was incurable; then he might try the effects of remedies.

All Indian medicine was founded on the writings of Charaka and Sushruta; later writings follow them, and are content to be commentaries on the original work and to complete and improve these through fresh experience without interfering with the theoretical groundwork or the old-time formulas. No work could receive acknowledgement or be accepted unless it could claim to have been the result of Divine revelation.

STANDARDS ATTAINED

Anatomy.—Hindu philosophers, although opposed by strong prejudice, entertained sound and philosophical views respecting the uses of the dead to the living, and were the first scientific cultivators of practical anatomy. No attempt was made to preserve the bodies by embalming or arterial injections, but rules were laid down as regards cleansing and the promoting of decomposition. The surface of the body was then removed by a brush made of reeds, hair, or bamboo bark, the skin, flesh, and adjacent structures being carefully observed before removal. With this method of dissection it will be readily seen that Indian anatomy did not consist of real intimate knowledge, but merely of an enumeration and classification of the constituent parts of the body. Nevertheless, some idea of the organs was obtained, and bones, ligaments, and joints were described, though the actual course of such structures as veins, arteries, and nerves were not known. Indeed, nerves, vessels, and cavities were all confounded. Something was known of the spinal cord. The central canal, with its continuation with the lateral ventricles of the brain, the cerebral convolutions, and the distinction between white and grey matter, for instance, were indicated in the *Shiva Samhita*.

Physiology.—Such imperfect knowledge of anatomy gave rise to highly speculative physiology, in which observations were accounted for by theories. Hindu sages observed the great influence of the fluids in disease, and, imperfectly acquainted with the structures and uses of the various parts of the system, endeavoured to explain the functions of the organs by the action of fluids upon them, reducing their physiological opinions to an ingenious system—the humoral physiology—on which the whole of ancient Hindu medicine was founded. The fundamental parts of the body were *Vayu* (wind), *Pitta* (bile), and *Kafa* (phlegm). "As the moon sheds moisture and abstracts the sun's rays, which dry up and bestow energy upon the earth, and as the air moves from place to place, so does phlegm bestow moisture, bile withdraws it by its heat, and wind wafts it about the microcosm or animal body." This theory, derived from the Hindus, was for many ages universally believed, and adopted by the Egyptian and Greek priest-hoods. The essential parts of the body were noted as: chyle; blood; *Mansa*, or flesh, produced by the *Vayu* thickening the blood; fat, generated by the digestion of the blood by the internal fires; bone and cartilage; marrow, including the brain; and semen. The "excretories" composed a third section; ranked as impurities, they included "oily exudations, seminal fluids, blood, dandruff, urine, faeces, ear-wax, nail parings, phlegm from the throat, etc., tears, concretions in the eye, and sweat."

Diagnosis.—For ascertaining the nature of disease physicians examined first the appearance, the countenance, and tongue; then, by touch, feeling the pulse and temperature; and thirdly by questions into the medical and

general history. The senses of taste and smell also were used. The weakness or loudness of speech was noted. The pulse was felt with three fingers; in the male the right radial pulse was felt, in the female the left. Attention was paid to compressibility, frequency, regularity, size, and the different impressions it produced on the fingers.

Hygiene and Public Health.—Health precepts have been in force for 3,000 years, backed by religion. These laws prescribe strictly the mode of life; the hour and method of rising; attention to the calls of nature; cleaning of the teeth, tongue, and nose; bathing; shampooing; massage; inunctions; resting; exercise; diet; clothing; housing; sleeping; and climatic changes.

Midwifery.—Rules for the conduct of labour were strictly laid down, covering the size and ventilation of the room, the cleanliness of the hands of the attendants, lubrication of the vagina and perineum with sweet oil, and encouragement of the patient. The humoral theory comes into the physiology of parturition. "By the wind of the pelvis the foetus is expelled, as an arrow is shot from a bow, and falls insensible to the ground. All its former knowledge is immediately forgotten, and, losing so many pleasing illusions, it cries." Five classes of barren women were enumerated: (1) the crow-barren, who only bear once in a lifetime; (2) those incapable of conceiving; (3) those who conceive but always miscarry; (4) those whose offspring do not survive their birth; and (5) those sterile on account of physical weakness. All except the first class were considered capable of being cured by appropriate medical treatment. If labour was delayed, sneezing and straining were induced by the application of the smoke of the burnt skin of a black serpent, or the tickling of the throat with a finger covered with hair. These measures were also used for the retained secundines. Internal turning was practised. If this was not successful, dismemberment of the foetus was performed, the various parts being extracted with a hook. The indications for Caesarean section were laid down; this operation was first performed by Sushruta.

Medicine.—Classification of diseases was very confused, due to the adherence to the humoral theory. Many were recognized, however, and suitably dealt with: for instance, chest diseases such as asthma (treated with *datura*), bronchitis, pneumonia, phthisis (treated with garlic), heart disease and angina (treated with cardamoms), diabetes mellitus, jaundice, anaemia (treated with iron preparations), cholera, dysentery (treated with bael fruit), nervous diseases such as apoplexy, epilepsy, hemiplegia, various paralyses, and tetanus, and skin diseases such as eczema and venereal affections. The system of giving poisonous drugs in increasing doses to a maximum, and then decreasing regularly to finish the course, was well known. The use of the cautery, the production of emesis at regular intervals, and blood-letting by leeches, cupping, and venesection were very carefully described and performed.

Surgery.—This was held to be the chief of the medical sciences, and practical instruction was very carefully given. After the student had been taught from books, different operations were demonstrated to him upon wax spread on a board, gourds, cucumbers, and other soft fruits; tapping and puncturing on a leather bag full of water or soft mud; scarifications and blood-letting on fresh hides of animals from which the hair had been removed, and upon the vessels of dead bodies; puncturing and lancing on the hollow stalks of water-lilies; and teeth extraction on dead animals. The ancient Hindus used steel surgical instruments, and had a great variety. Foreign bodies were removed from the throat by probangs, as well as in other ways. Amputations were carried out boldly, boiling oil, pitch, and pressure bandages being used to check haemorrhage. Perineal lithotomy was frequently performed as vesical calculus was very common. Abdominal obstruction was dealt with by laparotomy. Hernias were treated by irritant plasters or the actual cautery over the neck of the canal so as to produce adhesive inflammation. Fractures and dislocations were carefully set, and trephining successfully accomplished. New noses and ears were fashioned with wonderful skill,

and lens couching in cataract was common. Anaesthetic drugs such as soma juice and sammohini were administered.

THE PERIOD OF DECADENCE

Such being the attainments and knowledge of the ancient Hindu-Aryan surgeons and physicians, what were the causes of decline? Three factors seem to have been operative. First, the heat and conditions of the country in some small measure contributed to the reduction of that energy so necessary for the continued investigation and practice of medical work. Next, with the Mohammedan conquests, bigoted prejudices in favour of the Yunani system brought about the ignoring of science and the replacement of observation and reasoning by theorizing. The third, and probably the greatest, factor in the decline was religious. No criticism was allowed of any of the facts and deductions in the reputedly inspired volumes. Thus no advance was made, no correction of mistakes was possible, and stagnation ensued. A religious interdict was issued against every occupation involving contact with a corpse; the study of anatomy and pathology stopped. Investigation for the sake of man's health was banned if it involved animals or men. Asoka in 220 B.C. had established a public health service and hospital accommodation, his edicts being carved on rocks, but the complete arrest of experimental work brought to an end the wonderful ancient standards of Hindu-Aryan medicine.

France

[FROM OUR CORRESPONDENT IN PARIS]

Future of the Pasteur Institute

Pasteur was much more than a Frenchman, and the Institute to which he gave his name has always faithfully reflected his cosmopolitan outlook. Many of the greatest names associated with this Institute are those of foreigners, and long may the whole world of medicine continue to feel at home in it. The Institute began very modestly in 1886 as a centre for the treatment of rabies. The meagre funds and modest quarters attracted big men: Duclaux in charge of general bacteriology, and Roux teaching technical bacteriology; Chamberland in charge of anthrax vaccination, and Grancher of antirabic vaccination. Presently Metchnikoff threw in his lot with this small group, and each in his turn attracted new disciples. In Roux' service were Nicolle, Yersin, Borrel, and Calmette. Collaborating with Metchnikoff were Bordet and Salimbeni, and so on. There were giants in those days. After Pasteur's death in 1895 the momentum given by his personality continued. Funds and housing accommodation grew. A large building devoted to biological chemistry sprang up over the way, on the other side of the Rue Dutot; close to it there arose a hospital for the treatment and study of infectious diseases; and only three years ago a new block of buildings was inaugurated, an outward and visible sign of Calmette's B.C.G. activities. In less than half a century the Pasteur Institute had grown from nothing into a vast centre of research. Its organization and direction were unchallenged; Pasteur's mantle had fallen on Roux, and when he should be gathered to his fathers the succession seemed secure with such a man as Calmette, already helping Roux to hold the reins. And then Calmette died five days before Roux. The situation was critical. The Executive Committee of twelve members, one of whom was the late Raymond Poincaré, appointed a Commission, composed of certain members of the Executive Committee, to study the administration and scientific organization of the Institute and the means to assure the continuity of Pasteur's enterprise. After deliberating for six months the Commission reported. Its conclusions were adopted by the Executive Committee, and the Institute is henceforth to be under a director and an assistant director, and to

enjoy the services of a Scientific Council with exclusively advisory functions. This Scientific Council is under the authority of the Executive Committee, and its members are: Bertrand, Bordet, Borrel, Mesnil, Charles Nicolle, and Yersin, all disciples of Pasteur. Louis Martin is director, and Ramon, of anatoxin fame, is assistant director.

Dr. Paul Durand

French doctors have discovered a Sir James Mackenzie in their midst. During the past few years collective research by general practitioners has been conducted under the auspices of the *Assemblée Française de Médecine Générale*, an association which encourages the pooling of clinical observations by the general practitioner and their discussion from time to time in Paris under the chairmanship of some acknowledged leader among the consultants. Since 1932, and at every one of a dozen successive meetings, a general practitioner has presented a series of clinical and epidemiological studies conducted during a lifetime in the country. His name is Paul Durand, and his colleagues' esteem has found expression in the invitation extended to him to preside at the meeting on November 4th, when the subject under discussion was "Diphtheria: Its Serum and Vaccine Treatment."

A Surgical Congress

Three principal subjects were discussed at the forty-third French Surgical Congress, which was held between October 8th and 13th: the fourth venereal disease, suppurative arthritis of the knee, and the surgery of the suprarenals. The discussion on the treatment of the suppurating knee-joint must have given most listeners the impression that surgery is a house divided against itself, and that we have still a long way to go before we find a treatment which most surgeons will accept as rational. Much more unanimity, of a pleasingly complacent character, was shown in the discussion on lymphogranulomatosis, Nicolas-Favre's disease, or the fourth venereal disease. Among those who took part in this discussion was Professor Frei of Berlin, whose name is associated with the reaction on which the diagnosis of lymphogranulomatosis depends.

"Covering"

To what extent may a French doctor employ a nurse without laying himself open to the accusation of "covering"? This question has been raised so often of late that a member of the editorial staff of *Concours Médical*, Dr. Paul Boudin, has taken the trouble to delve and dive into legal records. He has emerged from this ordeal with alarmingly instructive observations. According to a judgement of the Tribunal Civil de la Seine in 1906, a hydropic injection is minor surgery. It must therefore be undertaken by the doctor himself, or in his presence, or under his supervision and direct control. This operation, according to the aforesaid judgement, does not come within the scope of the nurse in the execution of a doctor's orders. Be it noted that the nurse of 1906, with the exception of the Sister of Mercy, was not always the embodiment of, or the last word in, surgical cleanliness, and the interpreters of the law may be excused, and even cautiously commended, for the limitations they imposed on her activities. But the standards of nursing have vastly improved during the past score of years, and the French nurse of to-day practises this minor surgery with equal skill and impunity. When an Anglo-Saxon practitioner recommends a tablespoonful three times a day after meals, his confrere over here prescribes "piqûres"; and even if the law courts were to persist in defining them as minor surgery, the nurse is not likely to hold her hand as long as she is encouraged by the doctor under whom she works to prick his patients.

England and Wales

Conference on Health Education

The seventh Annual Conference on Health Education organized by the Central Council for Health Education, will be held on Thursday, November 22nd, in the lecture theatre of the London School of Hygiene and Tropical Medicine. Sir George Newman, as president of the conference, will deliver an inaugural address at 11 a.m. A discussion on "The Education of the Public with Regard to Nutrition" will be opened by Professor J. A. Nixon of Bristol University, and Dr. W. G. Savage, county medical officer of health, Somerset. Dr. James Fenton, chairman of the Central Council, will speak at the beginning of the afternoon session at 2.30 p.m., after which the discussion on nutrition will be concluded. A second discussion, on "The Education of the Public with Regard to the Consumption of Milk," will be opened at about 4.15 p.m. by Dr. Thomas Orr, medical officer of health, Ealing, and chairman of the Publicity Committee, National Milk Publicity Council. At the close two new films, one on "Infant Management," will be shown. The Minister of Health has sanctioned the payment of expenses of two delegates from each local authority, and it is hoped that a large number of delegates will be appointed. The names and addresses of such delegates should be forwarded not later than November 16th to the Central Council for Health Education, 1, Upper Montague Street, Russell Square, W.C.1, whence further information about the conference may be obtained.

St. George's Hospital

At a special court of the governors of St. George's Hospital, London, held on October 31st, with the treasurer, Lord Greville, in the chair, the following resolution was adopted: "That the House Committee be authorized to draw up a scheme for the rebuilding of the hospital either on the present site or elsewhere with an appeal for funds for this purpose." A special committee will be appointed immediately to give effect to the terms of the resolution. H.R.H. the Duke of Kent, president of the hospital, recently agreed to a suggestion that intended wedding presents from the public should take the form of donations to the fund for the rebuilding of St. George's.

Midland Mental Pathological Society

A society has been formed, with headquarters in Birmingham, to promote co-operation among those interested in the study of the pathological basis of mental disorder and defect. Its origin dates back to November 27th, 1933, when thirty-four medically qualified superintendents and assistants from the various mental hospitals of the Midlands met at Hollymoor Mental Hospital, and an address was given by Dr. F. A. Pickworth, director of the City and University of Birmingham Joint Board of Research for Mental Disease. On that occasion Dr. H. Frieze Stephens emphasized the need of a society to hold meetings at which pathological problems, such as had arisen out of the demonstration of research work that day, could be discussed also with pathologists from general hospitals. The Midland Mental Pathological Society held its inaugural meeting on October 31st, 1934, those present numbering forty-two, and several others had signified their intention of joining. An address by the president, Sir Gilbert Barling, Bt., F.R.C.S., chairman of the Joint Board, was warmly received, and a formal resolution to found the society was proposed and discussed by Drs. B. H. Shaw, H. F.

Fenton, A. M. McCutcheon, Frieze Stephens, and W. A. Potts. Dr. Pickworth was appointed honorary secretary and treasurer, and Dr. Shaw chairman of the committee for 1934-5. After the approval of rules and regulations, and votes of thanks to the University of Birmingham and to the dean of the Medical Faculty, Dr. R. D. Lockhart gave a lantern demonstration of "Naked-eye Blunt Dissection of the Brain," showing with remarkable clearness the various important nerve tracts of the mid-brain and brain stem, including his own discovery of the commissure connecting the optic lobes of the cerebrum. He showed also sections of the whole brain made with Hamilton's microtome, and demonstrated the instrument. The society fulfils a much-needed association between those engaged in the study of mental disease and general medicine, and promises enthusiastic and lively discussions at future meetings. Membership (apart from honorary members) is restricted to those connected with medical or mental institutions in the Midlands, to whom Dr. Pickworth (Hollymoor, Northfield, Birmingham) will be pleased to send information:

The City of London

Public health conditions in the 661 acres which constitute the City of London (excluding the Temple) are in some measure exceptional. The resident population is still declining, while the number of those who visit it and leave it daily is rising. The estimated population for 1933 is given in the annual report, for that year, of Dr. W. M. Willoughby, medical officer of health, as 9,830; the death rate is only 10.9 per 1,000, as compared with 12.2 for 118 great towns of England and Wales, and 12.2 for the metropolis as a whole. The City therefore can be regarded as one of the healthiest residential parts of London, and shows relatively low figures for the incidence and mortality rates of zymotic diseases and phthisis. Considerable use is made of the facilities provided by St. Bartholomew's Hospital. The City Maternity and Child Welfare Centre is accommodated there, and was reorganized at the beginning of last year, innovations then introduced including the appointment of a medical officer to attend the sessions, and of a trained health worker to visit the infants in their homes and to carry out the non-medical duties at the weekly sessions. Of the 219 infants under the age of 2 years in the City, 164 attended the centre during 1933, the total attendances numbering 1,800. This represents a high percentage of the infant population, and is attributed to the home visiting. One of the most satisfactory features of the centre is its close association with the children's department of the hospital. Although the centre is conducted as an entirely separate enterprise for the management of healthy infants, it is possible for the mothers to get advice at the hospital if their children should become ill between the sessions, and the transference of a sick child to the children's department is a very simple matter. As regards maternal mortality, only sixteen maternal deaths occurred among City residents from 1900 to 1933 inclusive. Co-operation between the Blind Persons Act Committee and the Infant Welfare Act Committee has now been established in the City. Since the close liaison with St. Bartholomew's Hospital also covers the treatment of venereal diseases, effective work can be done, and the services of an ophthalmologist have been obtained through the hospital. The Metropolitan Society for the Blind, which is the agent for the City Corporation, reports that the City blind number only fifteen, all of whom are over the age of 30. During past years certain difficulties have arisen with regard to persons diagnosed as tuberculous and resident at the places where they were employed. There is normally a period of two to three weeks before these patients can be admitted to an institution controlled by the London County Council,

and in such cases more prompt removal is essential. Arrangements have been made, therefore, with the Brompton Hospital for Consumption, whereby these patients can be removed to that institution as in-patients within forty-eight hours, under a certificate supplied by the medical officer of health. No special points have been noted as regards the incidence of tuberculosis, and the records do not show that the pulmonary form is specially prevalent among any class of workers in the City.

Housing in Cardiff

Cardiff has relatively few houses which are old, worn out, or for other reasons unfitted for human habitation. But it has its own "slum problem," inasmuch as overcrowding continues from year to year in consequence of the evil practice of multiple tenancy, and this in spite of the fact that 9,215 houses have been built since the war by the City Council and by private enterprise. As elsewhere, difficulty has been experienced in providing houses in sufficient numbers and suitably placed from the point of view of access to the main centres of employment. Prospective tenants are unwilling to move far away from the centre of the city for fear of incurring added expense in travelling to and from their work. This overcrowding is reflected in the annual report of the medical officer of health, where it is shown that only 122 out of 279 new cases of pulmonary tuberculosis had sleeping rooms to themselves, and that the number of contacts exposed to infection in the same bedrooms as tuberculous patients was 243. A further survey of the city was carried out during 1933 for the purpose of ascertaining the number of houses that were unfit for human habitation and incapable of being rendered fit at a reasonable cost. A total of 207 houses in such a condition were scheduled for demolition. The policy of the city council has been to group as many as possible of these houses into areas, so that they could be dealt with in accordance with the provisions of Part I of the Housing Act of 1930. Representations have been made regarding seventeen clearance areas, including a total of 151 houses and seven other buildings. The houses in these areas contain 165 families with a total of 634 persons. Outside the scheduled areas there are fifty-six houses which are unfit for human habitation, containing fifty-nine families consisting of 192 persons. It will be seen, therefore, that the total numbers of families and persons to be displaced are 224 and 826 respectively. The control exercised by the public health department on the corporation housing estates has led to a progressive reduction in the proportion of vacant houses found to be verminous, the percentage having fallen from 30.5 in 1930 to 20.5 in 1933. Dr. Greenwood Wilson became medical officer of health on December 1st, 1933, in place of Professor R. M. F. Picken, who resigned at the end of September to occupy the Mansel Talbot chair of preventive medicine, having then completed twelve years of service as Cardiff's third medical officer of health since 1854.

Tuberculosis in Lancashire

An index has been provided in the comprehensive report for the year 1933 of the central tuberculosis officer of the Lancashire County Council; it reveals the extent of the work most vividly. For instance, under "Treatment" are listed references to artificial light, artificial pneumothorax, crissoline, home, hydriocarpates, inhalation therapy, institutional (pulmonary and non-pulmonary), phrenicectomy, sanocrysin, and thoracoplasty, while there are seven different references under the heading "Deaths from Tuberculosis." Another feature is the arrangement of much of the report in the form of short articles on the various subjects. Dr. Lissant Cox reprints his article on the place and uses of the tuberculosis dispensary, which

was the opening paper in the discussion on this subject at the annual conference of the National Society for the Prevention of Tuberculosis in London last June. This is followed by a chapter on the question whether recovered tuberculous cases relapse, in which it is shown that 96.6 per cent. of the patients written off as cured did not return to the dispensary, while the percentage not returning of those who at some time had had a positive sputum was 96.8. Dr. Lissant Cox then deals with the question whether children rejected as non-tuberculous develop tuberculosis in adolescence, and concludes that the conservative standard of diagnosis of pulmonary tuberculosis in children adopted in Lancashire appears to be justified by the results, while the consequent saving in sanatorium beds is a public benefit. Of 3,556 young adults who came on the dispensary registers as definite cases of tuberculosis in the period 1927-33, and who could therefore have been seen as children in or after 1913, only thirty had been rejected in childhood as not suffering from the pulmonary form of the disease. Even in these thirty some allowance must be made for the contraction of infection from existing cases in adolescence. Moreover, an examination of the 686 deaths from tuberculosis in the seven years 1927-33 of persons not notified as tuberculous during life does not reveal the name of a single person who had been rejected at the dispensaries as non-tuberculous in childhood. A chapter on actinotherapy at the Eccles dispensary contains the information that 82 per cent. of the 152 patients who were discharged from the light clinic during the period 1927-30 as quiescent and apparently well, and no less than 96 per cent. of the adenitis cases, were still quiescent after three to six years. A survey of sixty-four cases of artificial pneumothorax matched with controls in a pulmonary hospital indicates the superiority of this form of treatment, especially when the extent of lung involvement is small. The youth or otherwise of the patients is less important, and even when the treatment was unsuccessful the survival rate was unimpaired. The tabulated after-histories of the adult pulmonary patients who came on the dispensary registers during the years 1920, 1925, and 1930 indicate but little improvement in 1925 over 1920—five years in which very little collapse therapy was attempted—while there is a slight but definite gain in 1930. Another table of the after-histories of patients suffering from non-pulmonary tuberculosis reveals slightly better results in 1930 as compared with the previous year. Between 70 and 74 per cent. of adults and 81 and 86 per cent. of the children recovered from their disease, or reached a stage where it was arrested or quiescent. In addition to carefully argued statements of this kind there is the usual mass of details, both clinical and administrative, which render this report even more instructive than its predecessors.

Scotland

Treatment of Mental Disease

In an address to the Edinburgh Women Citizens' Association, on "Mental Hospitals and Institutions," Dr. Hamilton Marr, Commissioner to the General Board of Control for Scotland, said that the limited teaching on the subject of mental disease in the medical schools acted unfairly towards the general practitioner, on whom the community was dependent for the thoroughness of its medical care. At the present time a knowledge of mental problems was restricted to the medical men who came into actual contact with the insane in asylums or mental hospitals. The number of teachers of psychiatry in this country could be counted on the fingers, but the day was approaching when a special diploma would be necessary

for the practice of psychiatry, just as it now was for the practice of public health. It was now recognized that mental disorder should not be neglected until the affected person became certifiable, but treated in early stages and under hospital conditions. There should be certification only in the case of those patients who were dangerous to themselves or to others, and who refused to avail themselves of care and treatment and required to be detained under legal warrant. He suggested that Scotland should be divided into four districts, each grouped round a university centre and provided with a central psychiatric hospital and outdoor department. Such hospitals would be conducted on the same lines as the large general hospitals, and attached to each there should be throughout the district subsidiary clinics and outdoor departments. The central hospitals, managed by special district committees, would be available for every person who required advice and help. They would be equipped with all known aids to diagnosis, care, and treatment, and for research into the many unsolved problems of the cause and treatment of mental disorder. This scheme, if attained, would make for efficiency and economy, and there would be no necessity to add to the present mental hospitals or to erect new asylums. Dr. Marr believed that an appeal to the public for contributions to such psychiatric hospitals would, even in these times of financial stringency, receive an unexpected response, and the scheme could be inaugurated if local authorities were required to give the equivalent of the old lunacy grant, which was at present included in the Government block grants. It would undoubtedly lead to a reduction in the incidence of mental disorder throughout Scotland, and the accumulation of chronic mental cases would be notably diminished.

Ireland

Vital Statistics for Northern Ireland

The annual report of the Registrar-General for Northern Ireland for the year 1933 has now been published,¹ and in addition to the usual information concerning marriages, births, and deaths it contains a résumé of the administration of the Registration Acts. It appears that the state of registration in Northern Ireland leaves much to be desired; during the present century alone some thousands of births and deaths have escaped notification. The appropriate Acts have been in force for seventy years, and it seems very remarkable that there should still be such a measure of non-compliance with their provisions. There were 24,601 births registered during the year, representing a birth rate of 19.4 per 1,000 of the estimated population. This rate is the lowest recorded for Northern Ireland, but, notwithstanding the continued fall, it is the highest recorded in the British Isles for the year. The number of deaths registered was 18,154, giving a rate of 14.3 per 1,000. This shows a slight increase when compared with the rate for 1932, the increase being largely due to the epidemic of influenza which occurred in the early part of the year. The death rate of 1.15 per 1,000 from all forms of tuberculosis represents the first check since 1925 to the downward movement in the tuberculosis death rate, which had been falling since 1922. The increase, possibly arising out of the influenza epidemic, was peculiar to Northern Ireland, the rates in the other parts of the British Isles continuing to decline. The proportion of deaths from tuberculosis during the year at ages under 35 shows a reduction as compared with the figures of recent years, the proportion occurring at ages of 35 and over showing a corresponding increase. The death rate

from cancer, which was lower in 1932 than in 1931, was still lower in 1933. There was an improvement in the infant mortality rate, notwithstanding the warm, dry summer, when diarrhoeal diseases among children may be expected to be prevalent. The rate of 80 per 1,000 births registered, however, compares unfavourably with the infant mortality rates for England and Wales and the Irish Free State, which were 64 and 65 respectively. The maternal mortality rate for the year was 6.63 per 1,000 births, this being the highest figure recorded in the history of Northern Ireland.

Health of County Dublin

Dr. J. Harbison, in his monthly report to the County Dublin Board of Health, stated that the twenty-two cases of enteric fever in Swords Dispensary District occurred in Portrane Mental Hospital, where the outbreak was confined to one wing, in which a typhoid carrier was discovered. No case had been reported since October 2nd, and, presumably, the outbreak had subsided. Seven of the eight cases of diphtheria in Castletknock area occurred in an institution, where a diphtheria carrier was discovered; on removal of the carrier the outbreak subsided. The school medical inspection showed a marked increase in the number of children suffering from diseased tonsils and adenoids. Despite the full operation of the school meals scheme, the malnutrition figure was comparatively high.

Reports of Societies

PERSONAL FACTORS INFLUENCING ANAESTHESIA

In the Section of Anaesthetics of the Royal Society of Medicine on November 2nd Dr. H. P. CRAMPTON delivered his address from the chair, taking as his subject, "Factors, other than Anaesthetics, influencing Anaesthesia."

Dr. Crampton began by remarking that the modern anaesthetist had more drugs at his command than ever before, yet there remained certain factors influencing anaesthesia, apart from the drugs, the route, or the apparatus employed. He discussed them in three groups: the patient, the anaesthetist, and the surgeon and his operation. In the patient the mentality was more important than the physique. Large physique as such was not a drawback; some of his most satisfactory patients were guardsmen of large physique, but also of magnificent discipline, while the slender patient, if he or she had poor moral control, might be difficult. The way in which mentality affected anaesthesia was shown by "frightened" respiratory, cardiac, and spasmodic effects persisting after unconsciousness. Few people were in a state of real panic at the zero hour, but if real panic did persist it added a definite risk to any mode of induction. Most patients were mildly apprehensive. Those who boldly admitted their fears were, as a rule, quicker in reaching a smooth anaesthesia than those who suppressed it. Among the worst types were the man who had been long accustomed to a position of authority, the pampered woman, and the spoilt child. Among alcoholics, who required large doses and recovered consciousness very quickly, he distinguished two types: the cheery soul who drank to excess in company came up smiling for his anaesthesia, and though he might be noisy during induction, once "under" he slept like a babe; on the other hand, the alcoholic who drank because he lacked moral courage to resist exhibited the usual nervous signs extending far into anaesthesia. Tobacco fiends often had an irritable cough reflex, necessitating an unusual depth of anaesthesia. Drug addicts, he believed, were very refractory. Anaemia, fever, exhaustion, and shock promoted an easy anaesthesia, but the margin of safety was

¹ H.M. Statutory Officer, 80, Chichester Street, Belfast. (2s. 6d.)

smaller. Fat had been described as the surgeon's worst enemy, and it could hardly be called a friend of the anaesthetist. Pathological conditions liable to cause sudden death were always possible factors prejudicing anaesthesia.

The anaesthetist himself could bring to bear on anaesthesia stage management, judgement, and personality. As for the first of these, rest before anaesthesia was frequently not long enough, but the patient should also be given some mild mental occupation, such as an easy crossword puzzle. A man should not be "knocked off" his usual tobacco and alcohol the night before anaesthesia; this would only make him miserable and irritable. Stomach tubes, enemas, purgatives, and starvation might sometimes be necessary, but were very likely to exhaust and distress the patient. Silence or taciturnity was not a virtue in the anaesthetist. It did not matter much what he said to the patient, but he should say something, partly to create an idea and partly because most people derived comfort from a friendly voice on such occasions. Hearing returned early, and an assurance that all was well, spoken directly into the patient's ear, penetrated his understanding even though he was still apparently unconscious; if this was so, it was likely to help the onset of natural sleep. For comfort the patient should be allowed to have as many pillows as he liked, and to assume any position within reason; he could be placed in the required position when unconscious. It was preferable to let the patient hold the nurse's hand rather than the reverse, as the holding of the patient's hand by another was liable to be interpreted as a feeling of restraint. Judgement in the choice of dosage of anaesthetics would obviously affect anaesthesia, but that was outside his scope in this address. The anaesthetist's personality, a vague but important factor, might affect the patient profoundly. The "anaesthetic personality" might take a long time to develop. The secret was probably the gift of seeing things from the patient's point of view. The patient should not be approached with set phrases; rather should the art of making an appropriate remark at the proper moment be cultivated. If the anaesthetist did succeed in impressing his personality, a nurse by her encouraging or deprecatory allusions might do much to augment or wipe out entirely his good efforts.

The surgeon exerted a powerful influence on the anaesthesia. On occasion surgeons had been known to hurry induction, or even bluff the anaesthetist into allowing the operation to start before the patient was ready, a procedure which it might be difficult for a junior anaesthetist to oppose. Fortunately, however, most surgeons realized the importance of waiting for the anaesthetic balance. As for the operation itself, pulling, tearing, and stretching affected anaesthesia more than cutting with a sharp knife. They all knew that upper abdominal reflexes were more powerful than pelvic; that a total gastrectomy would disturb more than removal of a lipoma; that operations involving much haemorrhage would call for a marked reduction in dosage, an easy matter with inhalation methods, but not so simple with intravenous or rectal therapy. Menstruation was of importance in this connexion. In most cases it was a question of whether the patient minded putting up with more trouble at that time, but in major breast operations it might be a very real added risk to anaesthesia. It was easy enough to pick up cut vessels, but quite another thing to control oozing, and the latter might be severe at such periods. The position of the patient might introduce undesirable complications, varying from difficulty in maintaining a patent airway to a fatality, as in faulty position for spinal anaesthesia. On the other hand, position might facilitate anaesthesia by making operative measures easier. In empyema and such operations an intelligent and willing dresser was preferable to any mechanical arm rest, offering as he did much greater relief to the unaffected side of the chest from the considerable weight of the upper arm. The Trendelenburg position mostly made for safety and ease of anaesthesia, but might cause considerable respiratory embarrassment in obese subjects under full narcosis. The rolling of the

patient from side to side after deep anaesthesia or severe operation, to apply a many-tail bandage or remove the ambulance canvas from the bed, might cause profound depression. It was easy to lift the patient, like a horizontal poker, dry him, put on the binder, and remove the canvas, but it took three people to do it. The time factor in anaesthesia was also important. It was mostly held that about 9 a.m. was better for the patient than the small hours of the morning. The optimum time for anaesthesia in cases of severe trauma required insight and judgement if the best results were to be obtained. The length of time spent on any operation and its effect on anaesthesia was a very variable factor. In the case of a healthy patient subjected to, say, a varicose vein operation, it mattered little whether anaesthesia lasted for half an hour or, as in one case, three and three-quarter hours. But time in many cases might be very important. With wartime multiple gun-shot wounds the consensus of opinion favoured two, three, or even four surgeons working on the same patient at the same time. Another very difficult time problem was presented when the patient steadily got worse under anaesthesia. A pause for recovery during operations involving very severe hurt might be the means of making a successful termination possible. Here Dr. Crampton gave an analogy from the boxing ring, where the pugilist, severely punished in one round, might, after the brief pause, come up with astonishing vigour in the next round. Finally, Dr. Crampton mentioned the value of punctuality. Delay might have a very adverse effect on anaesthesia. A patient, keyed up to the ordeal, might be expecting the operation at 2 o'clock, and some form of premedication, perhaps, had already been administered, when the nurse broke the news that the surgeon had been delayed and could not operate until 5 o'clock. The food for the patient had been timed in view of the earlier hour, and it was now too late to give more. The premedication effect would wear off, and the victim would have to screw up courage all over again. Such eventualities militated against that ease of body and mind which made for a smooth anaesthesia.

SILICOSIS

At a pathological meeting of the Liverpool Medical Institution held on October 25th, with the president, Dr. J. MURRAY BLYTH, in the chair, Dr. W. E. COOKE read a paper on modern views on silicosis.

Dr. Cooke dealt with the necessity of reconsidering the terminology in the many conditions at present included under the title of "silicosis." The causative factors were considered in the light of the recent work of W. R. Jones and W. Tideswell. The effect of size of the grain on the solubility of SiO_2 , the size of lung alveoli, the presence of large particles of insoluble minerals such as asbestos fibres and fusain spicules in asbestosis and coal-miners' lung, and the production of the curious bodies in these diseases and in normal lungs were considered. Photomicrographs of potash feldspar undergoing metamorphosis into secondary white mica and sericite and coal-measure shale and mine dust demonstrating the presence of sericite and quartz grains were shown. Badham and Taylor's views on sillimanite in the production of silicosis in New South Wales, and their chemical analyses of the lungs of various workers, were considered and compared with the lung analyses of other observers. Examination of the lung sections by polarized light and the results of the repetition of Watkins-Pitchford and Moir's work in this connexion were given. The conclusions arrived at were that the balance of probability, on the insufficient data of to-day, pointed to the various forms of pneumoconiosis being due to chemical rather than mechanical action, and until the silicates (sericite, sillimanite, and asbestos) and the various forms of silica (quartz, chert, flint, etc.) were isolated in a pure state and investigated in regard to their solubilities in plasma and the tissue reactions to their presence, no progress in the aetiology of the disease was possible.

In the discussion which followed, Professor J. HENRY DINTZ said that he appreciated the scientific quality of Dr. Cooke's communication and the importance of his mineralogical observations. He himself had been im-

pressed by the case made out by W. R. Jones for sericite in the examples of silicosis with which the latter had worked. It was difficult to clear the mind of a doctrine which hitherto had been acceptable and to approach the problem entirely on its merits; and Jones's work was therefore subjected to a good deal of prejudice. If the sericite theory were weighed against the silica theory it had to be admitted that sericite was present in the lungs in question, and in large amounts. The speaker was not competent to question the identification of the mineral, and had to accept the statement of the mineralogist on this point. It was stated that sericite was less stable than quartz, and it seemed perfectly reasonable to accept the view that it could cause the fibrosis. At the same time it was apparent that in other situations silicosis (without quibbling over nomenclature) arose without the presence of sericite; an example was to be seen in the recently published cases of siderosilicosis of Professor M. J. Stewart, in which sericite could not be demonstrated. The theory put forward by Jones was well sustained by his observations on the distribution of silicosis in relation to distribution of sericite; this part of his work was unquestionably impressive, although the speaker would emphasize the pitfalls encountered in accepting loose clinical statements as to the presence or absence of silicosis in any given industry or mine which were not substantiated by pathological findings. Experience in the South Wales coalfield had emphasized this.

Dr. C. O. STALLYBRASS referred to the radical alteration in views with regard to silicosis which have taken place in the past ten years, largely as the result of Dr. Cooke's work on asbestosis. Dr. Cooke was not only a skilled pathologist but also had exceptional knowledge of microscopy and mineralogy, which enabled him to deal with this borderline of science.

ACUTE CHOLECYSTITIS

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, on October 26th, Mr. SETON PRINGLE took as the subject of his presidential address "Acute Cholecystitis."

Mr. Pringle called attention to the fact that the clinical picture of acute cholecystitis was generally unmistakable, and discussed the differential diagnosis from acute perforation of the duodenum with extensive extravasation, acute perforation of the duodenum with slight extravasation, acute pancreatitis, and acute inflammation of a high-lying appendix. In discussing the pathology he called particular attention to the facts that the cystic duct was commonly obstructed by a stone, that the wall of the gall-bladder was usually greatly thickened and fibrosed, and that, although perforation of the gall-bladder occurred in some 15 per cent. of cases, in only about 1 per cent. did free peritonitis result, as in all other cases sufficient time had elapsed for the gall-bladder to become so surrounded by adhesions that a pericholecystic abscess only resulted. Mr. Pringle laid particular stress on the rarity of free peritonitis occurring in gall-bladder cases as compared with acute appendicitis. He dealt at some length with the question as to the best time for operation, and pointed out that the literature showed an increasing number of surgeons who advocated immediate or early operation. In conclusion, he stated his own views, which were that immediate operation was only justified in very acute cases, showing marked toxæmia, very severe pain, persistent vomiting, and rigidity. He was satisfied that the great majority of cases would settle down and allow a safer and more complete operation to be carried out in eight to ten days. He did not approve of further postponement, because many perforations of the gall bladder, with the development of pericholecystic abscesses, took place without definite clinical manifestations. As regards the actual operation, he considered cholecystectomy the operation of choice, and said that cholecystostomy should be reserved for those very toxic or jaundiced patients in whom only a minimum of interference was permissible, and where the gall-bladder was particularly inaccessible.

Mr. R. ATKINSON STONEY said that it was occasionally difficult to make a diagnosis between acute cholecystitis and acute appendicitis, and mentioned in this connexion a case where a very large gall-bladder attached to a prolapsed Riedel's lobe had caused a tender mass in the right iliac fossa. Sometimes there might be a combination of conditions present, as evidenced by a case which developed a pancreatic pseudocyst after drainage of an inflamed gall-bladder; acute pancreatitis and acute cholecystitis sometimes occurred together. The question of the time when to operate was of great importance; it was, he thought, safe in each particular case to wait and see what was going to happen, and during the waiting period it was usually possible to improve the patient's condition by giving saline.

Mr. T. J. D. LANE thought that the anaesthetic was of the utmost importance in cases of acute cholecystitis. He did not see any point in postponing operation for a few days, and thought that at the end of two or three days the patients were in a much worse condition than they were twenty-four hours after the attack. He also asked why Mr. Pringle removed the gall-bladder from the fundus downwards. Mr. H. STOKES thought he would not operate after a first attack of acute cholecystitis. He would like to know how much a gall-bladder could recover. An appendix could recover after an acute attack in a fortnight to what was macroscopically a normal state, and he thought that if a gall-stone were passed the gall-bladder would also return to normal. The diagnosis was sometimes extremely difficult, and he had recently found a perforated gall-bladder in a patient who had been treated medically for duodenal ulcer.

Dr. R. W. SHAW said that in many cases the use of an intratracheal tube made the operation much easier. He thought that high spinal anaesthesia in combination with nembutal orally was very satisfactory for any high abdominal operation. Mr. H. MEADE mentioned a case in which he had found the gall-bladder on the left side of the pelvis, and the seat of an early carcinoma. He felt that in acute cases operation should not be delayed. One sometimes came across patients with chronic heart disease, and in these cases it was better to give digitalis to the patient before operating. Mr. A. B. CLERY said that in acute cases if he had to operate, he merely drained the gall-bladder, usually with a local anaesthetic, but he only operated on an acute case when it was absolutely necessary to do so. He thought that perforation was more likely to occur in elderly patients. The reason in most cases for operating early was because there was a doubt about the diagnosis.

Mr. PRINGLE, in reply, said it was very difficult to get the best anaesthetic. Usually the old gas, oxygen, and ether sequence satisfied him. He had no doubt that cholecystectomy and not cholecystostomy was the operation of choice. He always attacked the fundus first, and found this very satisfactory, but in a chronic case it was easier to remove the gall-bladder from below upwards. He did not interfere with, or look at, the common duct unless, before operation, there was something definitely pointing to the fact that it contained a stone. He thought it was very rare to get acute suppurative cholecystitis and a stone in the common duct. The whole crux of the question was the time at which to operate. He only operated as an emergency when there were general symptoms and considerable toxæmia.

The ninth congress of the Far Eastern Association of Tropical Medicine was held in Nanking from October 2nd to 8th, and was attended by a large number of representatives and delegates from the countries of the Pacific, from India, and from the United States. There were ten scientific sections, of which six were devoted to plague and cholera, malaria, leprosy, parasitology, bacteriology, and public health and quarantine, and two round-table discussions on plague and cholera respectively. Three interesting tours were promised in addition to numerous social functions. The acting president of the congress was Dr. J. Heng Liu, the other members of the Executive Committee being Drs. F. C. Yen and H. P. Chu (Shanghai) and Dr. P. Z. King (Nanking).

CORRESPONDENCE

Election to General Medical Council

Representation of Scotland

SIR,—We, the undersigned, having nominated our present representative, wish to appeal on his behalf to all members of the profession resident in Scotland. Sir Norman Walker holds at present the high position of president of the Council, an honour never before attained by a direct representative. Sir Norman, from his early experience in general practice, knows well its difficulties, even its hardships. Since leaving it for the specialty of dermatology he has been unremitting in the work he has done in medical administration, and during the war, as chairman of the Emergency Committee and as Commissioner for Medical Services for Scotland with the Ministry of National Service, did most important work for the community. After the war he was selected by the General Medical Council and sent to India to report upon the conditions of medical education; a piece of work for which he received the honour of knighthood in 1923; and when, five years later, it proved necessary to review the work then inaugurated Sir Norman again undertook the investigation. For thirteen years he was chairman of the Examination Committee, as also of the Business Committee, and the impress of his work was such that on the retirement of the late Sir Donald MacAlister he was elected to succeed him. It is not for us to say to the Council who should be their president, but we in Scotland should see to it that Sir Norman is there at their service.

We therefore, Sir, through your courtesy, would ask our fellow countrymen to support Sir Norman's candidature.—We are, etc.,

ANDREW ALLISON, M.B., Ch.B., B.Sc.,
D.P.H., F.R.F.P.S.G.

W. HERBERT BROWN, M.D.

R. C. BUIST, M.D., LL.D.Ed.

A. K. CHALMERS, M.D., LL.D.

D. ELLIOT DICKSON, M.D., F.R.C.S.Ed.

C. E. DOUGLAS, M.D., LL.D.Ed.,
F.R.C.S.Ed.

D. LAING, M.D.Ed.

JOHN S. MUIR, M.B., C.M., L.R.C.S.,
M.R.C.P.(Hon.)

ASTLEY W. MACKINTOSH, K.C.V.O., M.D.,
F.R.C.P.Ed., LL.D.

J. HUNTER P. PATON, M.D.

JAMES B. SIMPSON, M.D., F.R.C.P.Ed.

MURRAY B. STEUART, M.B., C.M.

W. E. TERRET, M.D.Ed.

ROBERT THIN, M.B., F.R.C.P.Ed., LL.D.

GEORGE WILLIAMSON, M.B., C.M.Aberd.,
F.R.C.P.Ed.

October, 1934.

* As we go to press we learn that Sir Norman Walker has been returned unopposed as direct representative for Scotland on the General Medical Council.

Representation of England

SIR,—May I, through your columns, return thanks to my colleagues on the *Medical Register* for re-electing me to be one of their direct representatives for England and Wales upon the General Medical Council. I shall hope to be of service.—I am, etc.,

London, W.1, Nov. 2nd.

N. BISHOP HARMAN.

Medical Benevolence

SIR,—Dr. A. J. Hawes's letter, in your issue of October 20th (p. 745), mentions what has always been the wish of my committee—namely, that a suitable representative of the Fund should be appointed in every district.

It is acknowledged that whatever success we may have achieved in recent years from a larger subscription list

(in 1923, £4,758; in 1933, £11,856—an increase of approximately £7,000) has been due mostly to the energies of the honorary local secretaries, who have volunteered for the work. We have now 121 honorary local secretaries in England, Scotland, and Wales. Personally, I do not believe that there is any apathy in the profession as regards willingness to help our less fortunate brethren, but unless we can secure the help of volunteers, who will win over the obdurate and recalcitrant non-subscribers, we have no alternative but to issue printed appeals from the London office in order to make our work known.

On behalf of the committee, I issue this invitation through your columns to any of your readers who are willing to help us by taking an active part as honorary local secretary for the district in which they practise. The work required is not overwhelming. Such clerical work as the writing of letters in duplicate and the posting of appeals is undertaken by the clerical staff in London. The actual duty of the local secretary is to ensure, by a personal touch, that none of his colleagues in his district may be able to say that he is in ignorance of the existence of the Royal Medical Benevolent Fund, or that he has never been invited to subscribe to it. I hope that this formal invitation will lead to many helpers coming forward, so that we may have double the number of local secretaries at the end of this year to enable fresh efforts to be made in 1935.—I am, etc.,

D'ARCY POWER,

London, W.1, Nov. 6th.

Chairman of Committee, Royal
Medical Benevolent Fund.

SIR,—I feel I must enter a gentle protest against the last paragraph of Dr. Harnett's letter (*Journal*, November 3rd, p. 837). After telling us of the fine way in which his Division has responded to his energetic efforts, he says that the Association is so busy with schemes for socializing the profession that it has little time to devote to the needs of medical charities, and goes on to say it should "urge a little more vigorously upon the Divisions the necessity of having an active charities secretary."

Within my own personal knowledge during the last ten years the Charities Committee has persistently impressed upon the Divisions the necessity of having a charities secretary. We tried all sorts of appeals, and undoubtedly the Association has made considerable progress since the time when it first took the medical charities up seriously. In various communications to the Divisions I made my own opinion perfectly clear (and I know my successor has done the same)—namely, that no Division can call itself properly organized and claim to be doing its duty to the profession and to the Association unless it has an active charities secretary. Wherever there has been such a secretary good results have followed.

As a member now of the Case Committee of the Royal Medical Benevolent Fund I spend a painfully interesting afternoon every month in going with my colleagues through the applications for assistance. We do our best, but we often feel that our best is only able to keep the recipient just above the starvation line. I wish every member of our profession could spend an afternoon with us; they would go away sadder persons, but determined to be subscribers and to enlist others. Like your correspondent from Scotland, I am convinced that the profession is quite able to provide for its own poor, and that in the Royal Medical Benevolent Fund it has excellent machinery for that purpose. From long experience I know that no words of mine are likely materially to alter the curious apathy of a large number of doctors. The situation is discreditable to us as a profession, and it has always been a mystery to me, because I know that the average doctor is a warm-hearted person, peculiarly

open to the appeal to his heart and to his pocket when the individual case comes to his notice. The difficulty is to arouse his imagination, and make him see that pathetic body of people, very like himself and his own wife and children, who have no other source of help than the charity of their professional brethren.

In the future I believe that the efforts which the B.M.A. is making to induce the general practitioner to insure himself against the contingencies of life will greatly lessen the claims on the benevolence of the profession, but in the meantime the need is there, and it is very great.—I am, etc.,

London, W.1, Nov. 2nd.

ALFRED COX.

After-treatment of Empyema

SIR,—I imagine that most surgeons who take an interest in the after-treatment of the empyemata that they may operate upon must agree with Mr. Denis Browne in his contribution to the *Journal* of November 3rd. To state an empirical date for the removal of empyema tubes is quite as irrational as to assert that a tuberculous hip should be immobilized for six or twelve months or three years. I think that very many records and statistics relating to the treatment of empyemata are untrustworthy, because so often the healing of the sinus in the chest wall is taken as the criterion of cure.

A few weeks ago I saw a woman who had a "successful" operation for an empyema twenty years before. The wound healed, and she was well for thirteen years, when she "felt her chest filling up again." The cavity was again drained and the sinus allowed to close, and since then the operation has been repeated twice at intervals. When I saw her there was no drainage; she simply complained that she could feel the fluid accumulating. At operation 1½ pints of thick pus were liberated. The walls of the cavity were found to be very tough and fibrous, obviously the original one which had never been obliterated. The discharge rapidly abated, and I am sure that if I were to remove the tube now the wound would heal again as on the previous occasions. There is also no doubt that the surgeons who performed the previous operations were satisfied that she was cured.

I am convinced that the only reliable indication that an empyema is healed is to be found in the x-ray examination after the injection of an opaque substance into the sinus, and not until this shows complete obliteration of the cavity deep to the ribs should drainage be removed. Filling up the cavity with Dakin's solution and measuring the amount contained is useful and inexpensive, always provided there is no broncho-pleural fistula, but this only gives an idea of the size and not of the shape and boundaries of the cavity. Sometimes it is very important to be aware of the way in which an empyema is closing in, as, for example, in the multilocular variety or in those large empyemata where the apex is involved and where there is a tendency for this region to become shut off from the site of drainage and to be left as a residual cavity. The value of repeated x rays with an opaque substance cannot be exaggerated.

To minimize expense I use the irrigation method in the early stages when the cavity is large, and then resort to x rays when the irrigation chart shows that the capacity is suitably diminished. For this purpose I have used 20 per cent. sodium bromide solution without any ill effects, but I have discontinued this because the shadow cast in the lateral view is not definite enough. I now use iodolol, and find it just as efficient as lipiodol and less expensive. I think globules are only formed if a small quantity is used in a large cavity. I shall welcome Mr. Denis Browne's cheap emulsion.—I am, etc.,

November 2nd.

P. R. ALLISON, F.R.C.S.,
Surgical Tutor and Registrar, The
General Infirmary at Leeds.

X-Ray Examination of Empyema Cavities

SIR,—One is indebted to Mr. Denis Browne for his article on this subject (*Journal*, November 3rd, p. 807), but I would like to emphasize certain points which I have found of special importance while working on the surgical side of the Brompton Hospital. One obtains here considerable experience of chronic empyemas—that is, empyemas which have not healed after the ordinary period of weeks or months, but have persisted for months or years. In the past year I have seen fifty-eight patients of this sort treated, and this excludes tuberculous pyopneumothoraces.

The most striking thing is that easily the largest number have been brought about because the original drainage tube was taken out at the wrong time—usually too soon. It is a patent fact that the teaching at universities to students of when to remove the tube in an acute empyema is sadly lacking. Here it has been known for many years that drainage should cease when the empyema cavity is obliterated. As in all septic cavities, this only occurs by the fibrosis and healing together of the cavity walls. A dogmatic time, or the nature of the discharge, are quite useless as criteria, and the fact that there is no cavity at the end of the short track can be the only indication. In the early stages, of course, where the cavity is still large, the amount of fluid it will hold is easily determined, and indicates its size, but later, when there is perhaps a small cavity with a long sinus, we have found x rays after the injection of lipiodol perfectly satisfactory to delineate the outline, and have used it as a routine for many years. Where a large quantity is necessary a barium emulsion can be used with perfect safety, and is, of course, cheap.

I would like to draw attention to three details of technique. (1) The opaque fluid should be run in with the sinus opening at the highest point. (2) After plugging the opening tightly a metal ring, as a marker, is placed over it. (3) Lateral as well as antero-posterior x-ray views are essential, and erect as well as recumbent views may be necessary if the cavity is large.

It can only be when the essential rules for removing tubes in empyemas are fully understood that numberless patients can avoid the long ill-health and frequent operations that become necessary when an empyema becomes chronic.—I am, etc.,

A. BRIAN TAYLOR.

Brompton Hospital, S.W.3, Nov. 5th.

Treatment of Haemoptysis

SIR,—The use of Congo red in the treatment of haemoptysis and other forms of haemorrhage, as described by Drs. Morlock and Scott Pinchin (*Journal*, October 27th, p. 762) is of very considerable interest and worthy of a more widespread application.

Congo red has been extensively employed by Bennhold, Bookman and Rosenthal, Strasser, and others in the diagnosis of amyloid disease.

Some years ago I made an investigation into this test (*Lancet*, February 20th, 1932, p. 391) which necessitated intravenous injections of the dye into forty-five patients, mostly children. A 1 per cent. solution was used and the dosage calculated on the basis of 0.25 c.cm. per kilo body weight—that is, from 6 to 12 c.cm. in children and 16 c.cm. for a 10 st. adult. No after-effects of any kind were noted and rigors were entirely absent. This, I think, was probably due to the observance of two points which are stressed by the Continental workers: (1) the use of Grubler's Congo red, which is free from such commercial impurities as lead and arsenic; and (2) the fact that all solutions were used within twelve hours of being made. Strasser observed that solutions more than

twelve hours old tended to produce shivering attacks and pyrexia. There was a notable reduction in the clotting time of the blood after injection of the dye. In fact, this was sufficiently marked at times to create some difficulty in the technique of the amyloid test.

More recently I have injected from 12 to 16 c.cm. of Congo red into a smaller number of adult cases of amyloid disease, also without the slightest ill effect. The opportunity to use the dye in haemoptysis has occurred only once, but the response was entirely satisfactory.—I am, etc.,

Standish, Lancs, Oct. 36th.

J. EDGAR WALLACE.

SIR,—My more limited experience confirms the statement of Drs. H. V. Morlock and A. J. Scott Pinchin in their interesting article on haemoptysis regarding the value in treatment of 10 c.cm. of a 1 per cent. solution of Congo red given intravenously. This treatment is, as they point out, comparatively unknown in Great Britain. Some two and a half years ago the well-known phthisiologist Professor L. Brauer, medical director of the Eppendorf Hospital, Hamburg, told me that of all the drugs tried in his wards in cases of haemoptysis 1 per cent. Congo red solution given intravenously had been found the most effective. I have employed for convenience a proprietary preparation, haemostaticum, made by Nordmarkwerke A. G., Hamburg. I have always injected haemostaticum very slowly, and have never seen any rigor or untoward reaction. Drs. Morlock and Scott Pinchin rightly point out the necessity of not employing a solution of Congo red stronger than 1 per cent.

I hope their article will result in a more widespread use of what appears to be a definitely helpful medical treatment of haemoptysis.—I am, etc.,

Montana, Switzerland, Oct. 29th.

HILARY ROCHE.

SIR,—I am interested to note that Dr. H. V. Morlock and Dr. A. J. Scott Pinchin, in their article in the *Journal* of October 27th (p. 762), discuss the use of intravenous injections of Congo red in the treatment of haemoptysis. They state, however, that the injection of 10 c.cm. of a 1 per cent. solution of Congo red is often followed by a definite rigor. I have used as much as 10 to 18 c.cm. of a 1.5 per cent. solution of Congo red intravenously in over sixty cases for the estimation of blood volume, and have not observed rigors in any of these cases. The solution of Congo red used is made up with triple-distilled water and filtered through glass wool. I would suggest that the use of triple-distilled water in the preparation of the dye is an important factor in the prevention of rigors.—I am, etc.,

Liverpool, Oct. 31st.

JULIUS LIBMAN, M.D.

Blindness After N.A.B.

SIR,—Mr. F. Juler's account of a case of blindness after N.A.B. (*Journal*, November 3rd, p. 809) will be of particular interest to all those who are daily using anti-syphilitic drugs.

On admission his patient was found to have a positive Wassermann reaction and an aortic systolic murmur. In view of this and subsequent findings it seems reasonable to suppose that the syphilitic process was not confined to any one blood vessel, but that other arteries, including those of the optic nerves, were also involved. Optic atrophy following upon the injection of trypanamide is quoted, but this rarely if ever results when the eye is healthy.

It is generally recognized that arsenobenzol preparations, even in small doses, are dangerous in cardiovascular

syphilis, as further damage to the arterial walls may be brought about. Fortunately, the administration of full doses of N.A.B. in such cases must be almost as rare as the occurrence of blindness after their use.—I am, etc.,

November 3rd.

JOHN A. BURGESS,
V.D. Officer, City of Stoke-on-Trent.

Local Treatment of Coryza

SIR,—It is to be hoped that the *laissez-faire* attitude towards the common cold adopted by many individual sufferers, and advocated by Colonel W. C. Spackman in your issue of November 3rd (p. 835), will not become prevalent. Surely few will doubt that the results of a fatalistic inertia are seen in too many instances to be for the patient an unwelcome train of complications, and for his neighbours many contact infections. As well laud the virtue of a streaming cold in the head as a preventive of bronchitis as an active warfare on one frontier as a guarantee of peace on others!

Contrary to Colonel Spackman's view that "we are unable to cut it short by local means," further trial of the simple methods I advocated in the *Journal* in 1932 (March 5th, p. 449) has convinced me of their efficacy. A high percentage of colds can be stopped in an hour or two of the onset, or, in severer types, changed from a ten-day to a one- to three-day type, if the person affected, within an hour of the onset, will gargle with really hot water for a minute or two every fifteen to twenty minutes, and will immerse the hands and arms (and feet also, if chilled) till reddened in hot water. This alone will abort many colds. Adjuvants are hot drinks, a mild erythema dose of ultra-violet light, and "mistol," "orargol," or other antiseptic sprays, douches, or gargles.

A further valuable local remedy is the "anti-coryza spray," a local immunity vaccine (with antiviral) from the Pickett-Thomson Laboratory, and marketed by the Genatosan Company. I have seen a number of cases in which this has been of benefit, both as a preventive and as a curative agent. References to local immunity in the prevention and treatment of coryza and of suppurative rhinitis are given by Besredka in his *Antivirustherapie* (1930, p. 80).

For those distressing colds which commence with fever and depression and pain in the trachea, felt just above the manubrium, a new remedy available is the ultra-short-wave diathermy. In one patient whom I saw lately with this onset a probable bed illness of ten days or so (from previous experiences) appeared to have been converted into a trifling interruption of the usual health. One ten-minute treatment with a six-metre wave-length relieved the pain immediately and the fever subsided; a good night followed a second evening application; next day there were no signs of "cold." On the following day a slight relapse with malaise and tracheal pain was promptly relieved after a similar treatment. For this tracheal type, and probably for acute laryngitis, some cases will have speedy relief after short-wave diathermy.—I am, etc.,

London, W.1, Nov. 3rd.

J. H. DOUGLAS WEBSTER.

Bacteriological Examination of Milk

SIR,—The scheme of the Milk Marketing Board for the supply of milk to school children is now in operation. It has been decided that all milk supplied to schools shall be the jurisdiction of the London County Council shall be "pasteurized," and in accordance with the arrangements made between the medical officers of health of the metropolitan boroughs and the County Council, samples

are being taken for chemical analysis and bacteriological examination. It is suggested that the procedure to be adopted in the event of adverse reports being received upon these samples shall be to issue a warning in respect of a first unsatisfactory sample and to withdraw the approval of the source of supply should a second sample be reported not to conform to the prescribed standards.

The Milk (Special Designations) Order, 1923, lays down certain conditions under which graded milks may be sold, and these include a requirement that, on a sample being taken after pasteurization and before delivery to the consumer, the milk shall be found to contain not more than 100,000 bacteria per cubic centimetre. The Order provides, further, that a licensing authority, if it is satisfied that any of the conditions upon which a licence is granted are not being complied with, may suspend or revoke the licence.

It is my considered opinion that most of the reports now received with regard to the bacteriological examination of milk are unreliable, and I suggest that, should the above procedure be carried out, serious injustice may be done. The question of sampling and examination of graded milks is one to which I have given considerable attention in the past, and, in support of my view, I would draw your attention to the following facts:

Some time ago I became dissatisfied with the results of the examination of samples, which, at that time, were being submitted to one of the largest laboratories specializing in this work in the country. I therefore decided to send test samples to another laboratory.

Two churns of milk were selected upon delivery at each of two hospitals in Hammersmith, and duplicate samples taken from each. The same methods were adopted for each sample. Bottles, sterilized under exactly similar conditions in the laboratory, were used for each of the samples. They were immediately packed on ice, and four were submitted to the usual laboratory and four to another well-known institution. Sample "A" was reported by one laboratory to contain 39,880 bacteria per c.c.m. (well within the prescribed limit), and by the other 144,000 per c.c.m. (nearly 50 per cent. above the legal maximum). The other three reports all showed similar variation.

Recently I have had further tests made, with startling results. A quart bottle of pasteurized milk was taken and, after being thoroughly shaken, divided into six parts. Sterile bottles were used and every precaution taken during the division. Two of these bottles were submitted to each of three laboratories. The following table gives particulars of the reports received:

No. of Sample	Bacteriologist	Temperature on Arrival	No. of Bacteria per c.c.m.	Presence of B. coli (48 hours)			
				1/10	1/100	1/1000	1/10000
1	No 1 laboratory	15° C.	9,270	+	-	-	-
2	No 1 "	15° C.	14,300	+	-	-	-
3	No 2 "	15° C.	197,333	-	-	-	-
4	No 2 "	11° C.	3,400,000	-	-	-	-
5	No 3 "	16° C.	36,000	+	-	-	-
6	No 3 "	16° C.	47,000	+	+	-	-

It will be seen that one report gives a bacterial count of 9,270 per c.c.m., and another of 3,400,000 per c.c.m. for the same milk, and that the results obtained by one laboratory vary from 147,000 to 3,400,000. Other tests have been made, and the above figures are typical of the results obtained.

In view of these facts I think it must be agreed that to withdraw a licence upon such unreliable data would be most unjust. In Memo. 39, *Feeds* the Ministry of Health sets out a suggested technique for the bacteriological examination of graded milks. If this is properly carried out the results should be reasonably comparable. I can only

assume that, in making their examinations, bacteriologists do not faithfully and carefully carry out the suggested procedure. Unless every stage, from the composition of media to uniform heating in the incubators, is standardized the results must vary.

There is one point in the Ministry's suggested technique to which I would draw attention. In paragraph 12 it is stated that the original sample and each dilution must be shaken twenty-five times, each shake being an up-and-down motion, with an excursion of about one foot. This shaking is, of course, to distribute the organisms in the sample evenly, and, secondly, to break up any bacterial aggregates which may have been formed. Most samples of graded milks are submitted to the bacteriologist in the bottle in which the milk is sold, and, as such bottles are usually entirely filled with milk, it is unlikely that any proper mixing is obtained by shaking, unless the milk is first transferred to a larger bottle. Again, the vigour with which the shaking is conducted may make an appreciable difference to the final count. I suggest that more uniform results would be obtained by the use of a mechanical shaker, working at a standard speed.

Reviewing the position as it now stands, I am of opinion that little value can be placed upon the reports received, and that, until a more standard practice is adopted by bacteriologists, both time and money are being wasted in submitting milk samples for examination.—I am, etc.,

J. B. HOWELL,
Medical Officer of Health.

Town Hall, Hammersmith,
W.6, Nov. 1st.

Whither General Practice?

SIR,—From what I hear around me I conclude that there must be many medical practitioners who deeply resent the fact that they are not permitted to attend their patients who enter the smaller hospitals and nursing homes; and I am surprised to hear that my medical friends have little expectation that a grievance, which is often shared by their patients, will be removed. Yet in many cases their patients enter these institutions solely because of the better nursing arrangements and facilities therein provided. Why, in these cases, the family doctor should be debarred from continuing his services, if he pays his visits at specified hours, is incomprehensible to me.

Surely it must be in the interest of the whole profession that the family doctor—the "backbone of the medical profession"—should not lose prestige in the eyes of his patients; and it must be to their disadvantage to be transferred to other local practitioners who lack his special knowledge and experience of their previous illnesses. It is, moreover, a regrettable fact that such a transfer of medical services occasionally leads to the patient changing his doctor after his discharge. Although this may be attributable to the usual commendation of their medical chief by a devoted nursing staff, local medical harmony is seriously disturbed.

Therefore it is not surprising to learn that it is the policy of the British Medical Association that, where possible, the family doctor shall be permitted to continue to attend upon his patients. But if this is so, may we be told what the B.M.A. is doing in the matter?

The problem of remedy is not insoluble. The solution is at the hands of the small medical staff of such institutions; and with the good will and loyalty common among medical gentlemen it can be solved very shortly. So I am loath to believe that an appeal by the B.M.A. to this end would fall upon deaf ears. But if this should happen in some few instances the appropriate action suggests itself.—I am, etc.,

London, N.4, Nov. 4th.

HENRY R. KENWOOD.

Concurrent Varicella and Herpes

SIR,—I read the letter of Dr. Fishman describing his case of concurrent varicella and herpes zoster, in the *Journal* of November 3rd (p. 836), with interest, as a similar case of mine, in a man aged 74 years, was published by you, together with two illustrations showing the rashes, in your issue of July 22nd, 1933. Since then several other cases of this pathological partnership have been described in the literature. Post-pituitary extract intramuscularly, in doses of 3 to 10 units per diem, has recently been used by some in treating cases of herpes zoster, and I would like to know if anyone has tried this in cases of varicella, in view of the fact that there is more than probably a close relationship aetiological between the two diseases.—I am, etc.,

Leicester, Nov. 4th.

F. A. E. SILCOCK.

Thrombosis of Internal Saphenous Vein

SIR,—In the *Journal* of July 28th Dr. A. S. Parkinson advocates the proximal ligation of the saphenous vein if possible in cases of thrombosis. But what is wrong with excision of the thrombus? An ex-major came to us limping, and with a history of varicose veins in the left leg. He told us that during the war a surgeon had offered to excise his veins, but he could never spare the time to lie up in hospital. On inspection a large thrombus was found. As he was a house friend I kept him in bed in my house for a week, but then he became restless. Being an active man, he did not like wasting his time in bed. So I excised the whole thrombus under local anaesthesia, after ligaturing the saphenous vein with catgut. I made an elliptic incision, cutting into healthy skin, as the skin over the thrombus looked dark and thin. He made an uninterrupted recovery, and was at work in the garden after a fortnight. He was especially pleased about the relief of pain, and it seems to me that the period of forced rest is greatly shortened by removing the whole thrombus. As the skin is usually adherent to the inflamed thrombus, and is thin and unhealthy at that spot, it is advisable to excise a large piece of skin with it. I had to put a pressure pad on, as there was a hollow where the thrombus had been, but this was completely filled up in a few months' time.—I am, etc.,

Sterkstroom, Cape, Oct. 8th.

S. J. D. ESSER.

Therapeutic Malaria and Haemoglobinuria

SIR,—Dr. C. B. Bamford, in his article (*Journal*, October 27th, p. 764) on haemoglobinuria seems to us to go rather too far in one or two points of his discussion of the matter.

From the details recorded we ourselves would have had, we think, a little doubt about this being a case of blackwater fever, in spite of "the appearance of most of the characteristic features of the disease in the usual sequence," and for the following reasons:

1. Investigation of more than a man's previous history is needed to exclude latent malignant tertian malaria.

2. Unless very severe, haemolysis occurring in any case of quinine-treated malaria—and particularly one in which subtertian infection was not proved—would, to our mind, first raise the question of toxic action of quinine rather than one of true blackwater.

3. This patient seems to have had a haemolysis of gradual development, without bilious vomiting or pain, and four days after the commencement of the haemolysis his blood haemoglobin content was hardly disturbed.

4. Although the man had had no previous haemoglobinuria it seems unfortunate that his serum was not tested, after chilling, against his own and other erythrocytes.

Incidentally, in spite of more modern opinion, Dr. Bamford will find in at least one textbook—the sixth

edition of Sir Patrick Manson's *Tropical Diseases*—expressions of this kind:

"It is usually in those who have suffered from subtertian infection—more rarely from tertian or quartan, or from dysentery, or who are run down from any cause—that blackwater occurs." (Italics ours.)

—We are, etc.,

E. M. VOIGT.

C. VOIGT.

October 31st.

From N. Rhodesian Clinical Laboratory,
Broken Hill, N. Rhodesia.

Dilating the Cervix in Placenta Praevia

SIR,—Dr. A. J. Hawes, in his article on the death of Mauriceau's sister (*Journal*, October 27th, p. 783), expresses some apprehension as to the safety of "manually dilating a cervix with a placenta attached to it." Having had a considerable experience of cases of placenta praevia—over a score—without a maternal death, I can assure him that the careful obstetrician need have no fear of inflicting damage. If placenta is detached from uterine wall as far as the finger can reach, the cervix will dilate up readily under gentle but firm stretching by the fingers without showing any tendency to laceration. The whole hand should then be passed into the uterus—it is presumed that the membranes have been ruptured early—the child turned and slowly delivered. It is true that very great prior loss of blood may entail more rapid delivery, but even then I have never known damage to occur.—I am, etc.,

Harston, Cambridge, Oct. 30th.

W. J. YOUNG.

Differential Diagnosis of Chronic Rheumatic Disease

SIR,—It is often very difficult, yet a matter of great moment, to decide whether a case is one of muscular rheumatism, nodular rheumatism, neuritis, or incipient arthritis, nor can radiograms be relied on to exclude arthritis in the early stages. Sciatic pain may be referred from a spondylitis or from a fibrositis; chronic stiffness and pain in the neck may be muscular or due to a cervical arthritis; a swollen finger-joint, though technically an arthritis, may be an entirely transient lesion which clears up leaving no trace, or it may be the forerunner of a severe generalized infection leading to crippling osteoarthritis. Again, it is not always easy to decide between a true rheumatoid arthritis and a very active osteoarthritis.

A pathognomonic sign of an early or threatened osteoarthritis would be of great value. Such a one, I believe, is to be found in the knee-joint. When osteoarthritis is present anywhere in the body, or even only threatened, it seems to be an absolute rule that the cartilaginous surfaces of this joint show some erosion. By pushing the patella to and fro transversely over the condyles of the femur when the leg is straight and relaxed, we are rubbing two cartilaginous surfaces together. To the observer the sensation imparted in the normal knee-joint is one of velvety smoothness, whereas in cases of osteoarthritis this is replaced by a faintly gritty sensation, or a "knock," which is quite obvious to the practised hand. It does not follow that patients make any complaint of the joint. Frequently they are unaware of the abnormality, and the surfaces, though rough, are quite insensitive. Typical primary rheumatoid and non-articular arthritis are excluded by a positive, osteoarthritis by a negative, sign. This has now been recorded in many hundreds of cases at the Chatterhouse Rheumatism Clinic and in private, and so far has never given a wrong indication. I therefore venture to bring it to the notice of members of the British Medical Association for their trial, and later, I hope, for their endorsement.—I am, etc.,

H. WARREN CROWE, D.M., B.Ch. Oxon.

London, W.1, Nov. 1st.

B.C.G. Vaccine

SIR,—I am grateful to Dr. G. Gregory Kayne for drawing my attention to the dilution of the parenteral B.C.G. (BCG-SC) issued by the Institut Pasteur, Paris (*British Medical Journal*, October 27th, p. 791). I was working in America with a strength of 0.1 mg. in 0.1 c.c.m.; this is a convenient quantity for an intradermal injection, and can be quite accurately measured in a Mantoux syringe. I was under the impression when I wrote my book that this was the strength issued by the Institut Pasteur.

Since reading Dr. Kayne's letter I have written to Paris to see if such a strength could be specially made for intradermal use, or whence it could be obtained; I will inform him as soon as any arrangement has been reached.

Instructions that the vaccine should be used within ten days of its preparation are issued with each ampoule of B.C.G.—I am, etc.,

Henley-on-Thames, Nov. 3rd.

K. NEVILLE IRVINE.

"The Angel of Death"

SIR,—When I read Mr. G. Gordon-Taylor's excellent address on "Bad Surgical Risks" in your issue of October 27th I realized that between us we had very completely destroyed the famous passage from the speech of John Bright on the Crimean War, which runs as follows: "The Angel of Death has been abroad throughout the land; you may almost hear the beating of his wings."

I quoted from memory at the Association of Surgeons meeting in Birmingham, and in doing so unconsciously paraphrased the quotation to make it applicable to my subject. The words I actually used were as follows: "The Angel of Death is hovering o'er them, so close that they can almost hear the fluttering of his wings." I think the paraphrase was justified, though I admit that the use of the word "fluttering" instead of "beating" robs the passage of much of its power and beauty. For the final form as given by Mr. Gordon-Taylor I must disclaim all responsibility.—I am, etc.,

Manchester, Oct. 30th.

GARNETT WRIGHT.

Universities and Colleges**UNIVERSITY OF OXFORD****Radcliffe Prize**

The next award for the Radcliffe Prize will be made in 1935. The prize, which is of the value of £50, is awarded by the Master and Fellows of University College, Oxford, every second year for research in any branch of medical science, comprised under the following: human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynaecology, forensic medicine, hygiene. The prize is open to all graduates of the University of Oxford who have procured, or are proceeding, to a medical degree in the University. Candidates must not have exceeded twelve years from the date of passing the last examination or the Degree of B.A. and must not, at the date of application, be Fellows on the foundation of Dr. John Radcliffe. Candidates must send in their memoirs to the Secretary of Faculties, at the University Registry, Oxford, on or before January 1st, 1935. The award will be made in March, 1935. No memoir for which any University prize has already been awarded is admitted to competition for the Radcliffe Prize; and the prize will not be awarded more than once to the same candidate.

Board of the Faculty of Medicine

The Board has co-opted Dr. E. W. Ainley Walker, Fellow of University College, and Dr. A. M. Cooke, Jesus College, for the statutory period of two years. The Board has appointed Dr. O. L. V. S. de Wesslow, Corpus Christi College, to be an Elector to the Professorship of Pharmacology, vice Sir Charles Sherrington, who retires under the

Professor of Pathology

The Electors to this Professorship propose shortly to proceed to an election of a Professor in the place of the late Professor Georges Dreyer. Candidates should send in their names, with eight copies of any statement, references, and testimonials that they may think it desirable to submit, so as to reach the Registrar not later than December 22nd. Candidates are requested to state the earliest date on which they could take up their duties. The choice of the Electors will not necessarily be limited to those who apply. The stipend of the Professorship is £1,200 a year, in addition to which there is a special allowance of £200 in respect of duties as Head of the Department. Subject to the provisions of Stat. Tit. IV, Sec. III, cls. 5 and 6 a non-stipendiary professorial Fellowship at Lincoln College is attached to the Professorship. In accordance with the provisions of the University superannuation scheme the Professor will be required to become a member of the Federated Superannuation System for Universities.

During the illness of the Regius Professor of Medicine official correspondence intended for Sir Farquhar Buzzard should be directed to Professor J. A. Gunn, Department of Pharmacology.

UNIVERSITY OF CAMBRIDGE

The Appointments Committee of the Faculty of Biology "B" gives notice that it will shortly proceed to appoint a university demonstrator in pathology. The appointment will be governed by the statutes of the University, and particulars as to stipend and duties may be obtained from Professor Dean, at the Department of Pathology (Tennis Court Road, Cambridge), to whom applications should be sent on or before December 1st.

At a congregation held on November 3rd the following medical degrees were conferred:

M.D.—A. Barnsley, A. Eckford, W. E. Chiesman.
M.B., B.Chir.—E. V. Bevan, H. B. May, J. Metcalf, F. E. Pilkington, R. L. Benison.
M.B.—T. A. Ratcliffe.
B.Chir.—J. H. Conyers.

The Molteno Institute

During the inquiry, as the result of which the General Board proposed regulations for the Molteno Institute of Parasitology, it formed the opinion, both on general grounds and on the particular ground of the temporary association of the Quick Professorship with the Directorship of the Institute, that it would be to the advantage, both of the University and of the Institute, if the scope of the latter was widened. Professor Nuttall has now consulted Mr. Molteno, who cordially approves the proposal to change the title of the Institute to the Molteno Institute of Biology and Parasitology. The Faculty Boards of Biology "A" and "B" have expressed their concurrence, and appropriate recommendations are published in the *University Reporter*.

UNIVERSITY OF LONDON**LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE**

Kenneth Mellanby, B.A., Ph.D., has been appointed to the Wandsworth Scholarship for Research in Tropical Medicine for a period of two years.

The following degrees were awarded by the Senate on October 24th:

Ph.D. in ANATOMY.—Ralph Brooke (Guy's Hospital).
Ph.D. in HELMINTHOLOGY.—Phyllis Annie Clapham (London School of Hygiene and Tropical Medicine).

NATIONAL UNIVERSITY OF IRELAND

A meeting of the Senate was held on October 25th, under the chairmanship of the Chancellor, Mr. Eamon de Valera.

The reports of the examiners on the autumn examinations were considered, and passes, honours, etc., awarded in connexion therewith. The reports of the examiners in connexion with travelling studentships and other prize examinations were also considered, and the following among other awards were made: Dr. Henry Hutchinson Stewart Medical Scholarships: (in Anatomy) J. Burke, University College, Cork; (in Physiology) R. G. Barry, University College, Cork; P. F. Brennan, University College, Dublin; J. Burke, University College, Cork. Dr. and Mrs. W. A. Browne Gold Medal: Paula Mecklenburg, University College, Dublin.

The Senate decided that a special first University examination in Medicine should be held in March, 1935, for students who have completed the lectures therefor; that the Dr. Henry Hutchinson Stewart scholarships in arts, in medicine, and in mental and nervous diseases should be offered for competition in 1935; and that travelling studentships in chemistry and mathematical science should be offered for competition in 1935 as additional travelling studentships.

Obituary

DR. GEORGE ADKINS

With the death of Dr. George Adkins the West Country loses one of the best-known and most respected pioneers of the Public Health Service. Dr. Adkins was trained at the London Hospital, qualified in 1882, and took his D.P.H. at Cambridge University in 1888. He began his medical career in general practice with his father at Yealmonth, Devon, where he was also medical officer of health to Plympton rural district. Later he joined a practice in Paignton, but left there to serve in the South African War, where he contracted typhoid fever. After the war he practised in the Isle of Wight until 1908, when he returned to Devonshire as first county medical officer of health. In Devon he faced the initial difficulties with courage and energy, inspired, as always, by high professional ideals. Gradually a very competent staff to help with tuberculosis and the school medical service was got together, and when in 1929 Dr. Adkins finally laid aside his life's work he was held in universal affection and esteem by all those whose good fortune it was to be associated with him.

Dr. Adkins possessed deeply religious convictions, and was always ready to turn his energy and ability to the assistance of any good work, such as that connected with the Church and with the Boy Scout movement. He was a member of the British Medical Association from June, 1892, until January, 1929, when he resigned. Devon regards his loss as irreparable, but he has left behind him a magnificent example as an inspiration to those who follow.

Dr. ARTHUR DEAKER OWEN died on November 1st at St. Mary's Hospital, Hampton, at the age of 73, after three months' illness. He was the son of Dr. Edward Thomas Owen of Totnes and Plymouth. He was educated at King's School, Bruton, and the London Hospital. After qualifying M.R.C.S., L.R.C.P., and L.S.A. in 1884, and acting as house-surgeon to the Teignmouth Hospital and the Portsmouth Royal Hospital, he accepted an appointment in Government service in the Federated Malay States. Over forty years ago he returned to England and settled in practice at Hampton-on-Thames, only retiring at the beginning of his last illness three months ago. While in practice at Hampton, Dr. Owen held many public appointments. He was honorary surgeon to St. Mary's Hospital, Hampton, medical officer in charge of the Isolation Hospital, Hampton Hill, M.O.H. to the Hampton Urban District, police surgeon, and surgeon to the Metropolitan Water Board. He had been a member of the British Medical Association for forty years.

"S. C. S." writes: It was my very great privilege to be in partnership with Dr. Owen for more than ten years. I think he was the ideal family doctor. He was a sound clinician, and to an inborn skill was added the outcome of a lifetime's careful observation and study. He was kindly to all, always cheerful, and of an unruffled and unflinching courtesy. I do not believe that he ever attended a patient without making a friend. The words "beloved physician" have been spoken of many, but I know of none to whom they can apply more truthfully.

Dr. NORMAN FOX EDWARDS, who died on October 27th (his 64th birthday) in a nursing home at Wolverhampton, was the second son of a Manchester physician. He graduated M.B., Ch.B. from the Victoria University of Manchester in 1894, and after filling various resident appointments in provincial institutions entered upon general practice at Broseley in Shropshire. There he remained for over thirty years, becoming a member of the British Medical Association in 1912 and con-

tinually extending the area of his practice. His whole heart was in his work, and he was a man who thought things out and gave of his best ungrudgingly. He retired from active work in 1930, and went to live near Bridgnorth, close to his beloved Severn. The illness which ended his life was of only one week's duration. He was buried on October 30th in the romantic churchyard of Quatford, overlooking one of the loveliest reaches of the Severn. In 1909 Dr. Fox Edwards married Isabel, daughter of the late Joseph Hartley of Glazebury, who, with a son and two daughters, survives him. In his early manhood he was an athlete and long-distance swimmer, whilst for many years before his death he was an ardent fisherman, and had acquired a wide reputation for his knowledge of the art of fly-fishing. The large number of people who came to his funeral from the Broseley district, and from Bridgnorth, showed how greatly he had endeared himself to his patients, and how sincerely he will be mourned by all who knew him.

The Services

HONORARY SURGEON TO THE KING

Major-General Sir Frank P. Connor, D.S.O., F.R.C.S., I.M.S., Honorary Surgeon to the Viceroy, has been appointed Honorary Surgeon to the King, in succession to Brevet Colonel G. D. Franklin, C.I.E., O.B.E., I.M.S., who has retired.

Major William Leslie Bennett, R.A.M.C. (ret.), died at Swanage on September 8th, aged 57. He was born on August 23rd, 1877, and educated at Glasgow, where he graduated M.B. and Ch.B. in 1898. He also took the F.R.C.S.Ed. in 1906. Entering the R.A.M.C. as lieutenant on June 21st, 1900, he became major on March 21st, 1912, and retired on half pay on March 1st, 1917.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons spent most of this week in committee on the Betting and Lotteries Bill. Discussion arose on a proposal to authorize the establishment of a State lottery. The proposal to prevent the remittance of money to foreign lotteries was discussed.

In the House of Lords the Incitement to Disaffection Bill was considered.

On October 31st Sir HILTON YOUNG presented in the House of Commons a Poor Law Bill "to amend the enactments relating to the relief of the poor in England and Wales so as to secure uniformity throughout Great Britain in the provisions relating to the disregarding of sick pay, maternity benefit, and wounds or disability pensions." The Bill provides that "in granting outdoor relief to any person the council of a county or county borough shall not take into consideration any maternity benefit under the National Health Insurance Acts, 1924 to 1932, except any increase of such benefit by way of additional benefit and any second maternity benefit; any wounds or disability pension received by a person whose resources are taken into account in relieving him, except so far as it exceeds one pound a week, the expression 'wounds or disability pension' meaning any retired pay or pension to which Section 16 of the Finance Act, 1919, applies."

Distribution of Radium

Replying on November 6th to Sir A. Wilson, Sir HILTON YOUNG said that his attention had been drawn to the adverse criticism, in the fifth annual report of the Radium Commission, on the state of affairs at the Bristol centre (University of Bristol and Bristol Royal Infirmary) and the Newcastle centre

(University of Durham and Newcastle Royal Victoria Infirmary). It was the duty of the Radium Commission to distribute the radium at their disposal to the best advantage, and it appeared, from the report of the Commission, that they had transferred some radium from certain centres where it was not being fully used to others. He had no power to instruct radium centres how they should make the best use of the radium supplied, but one of the conditions of the loan to a hospital was that the latter should accept and treat suitable and properly accredited patients from any source.

Road Accident Figures.—Mr. HORE-BELISHA told Mr. Parkinson on October 31st that 5,243 persons were reported as having died as a result of road accidents during the first nine months of 1933. For the first nine months of 1934, as a whole, the number of fatal accidents appeared to have been approximately the same, but comparison for the last two months of the period showed an improvement. Statistics of persons injured in road accidents during 1933 were available only for the year as a whole, but it was estimated that during the first nine months of that year the number was approximately 164,100. For the corresponding period of 1934 the number was approximately 176,200. The rate of increase over last year had been falling steadily during the last two months.

Water Supplies: Present Position.—Answering Mr. D. Grenfell on November 1st Sir HILTON YOUNG said the average rainfall for September was above the normal, but October had been dry, particularly in the Midlands and the South. Returns received from water undertakers showed that the position generally was better than in the summer, and that where shortage existed or was threatened, remedial measures had been taken by providing additional supplies, or by economies in consumption. Water undertakers generally had the situation in hand, provided that, where necessary, consumers continued to co-operate by economies in the use of water. In very few urban areas had there been serious curtailment of supplies. On the same day the Minister told Mr. Parkinson that applications for grants for rural water schemes had been received from 210 rural district councils, for 1,189 parishes, and from twelve urban district councils, for schemes estimated to cost £3,270,000. Grants had been provisionally allocated in respect of schemes for 712 parishes and those of 219 parishes were under consideration.

Sir HILTON YOUNG stated on November 6th that measures were in train for a survey of water resources. He hoped shortly to announce them.

Atophan.—Sir JOHN GILMOUR told Captain Cunningham-Reid on November 1st that he was bringing the evidence of the professor of pharmacology at Birmingham University, and the remarks of the Birmingham coroner at a recent inquest on the effects of the drug atophan, to the notice of the Lord President of the Council and the council of the Pharmaceutical Society, the authorities responsible for additions to the Schedule of Poisons.

Milk During Pregnancy and Lactation.—Sir HILTON YOUNG told Miss Rathbone on November 1st that there were 422 maternity and child welfare authorities in England and Wales. The great majority of them exercised their powers under the Maternity and Child Welfare Act, 1918, to provide milk and food for mothers during the last three months of pregnancy and during lactation, but the actual number was not available. In a circular addressed to local authorities on October 10th on the subject of maternal mortality, he had stressed the importance of using these powers in appropriate cases.

Local Authorities and Maternal Mortality.—In reply to Mr. Palling on November 1st Sir HILTON YOUNG said he was aware that the annual report of the Chief Medical Officer of the Ministry of Health for 1933 showed that the councils of eight counties, seven county boroughs, and five metropolitan boroughs had sent no confidential reports on maternal deaths to his Department. He had no power to require submission of such reports, but every opportunity was taken of urging upon the local authorities the importance of co-operating in the desired inquiries. Even in cases where the reporting medical officer did not feel justified in furnishing any com-

ments on, or interpretation of, the facts disclosed, the reports did not necessarily lack evidence of careful investigation. Medical officers of his Department who examined the reports had the advantage of the advice of two consultant obstetricians, whose services had been retained for the purpose.

Workmen's Compensation and Cardroom Workers.—Replying to Sir John Haslam on November 1st Sir JOHN GILMOUR said he had considered scheduling cardroom workers under the existing Workmen's Compensation Acts, but there would be great difficulties in meeting the position by adding to the schedule of industrial diseases under the Act, having regard to the absence of any special clinical features which would enable the lung condition of the workman to be diagnosed as due to dust. He had written to the Employers' Federation urging it to consider some special scheme, and suggesting that it should arrange for an early meeting of representatives of both sides to explore the problem.

Housing.—Sir HILTON YOUNG told Mr. White on November 1st that he did not think provisions to enable local authorities to control ribbon development could conveniently be included in housing legislation. In reply to Captain Waterhouse, on the same day, the Minister said the policy of the Government was not to confirm any order by a local authority seeking to include in a clearance area, under the Housing Act, 1930, a building fit for habitation, merely by reason of its bad arrangement in relation to its neighbourhood or on account of the narrowness or bad arrangement of the streets.

Exhaust Fumes.—Mr. HORE-BELISHA told Mr. Parkinson on November 1st that the report of a Home Office Departmental Committee, which considered the harmful effects of fumes from motor vehicles on the general health of the public, did not suggest that there was such evidence of injury as would justify legislative action.

Imported Milk.—Sir HILTON YOUNG told Mr. Lambert on November 1st that he did not consider an investigation into the health of the animals producing the milk and into the cleanliness of the manufacture of the milk products imported from foreign countries was needed. Imported milk was subject to special bacteriological conditions which did not apply to home-produced milk, and all milk products to examination at the port of entry to ensure that they were fit for human consumption.

Control of Poisons in Agriculture.—Sir JOHN GILMOUR, on November 5th, told Sir John Wardlaw-Milne that the control to be extended to retail distribution of poisons used in agriculture and horticulture was among the matters under examination by the Poisons Board. The Board had invited the observations of associations of manufacturers, traders, and others upon a draft of the proposals to be later submitted, and he would consider their recommendations when all the observations had been received.

Outbreaks of Foot-and-mouth Disease.—Dr. ELLIOT, replying on November 5th to Mr. W. Nicholson, said that during the past three months seven outbreaks of foot-and-mouth disease had occurred which could not be attributed to previous cases in this country. In none of these outbreaks was the source of infection definitely established, and in no case was there reason to believe that animals imported into this country were the first to be affected.

London Refuse Disposal.—Mr. SHAKESPEARE, on November 5th, informed Sir C. Rawson that the Minister of Health was aware of the interim report of the Cleansing Subcommittee of the Metropolitan Boroughs Standing Joint Committee on the Disposal of Refuse. The Minister was advised that where controlled tipping could be and was properly carried out it was a satisfactory method of disposal. The method is most advantageous, for any particular place must depend on local circumstances.

Maternal Mortality in Liverpool.—Sir HILTON YOUNG, on November 6th, told Sir A. Wilson that there was no evidence from statistics that any increase in the maternal mortality rate in Liverpool was caused by malnutrition of mothers. The Liverpool rate was still well below that for the whole country.

Total Blindness from War Service.—On November 6th Major TRYON told Lieut.-Colonel Moore that during the last five years eighty-six cases had been admitted to pension in respect of eye disabilities resulting from war service. Of these, two were cases of total blindness.

The "Silent Zone" and Road Safety.—Mr. HORE-BELISHA informed Mr. Robinson that the institution of the "silent zone" had met with overwhelming approval. It was not primarily instituted to promote safety but to increase the opportunities for rest and recuperation of workers and the sick. This purpose had been achieved without any increase in the number of accidents being attributed to the new regulation. He was not at the moment prepared to make a general prohibition of the use of motor horns and other noisy indications of approach. Mr. Hore-Belisha informed Dr. Salter, on November 5th, that from July 9th, 1934, the date on which uncontrolled pedestrian crossing-places were first laid down in the metropolitan police district, to October 31st inclusive, four persons were killed and 194 injured on these uncontrolled crossings.

Notes in Brief

An explanatory circular to local authorities on the Shops Act, 1934, will shortly be issued.

Persons in receipt of poor relief in England and Wales—including dependants but excluding rate-aided patients in mental hospitals, persons in receipt of domiciliary medical relief only, and casuals—on October 13th, 1934, numbered 1,310,668. Of these, 134,854 were chargeable in Wales with Monmouth.

Medical News

The fifty-seventh anniversary dinner of the Cambridge Graduates' Club of St. Bartholomew's Hospital will take place on Wednesday, November 21st, at 7.30 p.m., at the May Fair Hotel, with Professor Francis R. Fraser in the chair. The honorary secretaries are Dr. H. N. Burroughes and Mr. Reginald Vick.

The annual dinner of the Prince of Wales's Hospital Club will be held at the Trocadero Restaurant on Thursday, November 22nd, at 8 p.m., when Dr. Lewis R. Yealland will occupy the chair. Price of dinner, exclusive of wine, 12s. 6d., to be paid in advance. Members are asked to notify Dr. Bertram H. Jones (honorary secretary), 47, Queen Anne Street, W.1, of intention to be present, stating number of guests. (Lady guests may be invited.)

A meeting of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, November 23rd, at 5.15 p.m., when Dr. L. S. T. Burrell will deliver his presidential address, on "Tuberculosis Reinfection in Adults." At 8.15 p.m. Dr. G. T. Hebert will read a paper on "The Termination of Artificial Pneumothorax Treatment."

The Royal Sanitary Institute will hold a joint meeting with the Yorkshire branch of the Society of Medical Officers of Health at Huddersfield Town Hall on Friday, November 16th, at 6 p.m., when there will be discussions on "The Huddersfield Scheme for Maternity and Child Welfare Work," to be opened by Dr. John M. Gibson, and on "Recent Housing Developments in Huddersfield," to be opened by Mr. G. Crossley.

A course of twelve illustrated lectures on the geology and scenery of the Hebrides will be given by R. M. Craig, D.Sc., in the lecture theatre of the Imperial College of Science, Exhibition Road, South Kensington, on Mondays, Wednesdays, and Fridays, at 5.30 p.m., from November 26th to December 21st, inclusive. Admission free.

The Central London Throat, Nose, and Ear Hospital (Gray's Inn Road, W.C.) has arranged a week-end course in laryngology, rhinology, and otology, specially suitable for general practitioners, on Saturday and Sunday, December 1st and 2nd, at 10.30 a.m. The fee for the course is £1 1s. 6d., and the names of those wishing to

attend should be sent to the secretary-superintendent as soon as possible.

Dr. Leonhard Seif of Munich will give a course of three lectures on November 20th, 23rd, and 26th, at 8.30 p.m., on "The Principles and Practice of Individual Psychology." The course, which has been arranged by the Child Guidance Council for members of clinic staffs and others, will take place at the Institute of Medical Psychology, Malet Place, W.C. Admission free.

The Royal Photographic Society is holding an exhibition of cinematography at 35, Russell Square, W.C. It is designed to show recent advances with special reference to the progress achieved in design of apparatus and the extension of the sound film to substandard sizes—developments which bring "talkies" into the class room, the social centre, and the home, and open up a new field in educational, cultural, and entertainment possibilities. The exhibition will be open, free, to the public until November 30th, on Mondays, Wednesdays, and Thursdays from 10 a.m. to 9 p.m., and on Tuesdays, Fridays, and Saturdays from 10 a.m. to 6 p.m.

A general course of post-graduate instruction, arranged by the University of Durham College of Medicine, opened at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on October 11th, and will be continued on Thursdays at 1.30 p.m. to December 13th, with the exception of November 15th, which date has been left vacant so that members may attend the scientific demonstrations arranged by the North of England Branch of the British Medical Association. A special course in midwifery and gynaecology is being held on Wednesdays at 3 p.m. Classes for clinical instruction in medicine and surgery, or lecture-demonstrations, will be continued every Sunday at 10.30 a.m. to December 16th. All medical practitioners are invited to attend these classes, for which there is no fee, and particulars will be given week by week in the diary column of our Supplement.

The Fellowship of Medicine (1, Wimpole Street, W.1) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 13th and 20th, at 2.30 p.m. At the same place Dr. Christie will lecture on diet of the obese and thin, on November 14th at 8.30 p.m. Forthcoming courses include gynaecology at the Samaritan Hospital, November 17th and 18th; proctology at St. Mark's Hospital, all day, November 19th to 24th; rheumatism at the British Red Cross Clinic, Peto Place, N.W., on Tuesdays and Thursdays at 8.30 p.m., November 20th to December 6th; infants' diseases at the Infants Hospital, every afternoon, November 26th to December 6th; dermatology at the Blackfriars Skin Hospital, every afternoon November 26th to December 6th. A special M.R.C.P. course in chest diseases will take place at the Brompton Hospital on Wednesdays and Fridays, for four weeks, from December 12th to January 11th (excluding the Christmas week). Courses of instruction are open only to members and associates of the Fellowship.

The ninth Pan-American Sanitary Congress will be held at Buenos Aires from November 12th to 22nd, when papers will be read on hospital organization, venereal disease, small-pox, malaria, undulant fever, leprosy, yellow fever, milk, infantile mortality, tuberculosis, school hygiene, narcotics and alcoholism.

The eleventh Voyage Médical International on the Riviera, organized by the Société Médicale du Littoral Méditerranéen, will take place from December 26th to January 3rd, under the presidency of the dean of the Faculty of Medicine of Paris. The principal places to be visited are Nice, Cannes, Menton, Monte Carlo, Beaulieu, Grasse, and Vence. Further information may be obtained from the Federation of the Health Resorts of France, Tavistock House (North), Tavistock Square, London, W.C.1.

The issue of *Paris Médical* for October 20th is devoted to diseases of the kidneys and urology.

Mrs. Stanley Baldwin opened the new private wards at the Hendon Cottage Hospital, N.W., on the afternoon of Wednesday, October 31st.

A short ceremony in connexion with the transfer of Heatherwood Hospital, Ascot, to the London County Council by the United Services Fund took place at the hospital on November 2nd, when the title-deeds of the hospital were formally handed over by Major-General Lord Lock (chairman of the council of management of the United Services Fund). Mr. Somerville Hastings, F.R.C.S. (chairman of the Hospitals and Medical Services Committee of the L.C.C.), accepted the gift on behalf of the Council.

Dame Edith Powell, widow of Sir Richard Douglas Powell, first baronet, left £48,562. Her bequests included £1,000 to the Royal College of Physicians of London as a memorial of her husband, who was President from 1905 to 1910.

The King has granted permission to Dr. C. E. G. Beveridge to wear the insignia of the fourth class of the Order of the Nile, conferred upon him by the King of Egypt in recognition of valuable services rendered.

The chairs of medical pathology, medico-surgical anatomy, and operative medicine, and nine assistant professorships in the Paris Faculty of Medicine have recently been abolished. On the other hand, chairs for medical anatomy, dietetics and physiotherapy, hydrology and climatology, have recently been founded at Geneva University.

The American Congress of Physiotherapy has awarded its highest distinction, the Gold Cross, to Dr. Henri Bordier, professor of medicine at Lyons, for his studies in the physiology of high-frequency currents, to Dr. Oscar Bernard of Saint-Noritz, and to Dr. Franz Nagelschmidt of Berlin.

Dr. Gudmundur Hannesson, professor of anatomy and hygiene at Reykjavik, has been awarded the gold medal of honour by the University of Hamburg, and Dr. T. von Györy, professor of the history of medicine at Budapest, the Karl Sudhoff medal.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS., if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is LUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

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MEDICAL SECRETARY, Medisecra Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Treatment of Chronic Nasal Discharge

Dr. P. LIONEL GOITEIN (London, W.1) writes: In searching for a "hopeful" formula for this distressing symptom, is it within the bounds of possibility that your correspondent "M. S." (October 27th, p. 786) has been working too exclusively from the physical angle, and has overlooked what has proved (at least in my hands) a very

helpful approach—namely, the psychological? "M. S." does not state whether the sinus and antra operations were necessitated by, or resulted in, this symptom. If non-purulent, I should like to emphasize from experience that psychotherapy can be trusted to dispel the symptom in question often quite dramatically. The nose is frequently utilized as a safety-valve for solving emotional conflicts, and other tensions, with copious rhinorrhoea. Hence, vicarious menstruation and the like anomalies. Certain hysterics and obsessionals are only too happy to side-track the issues in physical treatment. I recently had a patient with diuresis and enuresis, complicated by the nasal symptom referred to, who had run the gamut of sensitization, cauterization, catheterization, etc., to both organs, and who was relieved of bed-wetting in the early weeks of treatment. Similarly, one usually finds the adenoidal (and sinusoidal) conditions clear up—as they did in this case—soon after, and this without recourse to aught but modern psychological technique. While this is not vaunted as the treatment *par excellence* of all the mucorrhoeas, its use (in the absence of gross traumata or infective agents) is undoubtedly well justified:

Treatment of Trichophyton Infection

"AGRESTIS" (East Lothian) writes: There have been lately in your columns many communications on the treatment of this troublesome condition, but it has struck me that none of the writers has stated that his own particular method has cured himself. If the criterion of treatment is cure, I may feel some slight justification for writing now. I have for many years suffered intermittently from the condition, and after trying a variety of applications which produced not the slightest benefit, I fell back upon a simple, and what appeared to me to be a logical, form of treatment. Moisture is necessary for the growth of all moulds, and if a part is kept dry the soil is rendered less suitable, or at any rate conditions for growth become less favourable. Relative dryness can be ensured by the insertion of small strips of boric lint in the interdigital spaces. The strips should be in size about one inch by one-half inch, and they should be pressed well into the affected spaces. In my own case a fairly extensive and long-standing infection was comparatively quickly healed by this simple method, and recurrences in the favourite site of the fourth interdigital space are very quickly "scotched" by it. I can certainly recommend its trial, in association with the implied methods of cleanliness. The strips should be renewed night and morning.

Treatment of Ménière's Disease

Dr. R. H. BOTHAM (Manchester) writes: In answer to "Inquirer" (*Journal*, November 3rd, p. 843), I can recommend him to try the method of treatment of Ménière's disease set forth by Dr. W. S. Thacker Neville in an address to the Darlington Division of the R.M.A. in March, 1931. The address was published subsequently in the *Journal* of July 11th, 1931 (p. 54). The method is simple, and consists in the elimination of all salt from the diet, and the reduction of the fluid intake to the lowest endurable point. The object aimed at is the reduction of fluid pressure in the vestibule and semicircular canals. In my own case the attacks ceased at once after beginning treatment.

Income Tax

Interest on Borrowed Capital

"R. S." pays £300 a year interest, and last year deducted £75 therefrom, being income tax at 5s. in the £. What is the position if the tax payable in respect of his profits—and any other income he may have, for example from owning his own premises—comes to less than £75?

His minimum liability for the year is £75; when he has paid that and no more he has merely handed over the tax which he deducted—collected so to speak—on behalf of the Revenue, and has ultimately borne no tax himself.

Debts Outstanding on Retirement

"R. F." has retired, and the inspector of taxes wants him to pay tax on debts owing to him.

The inspector is probably right, in the circumstances, to insist on the last year's account being made up on a basis that shall adjust the cash receipts to an "earnings basis." Consequently any increase during that year, of the value of the debts on the books, can be brought into the calculation. But this does not mean that the amount (or value) of the debts at the end of the period can be brought in as receipts without deducting the corresponding total at

the commencement, and "R. F.'s" letter suggests that this is what the inspector is seeking to do. The inspector is correct in saying that unless the gross amounts of the debts are brought in they must be separately valued. An estimated percentage is not sufficient compliance with the statute.

General Practice and Appointment

"D. C." has an appointment which he regards as an essential part of his practice. The inspector refuses to include the emoluments in the general Schedule D assessment, claiming to assess it separately under Schedule E.

"* It is beyond doubt that the emoluments of a specific employment are assessable under Schedule E, but there is a general and officially approved practice of pooling such receipts in the Schedule D assessment. We are not informed of any special circumstances in this case. It might be advisable to ask the inspector for the reason why he is not following the general practice, and we shall be pleased to advise further if necessary.

LETTERS, NOTES, ETC.

Treatment of Ozaena

Dr. ELIZABETH C. MUDIE writes: I venture to give details of the treatment advocated by me for the distressing condition known as ozaena. Locally the patient applies a small pledget of cotton-wool to each nostril. This is soaked first in a strong solution of lactose at blood temperature. In addition, the nose and pharynx should be thoroughly douched, at first every two or three hours, afterwards thrice daily, in the solution, two drachms of lactose to four ounces of water being sufficiently strong. The rationale of this treatment is obvious. Saprophytes which are responsible for the condition split the lactose and release lactic acid, nature's premier disinfectant. The treatment is equally good for all cases of nose and throat catarrh. Constitutional treatment lies in a thorough revision of diet, with moderation of meat intake. Cheese, eggs, milk, whole-wheat bread, rye bread, and coarse oatmeal cakes, vegetables of all kinds, conservatively cooked, green salads in abundance, tomatoes, raw fruit, and plenty of tap-water will do more to alleviate and cure such a condition than any other measures. Sugar, cakes, pastries, and sweets must be absolutely cut out of the diet, and tea sparingly taken—never with food. Buttermilk may be drunk with advantage at meals, but nothing but water between meals. Aim at two or three quarts daily. Artificial or real sunlight on the naked body will hasten the cure, and abundance of fresh air must be available during sleep. One of the finest intestinal cleansers I know is garlic. There is a popular prejudice against this pungent vegetable, but I am ready to believe that those who live with a victim of ozaena would rather endure the smell of garlic as the lesser of two evils. One clove or division of garlic thrice daily for a week or ten days will work wonders.

Motoring and the Expectant Mother

Dr. P. Labignette, writing in the *Rev. Med. Latino-Americana* for June, 1934, discusses the risks undergone by the indiscriminate use of the motor car during pregnancy, and believes that it has not yet attained to such a degree of mechanical perfection as to exempt its employment from interference with that condition, even in normal cases. During all abnormal pregnancies, early or advanced, or when past history gives indication of a tendency to abortion, all motor journeys should be forbidden. The car should always be well sprung. It is, states this author, the doctor's duty to inquire into the condition of springs, tyres, seats, and shock absorbers, and if in any doubt he should make a trial trip himself. The patient should not drive; and during the first twelve weeks and the final, or even the penultimate, month, she should be doubly cautious, especially if a primipara. Long journeys, especially if extending over several consecutive days, cannot be advised: if they are imperative, a gentle opiate douche or suppository is a valuable precautionary measure. To minimize pelvic congestion the expectant mother should leave the car and walk a short distance every two hours. The smoothest routes should be chosen, and the driver should not travel at a rate of more than about thirty miles an hour, and should avoid all bumping and jolting. In conclusion, Labignette states that when consulted as to the proposed journey the obstetrician must be cautious.

If he forbids it and his advice is ignored he will be laughed at should no harm ensue. If he assents, should the patient abort, his reputation will suffer.

The Herbalist at Home

The *British Medical Journal* of May 27th, 1911, was devoted to quackery in all its aspects, and it contained a section on Herbalists and Medical Practice which began thus: "While it is no doubt well known to most of our readers that among the many varieties of unqualified persons who profess to treat disease there are some who call themselves herbalists, medical botanists, or by some similar name, it is perhaps less generally known that these herbalists have a definite organization and a monthly organ, and that they aspire to the possession of a right to practise equal to that of the qualified and registered medical practitioner." Some particulars in regard to this matter culled from the publications of herbalists were therefore included, and curious reading they make. We do not know if the *Herb Doctor* survives to-day as a periodical, but herbalists still ply their trade in "simple vegetable remedies, free from all injurious chemicals." Dr.

Ladies and Gentlemen, After a period of 39 years (thirty years) of hard study and wide experience, a Port Talbot expert claims to cure most diseases that form on human beings. Don't take to be persuaded by anyone, but come and see for yourself. We do not pretend to make miracles but out to assist nature, and the first complaint now to mention, and a very drastic one, is—

CANCER

It can be cured in 5 weeks (five weeks), also Tumours in less time. Consumption will absorb more time than above complaints, but from three to five months, without fail, this also can be cured of the worst stage, that is if you follow our instructions.

Rheumatism, Appendicitis, in four hours, or inflammation in any part of the body. Fits, Gall-stones, Dropsy and Asthma attacks can be released in ten minutes, and prevention can be had when you ask for it.

Expert: Mansel St., PORT TALBOT

H. R. Frederick sends us from Glamorgan a choice specimen of the kind of printed circular that still finds its way through letter-boxes in South Wales and other parts of our credulous island. "This struck me," Dr. Frederick writes, "as a masterpiece, reminding me much of the old quacks' circulars of the sixteenth and later centuries." A reproduction of the ingenious leaflet is printed herewith, but we have omitted the self-styled expert's name.

The Grenfell Calendar

Among the first of the 1935 calendars to arrive is the Grenfell Calendar, which is again being sold in aid of the work of Sir Wilfred Grenfell in Newfoundland. In size and design it is exactly similar to last year's—namely, a page for each seven days with space for noting morning, afternoon, and evening engagements; there is also a further selection of photographs of Labrador and Northern Newfoundland. Its attractive design and reasonable price (3s. 6d.) make this calendar a suitable gift for this season of the year. It may be obtained from the Grenfell Association, 66, Victoria Street, S.W.1.

Correction

In the leader on "La Granulie Froide" (*Journal*, November 3rd, p. 815) the second reference should be to the *Bull. et Mém. Soc. Méd. des Hôp. de Paris* of June 25th, 1934, p. 886, and not to *Bull. et Mém. Soc. de Méd. de Paris* of June 15th.

The Marmite Food Extract Company Limited (Walsingham House, Seething Lane, E.C.3) has published a new booklet, based on many references to the therapeutic value of marmite which have appeared recently in medical literature.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 47, 48, 49, 52, and 53 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 50 and 51. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 249.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, NOVEMBER 17th, 1934

SOME ASPECTS OF PAIN*

BY

MACDONALD CRITCHLEY, M.D., F.R.C.P.

JUNIOR NEUROLOGIST, KING'S COLLEGE HOSPITAL; ASSISTANT PHYSICIAN,
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The various biochemical and metabolic changes that have at times been regarded as the effects of pain are of very limited value. Inconstant, unreliable, and non-specific, they tell us little as to the nature, intensity, and site of the pain, or even, indeed, as to its very existence. Many of these data have been determined by animal experimentation, and are entirely inapplicable to the study of pain as a process of human mentation. Some of the changes occur whether anaesthesia is employed or not, and cannot therefore be directly linked with the conscious appreciation of pain. The all-important factor of the concomitant feeling-tone is entirely ignored, and we do not know what part is played by the coexisting fear, anger, depression, and exasperation. When the physiologist discusses the "bodily changes in pain, hunger, fear, and rage" we are persuaded to regard them as identical. Pavlov's work with pain analysers illustrates the extreme diversity of the possible results.

The Psycho'logical Concomitants

The psychological concomitants of pain are manifold. An acute pain, when severe, usually dominates the victim's sensorium, often to the exclusion of other internal and external impressions. In other words, there arises a state of preoccupation or inattention to environmental stimuli. This is one of the most common feeling-tones associated with pain. There results an inability to concentrate upon physical or mental activities. Irritability is another very frequent occurrence during states of painful experience.

The major affects of rage, fear, anxiety, or despair may also accompany the feeling of pain. Their presence depends upon the nature of the pain and the circumstances under which the suffering occurs. Thus, the pains of punishment, conflict, illness, and surgical manipulations differ radically in their attendant circumstances, and they will obviously produce very different emotional states. A sudden violent blow will evoke sentiments of anger, or perhaps of fear, as well as a feeling of pain: a victim suffering the agonies of colic or of angina is assailed not only with pain, but with feelings of anxiety, uncertainty as to the outcome and duration, and perhaps despair. The victim in the dentist's chair may undergo his sufferings with alarm, but no anxiety assails him as to the possible deadly significance of his pain or its duration.

It is a commonplace that under the stress of an agonizing experience the sense of time may be disordered. To the sufferer, time passes at a pace much slower than the common estimate: "each minute seemed an hour" is often heard in descriptions of acutely painful experiences. This point is well emphasized in electrical accidents;

owing to the tonic contracture of the flexor muscles, the hand which makes contact with a live wire may grip still tighter and the victim is unable to release himself, although suffering intense agony. This so-called "elongation of the sense of time" is well illustrated in the following personal accounts:

An engineer who became suspended from a live wire conveying a current of 230 volts writes: "I cannot say how long I was suspended: naturally it seemed ages, but my last feelings before losing consciousness were the most agonizing pains I ever wish to feel." Another, who accidentally seized a telephone wire which was grounded, reported: "The duration of the shock could not have been more than a couple of seconds. A man riding by on a bicycle going at a good speed had only time to pass about thirty yards beyond me when the operator got through talking and opened the switch; yet I could see every spoke in the bicycle and it barely seemed to me to be turning. I could feel every reversal of the current, and these reversals occur at the rate of sixty complete cycles per second. It is this intense activity of the brain to electrical impressions that makes an instant of electric shock seem hours to the sufferer."

It is interesting to recall that depression is rare as a concomitant of severe pain. Older writers often mention that physical and moral pain cannot coexist in any intensity. Ribot puts it: "It seems as though the organism had but a limited capacity for either pleasure or pain, and that neither feeling can exist at the same time in its double (physical and moral) form."

With protracted states of severe pain, marked psychological adjustments are to be anticipated. Whether these will fall into any particular pattern is perhaps questionable, and as much will depend upon the previous personality as upon the circumstances of the present suffering. When disability or disfigurement accompanies the distress, the workings of an organ inferiority may at times be traced. To the layman, chronic pain has long been associated with a subtle process of refining or cleansing whereby the individual is exalted.

Sleep may follow intense suffering, and may even amount to pathological drowsiness. This has been noted in tortured criminals, and lesser examples might be quoted in the drowsiness associated with the severe headache of migraine and cerebral tumours. In the sleep which succeeds or accompanies the exhaustion of torture, dreams of a peculiarly vivid or complex character are often experienced. Jack London has described in *The Jacket (The Star Rover)* the particularly coherent and continuous visions of Durrell Standing while undergoing a series of ordeals by strait-jacket.

He would dream that he was addressing learned societies on abstruse problems, often waking to the sound of his voice ringing in his ears and with imaginary pages of manuscript floating before his eyes; that he was journeying on horseback

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through the meadows of some vast farm; day by day the dream story would develop coherently and consecutively, and unroll itself before him. Shrubs and plants would grow from small beginnings into tall vegetation, which would later be felled by the labourers' axes, collected, dried, and burnt in great heaps.

Secondary Sensations

In a few individuals a curious phenomenon may arise during the course of a painful experience. Accompanying the pain feeling—and even at times replacing it—there may be a stimulation of one of the special senses. This is spoken of as a secondary sensation, or "synaesthesia." Secondary sensations associated with a pain stimulus (synalgesiae) are of course merely one of numerous other synaesthetic phenomena which may accompany other experiences. When we read in literature descriptions of painful experiences we not infrequently find the writer using the language of some special sense in order to describe the quality or intensity. Most commonly we find the pain described in terms of colour. This technique may be employed either in the form of a metaphor or of a simile. Thus we find Homer referring to "black pains." Three examples may be quoted in illustration.

In *The Dream Ship* we read: "Bran decided all his likes and dislikes by colour and smell. His favourite colours were yellow, red, green, and wet-black. The last was very similar to ordinary black, which was the colour of toothache. Little rheumatic pains . . . were grey. The worst pain you could get was a purplish-red one."

Again, in Leonhard Frank's *Brother and Sister* we read, apropos of a maternity ward: "There was nothing in the white-painted room but a white-covered ottoman, a white table of instruments, and a white washstand. Lydia was white too, and the doctors and sisters were white. Only the pains had violent colours, all colours."

In describing the pains of a gastric carcinoma J. C. Powys writes in *The Glastonbury Romance*: "The pain took various shapes in Tittie Petheron's consciousness, according to its intensity. What it resembled now was a round black iron ball of a rusty blood colour, covered with spikes."

When we encounter in literature or poetry such metaphorical intermingling of different sensations we perhaps attribute it to the technique of the writer, who deliberately invokes symbols and startling contrasts, metaphors, and discords in order to emphasize and impress. Undoubtedly this view would be not altogether incorrect, but we are also at times witnessing a less conscious expression of the artist's synaesthetic imagery. Many persons habitually experience secondary along with primary sensations, and examples may find their way into literature, and even into popular diction.

In their minute analysis of *die sekundäre Empfindungen* Bleuler and Lehmann write: "Pains are never felt or recollected without their appropriate colours. They are coloured variously, according to their intensity. Violent pains are accompanied by an idea of white; still more intense and localized pains go from yellow to red and to dark brown; dull headaches give a tint which is almost black; darting pains, an idea of white dots, a pinch, a yellow tint, which is clearer the keener the pain is; indigestion, a more or less clear grey; colic, a clear yellowish tint, which may pass over the red or brown."

At the National Hospital for Nervous Diseases a blind patient who had a keen synaesthetic imagery used to describe all pains as red.

Latent synaesthetic faculties may sometimes be enhanced artificially, as, for example, by intoxication with certain hallucinatory drugs. Mescal is one of the most potent pharmacological measures of this type, and Mayer-Gross and Stein record that on stimulating the cold spots of a patient intoxicated with mescal the sensation was described as "cold, lightning-like, unpleasant, light, and blue." But when the stimulus failed to hit off a cold

spot the sensation was described as "soft, diffuse, dark, and blunt." By the same subject hunger was associated with green and pain with bright red. Under conditions of partial narcosis, or when pain appreciation is temporarily blunted or abolished, another sense image may replace the sensation of pain.

Thus, a patient under a light nitrous oxide anaesthesia during a paracentesis tympani saw two revolving circles of light, which, at the moment when the instrument was introduced into the ear, immediately came into contact with a noise like two circular saws. They remained in contact while the instrument was in position, and separated when it was withdrawn. This experience recurred each time the operation was repeated.

An epileptic, describing his attack, writes: "Not unconscious . . . but under no circumstances can I talk or move any limb with complete control. If I fall and hurt myself, even severely, I do not actually feel the pain, but rather hear it."

It is well known, of course, that this synalgesic phenomenon may be reversed. Thus stimulation of a sense channel may evoke a feeling of pain as a secondary sensation, even when the stimulus is not intense. Kipling, in *They*, writes of an old lady whom certain colours "hurt." Féré described itching of the skin on hearing shrill notes, while Bleuler had a carious tooth which would ache when he heard music. Pain on hearing high notes or on intense light stimuli was described by Helmholtz, and has recently been the subject of exact study by Helmsmoortel.

Susceptibility to Pain

Since pain is mainly a personal sensory experience, its study is beset with the difficulties attendant upon all subjective phenomena. When an individual says he feels pain we are almost entirely dependent upon his descriptions if we wish to learn about its site, nature, and intensity; indeed, when we accept its actual existence we rely upon his word alone. Individuals vary considerably in their powers of description, so that knowledge of another's pain is limited by the victim's intellectual and educational status, as well as by his degree of critical introspection and command of language. Could we investigate twenty persons inflicted with an identical pain stimulus—whether it be the extraction of a particular tooth, a hypodermic injection, or a blow—we would certainly find that the twenty descriptions varied considerably, if not the twenty subjective experiences. Some persons, for example, habitually employ superlatives in speech, and will speak of the pain as "agonizing," "terrible," or "excruciating." The appropriate affect is not necessarily present, however.

But despite all verbal shortcomings and exaggerations there exists an obvious difference in the pain reactions of individuals to what is, as near as possible, an identical stimulus. Common experience teaches that the burly, lymphatic artisan feels pain less than the fragile artist or thinker. As Mrs. Browning put it, "the mark of rank in nature is capacity for pain." Precise data in this matter are scant, however, although Macdonald some years ago made a careful psychometric study of pain sensitivity. His findings confirmed the general impressions by demonstrating a greater sensitiveness in the young than in the old, and in women than in men. Social factors were significant, for the cultured, educated, delicately nurtured, and well-to-do suffered more from pain stimuli than the uneducated, harder, poorer classes. Racial factors are of considerable importance, for the white and "civilized" peoples are notoriously more sensitive than coloured and primitive races.

A marked degree of indifference to pain has been associated by Lombroso with habitual criminals—particularly those who are addicted to crimes of great violence and

brutality. Schilder has noted this insensitivity to pain in at least two criminals, one of whom was the infamous Baker. This man had been arrested for the murder of a watchman by stuffing cyanide down his throat. Psychological investigation quickly revealed extreme hatred and marked sadistic tendencies, harking back to early childhood experiences. Baker boasted that he had killed at least ten other persons.

It is noticeable that the degree of pain sensitivity does not correspond exactly with susceptibility to surgical shock. Post-operative experiences teach how well women and young children sustain severe surgical ordeals, although actually very susceptible to pain.

Insensitivity to Pain

Very occasionally one encounters persons who seem to possess such a high threshold for nociceptive stimuli that pain rarely, if ever, enters their experience.

For example, I was once asked to see a pale-faced, weedy young man, because his doctor had noticed him to be relatively insensitive to pinpricks and other painful stimuli. This I confirmed. He did not flinch when I drove a pin hard into him; he stated he could feel the prick, but said that "it was nothing very much." Inquiry revealed that this hypalgesia had always existed; minor surgical measures, such as the lancing of a whitlow, had been carried out without discomfort. On several occasions teeth had been extracted without anaesthetic and with no suffering whatever. Once, during an argument, a neighbour broke an umbrella over his head, but failed to provoke any pain. A noticeable feature in this case was the discrepancy between his insignificant physique and his apparent fortitude.

A similar case has been described by Weir Mitchell. A legal friend of his, who died at the age of 56, had never felt pain keenly at any time in his life. Having had his finger crushed during a dispute over politics, he bit it off. He had an ulcer on the toe for three years, yet suffered no pain. A severe abscess once developed on the hand, and, spreading to the forearm, endangered his life. No pain was felt, however, even when the arm was lanced. Operation for bilateral cataract was performed without the use of a local anaesthetic. Only on his deathbed did he complain of a little discomfort.

More recently Dearborn has published an account of Edward H. Gibson, well known in American vaudeville as "the human pincushion." This man had never experienced pain other than an occasional headache. Numerous accidents had befallen him during the fifty-four years of his life: he had been struck in the face with a pickaxe, his head had been laid open with a hatchet, a revolver bullet had passed right through his index finger, his fibula had been fractured, his nose broken, his hand burnt on a hot gas stove until the smell of charred flesh became noticeable. But in all these accidents scarcely any pain had been experienced, although he had sustained a certain degree of shock in some. An attack of acute otitis media troubled him so little that he did not stay away from school. A double pneumonia and a typhoid ran their course without pain. In his music-hall act he would appear twice daily in appropriate undress and invite members of the audience to thrust pins into him anywhere except the abdomen and the groin. Sometimes at one performance as many as sixty pins would be driven in up to their head. A challenge of 5,000 dollars was offered to any physician who could detect any sign of pain. He once staged a crucifixion act: four gold-plated spikes with needle points were prepared, and a wooden cross was erected. A man then hammered one of the nails through the palm of his hand, and would have continued with the other extremities had not the performance been broken up at this point by the collapse of certain of the audience. There was no evidence in this man's case of obvious nervous or mental disease, and hysteria could be excluded.

Schilder, in discussing this particular case, referred to a similar patient in whom there was a familial incidence of this peculiarity. In Schilder's patient there was no pupillary reaction and no alteration in pulse rate and blood pressure on painful stimuli. Furthermore, there was an extreme degree of sado-masochism.

Varying Pain

Just as persons differ in their susceptibility to pain, so an individual may vary in his sensitivity under special circumstances. Common experience reminds us that under the stress of strong emotion—excitement, anger, pleasure—the threshold for pain becomes temporarily raised. The footballer may be unconscious of the injury which raises a bruise; the soldier may be unaware he is hit until he sees blood flowing from his wound. More prolonged insensitivity may occur in states of exaltation or religious ecstasy, during hysterical states of dissociation, and in mediumistic trances. In other circumstances pain sensitivity may be temporarily lowered. Thus deep introspection, self-analysis, and close attention will augment the effects of stimuli. In certain neuroses and psychoneuroses this process is constantly operating. Some believe that in hypochondria there is a persistent lowering of the threshold, so that quite trivial stimuli are interpreted as pain—possibly even those activities which ordinarily do not reach consciousness, such as the beating of the heart and the movements of the viscera. The threshold for pain may be temporarily reduced by such factors as cold, hunger, and fatigue. Cachectic and debilitated subjects are usually more sensitive to painful impressions. In such mental states as mild depression, particularly when accompanied by agitation, pain susceptibility is increased. With deeper and anergic types of depression, however, the patient may be indifferent to nociceptive stimuli.

The grossest examples of insensitivity are found in certain cases of insanity or mental defect. Idiots and imbeciles often injure themselves by beating their heads against a wall, gnawing their wrists, or pummelling themselves. Cases are quoted of psychotics who plunge their arms into boiling water, or into a fire until the charred flesh drops off, or who chew broken glass.

Goodhart described a post-encephalitic girl who, with her nails, tore out both eyes, with optic nerves attached. Objective tests revealed that ordinarily she appreciated pain stimuli quite normally.

Another case—probably also one of post-encephalitis—has been described by Conn. His patient, a girl of 21, was admitted on account of severe pains in the head and hands. Whilst in hospital she violently fractured all her phalanges, dislocated her thumbs, and tore off her ear. She affirmed that this caused her no discomfort, and, in fact, relieved her pains. She seemed proud of her action and cheerfully displayed her bleeding and mutilated hands to her horrified mother. When asked what was in her mind at the time she injured herself she replied: "I had to see blood, I wanted to see blood come out, I wanted to keep the blood from reaching my head so I wouldn't go out of my mind, as I hadn't menstruated."

The explanation of these insane acts of automutilation is problematical, and may indeed vary with different cases. In some patients the pain experience may be perhaps incorrectly interpreted. Thus, a patient described by Galton once burnt himself accidentally; thereafter he repeated the performance deliberately on several occasions. Perhaps in the majority of cases the self-infliction of pain represents an effort to appease a sense of guilt or to atone for a misdeed, real or imaginary. Thus in Conn's case, quoted above, there was probably a strong feeling of self-reproach on account of masturbatory practices, and the author instances the Biblical injunction, "If thy right hand offend thee, cut it off . . . and if thine eye offend thee, pluck it out."

In a recent novel, J. C. Powys narrates how an obsessional psychoneurotic volunteered to be crucified in the Glastonbury Passion Play in the attempt to atone for an unpardonable offence . . . right up to the end, till by straining his torso to the breaking-point he lost consciousness, he not only endured this anguish, but he exulted in enduring it. His exultation kept mounting and mounting—extreme pain and ecstatic triumph embracing each other in dark, mystic copulation."

Lastly, it is possible that pain may be deliberately sought in order to relieve a more distressing discomfort or sensation. Thus, the dull aching pain of a neuritis or an intolerable feeling of itching, tickling, or burning, may perhaps be assuaged only by the distraction of sudden fresh sensory impulse, even though painful in character. This phenomenon is, of course, common in normal subjects, and may well be of more frequent appearance among the insane.

The Factor of Attention

An interesting psychological point is raised by the question of expectation. Is a sudden and unexpected painful impression more intolerable than a stimulus of equal intensity falling upon an expectant subject?

Here there is probably an individual factor. In some persons no doubt a pain which comes suddenly and unexpectedly produces a reaction in which shock and discomfort are so intermingled as to outweigh the sensation which would succeed an anticipated stimulus. We know that in the case of electric shocks the factor of surprise is extremely important, the ill-effects being less when the shock is anticipated. There is a much-quoted case of a man who used to suffer deliberately a current of 500 volts. One day he accidentally made contact with this same current and was killed.

On the other hand, there are individuals whose dread of pain sensations is so great that the apprehension of an approaching stimulus greatly outweighs the effect of the pain when it arrives.

Hugh Walpole has expressed this admirably: "Only once or twice in his life had pain actually come to him. He did not mind it so deeply were it part of an illness or natural causes, but the deliberate anticipation of it—the doctor's 'Now look out; I am going to hurt!' the dentist's 'I may give you a twinge for a moment!'—these things froze him with terror. During the war, when he had offered his service, this was the thing that from the clammy darkness and the night leapt out upon him. . . . There had been times at the dentist's and one operation. That operation had been a slight one, but it had involved several weeks of the withdrawing of tubes and the probing with bright, shining instruments. Every morning for several hours before this withdrawing and probing he lay panting in bed, the beads of sweat gathering on his forehead, his hands clutching and unclutching, saying to himself that he did not care, that he was above it, beyond it. . . . but closer and closer and closer the animal came, and soon he was at his bedside, and soon bending over him, and soon his claws were upon his flesh and the pain would swoop down, like a cry of a discoverer, and the voice would be sharper and sharper, the determination not to listen, not to hear, not to feel weaker and weaker, until at length out it would come, the defeat, the submission, the scream of pity." Later, again: "The sense of the coming pain had been more awful than anything that he could have imagined. . . . One night earache attacked him. It was a new pain for him, and he thought that he had never known anything so terrible. Worse than all were the intermissions between the attacks and the warnings that a new attack was soon to begin. That approach was what he feared, that terrible and fearful approach. He had said very little, had only laid there white and trembling, but the memory of all those awful hours stayed with him always."

Yet another problem concerns the effect of one pain upon another. Is the net result of two simultaneous painful sensations the algebraic sum of two components? Or does one disagreeable sensation aggravate the other? Thus, does toothache feel worse to a normal person than to one already suffering some other painful malady—for example, sciatica?

Hippocrates stated: "Of simultaneous pain in two places, the lesser is obliterated by the greater." This dictum is illustrated, of course, by the fortitude which victims of severe and prolonged pain may show under

surgical attention. A patient with trigeminal neuralgia endures the pain of an alcoholic injection better than a healthy individual. This axiom of Hippocrates is only partly true, however, because much depends upon the quality of the pains concerned. A nagging or dull pain may so occupy the sufferer's attention as to render him irritable, apprehensive, and hypersensitive to fresh painful stimuli.

We know little as to the limits of human suffering, but we are perhaps justified in believing that when an intense painful stimulus is maintained for extreme periods of time, or steadily increased in intensity, there does not result a corresponding increase in pain feeling. In other words, a point is reached which transcends pain, and beyond which suffering becomes more tolerable. Little or no precise information is available as to the existence of such an adjustment, and the problem is one which to-day belongs more to the sphere of philosophy.

H. G. Wells ranks among the very few who have devoted thought to this problem. In *The Research Magnificent* we read of the elaborate mental exercises by which Beham strove by the deliberate overcoming of fear and pain to attain the "aristocratic life" or the "life set free." "He was clearly suggesting that in pain itself, pain endured beyond a certain pitch, there might come pleasure again, an intensity of sensation that might have the colour of delight. . . . He argued, we exaggerate the range of pain as if it were limitless. We think if we are unthinking that it passes into agony and so beyond endurance to destruction. It probably does nothing of the kind. And following on this came memoranda on the recorded behaviour of martyrs, or the self-torture of Hindoo ascetics, of the defiance of Red Indian prisoners. These things are much more horrible when we consider them from the point of view of the easy-chair. . . . are they really horrible at all? Is it possible that these charred and slashed and splintered persons, these Indians hanging from hooks, have had glimpses through great windows that were worth the price they paid for them?"

Asymboly for Pain

Brief reference may be made to a variety of agnosia described by Schilder and Stengel. As the result of a local cerebral lesion, situated probably near the left supramarginal gyrus, a localized or a universal indifference to painful impressions may develop. The disability cannot be described as a "loss" of sensation because certain milder stimuli are still perceived, and also because its distribution does not correspond with that found in cases of focal damage to the sensory pathways. The defect is a higher one in the sense that it entails factors of inattention and of imperception.

Relief from Pain

We have no words in English to signify that state of mind which follows the cessation of a severe or protracted painful experience. "Pleasure" is obviously not the word required, as it suggests a more positive state than that associated with mere stoppage of pain. It would therefore seem that relief from pain is a rather negative and affectless state of mind for which no adequate term is forthcoming. Exception may well be taken to this view, however, and one may perhaps submit that the emotional state following pain is one of relief, being essentially attended by definite—even if transient—physical and psychological gratification. The condition of *biensaise* immediately succeeding the emptying of an over-distended bladder or the slaking of a severe thirst instantly comes to mind. One recalls the reply of the lunatic who was asked why he was beating his head against the floor: "Because it feels so mighty fine when I leave off."

Some of the psychological concomitants of painful experiences may linger even after the pain has ceased. Literature contains various examples of this post-algic state.

Paley said: "Pain itself is not without alleviations. It may be violent and frequent, but is seldom both violent and long-continued, and its pauses and intermissions become positive pleasures. It has the power of shedding a satisfaction over intervals of ease, which I believe few enjoyments exceed."

Hugh Walpole writes in his novel *Hans Frost*: "I am suffering to-night from a toothache, and I have always noticed that a toothache is the most unintellectual pain in one's body, just as, in all probability, a stomach-ache is the most intellectual. Have you ever noticed, sir, how bright and clear one's brain becomes between the spasms of indigestion?"

Algoiphilia

The pursuit of pain as a pleasurable sensation may be encountered under various circumstances; to this phenomenon as a whole the term "algoiphilia" is applied. There are instances of this which are so commonplace as to be regarded as physiological.

A few examples may be quoted. Discomfort or pain may at times be courted merely in order to enhance the effect of a succeeding pleasurable sensation. One may compare this process with that technique in music whereby a discord is deliberately placed before a harmony for the purpose of contrast. Another common experience is that of probing or fingering a carious tooth or a wound. By such stimulation a dull ache may be converted into a sharper pain; it is noteworthy, however, that this type of stimulus is never applied to a severe or prolonged painful sensation. We have already mentioned that pain may be deliberately sought as a method of alleviating an intolerable dysaesthesia or even of distracting the attention from harassing psychological experiences. Lastly, it must be admitted that some degree of submission to pain is demonstrable in the female in relation to the opposite sex, just as a certain aggressiveness is a normal feature in the male. When, however, the degree of pain which is sought is excessive or prolonged, or is pursued as an end in itself, then the phenomenon transcends normality.

Four main types of morbid algoiphilia may be enumerated.

1. *Psychotic*.—Instances of the enjoyment of pain among the insane have already been discussed. It is necessary to satisfy oneself that there is no impairment of sensation in such cases.

2. *Racial*.—Among certain communities or races pain may be deliberately endured as a traditional practice. The Samurai of Japan, the Spartans, the Stoics, and the Paramahansas or nomadic Fakirs are cases in point. It is probable that in this group the pain itself is not desired so much as the accompanying virtues of fortitude, courage, and hardihood, which are deemed the spiritual counterparts. In this way Scaevola thrust his arm into the fire to demonstrate Roman endurance. At the flagellation dances of the Fulani young men bared to the waist call for volunteers to beat them with scourges, at the same time smiling, sneering, and taunting the flagellator. The young women bystanders are worked up into a frenzy of admiration, and tearing off their bead ornaments throw them at the feet of the victim.

3. *Religious*.—Self-abasement and the auto-infliction of pain find acutest among enthusiastic devotees of all manner of religious beliefs. We can trace here the associated idea of purification through ordeal of pain and fasting. Here again pain is desired, not for itself alone, but as a means to an end.

Last century Cornelius and Overbeck—two gloomy and eccentric pre-Raphaelite artists—used to prepare themselves for painting by flogging and fasts. In the same vein they eschewed the services of professional models, lest their canvas Madonnas should betray some undesirable traits of fleshliness.

If one may refer again to Hugh Walpole, we read how his Man with Red Hair, by suffering pain himself, had come to associate in his diseased brain the infliction of suffering with idea of power: "A good God, a sweet God, a kind

beneficent God. That is no God. God is first cruel, terrible, lashing, punishing. Then when He has punished enough, and the victim is in His power, bleeding at His feet, owning Him as Lord and Master, then He bends down and lifts the wounded brow and kisses the torn mouth, and in His heart there is a great and mighty triumph. . . . Even so will I do, so will I be . . . greater than God Himself."

4. *Masochism*.—The association of sexual stimulation or gratification with physical suffering or mental humiliation is a well-known phenomenon. It exists in some degree in normal individuals—characteristically the female when in association with the male. The attachment of a woman to a brutal and worthless husband, the fidelity of the prostitute towards the souteneur, are commonplaces which have been worn threadbare in literature. When accentuated, however, a definitely morbid phenomenon emerges. Although in some respects masochism is the complement of sadism—where pleasure is obtained from the infliction of suffering—yet the two states are often interwoven. Under obvious masochistic trends there often runs an overt or suppressed sadism. Even in the life and works of the Marquis de Sade masochistic traits are demonstrable. To express the idea of an ambivalent "sado-masochism" the term "algolagnia" is often applied. We owe the word "masochism" to the writings of a nineteenth century Austrian named Sacher-Masoch, whose imaginative flights largely concerned ideas of self-abasement and mutilation. In retrospect we can detect similar trends in earlier writers, as, for example, Aristotle, Thomas Shadwell, and Jean-Jacques Rousseau.

The well-known passage from the *Confessions* of the last may perhaps be quoted: "Mlle Lambercier . . . at times threatened to inflict upon us that childish punishment which we deserved. For some time she contented herself with threats, and that threat of a chastisement quite new to me seemed terrifying; but after its execution I found it less terrible in fact than in expectation, and the funniest thing was that this punishment endeared me still more to her who had carried it out. All the truth of my affection and all my natural docility was required to keep me from seeking more of the same treatment by deserving it, for I had found in the pain, even in the shame, a mixture of sensuality which had left behind more desire than fear of experiencing it again at the same hands. . . . The same punishment administered by her brother had no pleasurable effect. . . . The second occasion was also the last, for Mlle Lambercier, having no doubt noticed by some sign or other that this chastisement was not fulfilling its object, gave it up. . . . Hitherto, we had shared the same room, and, in the winter, even the same bed. Two days later I was made to sleep in another room."

A vein of masochism runs through much of the decadent literature of the nineteenth century. We find flagrant instances in many of Swinburne's works (*Lesbia Brandon*, *Our Lady of Pain*, *Tebaldeo Tebadei*; in Barrès' *Ennemies des lois*; and in D'Annunzio's *Forse che si forse che no*.

Pain and the Sexual Feelings

The mode of interaction of such apparently dissimilar phenomena as pain and sexual stimulation is of interest. Various ideas have been held upon this subject in the past. Some would ascribe masochism simply to the mechanical and reflex stimulation of the nervi erigentes by strong afferent impulses along the spinal segments. Others would invoke the general "tonic effect" of pain upon the organism (Féré). According to another viewpoint pain shares with the sexual orgasm the power of arousing strong emotion—whether of rage or fear—in greatest degree. Thus, André Gide describes how his extreme hypersensitivity, which used to distress him when ill with phthisis, would afterwards afford him exquisite enjoyment. Any very keen sensation, he concluded, might become a source either of delight or discomfort, according to the state of the general health.

Perhaps the most acceptable hypothesis is that of a conscious or unconscious association of ideas linking up certain pain stimuli with concepts or recollections of a sexual nature. These latter may be so intense as virtually to swamp the pain sensation and produce a temporary analgesia.

Havelock Ellis has discussed at length and with great clearness the probable mechanisms underlying the masochistic phenomena. He points out that in algolagnia the pain in question is less important than the violent emotional outburst; that the pain endured is never intense, and is usually, if not always, bound up with sexual activity; divorced therefrom, pain is no longer pleasurable. The sufferings experienced by a woman in association with sexual excitement may be gratifying in that they enhance the dominant and assertive characters which she appreciates in her male.

Krafft-Ebing summarizes the problem thus: "The person in a state of masochistic ecstasy feels no pain. When a woman says that she finds pleasure in the pain inflicted by a lover, she means that under the special circumstances she finds pleasure in treatment which would at other times be felt as pain. Or else that the slight pain experienced is so quickly followed by overwhelming pleasure that in memory the pain itself seems to have been pleasure, and may even be regarded as the symbol of pleasure."

PHYSICAL EFFICIENCY AFTER OPERATIONS FOR HERNIA *

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The simple title of this discussion is, I think, no index of the extent of the subject. It certainly involves the primary consideration of the problems of detailed technique for the effective radical cure of various types of hernia; but in addition wider considerations, such as the bearing of age and the physical type operated on, repair processes in muscle, and aponeurosis, and recovery of body function, and the importance of the psychical element in this relationship must be included.

The practical surgeon will in the first place wish to determine what type of operation is most likely to be effective in producing a lasting cure in the individual case. Indeed, the successful closure of the hernial opening will generally be admitted as being of the first importance in restoring the physical efficiency of the patient. The types of hernia to be considered are inguinal, femoral, umbilical, and incisional and traumatic. A superficial examination of records shows that the incidence of inguinal hernia is much greater than that of any other type. For example, in five years' operations for hernia at St. Thomas's Hospital the approximate proportions were 11 inguinal hernias to 1.4 femoral and 1 ventral. I shall therefore take as my text inguinal hernia. I propose to analyse the published results of operation for this condition and refer to my own experience of it, leaving it to those who follow to fill in gaps and comment on my argument.

Treatment of Inguinal Hernia

The radical treatment of inguinal hernia will be admitted as having been on a sound basis since the introduction of Bassini's method in 1890. Since that date many modifications of technique have been put forward, and some have found a permanent place in surgical

practice. Bassini's method and the others that followed him were based on the principle of obliterating the sac and reinforcing, rather than reconstructing, the musculature which closes the inguinal canal. The next important advance was the use of the fascial suture or graft, a procedure which enables the surgeon in some degree to neglect the normal muscle closure of the canal and to substitute a fibrous diaphragm: this procedure is particularly adapted to the treatment of direct hernias, but its use for indirect hernias has advocates.

It might be thought that, in view of the amount of consideration given to the subject and the great bulk of cases which have been operated on, a common standpoint as to the best methods and their effectiveness would have been reached by now. This is, however, by no means the case. Inadequate or inaccurate information as to the late results of various operations is mainly responsible for this state of affairs. It is only in the last five or ten years that any systematic attempts to follow up hernia operations have been made. Even then in the figures resulting from such investigations one finds difficulty in assessing their proper value. The methods and standards of classification vary widely, and in all groups of figures there is a certain percentage of untraced cases which clearly weakens the value of any results arrived at. A further difficulty is that of estimating the value of new methods on account of the relatively small numbers reviewed and the shortness of the period of observation.

Assessment of Results

In discussions between surgeons on the end-results of hernia operations, the general impression to be gathered is that the individual surgeon using the method he favours seldom sees recurrences. No doubt there is a tendency for failures to be seen by surgeons other than those who first operated, but I cannot help thinking that a close and critical follow-up of all cases would show a much higher recurrence incidence than we believe to exist.

My own confidence in the satisfactory nature of results of inguinal hernia operations was shaken by my experience as consulting surgeon to the metropolitan police. Here we are dealing with a body of men some 20,000 strong, of picked physical efficiency, and young to middle-aged. The force, on the whole, is not exposed to excessive physical exertion. One would therefore expect a high standard of permanent cures after radical operations. The figures I have collected in relation to this group are small, but appear to be fairly constant each year. In the five-year period 1929-34 241 police officers were operated on for inguinal hernia. In 212 cases the operation was primary, the condition being double in fifteen. Four operations were for strangulated hernia. Twenty-five operations were for recurrences, which suggests an approximate recurrence rate of at least 11.5 per cent. In order to investigate the matter more fully I asked my first assistant, Mr. N. R. Barrett, to follow up and examine personally all cases of this type operated on at St. Thomas's Hospital for the previous five-year period. This investigation showed the incidence of recurrence to be even higher than this figure, and I will refer in detail to his findings later.

In the literature the most important statistical analysis of this subject is to be found in an article by Block.¹ He published in 1933 the collected results of 20,199 inguinal hernia operations. His figures were obtained from 650 different surgeons working in German clinics. The results he quotes are essentially of a bulk character, as he does not show the incidence of recurrence in relation to sex, age, or anatomical type of hernia. He himself recognizes that the estimate of recurrence varies with the individual observer. What one surgeon would term a weak inguinal region another would classify as a recurrent direct hernia.

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

None the less, the material considered is very large, and the figures resulting may be taken fairly to represent the present ideas on the Continent of the recurrence incidence. Of the total 20,000-odd cases reported only 6,029 were followed up for a period of two years or more. In this group 296 recurrences were reported. This recurrence incidence he analysed in relation to type of operation carried out, with the following result.

Recurrence Rate			
Method	Total Cases	Cases Followed	Incidence of Recurrence
Bassini ...	13,220	4,177	177 = 4.2 per cent.
Gerard ...	1,857	559	32 = 5.7 "
Kocher ...	1,533	221	7 = 3.2 "
Hackenbruch...	1,026	514	49 = 9.5 "

Results from smaller groups of figures are omitted.

He estimated the time of recurrence from personal investigation of 642 cases, the results being as follows:

Time of Recurrence in 642 Cases			
Inside three months ...	...	131 = 21.3 per cent.	
For next three months ...	...	109 = 16.9 "	
For next six months...	...	94 = 14.6 "	
One to two years ...	...	68 = 10.5 "	
After two years ...	...	224 = 34.8 "	
Unknown ...	...	16 = 1.5 "	

It is interesting to note that no less than 34.8 per cent. of recurrences occurred in this group after two years. In a large number of published cases the investigation has not been carried on sufficiently long after operation to include this group.

In the same group the cause of recurrence was put down by Block to the following factors in 548 cases in which the information was available:

Cause of Recurrence			
Suppuration or wound haematoma ...	...	122	
Pulmonary complications ...	...	79	
Technical errors in operation ...	...	27	
Double-sided operation ...	...	102	
Constitutional defect and poor connective tissue ...	...	149	
No observed cause ...	...	69	

Is Recurrence Avoidable?

Block states that in his opinion 40 to 45 per cent. of recurrences are avoidable, and emphasizes the important influence in this direction of a double operation carried out at one sitting. The nature of the recurrence in the group investigated is shown in the following table:

Situation of Recurrence			
Inner part of scar ...	...	286	
Outer part of scar ...	...	170	
Middle part of scar...	...	8	
Unknown ...	...	3	
Total ...	...	467	

Although it is of interest to discover the exact nature of a recurrence after an operation for indirect hernia, I find it very difficult from published records to come to any definite conclusion on the subject. Certainly the majority of recurrences are not properly oblique or into remains of the original sac. Block's figures suggest that the majority of recurrences are internal direct hernias, and that is consistent with my observations (from a clinical standpoint) in a group of policemen.

Another matter of interest and perhaps practical importance drawn from these figures is the routine period for which hernia cases are kept recumbent after operation, the following being the report from fifty-five different clinics.

Number of Clinics		Length of Stay in Bed	Period of Recumbency.
1	1 day
1	4 to 6 days
2	7 days
36	In second week
12	After two weeks
3	After three weeks

Block, though he finds no obvious ratio to exist between the period of post-operative recumbency and the recurrence incidence, makes the statement that, though the time of return to work varies considerably, it appears to be latest in those patients who get up soonest after operation.

An analysis of the suture material used in relation to the recurrence incidence suggests that it has little or no influence on the results. The figures are as follows:

Effect of Suture Material			
Material Used	Clinics Reporting	Cases	Recurrence Incidence
Catgut ...	36	7,980	4.3 per cent.
Silk ...	25	7,803	4.3 "
Thread ...	7	2,525	4.6 "
Silkworm ...	1	113	5.3 "

(The total death rate in this large group, excluding cases of strangulated hernia, was 0.5 per cent.)

Block was unable satisfactorily to determine the relationship of recurrence incidence to the experience of the operator. He notices in the cases of recurrence that the ratio of manual workers to sedentary workers is as 6 to 1.

Discussion

I have given in some detail the results of this investigation, as from the large number investigated they must carry considerable weight in forming a general surgical opinion in this subject. I should like, however, to emphasize certain criticisms as to their validity in assessing the recurrence incidence after operations for adult inguinal hernias. First, hernias in women and children are included in all results. By common consent the ratio of satisfactory cure in these cases is high. Secondly, only about three-tenths of the cases reviewed have been followed up, and of the group of 6,000 subjected to late examination few were traced for more than two years after operation.

From America the figures of Gibson and Felter² may be taken as representative of modern optimistic ideas. They conclude that in a group of patients numbering 1,618, the general recurrence rate is 2.9 per cent. For direct hernia they estimate it at 6.5 per cent., and give the astonishing figure of 1.3 per cent. for indirect hernias. It is of interest to note that they found the recurrence rate after double operations for indirect hernia to be 8.9 per cent. It should be noted that these figures were obtained from a quite inadequate follow-up; only sixty-seven cases were examined after two years.

Many reports of smaller groups of cases are to be found, most of them are designed to illustrate the results of some special technique. Bessin³ reports on 4,500 cases operated on by Kirschner's modification of Bassini's method. He followed up, in 1932, 267 male cases of all types operated on in 1928, and found ten recurrences (4.13 per cent.). Six of the recurrences appeared in patients in whom the wound had suppurred, or who had suffered from post-operative pulmonary complications. He noted that atrophy of the testicle was not observed in any instance. Ostfeld⁴ records 586 cases operated on by the Bassini

method, silk being used for preference as suture material; 239 cases were followed up, and the general recurrence rate was found to be 5.4 per cent. For indirect hernias the figures were 4.3 per cent., and for direct hernias 20 per cent. He noted that if the period of post-operative recumbency was limited to six days no increase in the recurrence incidence was noted. He finds that a hereditary influence doubles the likelihood of recurrence. Niessen's reports on 102 cases operated on by Schmieden's technique. In the sixty-six cases followed up there were six recurrences in men between the ages of 40 and 60. This method involves displacement of the cord, and it is worth noticing that in four atrophy of the testis followed, and that twelve cases complained of pain in the scar. I have not been able to find much in the way of figures from English sources. Turner and Eckhoff⁸ reported a small group in 1929. In ninety-eight cases simple excision of the sac was carried out, and gave only three recurrences. In twelve cases in which a modified Bassini operation was employed there were two recurrences.

An almost refreshing note in this welter of satisfactory results is sounded by Birkenfeld.⁷ He is concerned to show the association of hereditary tendency to the incidence of recurrence, and in seventy-six males followed up found a recurrence rate of 28.49 per cent. I think that the average results in the adult male are better represented by this figure than those previously quoted, although it seems incredibly high in comparison with the previous figures. N. R. Barrett recently examined for me 206 policemen out of a group of 295 who had been operated on between 1925 and 1929. Their average age was 32.5 years. The follow-up varied from five to nine years. In this group the recurrence incidence was 20.2 per cent. for indirect hernia, and 25 per cent. for direct. The average age of the men concerned was 31. In seven cases the recurrence appeared four or more years after the primary operation. In the forty-seven cases of recurrence bilateral hernia had been present and was operated on at one sitting. It may be noted that physical efficiency of many of the men was not sufficiently affected by the recurrence to prevent them carrying on with their duty. Twenty-six of the forty-seven came into this category, and of these only fourteen were wearing a truss.

Use of Fascial Suture

The use of autogenous fascia for suture was introduced, I believe, in 1904 by McArthur.⁶ The method has been elaborated by several authors, but now the technique introduced by Gallie and Le Mesurier⁹ appears to be the most satisfactory. The articles written in relation to this technique are multiple in number, but lack weight in the proportion of cases followed up for any length of time. The reason for this is probably that the fascial graft operation is reserved by most surgeons for direct, difficult, or recurrent cases. The theoretical case for the regular use of fascial sutures is put forward by Seelig and Chauke, and supported by Koontz. The latter thinks that preserved fascia is as efficient as fresh. They have shown that in reconstruction operations in the abdominal wall muscle and fascia sutured together with ordinary material do not unite. Koontz agreed to this, but states that if surfaces are first eroded union may be effected. This subject is reviewed by Hodgkins.¹¹

Of the figures bearing on this technique those of Gallie and Le Mesurier, published in 1930,¹⁰ may be noted. In 200 operations on direct and large indirect hernias they noted only four recurrences; all these recurrences appeared in bilateral cases. Lyle¹² reports on 159 bilateral cases followed for from one and a half to five and a half years on 132 cases operated on by the McArthur method and twenty-seven by Gallie's. He found 3 per cent. of recur-

rences in indirect hernia and 9.5 per cent. in direct. He states that in a group of operations carried out in the same period with catgut the recurrence incidence was twice as high.

Conclusion

I feel I have been guilty of firing off a lot of statistics, and when I come to an end I really do not quite know what I want to prove. The astonishing difference between the results that are indicated by these figures can hardly be laid at the door of any special technique. My own conviction is that recurrence after operation in the young to middle-aged is commoner and more difficult to avoid than we are inclined to think. When we come to consider how results are to be improved we are on thorny ground. The factors influencing success may be considered under the following headings:

1. Technical method.
2. Failures in technique, including suppuration and haematoma formation.
3. Post-operative pulmonary complications.
4. Operation on double hernias.
5. Hereditary tendency to hernia, or congenital feebleness of the musculature.

As opener of the discussion I shall refrain from commenting further on these points, as those who follow me will no doubt have clear ideas as to how some, at any rate, of these various pitfalls may be evaded.

Femoral and Ventral Hernia.—I have spent so much time on inguinal hernia that I shall only refer briefly to femoral and ventral herniae. I take it that in considering the closure of the femoral canal discussion will mainly range round the question of closing the femoral canal from above or below. I confess to belonging to the old-fashioned group, which thinks that a closure from below by Langenbeck's method gives as good results as any. I take it for granted that the stump of the sac is satisfactorily reduced within the abdomen, and that the crural canal is cleared of fat before the pectinal fascia is sutured to Poupart's ligament. I admit the apparent attractiveness of the upper shuttle type of operation, but remain unconvinced that it is the better routine procedure. The association of femoral with inguinal hernia is sometimes emphasized. No doubt, if at an operation for inguinal hernia Poupart's ligament is forcibly pulled upwards the crural canal is opened to some degree. The subject is elaborated by Hodgkins.¹¹ In a group of ventral hernias, whether they be umbilical, epigastric, or incisional, I think the operation must be worked out for the individual case. I confess my belief in the value of certain principles. They should be closed by fascia without undue tension, unless muscle is sufficiently adjacent to repair the gap without it being necessary to pull it out of its normal line of action. A fascial repair should be effected by a double overlap. When tension does not admit of this a fascial graft suture should be employed.

I trust that if my primary presentation of this subject was too paralytically statistical my final categorical statements will prove useful material for discussion.

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THE PROLAPSE SYNDROME*

BY

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Briefly, the term "prolapse syndrome" means prolapse associated with excessive bleeding from the cavity of the uterus. Different women present differing forms and degrees of prolapse, but the common form consists of a cystocele and rectocele, with deficient perineum, and more or less descent of the cervix, accompanied by a hernial protrusion of the pouch of Douglas. When on straining the cervix protrudes for an inch or more from the vulva, the form of the prolapse becomes typical of that denoted by the term.

In the early part of this century removal of the uterus by the vaginal route was almost wholly abandoned in favour of the abdominal route. This change was partly due to the fact that gynaecologists were becoming surgeons rather than physicians, and partly because in a large number of cases abdominal hysterectomy is obviously the method of choice.

In 1919 I saw vaginal hysterectomy performed a few times with mild surprise. During the next few years it was less rare, and I saw it often enough to learn a technique and suspect that there might be occasions when it had some advantage over the abdominal method: advantage from the point of view of its being less exhausting to both patient and surgeon. To the eye of one accustomed to the abdominal approach vaginal hysterectomy seemed a kind of fiddling, delving in the dark, affair—a cobbling up of tissues with little resemblance to ordered surgical procedure. In the course of experience this impression became modified, and one was surprised to find that the steps of the technique naturally followed each other in a simple and orderly manner.

During this period it became my portion to operate on a number of 14-stone patients possessed of an enlarged uterus, the "adipose sporan,"† varying degrees of prolapse, and complaining of excessive bleeding, accompanied by such general impairment of physical capacity as merited hysterectomy for its cure. These cases were dealt with by the abdominal route, the three or more inches of subcutaneous fat and the "sporan" making the opening and closing of the abdominal wall, in itself, an operation of some difficulty. The subperitoneal fat and the heavily laden omentum further narrowed the approach to the uterus, partially obscuring landmarks and impeding the satisfactory application of ligatures. The majority of the patients sustained a fair amount of shock and passed through a stormy post-operative period. In some, mild suppuration occurred in the subcutaneous fat, wounds broke down, to heal finally by granulation; a few left the hospital with incipient incisional herniae, while two patients, including one of mine, burst their abdominal wounds about the twelfth day after operation, depositing the intestines in the bed. These were re-sutured immediately, and in due course recovered. There was great difficulty in finding anything in the way of separate layers for suture, the cut surface on each side being fused into a solid mass.

Being now free from bleeding, these patients, in the course of time, regained some of their former energy and physical enterprise, and began to notice their disability from prolapse. Some reappeared complaining of dragging pain, of something coming down giving difficulty

in walking, or of stress incontinence of urine, and asked for relief. They required anterior colporrhaphy and posterior colpoperineorrhaphy, or, more briefly, reconstruction of the pelvic diaphragm, and in the case of some, whose former operation had been a subtotal hysterectomy, a hypertrophied actively discharging cervix required removal as well. A few required belts or further operation for their incisional herniae.

Remembering that these patients had already spent an hour on the operating table, experienced a stormy post-operative period and been three weeks or more in hospital, it seemed unsatisfactory that they should now reappear demanding another operation for part of their original complaint, and in a few cases further surgical treatment as a result of the former abdominal incision. Of course one knows that incisional herniae are sometimes unavoidable; but they are particularly liable to occur in the fat abdomen. This question of herniae, while being of interest, is secondary to the main consideration—that of a second operation for the treatment of part of the original complaint. The reconstruction operation being done, the patients spent on the average another three weeks in hospital, and returned to their vocations after a further period of two or three weeks' convalescence.

A Combined Operation

In thinking about this matter the question naturally arises: "Why not do a vaginal hysterectomy and combine it with the reconstruction operation?" There did not seem to be any very obvious objection, except the general consensus of opinion that vaginal hysterectomy formed no part of the operative treatment of prolapse, and was in fact contraindicated on the ground that in removal of the cervix one lost a stable suture point for the anterior vaginal mucosa. This reason I personally was unable to appreciate, because in order to render the cervix stable it had first to be hitched up in the pelvis by shortening the lateral ligaments, and further, in many cases, owing to hypertrophy and discharge, the greater portion of the cervix had to be removed as part of the reconstruction operation. The presence of the infected cervix might offer a further objection to opening the abdomen from below, or to the making of free vaginal incisions in its neighbourhood, and for some time this consideration made one hesitate to combine the two operations. On the other hand, amputation of the cervix is combined with repair operations, and here the infected cervix is actually incised, whereas in hysterectomy the incisions are not made in the cervix, but in relatively healthy adjacent tissue, even further away from the actual cervix than in the abdominal route; moreover, the condition of the cervix can be improved before operation by suitable douching.

With these considerations in view I began tentatively to combine the two operations, and up to the present time have found the procedure satisfactory to the patient and surgeon in suitably selected cases—namely, those whose symptoms and physical signs are denoted by the term "prolapse syndrome." This term, while including the prolapse sign and symptom complex, is meant to have a wider application, and extend to those patients who have an enlarged or retroverted uterus, or both, and complain of excessive bleeding, the condition of the uterus being such as to render practicable its removal from below.

Common Prolapse Symptoms

1. Girdle-ache, including sacral backache and dragging pain in the inguinal regions.
2. A sense of discomfort from something coming down in the perineal region.

* Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

† Adipose sporan: A fold of abdominal skin and subcutaneous fat which rolls down over the symphysis pubis.

3. Frequency of micturition, varying in degree up to stress incontinence.

4. Irritation from excessive cervical discharge.

5. Undue fatigue at the end of a routine day.

Perhaps the outstanding feature is a sense of diminished physical capacity; the patient can now undertake only with difficulty and resultant fatigue what she formerly accomplished with ease. The ordinary daily round of household and social duties produces exhaustion. This state of affairs is due partly to anaemia and partly to the discomfort and other disturbances arising from prolapse.

These symptoms combine to reduce the patients' physical capacity, and make them unwilling to undertake the discomfort of walking or other forms of activity. Other difficulties arise in the later stages of prolapse, but these need not concern us here. A number of multiparae—it is not possible to give percentages—with prolapse have, in addition to their hypertrophied cervix, an enlarged uterus, which may be retroverted. The enlargement of the uterus may be due to a chronic subinvolution, to multiple small fibroids, rarely to diffuse adenomyoma, or even carcinoma of the body; these conditions give rise to excessive bleeding, and are therefore suitably included under the term "prolapse syndrome."

Conditions Necessary for Easy Performance of Vaginal Operation

1. The uterus and appendages must be mobile.
2. The uterus must not be too large or associated with large tubal or ovarian swellings.
3. The uterine disease must be such as not to contraindicate its removal from below—that is, carcinoma of the cervix.
4. The cervix should come down readily to the vulva.
5. The vaginal outlet should be relaxed, or at least easily enlarged by a relatively small incision, something considerably short of the old Schuchardt's* incision.

Quite often these patients have the fat, more or less pendulous, abdomen, already referred to as unsuitable for abdominal incision.

TECHNIQUE OF THE OPERATION

Five operative procedures are combined: (1) anterior colporrhaphy, (2) vaginal hysterectomy, (3) reconstruction of the hernia of the pouch of Douglas, (4) posterior colporrhaphy, (5) perineorrhaphy.

I will briefly describe a standard method of linking these procedures.

1. Preparation of the field: the perineum is incised back to the anal margin. The nymphae are sutured to the thighs and traction sutures are inserted in the cervix. Determine area of vaginal mucosa to be removed: (a) of the anterior mucosa, inserting landmark suture to mark the upper end of the new anterior vaginal wall; and (b) of the posterior vaginal mucosa, inserting landmark sutures at the site of the upper end of the new posterior vaginal wall.

2. Removal of redundant tissue; the anterior and posterior mucosa and the uterus in one technique.

3. Reconstruction of the pelvic diaphragm. Fix the uterine stumps and ovario-pelvic stumps on either side to the upper margin of the new lateral vaginal walls. Join the cut edge of the peritoneum of the utero-vesical pouch to the anterior landmark sutures, thus forming the upper end of the new anterior vaginal wall.

4. Reconstruction of the anterior vaginal wall.

5. Remove the redundant peritoneum of the hernia of the pouch of Douglas and suture the peritoneal stumps to the

posterior landmark sutures, thus forming the upper end of the new posterior vaginal wall.

6. Reconstruct posterior vaginal mucosa and the perineal body.

The operation in my hands requires an hour to an hour and a quarter for its performance, without undue difficulty in the control of unexpected oozing. There is, as a rule, no appreciable shock, and the patients do not have a stormy post-operative period. In general they are sitting up the next day, ready to do justice to their dinner. Towards the end of a week there is usually some vaginal discharge, which clears up readily with douching. The length of stay in hospital and the after convalescence period is the same as that for simple repair operations.

ADVANTAGES OF THE METHOD

1. The avoidance of two operations and the prolonged period of convalescence associated therewith, approximately five weeks instead of ten.
2. The avoidance of an abdominal incision in fat women and the possible post-operative complications.
3. The relative absence of post-operative shock.

I have looked up the notes of sixty cases. In all, the anatomical result* at the time of departure from hospital was good and the patients' general condition satisfactory. As far as the evidence goes at the moment this procedure would seem to be an improvement on the older method of two operations at different times by different routes.

Forty-four patients have been examined twelve months or more after operation, and fifteen three months or more. The anatomical result* was good, but in one case the posterior fornix, owing to imperfect fixation, bulged down to the outlet on straining, as a hernial protrusion. This gave rise to some discomfort, and has been repaired with success. Sixteen out of the sixty cases had post-operative *B. coli* cystitis, but in eight of these it was known to be long-standing. There were four slight secondary haemorrhages: one on the seventh day, and three between the tenth and twelfth days. Two patients had small abscesses in the perineum, which cleared up.

One case proved fatal. This happened in a mentally deficient woman who, by means of her fingers, removed the perineal stitches, became septic, and ultimately died from a pulmonary embolism. It is unfortunate that we were unable to recognize this woman's mental condition previous to the operation, for failure to do so has impaired what might otherwise have been an unblemished record.

* Good anatomical result.—The new vagina and perineum approximate to the nulliparous condition, the vagina admitting two fingers with some discomfort and No. 5 vaginal dilator without discomfort. There is no pouting of vaginal walls on straining, and no incontinence of urine on coughing.

With the object of promoting biochemical studies and research a Biochemical Society has been formed in Calcutta, and was formally inaugurated on July 6th at the All-India Institute of Hygiene. The first committee of the society has been composed of the following: Professor N. M. Basu, Lieut.-Colonel T. C. Boyd, Professor S. Ghosh, Professor J. N. Mukherjee, Dr. B. B. Sen, Professor H. K. Sen, Professor H. E. C. Wilson, with Dr. B. C. Guha as honorary secretary and Dr. B. Ahmad as honorary treasurer. It has been arranged to hold monthly meetings for biochemical discussions and reading of original papers. Four meetings have already been held, in which the following papers have been read: B. Ahmad, "The Metabolism of Carotene"; A. C. Roy, "A Purified Vegetable Medium for the Cultivation of Micro-organisms"; S. L. Banerjee and H. K. Sen, "The Catalytic Activation of Diastase"; A. R. Ghosh and B. C. Guha, "Vitamin C in Indian Foodstuffs"; K. C. Bhattacharjee, "Snake Venom and its Therapeutic Applications."

* Schuchardt's incision: An incision starting in the left vault of the vagina and passing deeply on the left side of the anus through the levator ani to the sacrum.

CYCLOPROPANE ANAESTHESIA

BY

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In 1929 Henderson and Lucas of Toronto¹ began to use cyclopropane on laboratory animals as an anaesthetic. A large amount of experimental work was done, both at Toronto and at Madison, Wisconsin, before the new gas was first used clinically by Dr. Ralph M. Waters of Madison and Dr. A. E. Guedel of Los Angeles.²

Description

Cyclopropane is trimethylene ($\text{CH}_2\text{CH}_2\text{CH}_2$), an isomer of propylene ($\text{CH}_3\text{CH}=\text{CH}_2$). It is heavier than air, with a density of 1.46, and is inflammable and explosive in concentrations of from 20 to 75 per cent. when mixed with oxygen. This is of no practical importance, owing to the closed circuit method of administration. At present it is made only by the Ohio Chemical Company, Cleveland, and is put up in fifty-gallon steel cylinders at a pressure of seventy-five pounds to the square inch. Its cost is still very high—25 dollars for fifty gallons. Including cost of carriage, insurance, cylinder purchase, and Customs duties, my own supply worked out at about 3s. a gallon, but fortunately (as explained later) very little is used per case. The gas is colourless, with a sweetish odour, not unlike chloroform or ethylene.

Clinical Results

The gas is not irritating to inhale, induction being smooth and rapid; but if too high a concentration is administered at first there may be some laryngospasm. It does not cause salivation like ether, and it is rapidly eliminated, consciousness being recovered quickly. Shackell and Blumenthal³ report that a monkey with advanced tuberculosis underwent anaesthesia five times, lasting upwards of six hours on each occasion, without apparent ill effect. Deep anaesthesia with good relaxation can be obtained, and the respiration is very quiet and shallow, but it is not certain how much of this is the effect of the gas itself and how much is due to the absence of carbon dioxide from the rebreathing bag. Clinically, the anaesthesia resembles that of chloroform, but the induction and recovery resemble that of nitrous oxide or ethylene.

It is, of course, premature to express any opinion yet, but cyclopropane appears to be a most promising anaesthetic, and it may possibly fulfil the hitherto unattained ideal of the safety and speed of nitrous oxide combined with the calm and quiet relaxation of chloroform. Dr. Waters, who knows more about it than anyone, is careful to avoid exaggerated claims until the anaesthetic has been very extensively tried out.

The gas causes little, if any, change in the blood pressure or blood chemistry, and it possesses the desirable feature which makes ether so popular—that is, in cases of overdosage the respiration fails before the heart. Animal experiment shows that cyclopropane anaesthesia deliberately mishandled by cessation of the oxygen supply can be taken to the stage of profound asphyxia and complete stoppage of respiration, which may be allowed to continue for six minutes before any effect is shown on the electrocardiograph tracings. If the administration is then stopped, rapid and spontaneous recovery takes place.

Method of Administration

Cyclopropane cannot be administered like nitrous oxide because of the prohibitive cost of such a wasteful method. Fortunately, like nitrous oxide and ethylene, it is excreted by the lungs unchanged, and is also unaffected by soda lime, so that the closed circuit carbon dioxide absorption method can be used. The sole function of the vast quantities of nitrous oxide used in a prolonged administration is to allow the patient to get rid of his carbon dioxide. If this is absorbed by soda lime, and oxygen is supplied in sufficient quantity for the metabolic needs of the body, the original bagful of gas may be used over and over again.

An air-tight cushioned face-piece is used, which can be strapped tightly on to the patient's head, and to which is attached a canister of granulated soda lime; through this the patient breathes into a rubber bag. The soda lime granules are kept in position by a wire gauze diaphragm at each end of the canister, and the bag or face-piece has a tube attached for the admission of cyclopropane and oxygen. All joints must be air-tight. The gases are delivered through flow-meters or a water sight-feed bottle. Cyclopropane is of about the same density as carbon dioxide, and can be used with a flow-meter calibrated for that gas. Before beginning, one should blow through the canister to remove any dust.

The harness is placed under the patient's head, the face-piece, canister, and bag fitted together, and a stream of oxygen turned on. The patient is then allowed to breathe into the apparatus, and the cyclopropane is turned on—very slowly at first and then more quickly. In a short time the harness is fastened on to the face-piece, and the head turned to the side, so that the canister rests on the pillow. After three or four minutes, when the desired depth of anaesthesia is reached (the signs are much the same as with ether), the cyclopropane is shut off altogether and the oxygen flow adjusted so as to keep the bag just full. The position is then as follows. In the closed and air-tight circuit formed by the patient's lungs and the apparatus there is (or should be) the correct percentage of cyclopropane to ensure anaesthesia (9 per cent. for loss of consciousness, 14 to 16 per cent. for deep anaesthesia). The gas itself is breathed over and over again, and, in theory, need not be altered however long the operation lasts. The carbon dioxide exhaled by the patient is removed by the soda lime, and the oxygen absorbed is replaced by the inflow from the cylinder. It is a curious spectacle to see a prolonged anaesthesia carried out with nothing more than a trickle of oxygen.

During a long operation it may be necessary to add a small amount of fresh gas to compensate for any loss by leakage or by diffusion through the rubber bag or through the patient's skin. All anaesthetic gases diffuse through these two membranes, cyclopropane considerably more easily than the others. The ordinary-sized canister, containing about a pound of soda lime, will last upwards of six hours before refilling is needed. The time will vary according to the type of patient. It will become exhausted more quickly when used for exophthalmic goitre cases, which have a high basal metabolic rate. Exhaustion is indicated by deepened breathing caused by the accumulation of carbon dioxide. (Siebe Gorman and Co. now market a brand of soda lime which changes colour as it approaches exhaustion point.) During use the canister gets warm from chemical action, but never too hot. Excessive temperatures might be reached if CO_2 were added to the circuit from outside, so if this is to be done the canister should be removed for a time. But it is one of the advantages of the method that the breathing is so quiet, so it seems unnecessary to interfere with this by

adding carbon dioxide. As the patient is having about 85 per cent. of oxygen there is no difficulty whatever in maintaining a good colour.

Case Records

Personal experience of the drug in Leeds is at present limited to thirteen cases.

1. F. 41. Carcinoma of breast; 65 minutes; some delay in induction due to excessive caution; anaesthesia otherwise good.

2. F. 34. Dilatation and curettage; 20 minutes; delayed induction again; recovery period 2 minutes.

3. F. 33. Clearance of uterus; 18 minutes; again a slow induction.

4. F. 36. Simple amputation of breast; 28 minutes; quick induction; blood pressure before operation 126/90, after 124/80; pulse before 112, after 76.

5. M. 32. Inguinal hernia; 31 minutes; adult of good physique; blood pressure before 140/84, after 148/84; pulse 72, 72; cyclopropane was given for four minutes, then turned off, turned on again for a few seconds half-way through, because of slight movement; patient was able to talk three and a half minutes after the mask was removed.

6. F. 48. Radium to cervix; 15 minutes; quick induction.

7. F. 26. Dilatation and curettage; cautery of cervix; 17 minutes; quick induction.

8. F. 48. Hysterectomy; 1 hour 16 minutes; quick induction; relaxation very good; no swab needed for sewing up; blood pressure before 125/80, after 120/80; pulse 150, 104.

9. F. Oöphorectomy, appendicectomy; 1 hour 2 minutes; relaxation good; movement of leg in middle of operation owing to leakage; anaesthesia rapidly deepened; no swab needed for sewing up.

10. F. 29. Oöphorectomy; good physique; 49 minutes; rapid induction, with slight struggling; relaxation good; moving 3 minutes after mask removed; talking in 10 minutes.

11. F. 61. Incisional hernia; 1 hour 15 minutes; three-minute induction.

12. F. 56. Umbilical hernia; 1 hour 35 minutes; a bad risk; enormously fat; gas and oxygen not chosen for this reason; bronchitic, which made it desirable to avoid ether. It was hoped that cyclopropane would solve the problem. After one hour anaesthesia was unsatisfactory—straining during sewing up could not be overcome, so a change was made to gas and oxygen with secondary saturation. This patient died four days later from pulmonary embolism.

13. F. 50. Hysterectomy; after 35 minutes changed to ether, as good relaxation could not be obtained.

Conclusion

The apparatus used was somewhat of an improvisation, and apt to leak. At Madison, with apparatus specially built for the carbon dioxide absorption method, I saw hysterectomies and stomach operations performed with ease under cyclopropane, and saw no failures.

It must not be forgotten that cyclopropane is a powerful agent which will produce anaesthesia in low concentration, so that it must never be used with small proportions of oxygen in the same way that nitrous oxide and ethylene are used.

REFERENCES

- ¹ Henderson, V. E., and Lucas, G. H. W. *Anesthesia and Analgesia*, 1930, ix, 1.
- ² Stiles, J. A., Neff, W. B., Roventine, E. A., and Waters, R. M.: *Ibid.*, 1934, xiii, 56.
- ³ Shackell, L. F., and Blumenthal, R. R.: *Ibid.*, 1934, xiii, 133.

During the last twenty years the number of medical practitioners in France has increased from 16,200 to 27,500, a rise of 70 per cent., while the rise in population has been only two millions, or 2 per cent. The number in Austria is 8,806, of whom 4,952 live in Vienna. In Czechoslovakia in 1933 there were 20 per cent. more practitioners than in 1930, there being one doctor to every 2,046 inhabitants in 1930 and one to every 1,689 in 1933.

Clinical Memoranda

METASTATIC CEREBRAL TUMOUR WITH PERFORATION OF AN ACUTE GASTRIC ULCER

In view of the reawakened interest in the part played by neurogenic factors in the aetiology of peptic ulcer, the features of the following case are recorded.

A woman, aged 46, was admitted for carcinoma of the cervix, with obvious secondary deposits in the bones of the pelvis and in the glands of the groin and supraclavicular region. The general condition was, however, fairly good, but the protracted downward course which had been predicted was cut short by her sudden death a few weeks after admission. At necropsy a general peritonitis was found, due to the perforation of a small ulcer on the anterior surface of the pyloric segment of the stomach. There were secondary deposits from the cervix in the liver and the lungs, and the lymphatic glands of the abdomen and thorax were extensively involved. The most interesting feature of the case was the finding of a solitary intracranial metastatic deposit, the size of a golf ball, situated in the dura mater over the upper part of the left Rolandic area, adjacent to the superior longitudinal sinus, depressing the brain and eroding the overlying bone. Histological investigation confirmed the metastatic nature of this cerebral deposit. A microscopical section of the ulcer revealed the typical features of an acute lesion.

Cushing, in his well-known work, has detailed the clinical, pathological, and experimental evidence in favour of the neurogenic origin of peptic ulceration. It has been shown that stimulation of the parasympathetic in the hypothalamic region, at the medullary nuclei or along the descending fibre tracts, leads to gastric hypermotility and hypersecretion. If the stimulation is continued erosions and ulcerations of the mucosa are produced. If the neurogenic origin of peptic ulcer is accepted it is possible that in the case here recorded the influences at work may have been produced by cortical stimuli from the tumour, or by irritation of the peripheral vagus by the enlarged mediastinal glands.

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AGRANULOCYTIC ANGINA IN A DIPHtheria CARRIER

The following case of agranulocytic angina is of special interest in that it occurred in a patient who was apparently a diphtheria carrier, and that, as it is not uncommon in Rhodesia to admit to hospital untreated European cases of diphtheria at the fifth to eighth day of disease with advanced membranous invasion of the fauces, pharynx, and nasal cavities, the diagnosis on clinical and bacteriological grounds was rendered the more difficult.

CASE RECORD

A European girl, aged 21 years, was admitted to the fever hospital with the diagnosis of faucial diphtheria, confirmed by a positive throat swab report. On admission (? third day of disease) the temperature was 104.4° F. and the pulse rate 120; the patient complained of intense frontal headache. Examination of the throat showed acute oedematous inflammation of the soft palate, with membrane covering both tonsils and extending forward on to the palate, and on one side invading the pharynx. The glands of the neck were not enlarged. The membrane was not typically diphtheritic, being of a yellowish colour, and the general appearance suggested an acute streptococcal throat, but the proved presence of the Klebs-Loeffler bacillus led to the diagnosis of a double infection. Diphtheria antitoxin 16,000 units was given intramuscularly.

Fourth Day of Disease—Patient toxic; temperature 104.6°, pulse 130, headache persistent; no change in throat. Blood film: no malaria parasites found, leucocytes difficult to find.

Nov. 17, 1934]

Throat swab taken on third day showed Klebs-Loeffler bacilli present, but streptococci in large numbers. In the morning 10 c.cm. of scarlet fever antitoxin was given intramuscularly, as experience had proved this to be of value in streptococcal infections in this district. In the evening a further 16,000 units of diphtheria antitoxin was given intramuscularly.

Fifth Day.—General condition the same; temperature 104.4°, pulse 136. Throat showed signs of improvement as the membrane was stripping, but general inflammation was still severe. Some enlargement of the glands of the neck was present. Further 16,000 units of antitoxin given.

Sixth Day.—General condition worse; temperature 104.4°, pulse 136. No sign of membrane in throat, but acute congestion persisting; glands *in statu quo*. Antitoxin 16,000 units given in the evening, as there was evidence of the membrane re-forming.

Seventh Day.—General toxæmia marked; temperature 104.4°, pulse 140. Thick yellow membrane had re-formed over fauces and palate; glands of neck more enlarged. Throat swab taken on the previous day showed no Klebs-Loeffler bacilli, and persistence of numerous streptococci. At 10 a.m. antistreptococcal serum 25 c.cm. and scarlet fever antitoxin 10 c.cm., made up to 100 c.cm. with saline, were given intravenously. Blood count: Total red blood cells, 4,210,000 per c.mm.; haemoglobin, 80 per cent. (Tallquist); colour index, 0.95; size of red blood cells, 7.32 microns; reticulocytes, 2 per cent. Total white blood cells, 600 per c.mm.; neutrophils *nil*, lymphocytes 88 per cent., large mononuclears 12 per cent., eosinophils *nil*, basophils *nil*.

The haematological findings confirmed the suggested diagnosis of agranulocytic angina, and explained the striking lack of response to serum therapy.

Eighth Day.—General condition much worse, with loss of consciousness; temperature 104.4°, pulse 140, weak. Throat condition showed membrane stripping, and marked glandular enlargement. It was decided to try blood transfusion, and though the requisite donor was obtained the patient collapsed, and death took place before the blood could be given.

Consideration of the details of this case leads one to the conclusion that the presence of the Klebs-Loeffler bacillus in the first place caused an erroneous diagnosis of membranous diphtheria with an accompanying septic infection, and that the correct diagnosis was agranulocytic angina with an incidental mild infection or "carrier" type of diphtheria.

My thanks are due to Dr. W. K. Blackie, the Government pathologist, for his invaluable assistance in the laboratory investigation of this case.

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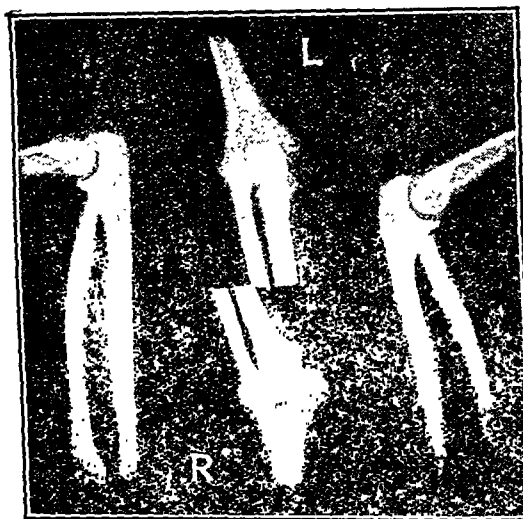
BILATERAL CONGENITAL MALFORMATION OF THE ELBOW-JOINT

The interesting feature of the case reported below, apart from its anatomical peculiarity, is the extremely good functional efficiency of the abnormal joints.

A domestic servant, aged 24, was admitted to the hospital on August 14th, 1933, and was under treatment for acute rheumatism in her ankles and knees. She made a satisfactory recovery in about three weeks. During her examination it was noticed that she appeared to have a marked prominence of both olecranon processes, which, she stated, had always been present. X-ray examination of the elbows showed a flattening and elongation of the head of each radius, which extended up over the capitulum, articulating with the humerus in much the same manner as the ulna. There was no evidence of fusion of the radius with the ulna, or of arthritic change in the joint, or bony rarefaction. The appearances were consistent with the presence of an articular surface between the extended surface of the radius and the corresponding surface of the humerus. Power and muscular development of both forearms was good, and the wrist-joint was normal. Extension of the arm at the elbow was limited about two or three degrees only, and there was a slight limitation of pronation and supination. There were no

abnormal movements or sounds in any position. The patient stated that she had never noticed any disability in using her arms. She was much below average height and development, and had had a double talipes varus in youth, which had been cured by operation.

Most recorded cases of congenital deformities of the elbow-joint are radio-ulnar synostosis, synostosis of the humerus with the radius or ulna, or congenital dislocation of the radius. In radio-ulnar synostosis the union is



usually at the upper end of the bones by a broad bony bridge which unites the adjacent borders of the bones. Pronation and supination are completely prevented. An example of this deformity is given by Steindler.¹

Cases of congenital synostosis of the humerus with the radius or ulna show more or less fusion of these bones with the humerus. Usually the ulna is affected, and often other congenital deformities are present. The deformity most often involving the radius is dislocation. This is of rare occurrence. Usually found in male children, its commonest form is a backward dislocation. The cases are often complicated by radio-ulnar synostosis.

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¹ Steindler, A.: *Pediatrics*, 1924, v, 383.

Reviews

CLINICAL SCIENCE

To those who heard the inspiring Harveian Oration delivered by Sir THOMAS LEWIS at the Royal College of Physicians in 1933, of which his latest book¹ is a welcome elaboration, the title *Clinical Science* will cause no surprise. To others, however, there may be some uncertainty as to its meaning. This will be quickly dispelled by the opening chapter on "The Scope and Methods of Clinical Science," in which will be found a detailed exposition of the author's meaning, given with that fullness of thought and clearness of diction which characterizes all his writings. The book deals with a matter of the highest importance to all who have the future welfare of medicine at heart, and the views which it sets forth are those of a great and enlightened thinker who has devoted his life to the subject. It is the proclaiming of a faith which the author himself has practised. To him clinical science means no new thing, nothing distinct from the science and art of medicine. Indeed, it is very old. The science of Harvey was clinical science. So far from suggesting by this term anything distinct from medicine, the author's object in choosing it is to emphasize the necessity, not for a divorce or even a judicial separation between medicine and science, but for their closer and more intimate union. Harvey fought for "science" against "no science," for accurate observation against vague tradition. Times have changed since his day. There is no longer a fight between "science" and "no science." Indeed, there is no longer a fight at all, but rather a matter of friendly adjustment among fellow scientists. During recent times medicine has availed itself so fruitfully and to so wide an extent of the help of the laboratory workers in the ancillary sciences that the true position and the paramount importance of the clinician in medical research have been somewhat overshadowed, and are in danger of being overlooked. To-day the prayer of the clinician may well be, "Save me from my friends!"

To strengthen and illustrate the views it upholds, the greater part of the work is devoted to accounts of the many and varied clinical problems which the author and his fellow workers have studied, and in many instances solved, during the last twenty or more years. Each short chapter, in itself a complete and concise essay on one particular item of investigation, begins with a definition of the nature of the problem to be solved, and the possible methods of approach. We are shown where and what kind of difficulties arose, and how they were met. Each is completed by a clear and full summing-up, showing exactly how far each problem has been solved, or what stage in its solution has been reached from which future workers can take off with security. With most of the thirteen problems here so admirably epitomized the author's name is inseparably connected, so that a mere enumeration of them is unnecessary. They range from auricular fibrillation to Raynaud's disease, from angina pectoris to axon reflexes. The number in which a real solution has been reached is astonishing. The harvest has indeed been rich. At the end of each chapter is a convenient reference to the original publications.

Did the book contain nothing more than this wonderful collection of essays it would be enough, and more than enough, to satisfy the most exacting reader. Each of them, however, is here not for itself alone, but in order that it

may illustrate special points bearing upon the author's main theme. Whilst probably all will agree with the views which are here so ably advocated, opinions may differ as to the exact steps by which they may best be realized. It seems clear that if progress in this direction is to be made in the near future more whole-time clinical posts must be available at our hospitals, to which young men of high scientific training will be prepared to devote their lives—posts in which clinical research can be carried on not only with every facility which science can supply, but freed from the drudgery of class and office routine, or the intermittent calls of private practice.

To-day it is the word "clinical" which needs underlining. There are plenty of similar posts connected with the great medical schools throughout the country which are devoted to various lines of medical research, but most of them only deal with the margins of medicine. Its real centre is the bedside of the patient, and there, at the present time, research posts are far too few. In disease, as in health, "The proper study of mankind is man," and whilst for the purpose of such study every available help that animal experiment and laboratory investigation can give must be made use of, it is the clinician, and the clinician alone, who should be in control. It is our duty to see that the "clinical science" for which Harvey fought so long and so well does not pass into other hands, leaving little but the art of medicine for the clinician at the bedside.

A. J. H.

ACUTE INTESTINAL OBSTRUCTION

The problems of acute intestinal obstruction are varied and complex. Around them a vast literature has grown up, based on investigations into all the aspects of the subject—statistical inquiries, clinical, physiological, pathological, and experimental work. In his recently published monograph² Dr. MONROE A. McIVER had embodied all that is of importance in this large mass of facts and theories, welding them into a coherent whole, and the result may be regarded as a fair summary of our present knowledge of the disease.

The book is divided into three main parts. The first part gives a general textbook account of the subject, with a description of the various types of acute obstruction, their aetiology, pathology, and clinical features. The morbid anatomy, effects on the various bodily functions, mechanism of dehydration and electrolyte loss, changes in the blood plasma and body fluids, and the bearings of these on the clinical picture, are discussed in detail. Three chapters are devoted to the functional obstructions, with particular reference to the difficult subject of paralytic ileus. The second part of the book is concerned with methods of diagnosis and treatment, and contains much practical information. In addition to descriptions of the operative procedures appropriate to the various types of acute obstruction, pre-operative and post-operative care, the choice of anaesthetic, and the treatment of complications arising during and after operation are considered. The third part begins with a description of the different types of animal experiment that have been carried out, and an attempt is made to correlate experimental results with clinical conditions. The various theories of the cause of death are reviewed; the highly controversial questions of toxin formation, their possible sources, ways of absorption, and modes of action; the role of dehydration and of vasomotor shock.

The book has been written by one who is obviously a master of his subject. The large extent of the ground which it covers is indicated by the fact that there are

¹ *Clinical Science, Illustrated by Personal Experiences.* By Sir Thomas Lewis, C.B.E., F.R.S., M.D., D.Sc., LL.D., F.R.C.P. London: Shaw and Sons, Ltd. 1934. (Pp. 189; 49 figures. 12s. net.)

² *Acute Intestinal Obstruction.* By Monroe A. McIVER, M.D. New York: Paul B. Hoeber, Inc. 1934. (Pp. xviii + 470; 62 figures. 7.50 dollars.)

over eight hundred references to published work. Conflicting theories, and they are many, are dealt with impartially, the author reserving his personal views for a final chapter. His approach to the subject is modern and scientific, in that he always tries to explain phenomena in terms of underlying structural, functional, and chemical changes. Dr. McIver's monograph is likely to find a wide range of readers. Its special appeal will be to those who want to keep in touch with the most recent views on pathology and treatment without the necessity for very extensive reading.

BIOLOGY FOR THE GENERAL READER

Two of the criteria which should be satisfied by any modern book professing to give a general account of biology for intelligent but non-technical readers are: that it should deal with broad principles and the main characteristics which mark forms of plant and animal life rather than be built up round a description of various types; and that it should emphasize the importance of studying the reactions of organisms as complete units to their normal surroundings rather than the reactions of their various tissues and organs in a laboratory environment. These criteria are entirely satisfied by Professor YONGE's volume entitled *The ABC of Biology*.³ The author describes it as a somewhat experimental book, and it is, indeed, written on unusual lines. A number of types are, of course, described in illustration of general statements of biological facts and principles, but it is these latter which are the main theme of the exposition. As Professor Yonge says in his preface,

"Biology is something more than biochemistry and physics, than the application of the methods of chemistry and physics to the analysis of living matter. There is a biological point of view which is broader and deeper than the purely physiological point of view, although it must include this. It is impossible fully to explain the animal or plant as a whole by the analysis, no matter how detailed, of the constituent parts."

The book begins with an account of the nature and origin of living matter, and the distinction between plants and animals. Then follows an admirably clear and succinct description of the mechanisms of life—the accumulation, transport, and utilization of energy; reception, response, and regulation with respect to environmental conditions; reproduction, growth, and development. This section includes a suitable account of the nature and importance of enzymes, vitamins, and hormones, of the main points in the evolution of the heart, the organs of sense, and the brain; and an excellent statement of the functions of the chromosomes and the general principles of inheritance. The third chapter deals with the organism as a whole, its powers of adaptation to every variety of environment, the nature, causes, and general course of evolution, with a brief review of the classification of the animal kingdom. The last chapter has to do with the study of living things in nature. This is perhaps the least adequate part of the book, but it well stresses the importance of the subject, and contains a number of interesting examples of the reactions and associations of organisms. It would have been well, we think, to have amplified this section, and to have included a brief account of mental development in animals as shown by behaviour.

It can scarcely be a matter of complaint that the book is mainly concerned with animals rather than plants. The latter are referred to only in connexion with the general account of living matter, the experiments of Mendel, and their interactions with animals. The volume is not intended to be a textbook for students of

science or medicine, but it can be read by them with great advantage. The preparation of a textbook on similar lines to this, but with fuller material, would be a very valuable piece of work.

THE THEORY OF GYMNASTICS

New books on various aspects of physical education have increased noticeably of recent years. Among them there have been some characterized by a dullness and mediocrity which makes one doubt whether their publication could in any way further the subject about which they were written. Not so *The Theory of Gymnastics*,¹ by Professor JOHANNES LINDHARD. It can at once be said that this is a book which will greatly enrich the existing literature and refresh the reader by its enlightened approach to the study and practice of gymnastics. The author is professor at the Gymnastic Physiological Laboratory of the University of Copenhagen, and his country is noted for its progressive educational work. This translation from the Danish will be welcomed by many English-speaking people, and especially by teachers of physical education. It will make a particular appeal to women gymnasts, because it considers aesthetic as well as physiological principles.

A mistake that has been frequently made regarding gymnastics for women and children is that they are taught almost entirely the same exercises as men, but perform a feeble version of them. That many of these are unsuited to women's form is obvious on seeing the often ridiculous attitudes taken up by women drilling—for example, Red Cross workers. Professor Lindhard's discussion of age and sex differences is interesting, and makes a good starting-point for the design or modification of exercises intended for men, women, or children. In a later chapter he examines seriously the posture which is at present officially accepted as "correct," and which is so often exaggerated, ugly, and physiologically unsound. To support his views he contrasts this with those idealized in ancient Greek sculpture, and most readers will warmly agree with his conclusions. A great variety of exercises are given here, and these are classified as order, corrective and balance exercises, and exercises to be done in marching, running, or jumping. They will provide an ample store for the teacher in search of ideas for individual and class work. The delightful photographs of the balance and running exercises for women are all derived from Mrs. Bertram's gymnastics, and should convince gymnasts that to attain perfection in body development and movement an aesthetic outlook is not merely desirable but is a fundamental necessity.

If the ideals set forth in this book are striven for by teachers of physical education there is great hope for improvement of physique, strength with suppleness, and grace of carriage in future generations.

CHINA THROUGH A SURGEON'S EYES

Dr. ALBERT GERVAIS, formerly a medical officer in the French Navy, "heard the East a-calling" while serving abroad, and so secured his transference to the French Medical Mission at Cheng-Tu. In *A Surgeon's China*² he tells of his life in Szechuan, that great rich province (larger than France) in the south-west corner of China of which Cheng-Tu is the capital. Though the author's observations are original, there are no subjects in the book that have not often been described before in the plethora of volumes on China—the journey to Cheng-Tu,

³ *The ABC of Biology*. By C. M. Yonge, D.Sc. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1934. (Pp. 232; 50 figures. 4s. 6d. net.)

¹ *The Theory of Gymnastics*. By J. Lindhard. London: Methuen and Co., Ltd. 1934. (Pp. 259; 81 figures. 12s. 6d. net.)

² *A Surgeon's China*. By Albert Gervais. London: Hamish Hamilton, Ltd. 1934. (Pp. 303. 7s. 6d. net.)

civil warfare, Chinese social customs, and the account of a cholera epidemic. But he writes with ease and grace; he has the witty pen of the late Pierre Loti that carries the reader from page to page with pleasure. For medical men, especially those who have not practised abroad, his account of hospital and teaching work will be found most enlightening and interesting. Chinese mentality is in many respects so different from ours that the stay-at-home reader might well ask, "Can such things be?" Dr. Gervais's two attempts to teach his students anatomy by dissection of the human cadaver were in each instance thrilling. No one not gifted with resourcefulness and courage could have faced the ordeal in the successful way the author did. It is an informative book well worth reading, and the reviewer (who has spent a number of years in China) can add that it truly depicts the strange happenings that are a common experience of those foreigners who elect to live in the interior of that quaint and wonderful country.

Notes on Books

In her work entitled *Rhythm of Life** Mrs. SOFIE LAZARSFELD, who is in charge of a mental consultation bureau in Vienna attended by men and women of all social strata, but is not, as she informs us on page 303, a physician, deals with various sexual and educational problems from the point of view of the psychologist of Adler's school. The subjects discussed include monogamy and polygamy, the first sexual experience, the marriage of the professional woman, the development of woman's personality, and roads to sexual reform, with a record of illustrative cases.

Metastases and recurrences in bones arising from carcinoma of the female pelvic organs form the subject of a brief monograph by Drs. E. PHILIPP and G. SCHÄFER of Berlin.⁷ Diagnosis, symptoms, method of spread, and treatment are comprehensively dealt with. Those specially interested in this subject will find here a large amount of valuable information in a very small space.

The second volume of the forty-fourth series of *International Clinics*⁸ consists of three parts, concerned respectively with medical, surgery, and recent progress in obstetrics and paediatrics. To the first part Warfield T. Longcope of Baltimore contributes a paper on generalized oedema associated with disease of the gastro-intestinal tract, and illustrated by two cases associated with abnormally low plasma proteins due to amoebic and bacillary dysentery respectively. Thelma Lovett of Philadelphia reviews the pathogenesis of anterior poliomyelitis, and comes to the conclusion that most support, epidemiological and experimental, has been given to the nasopharynx as the site of inoculation, but that the route of invasion taken by the virus is the spinal cord has not yet been determined. Heredofamilial angiomatosis (telangiectasia) with recurring haemorrhages is the subject of a richly documented article by Hyman I. Goldstein. The surgical section contains papers on operative shock by Professor E. Rehn of Freiburg i/B.; operative collapse therapy in pulmonary tuberculosis by Ralph C. Matson and Ray W. Matson of the University of Oregon; indications for surgical treatment of peptic ulcer by I. W. Held and A. Allen Goldbloom of New York; on evaluation of our present knowledge of purpura haemorrhagica (thrombocytopenia) by R. L. Payne and R. C. Whitehead; and estimating the amount of disability by Earl D. McBride, as illustrated by records of seven cases, which emphasize the need of more careful primary examination so that an accurate diagnosis can be followed by adequate treatment. The obstetric and

paediatric section contains papers on the toxæmias of later pregnancy by Nicholson J. Eastman, and on immunization against diphtheria and scarlet fever by Lawson Wilkins of Johns Hopkins Hospital.

In his book *Oil and Wine*⁹ Mr. PHILIP INMAN once more proves himself a zealous advocate for Charing Cross Hospital, of which he is the managing governor. He tells his entertaining tale in an easy journalistic style, and knows the value of a good anecdote. Much of the book is devoted to the methods of raising money for the hospital, and Mr. Inman has proved himself a king of beggars in his efforts on behalf of Charing Cross. He even went to America to beg for money—and got it. It does not occur to him to question the excellence of a system that manages its finances thus, and he naively accepts a situation in which a London hospital has to woo American financiers in New York in order to pay its way. That Mr. Inman has been successful is all to his credit, and due, perhaps, to his innocence abroad. But one would have welcomed from his pen a criticism of the financial side of the voluntary hospital system, and of the haphazard and—to many people's minds—undignified way in which the hospitals in the richest city in the world have to be maintained. Mr. Inman has generously given the net profits of the sale of his book to Charing Cross Hospital.

The various supplements to the *Acta Radiologica* (Stockholm) form a valuable series of monographs upon subjects connected with radiology, and in the latest volume (No. XIV) Dr. THORÆUS makes a study of the ionization method for measuring the intensity and absorption of Roentgen rays, and of the efficiency of different filters used in therapy.¹⁰ The work, which is written in English, is necessarily of a highly technical character, and does not lend itself to detailed review in these pages. It is, however, of deep interest, fully maintains the high reputation of its author, and forms a most valuable contribution to the important subject of which it treats.

* *Oil and Wine*. By Philip Inman. London: Chapman and Hall, 1934. (Pp. 293. 8s. 6d. net.)

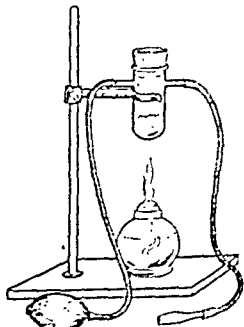
¹⁰ Stockholm: F. Englund. 1934. (Pp. 68; 40 figures.)

Preparations and Appliances

IODINE VAPOUR IN MAXILLARY SINUSITIS

Dr. A. R. FRIEL (London, W.1) writes:

Dr. W. A. Wells of Washington, D.C., published a paper in the *Laryngoscope* for October, 1932, on the use of a vapour derived from iodine and other substances in the treatment of suppurative in the maxillary sinus. The vapour is obtained by heating a powder containing iodine, boric acid, carbolic acid, menthol, cubebs, all four parts, and thymol one part. Mr. Weiss, chemist, of Tottenham, makes this up to 100 parts with kaolin. The apparatus used in America was electrically heated and costly, but Mr. Weiss has succeeded in supplying us with a pyrex glass container. About a teaspoonful of the powder is placed in this and heat is applied with a methylated-spirit lamp. The vapour is blown with bellows into the nose. I thought this treatment might be useful for some troublesome cases of rhinitis



which are not due to congestion of the inferior turbinates and retention of secretion in the lower nasal passages, but show infection in the upper nasal area. No ordinary treatment can be applied to the upper area of a child's nose, but this vapour seems to get there, judging by the disappearance of the discharge. The results in several cases treated in the Tottenham clinic were quite satisfactory.

The apparatus and powder can be obtained from G. F. Weiss, M.P.S., 160, Philip Lane, Tottenham, N.15.

* *Rhythm of Life. A Guide to Sexual Harmony for Women* By Sofie Lazarsfeld. London: George Routledge and Sons, Ltd 1934. (Pp. 327. 10s. 6d. net.)

⁷ *Metastases and Recurrence in Knochen*. By Dr. E. Philipp and Dr. G. Schäfer. Berlin: Julius Springer, 1933. (1p 41; 37 figures. R.M. 9 60)

⁸ *International Clinics*. Vol. ii, forty-fourth series, 1934. Edited by Louis Hamman, M.D. London: J. B. Lippincott Company, 1934. (Four volumes quarterly. 5s. net.)

British Medical Journal

SATURDAY, NOVEMBER 17th, 1934

DOSAGE OF VITAMIN D

It is a discouraging fact that, in spite of constant efforts to emphasize the need for the routine administration of some antirachitic material to infants and young children, rickets is still quite prevalent. In a recent article¹ a group of workers in Toronto from the university department of paediatrics and the Hospital for Sick Children report a study of the relative value of cod-liver oil, viosterol, and irradiated milk in the prevention of rickets. Altogether 529 infants were observed over a total period of five winter months. At the time of first observation (at well-baby clinics) the infants were divided by rotation into nine groups according to the antirachitic agent employed: the first group received one teaspoonful of cod-liver oil daily (a high-grade Newfoundland oil containing 130 Steenbock units of vitamin D per teaspoonful), the second two teaspoonfuls daily, and the third three teaspoonfuls daily; the fourth group received 100 units of vitamin D daily in the form of viosterol, the fifth 200 units, the sixth 400 units, and the seventh 800 units. The eighth group was given twenty ounces of irradiated, pasteurized cow's milk daily, any further milk being taken as ordinary pasteurized milk, while the ninth group had all the milk required up to a total of one quart as irradiated milk. There were also a number of infants as a control group who had no additional vitamin D in their dietary. All the antirachitic material employed was biologically assayed, and the infants were carefully examined clinically and by x-ray photographs of the wrists at the beginning, in the middle, and at the end of the period of observation, the same physician being responsible for all the investigations and an independent observer reporting on the x-ray films without being aware of the antirachitic material used for any individual case.

The infants were all under 8 months at the time of coming under observation, and for the purpose of discussing the results the authors divided them into two main divisions for each of the groups—namely, those under 4 months of age at the original examination, and those between 4 and 8 months. During the period of observation the babies continued to attend the well-baby clinics, where they received the antirachitic material free of charge, and two nurses (described as "exceedingly competent") visited the homes at least once a month. Dosage and administration of the antirachitic materials could scarcely have been better controlled. The results show that of 137 infants receiving one, two, or three spoonfuls of cod-liver oil three winter months, actually all three falling into the larger

dose groups (one had two teaspoonfuls daily and two had three). X-ray evidence suggested that, apart from these three exceptions, one teaspoonful was as effective as three in preventing rickets. The four groups having viosterol (186 infants in all) were all protected from moderate or marked rickets, and again the x-ray evidence suggested that 100 units of vitamin D in this form daily were as efficacious as the larger doses. The children who were given irradiated milk were likewise protected from moderate or marked rickets, and this had no relation to the amount (between twenty and forty ounces daily) taken. The x-ray examination included, besides the types already mentioned of moderate and marked rickets, two others classed as "very slight" and "mild" rickets, and it is a little difficult to follow the authors exactly in their final conclusions, which seem to a certain extent to ignore the development of these types. This is especially important in view of the fact that among sixty-five infants not receiving any special antirachitic treatment only five developed "moderate and marked" rickets, while fourteen were placed in the "very slight" category and ten in the "mild." It does, however, emerge from the study that irradiated milk presents the most practical way of ensuring a regular daily dosage of vitamin D, since the percentage of cases cancelled for unsatisfactory administration was lowest in this group. (It is important to note that pasteurized irradiated milk was employed, and the reliability of pasteurization in Toronto is well recognized. It would be a great mistake if this conclusion led to the use of irradiated raw milk in this country.)

The results in each individual group for each age division are unfortunately not numerous enough in each instance to make statistical analysis possible. It is still uncertain what is the minimum protective dose of vitamin D and the best means of giving it: Alfred Hess's last work before he died suggested that, on a basis of vitamin D potency, cod-liver oil gave best results, better than the irradiated ergosterol preparations. The Toronto work implies, however, that there is more chance of error in cod-liver oil administration. One aspect of the subject not touched on by the authors may be mentioned in conclusion. The cod-liver oil emulsions sold commercially or supplied by welfare centres in this country may vary in strength from 20 to 30, or, in rare instances, to 50 per cent. of oil, while the popular "cod-liver oil and malt" preparations usually contain only 10 per cent. of oil. The dosage of actual oil given daily when the preparation selected is administered in teaspoonfuls or fractions of a teaspoonful may only be a matter of minims. This may account for the continued prevalence of rickets, despite the greater use of antirachitic measures than ever before. The time is surely ripe for an investigation, on an even wider scale than the present one reported from Toronto, to settle by clinical trial, in terms of vitamin D, what is the minimum protective dose at each age period, and what is the best medium for its administration.

¹ Canadian Med. Assoc. Journ., October, 1934, p. 368.

RECENT WORK IN RADIOLOGY

Even a cursory glance at the proceedings of the fourth International Congress of Radiologists held at Zurich last June¹ will show how great has been the progress in this branch of science during the past few years. In the early days of x rays the same apparatus was used for diagnosis and for the very limited methods of treatment available. Now, however, not only do x -ray diagnosis and x -ray therapy form two separate branches of medicine, each of sufficient importance to occupy the attention of a single individual, but here again regional specialization in the near future seems to be by no means improbable. Added to this is, of course, the therapeutic use of radium, which is intimately bound up with high-voltage x -ray therapy. In the official book giving abstracts of the various papers communicated to the congress an enormously wide range of subjects is treated, under the general headings of x -ray diagnosis, radiotherapeutics (x rays and radium), biological action of radiations, physics, apparatus and allied subjects, electrotherapeutics, and heliotherapy, including ultra-violet radiation. It is impossible in a brief general notice to "review" this wealth of material in the ordinary sense of the word. All that can be done here is to select a few of the less known uses and results of x -radiation which may be of general interest.

Diagnostic problems we must leave to those specially interested; but in the field of therapy the reader will be struck with the enormous benefits that have resulted from the employment of radiation methods in malignant disease. Under the heading "Radiation Genetics" there is a great deal of material which provides food for very careful thought. As its name implies, radiation genetics is concerned with the action of radiations upon the germ cell, and the possible changes that may occur in the offspring as the result of irradiation of the genital glands of the parents. The most recent experimental results point to the need for caution in irradiating the ovaries of potential mothers, and special prominence is given to the possibilities of damage which may be transmitted beyond the first filial generation. To one who has studied the cytological appearances occurring after radiation, such injuries appear almost inevitable. In the paper included in the present collection attention is specially directed to chromosome changes; but when it is realized that probably all the cell elements—extranuclear as well as nuclear—can be modified by exposure to radiation, it is surely not too much to urge that the possibility of far-reaching damage should be borne in mind. In particular, it is not gross lesions in the immediate offspring of the irradiated parent which have to be considered, but the possibility of such irradiation giving rise sooner or later to conditions of diminished well-being physically and possibly mentally. As regards the latter, animal experiments, valuable though they are in many ways, can hardly be regarded as conclusive when the higher mental

faculties are under consideration. The need for intensive study and careful recording of results in future generations as time goes on is of paramount importance. Essentially the end-result of the action of intensive radiation upon any cell is to damage it. In the case of neoplastic cells this is, of course, the goal to which treatment is directed. In the case of normal cells it is a difficulty which has to be faced, and faced very definitely.

Among the problems of purely scientific interest may be placed the development of x -ray analysis. The analysis of crystal structure was the earliest work in this direction, and it continues to yield results of the highest interest in an important field of research. But it may come as news to many that x -ray methods have been extended in recent years to the elucidation of the atomic arrangement of organic compounds and organized structures. Describing as it does the activities of experts in all branches of x -ray and radium work, this report of just over six hundred pages will be found a mine of the most valuable information upon the recent developments and problems raised in radiological science.

MATERNAL MORTALITY

A meeting was held at the Friends Hall, Euston Road, on November 6th, to draw attention to the serious risk which still attends childbirth in this country. The meeting also carried resolutions welcoming any encouragement to local authorities to maintain and develop child welfare services, expressing its uncertainty whether all local authorities were exercising their present powers adequately, urging the Ministry of Health to additional measures, and calling upon local authorities to arrange women's clinics for the supervision of post-natal and associated ailments. The speakers pointed out that the death rate associated with child-bearing remained almost stationary; that approximately four mothers died for every 1,000 babies born alive; and that the puerperal death rate for 1933 was 4.51 as against 3.87 in 1911. The report submitted by the Maternal Mortality Committee analysed the work done by various local authorities, from which it appears that about twenty-nine county councils out of sixty-one are aiding the maternity service in the district by putting into force half or more of the services they have power to provide. Of eighty-four county boroughs about forty-four are doing this, but the position in London is distinctly better, as twenty-two out of twenty-eight metropolitan boroughs appear to be using at least half their powers to aid child-bearing women. The report notices definite progress generally in most parts of the country in spite of financial difficulties and apathy. The committee, however, feels that the time has come for a further advance in the quality and comprehensiveness of the services offered. The most notable advance is the increase in the number of maternity beds, which are manifestly appreciated by the women. The attention of the conference was therefore particularly drawn to the need for improvement in domiciliary midwifery. Proper home conditions include, says the committee, a competent midwife working in co-operation with the

¹ Leipzig: G. Thieme, 1934.

doctor, who has supervised the pregnancy and is prepared to come if emergency arises and to call in a consultant if necessary: they also imply careful maternity nursing, sufficient nourishment, and reasonably comfortable and sanitary surroundings. Medical and nursing supervision should continue until the woman is restored to her normal health. The committee is convinced that after pregnancy there is still much loss of health which is not severe enough to be called "maternal morbidity" in statistics, but nevertheless causes a grave loss of efficiency to the women and to the nation. Overwork, underfeeding, worry, and lack of sleep or rest do not prevent a woman from bearing a healthy child, but the work is done at excessive cost to herself. Despite the satisfactory state of the health of children and young people in the distressed areas, the committee finds a widespread impression that the health of working mothers is showing deterioration, and that they are suffering an undue proportion of minor sickness, anaemia, nervous fatigue, and malnutrition. The disability so caused cannot be measured, but makes it more than ever desirable that the women should be able to obtain advice and assistance not only during pregnancy but also in the intervals of child-bearing. It is within the power of local authorities to set up gynaecological clinics under the Public Health Acts, and the Maternal Mortality Committee suggests that they should be urged to do so as a means of protecting and safeguarding the health of working mothers.

"A DOCTOR FROM PADUA"

An evening reception was held at the Royal Society of Medicine on November 8th at which the customary brief lecture was delivered by Dr. Arturo Castiglioni, professor of the history of medicine at the University of Padua, the subject being the glories of that ancient seat of learning. The large company, which included members of the staff of the Italian Hospital in London, was received by Dr. Robert Hutchison in his president's robe, a copy of that of the rector of Padua. In the library, through the kindness of Dr. Arnold Chaplin, Harveian Librarian to the Royal College of Physicians, some of the treasures of the College were displayed, illustrating particularly the life and work of Linacre, Caius, and Harvey, all of whom had Paduan associations. The authorities of the Wellcome Museum also had loaned some pictures illustrating the subject. Sir StClair Thomson, president of the Section of the History of Medicine, before which Dr. Castiglioni had discoursed the previous evening on Morgagni and the School of Anatomy at Padua, introduced the lecturer and welcomed him in fluent Italian. He reminded those present of the frequent allusions to Padua in Shakespeare; of the remark of Johnson, who had no love for foreigners and their ways, that he had a "mind to visit Padua"; and of the saying of Mandell Creighton that he never visited Germany without realizing how ignorant he was, or France without realizing how stupid, or Italy without realizing how lacking in culture. Dr. Castiglioni then gave a brief historical sketch of his university, referring in the first place to the affinity between the Italian renaissance and the English revival of arts and letters, and in particular

to the bonds between Padua and humanistic Oxford. During the thirteenth century, he said, the prosperity of Padua increased, despite emperors and Popes, and by the fifteenth, in the most brilliant period of Italian history, when the revival of medicine was contemporaneous with the revival of philosophy and art, Padua had already outranked Bologna in renown. At the end of the sixteenth century came the invention of printing, and the foundation of that vast library which now numbered more than 200,000 volumes. He spoke with reverence of some of the great names of Padua, particularly of Vesalius, the most eminent anatomist of the sixteenth century; and showed an old print of Vesalius engaged in dissecting in the famous anatomical theatre lined with carved oak, which was still standing in perfect preservation. In the hall of the university were the coats of arms of its most illustrious students, and among them, on the colonnade of the medical school, the stemma of William Harvey. At one period there was no noble family in England whose coat of arms was not to be found in the collection. The greatest period of Padua was the end of the sixteenth century, when Galileo was professor of mathematics, and students came from all parts of the world—astronomers to study the secrets of the heavens, physicians to explore the mystery of life, and mathematicians to work out their difficult problems. Even in the eighteenth century its international character remained, as seen from the list of professors about Facciolati. A remarkable list of English students who took their degrees at Padua was in existence, though it was sometimes difficult to recognize the English names because they had been latinized, often in a curious form. He mentioned Linacre, who graduated in Padua as M.D.; John Caius, who studied anatomy under Vesalius, and, returning to Cambridge, founded a college which in its by-laws encouraged its students to travel abroad, visiting the fair schools of Padua and Bologna; and William Harvey, whose diploma, in the keeping of the Royal College of Physicians, expressed the warm satisfaction of Padua at his graduation. He recalled John Evelyn's visit, and quoted from Shakespeare's *Taming of the Shrew*:

... the great desire I had
To see fair Padua, nursery of arts.
... I have Pisa left,
And am to Padua come, as he that leaves
A shallow plash, to plunge him in the deep.

But the most generous tribute was by Thomas Linacre himself, who, on bidding farewell to Italy, built a rough altar of stones on the southern side of the Alps, which he dedicated to the land of his studies as *Sancta mater studiorum*. Dr. Hutchison, in expressing the thanks of the company, said that Dr. Castiglioni had sufficiently shown that Padua was the great Mecca of English post-graduates in the sixteenth and seventeenth centuries. They had had many Meccas since: in the eighteenth and early nineteenth centuries, Paris; in the mid-nineteenth, Edinburgh; later, Vienna and German universities; and then the tide set westwards across the Atlantic. But such was the intellectual activity of modern Italy that he would not be surprised if post-graduates from this country in large numbers once again crossed the Alps to visit the cradle of the culture of Europe.

CENTENARY CELEBRATION AT THE OLD BAILEY

One hundred years ago Parliament passed the Central Criminal Court Act, 1834. The Act came into force at the end of July and the first court almost certainly sat on November 1st. The succeeding century has seen such a radical change in the administration of criminal law that the City Fathers felt this year that the completion of the first hundred years of the Central Criminal Court should not pass unnoticed. Accordingly the Lord Chancellor, in the presence of the Acting Lord Mayor and Sheriffs, the City Lands Committee, the Aldermen and Common Councillors, and a large number of members of the Bar practising at the Old Bailey, unveiled a bronze memorial tablet in the upper Hall of the Court, opposite and in harmony with the Court's War Memorial. The name "Old Bailey" is, of course, that of a street which runs from St. Bartholomew's Hospital down towards the river, joining Ludgate Hill about halfway up. There has been a criminal court near the site of the present one from time immemorial. When William the Conqueror came he found the courts of the City of London, including that at Newgate, in such satisfactory working order that he allowed the City to maintain its jurisdiction intact, and in 1132 Henry I issued a charter giving the citizens power to elect their own judges for the Pleas of the Crown. This duty had devolved upon the Lord Mayor, who continually held the commission of gaol delivery and was made a Justice of Gaol Delivery *ex officio* in 1327. Later the administration of criminal justice gradually fell into the hands of professional lawyers, and at the present time the Lord Mayor exercises a nominal function. He is still the principal commissioner of the Court and takes precedence even of the Lord Chancellor, as an acknowledgement of the autonomy of the City; but the work is actually performed by a visiting judge of the King's Bench, the Recorder of London, the Common Serjeant, and a Commissioner. At the time the Act was passed the criminal jurisprudence of London was probably at its lowest ebb. The Old Bailey Court was next door to Newgate Prison, the awful conditions of which, both physical and moral, are now a matter of legend. Prisoners were treated with a brutality which to-day is almost incredible, and children were sentenced to be hanged by the neck for trivial thefts from shop windows. The 1834 Act set the Court on a regular footing and extended its jurisdiction beyond London and Middlesex to Greater London, including offences committed on the high seas or elsewhere within the jurisdiction of the Admiralty. Three years later the scope of capital punishment was much restricted, and thirty years after that execution in public was abolished. As the century passed the whole spirit of the Court rapidly improved. Accused persons were treated with more consideration, and the doctrine that a prisoner is innocent until he is proved guilty passed from theory into everyday fact. Sentences became lighter; the probationary system was introduced with the object of reclaiming offenders; the Poor Persons Defence Act provided for free legal assistance; and prisoners were allowed the right to give evidence on their own behalf. The Court of Criminal Appeal was founded as the final guarantee that as far as was humanly possible no innocent person should be convicted. The bad old days finally passed when Newgate was pulled down and

the present Central Criminal Court was opened by King Edward in 1907. These changes and others were recounted in detail by the Acting Lord Mayor, the Lord Chancellor, the Lord Chief Justice, and the Attorney-General in the addresses they delivered at the unveiling ceremony. The keynote of all the speeches was the part played in these sweeping reforms by the Bar. As Lord Hewart remarked, the changes cannot be put down to mere tendencies or to the spirit of the age. They were mostly the work of individual lawyers, who deserve eternal credit. He singled out particularly Mr. Justice Avory, one of the founders of the Central Criminal Court Bar Mess in 1891, and one of a group including famous names like those of Harry Poland, Travers Humphreys, Percival Clark, Montague Williams, Ballantine, Harding Gifford, and Forrest Fulton. These men led the way in establishing a tradition of respect for the Bench, loyalty to the client, and unswerving rectitude, which has turned the name "Old Bailey" from one of horror and contempt to one which stands for all that is best in criminal justice, and for a system which, though admittedly imperfect in many respects, commands the admiration of the whole world.

BIOLOGICAL PROPERTIES OF ADRENALINE

When considering the biological properties and importance of adrenaline it is generally of its physiological properties that we think. Thus it is common knowledge that its action stimulates that of the sympathetic, and the whole range of functions motivated by adrenaline or adrenaline-like substances, or by the stimulation of the sympathetic, have been classed by Dale under the common head of adrenergic mechanisms in contradistinction to those motivated by choline, choline derivatives, or parasympathetic stimulation. Most of the familiar effects of adrenaline are referable either to vascular phenomena or to biochemical changes. But that adrenaline might have other functions is suggested by a series of experiments carried out during the last few years by A. C. Marie at the Pasteur Institute. The starting-point of these researches was the fact that in many microbial diseases such as diphtheria, tuberculosis, and tetanus, congestion and histological changes are found in the adrenal glands, and the question was considered whether these glands might not exercise some anti-infective function in the defence of the organism. To study this matter by determining the immunity reactions and lethal doses of toxins of the adrenalectomized animal is a method liable to considerable fallacies even if the animal is kept alive by cortical hormone injections, for large amounts of adrenaline are still available in such animals from sources other than the adrenals. Marie, therefore, studied the action of adrenaline on the toxicity of bacterial toxins *in vitro*. Having determined the lethal doses of various toxins when injected into mice, he incubated the toxin with adrenaline and repeated the determination of the lethal dose. It was soon found that the soluble toxins of tetanus and diphtheria as well as the vegetable toxins, abrin, croton, and ricin, could be "neutralized" by adrenaline. In a recent contribution Marie¹ states that adrenaline has no notable

¹ *Ann. de l'Inst. Pasteur*, May, 1934.

neutralizing power against cobra venom, nor does it affect the bacteriolytic power of bacteriophage (*B. shiga*). In contrast to its action on bacterial toxins, adrenaline does not in general affect the growth of the organisms producing the toxins. A peculiar exception is the pneumococcus, a virulent culture of which can be made apparently innocuous to mice by incubation with adrenaline. Even the virulent brain tissue of mice killed with the pneumococcal culture can be rendered avirulent by treatment with adrenaline: no neutralizing effect was, however, found for the brain tissue of rabies-infected animals nor for that of animals killed with the herpetic virus. Another striking effect was that the blood of mice infected with nagana and that of rats infected with *Tr. lewisi* could be made to lose their infectivity by incubation with adrenaline. Marie does not appear to have obtained any explanation of these peculiar findings, and is content as yet to regard them as direct evidence of an anti-infective function of the chromaffin system. Some chemical basis for these results seems certain. It is a peculiar omission that no mention is made by Marie as to whether the characteristic properties of adrenaline are lost as a result of the incubation with toxins, etc. Nor have any data been given to show whether or not the reaction is monomolecular. The work, however, coming from such a source, merits very careful consideration and repetition.

AUSTRALIAN CANCER CONFERENCE

The report of the fifth Australian Cancer Conference, held at Canberra last April, contains a survey of developments in 1933. It includes statistical reviews, papers on cancer research, records of the steps taken in such matters as pathological classification, post-graduate teaching, and radium therapy; and a discussion of various clinical and administrative problems. Reference is made to the expansion of facilities for treatment, in spite of the shortage of beds. Inefficient x-ray apparatus is being replaced by new high-voltage equipment; provision is being made for determination of the quality of the output, and dosimeters installed for measuring in r units. Co-operation between clinician and physicist has become increasingly valuable, and the first steps have been taken towards supplying a definite physical service to treatment institutions. It is noted that there has been an increasing preference for the use of radon for treatment under the conditions governing its issue and use in Melbourne. A new radon plant is being developed at Perth, and more radium has been applied to the production of radon at the University of Adelaide. An improved follow-up system of patients is spreading generally, and a review has been made of 11,760 cases of malignant disease of various regions treated by radium or radon combined with other methods during the five years ended June 30th, 1933. Of 3,071 cases of carcinoma of various regions in an operable stage treated during these five years, 1,918 (62 per cent.) patients are alive and free from symptoms. Diplomas in therapeutic radiology and electricity, and in diagnostic radiology, have been provided at the University of Melbourne, in addition to the existing provision for a diploma in radiology at the University of Sydney.

OXFORD AND THE HISTORY OF SCIENCE

Mr. R. T. Gunther has long been known as the historian of science at Oxford. He has published from time to time a valuable series of reprints of the works of Oxford physiologists who made the University famous in the early years of the Royal Society. He has resuscitated and kept alive the Old Ashmolean, which was in imminent danger of death. He has filled the building with scientific apparatus, much of which was stored, broken and covered with dust, in many a College cupboard. He is now keeper of the Lewis Evans collection of scientific instruments, and holds the newly created office of university reader in the history of science. The inaugural lecture¹ which he delivered in the examination schools on October 25th tells of the difficulties and successes he has met with. He pays a well-merited tribute to the work of Dr. Daubeny, who almost alone stood for science in Oxford when it was a lost cause during the period of the Tractarian Movement. He lays stress upon the value of exhibits in a science museum as a means of education, and urges that pieces of scientific apparatus should not be wantonly destroyed. They should be offered to collections already in being, where they can be properly described, cared for, and preserved. The permanent value of the lecture lies in the fact that Mr. Gunther has added an appendix calling attention to the old scientific books in the various College libraries. This will save the inquirer much time, for he can now go to the particular College where he is most likely to find what he is looking for. It would be well if the list could be enlarged and published separately, for too little is known of the contents of College libraries both at Oxford and at Cambridge.

ROYAL SOCIETY AWARDS

The Copley medal of the Royal Society has been awarded to Professor J. S. Haldane, M.D., in recognition of his discoveries in human physiology and of their application to medicine, mining, diving, and engineering. With the King's approval a Royal medal has been awarded to Professor E. D. Adrian, M.D., for his work on the physiology of nerve and its application to the problem of sensation. The Davy medal is awarded to Mr. W. N. Haworth, D.Sc., director of the department of chemistry in the University of Birmingham, for his researches on the molecular structure of carbohydrates; the Darwin medal to Professor A. C. Seward, Sc.D., Master of Downing, in recognition of his work as a palaeobotanist; and the Hughes medal to Professor K. M. G. Siegbahn for his work on long-wave x rays. Sir Frederick Gowland Hopkins has been nominated for re-election as President of the Royal Society, and Sir Henry Dale as joint secretary. The names of Professor Adrian, Professor T. R. Elliott, Dr. P. P. Laidlaw, and Sir Charles Martin have been put forward for election as members of council for the ensuing year at the annual general meeting on St. Andrew's Day, November 30th.

As we go to press we regret to announce the sudden death of Dr. Vincent M. Coates of Bath.

¹ *Oxford and the History of Science*. By R. T. Gunther, M.A. London: H. Milford, Oxford University Press, 1934. (2s.)

OPENING OF SAMARITAN FREE HOSPITAL EXTENSION

An extension of the Samaritan Free Hospital in Marylebone Road, London—the hospital always to be associated with the name of Spencer Wells—was opened by Lord Moynihan on November 13th. H.R.H. Princess Arthur of Connaught, the president of the hospital, was present, together with the mayor of St. Marylebone (Alderman John Fettes) and a distinguished company. The extension comprises a general ward, together with fourteen single-bedded private wards and twenty-four nurses' bedrooms; it has cost £27,000, of which about £5,000 has still to be raised. It is also proposed to provide a deep x-ray therapy department, and as soon as the further £5,000 necessary for this purpose is forthcoming King Edward's Hospital Fund will be asked for permission to put an additional story on the new building to provide the accommodation.

Dr. A. W. OXFORD, who presided over the opening ceremony, said that he first became acquainted with the hospital in 1878, when he was a young curate, and one of his old parishioners in a slum district was admitted for a very large ovarian tumour. Her complaint, when he visited her, was that the night nurse always drank her brandy, and indeed in those far-off days of hospital administration such complaints were not without some basis. One matron more than half a century ago charged her grapes and peaches as "cabbages for the patients." He never forgot the horrified expression of some members of the committee when it was discovered that this matron, while she was supposed to be on duty, had gone to the Oaks. But that chapter was long since ended. The hospital had a great reputation for pioneer work in abdominal surgery, and he always remembered Sir Frederick Treves saying, when he opened the operating theatre in 1907, that at the London Hospital every surgeon asked what the Samaritan was doing, so great was its renown in its particular field. Only two or three years ago Sir George Newman or one of his colleagues at the Ministry had stated that in the special work which that hospital did it had far greater success than any other hospital in London.

ADDRESS BY LORD MOYNIHAN

Lord Moynihan, in declaring the extension open, said that he had a special reason for pride, because it was in that hospital that Spencer Wells, a student of the Leeds School of Medicine, and for a time articulated to a practitioner in North Street, and afterwards to Dr. Sadler of Barnsley, began those intrepid and immortal enterprises that changed the face of surgery, giving it a new orientation, a new territory, a new incentive. Not the least remarkable achievement of Spencer Wells was to have accomplished so much before the advent of Lister; indeed, he declared that the introduction of the antiseptic method made little difference to his results. The explanation was, doubtless, that Spencer Wells was a "dandy," fastidious about the cleanliness of his hands and the purity of his linen, and himself scrubbing his instruments after every operation. It was in the Samaritan that Spencer Wells's first triumphs were won. He did more than relieve the individual patient: he converted surgery from a merely remedial art to a great scientific instrument for research. It was the mark of a great surgeon to turn mistakes to good account, and some of Spencer Wells's mistakes became landmarks in surgical history. When operating for a supposed ovarian cyst he had found no tumour but an ascites due to tuberculous peritonitis. His operation cured the patient and inaugurated the surgical treatment of abdominal tuberculosis. In 1887, when operating upon a girl, jaundiced since birth, for what was thought to be a fibroid tumour of the uterus, he found that the tumour was not pelvic in origin but splenic; he removed the spleen, and the girl recovered, and so began the surgical treatment of haemolytic jaundice. It was a direct result

of Spencer Wells's inspiration and teaching that surgeons had been enabled to rewrite, with greater accuracy and with incomparable authority, the clinical truths of visceral medicine.

One further point deserved remembrance. Spencer Wells was a general surgeon who helped to create a specialty. It behoved them all to recognize that specialties would only flourish so long as they remained attached to the main stem of medicine. A gynaecologist, for example, must be trained as a general surgeon, and must remain competent to deal with all conditions he might unexpectedly encounter. In the old days Lord Moynihan remembered being summoned from his own operation theatre to a neighbouring one to deal with a carcinoma of the sigmoid flexure, or a condition of diverticulitis which had suffered erroneous diagnosis. So, too, the gynaecologist should not only be competent to deal with all conditions in his own special territory, but should be able—and always inclined—to remove an appendix or to empty or to remove a calculus-containing gall-bladder. Though the development of specialism was inevitable and highly necessary, regard should always be paid to the Hippocratic ideal of the unity of medicine.

"When I read in the recent report of the Chief Medical Officer to the Ministry of Health that out of a total of 2,618 maternal deaths in 1933 no fewer than 1,016 were due to puerperal sepsis, it seemed obvious that it would be all to the advantage of parturient women that the act of delivery should be surrounded with all the stern but simple ritual of a surgical operation of the first magnitude. It must constantly and conscientiously be borne in the very forefront of our minds that no small proportion of the morbid conditions seen in the gynaecological wards to-day are preventable. In this country vast sums of money are annually expended upon the care of those who, for physical or mental reasons, are never likely to be useful members of the community or to be of service to the State. The time is long overdue when consideration should be given to the culture of the physical condition of the normal youth and child. If this were done the normal girl would be better able to bear the strains and perils of maternity. If also a far sterner training in the technique of antiseptic methods were more strongly insisted upon in the training of obstetric nurses, not only would maternity become safer, but a grievous and unjust burden would be lifted from such hospitals as this."

DEDICATION BY THE BISHOP OF WORCESTER

After Lord Moynihan's speech the new extension was dedicated by the BISHOP OF WORCESTER, and then Lord MANNERS, treasurer of the hospital, proposed a vote of thanks to Lord Moynihan, which was seconded and supported by Captain CUNNINGHAM-REID, M.P., Mr. CLIFFORD WHITE, the senior surgeon, and the MAYOR OF ST. MARYLEBONE. Captain Cunningham-Reid and the Mayor both expressed the appreciation of the borough and its pride in including such hospitals as the Middlesex at the one end and the Samaritan at the other, with Harley Street in between.

Lord Moynihan, in reply, said that he was rather pained to note the small amount for which this hospital was asking—a trifle of £5,000 or £10,000. Could not something bigger be achieved? There was not a woman in this or in any other civilized country who did not owe a debt to the work which had been done at the Samaritan. Was it out of the question to inaugurate a great national women's fund on its behalf? Could they not fly their flag a little higher? Instead of a paltry £5,000, let them ask for half a million, and make the hospital what it ought to be—the greatest women's hospital in the world. It was a hospital with traditions, but traditions were kept alive, not by the observance of ancient ceremony or mute obedience to outworn creeds; they were kept alive by an active faith, for ever seeking new truths and exploring new paths in conformity with the old spirit. "You have one of the great shrines of surgery here. Let the world know of it, and let every woman here be an ambassador of this hospital of incomparable fame. Ambrose Paré said: 'It is beautiful and the best of all things, to labour for the relief of human suffering.' Such words as those I would see upon the banners of the women who go out as missionaries of this hospital."

SOUTH AFRICAN MEDICAL CONGRESS

[From our Correspondent in Pretoria]

The Annual Congress of the Medical Association of South Africa (B.M.A.) was held in Pretoria during the week commencing October 1st under the chairmanship of Sir Edward Thornton, Secretary for Public Health and Chief Health Officer for the Union. This is the twenty-eighth medical congress held locally, and the seventh since the profession in South Africa became united into a single association, of which the great bulk of local practitioners are members. Pretoria was in spring garb, and the 240 delegates who attended saw her nearly at her best; it required another month, however, for her jacaranda-lined streets to be draped in deep blue.

After the induction of the President by Mr. T. Lindsay Sandes, President of the Federal Council of the Medical Association of South Africa (B.M.A.), the visiting members were welcomed by Dr. H. A. Hahn, President of the Northern Transvaal Branch, and by Mr. Ivan Solomon, Mayor of Pretoria, on behalf of the city. Referring to life as that long-drawn-out fight for time, Mr. Solomon said that those who controlled, supervised, and reinforced that fight were among the most important people in the world. As regarded that other section of the community, the patients, he assured Congress that they appreciated to the full the great part the doctors played in the life of the nation. He hoped that in the administrative capital of the Union delegates would find that atmosphere of unhurried stability and gracious dignity which was the special charm of the city.

A NATIONAL HEALTH INSURANCE SCHEME

The Congress was then formally opened by the Minister of Public Health, the Honourable J. H. Hofmeyr. In his address he foreshadowed the possibility of special legislation in South Africa prohibiting the publication of advertisements for quack medical products. The law, he said, sought to eliminate the quack practitioner, and, to a limited extent, it purported to deal with advertisement of remedies which claimed to achieve what was manifestly impossible. But the law was incomplete in both respects, markedly so in regard to the quack advertisement. He invited the advice of the medical profession on this matter, and also the approval of the Association for the steps he proposed to take in connexion with a scheme of national health insurance. Such a scheme was within measurable distance; it was, indeed, the only form in which a State medical service was within the range of practical politics in South Africa. One of the prerequisites of its institution was the working out of a detailed basis of co-operation between the State and the medical profession. He was considering the advisability of appointing an *ad hoc* committee on which the profession would be adequately represented. He wished especially to bespeak the sympathetic interest of the Association in the Government's scheme for a Native Health Service, whereby it was seeking to remove a grave reproach at present resting on South Africa. A course of training for native medical aids was being instituted at the South African Native College at Fort Hare. He was glad that the Federal Council of the Association had expressed its approval of the scheme in principle, and he hoped that the profession would help the Government to work it out in detail.

THE PRESIDENTIAL ADDRESS

Sir Edward Thornton chose as the subject of his address some of the problems in the sphere of preventive medicine. He said that the application of the science of preventive medicine involved in South Africa a number of agencies. The first of these was a Minister, who, subject to the regulations, and controlled expenditure. The country had been fortunate in the four Ministers who had held the portfolio since Union. Each in turn had done all that was possible within the limits of the moneys available to

promote the public health. Next came the Department of Public Health, which served as a central co-ordinating body supervising the operations of State medicine initiated by the Minister and Parliament. The provincial administrations again were responsible for general hospitals, the relief of the poor and needy, the medical inspection of school children, and the control of local government, including schemes of sewerage and water supply and sanitary regulations. The division of responsibilities for health matters as between the central and provincial Governments was responsible largely for the fact that advance in public health matters had hitherto been retarded. These responsibilities required to be more clearly defined before any further advance on a large scale was possible.

The real unit of public health control was the local authority. In the case of the large towns, with a few exceptions, that control was reasonably satisfactory, but in the smaller towns and villages, with a few notable exceptions, the control was generally unsatisfactory. This was mainly due to the fact that the protection of health involved some local expenditure. It would have been very much easier to have as the administrative unit for public health control outside the large towns something in the nature of large county councils able to employ and to pay for proper health staffs. He wondered whether it was still too late to bring such a project to fruition in South Africa. If the advance in public health which was so urgently required and which was being so insistently demanded by the public and by the Medical Association was to be assured, if the fight against tuberculosis was to be properly undertaken on a national basis, if the prevention and control of venereal disease were to be organized so as to give lasting results, and if the present excessively high maternal and infant mortality rates were to be materially reduced, it was essential that provision should be made for larger and financially stronger units of local health administration than were available outside the few large towns to-day.

National health itself could not be obtained unless and until the people demanded it. It certainly could not be secured, still less imposed, by Parliament, the Minister or his Department, the Provincial Administrations, or even by local authorities. Health could only be achieved by the people themselves when they understood the necessity for it. The nation did not yet understand the necessity of practising the rules of health, and this Sir Edward attributed to defects in the country's educational systems which provided qualified teachers with little or no knowledge of the laws of health. The future health of the nation depended far less upon housing or medical services than it did upon an educated people. Teachers required a good working knowledge of the facts of growth and functioning of the whole human body; they should be taught the essentials of biology, physiology, and the factors associated with personal hygiene, and they should be taught how to hand on this information to children.

Lastly, the medical, dental, and nursing professions were the spearheads in the advance to victory in the health campaign. This they could only be if the spears were in line and turned in the right direction. He believed that the right direction in South Africa was towards the rural areas, which had been deplorably neglected in the past. The State's duty was to ensure that the inhabitants of the rural areas of South Africa, black and white, were able at least to secure at a reasonably cheap rate adequate medical and nursing services. In regard to native areas, the provision of trained medical and nursing aids working under an extended district surgeon system and under the various mission stations appeared to be the only practicable means of bringing relief to the people. In conclusion, Sir Edward said he hoped that during his term of office as Secretary for Public Health it might be his good fortune to see some of the disabilities under which the profession laboured removed or adjusted, so that there might be established the most harmonious relations possible between the various Departments of State and local government served by the profession and the organized profession itself, for without the assistance of the latter no real progress in public health was possible.

PLENARY SESSIONS

There were three plenary sessions, at which subjects of general interest were discussed by Congress as a whole. On Monday morning the subject of anaemia was presented as a symposium by members of the medical and veterinary professions. Owing to the existence just outside Pretoria of the large and internationally famous Onderstepoort Veterinary Laboratories, it had been decided to invite the professional officers of this institution to honorary membership of Congress. This gesture was abundantly justified, and the twelve veterinary members proved a valuable asset. The symposium on anaemia was provided by Dr. G. Buchanan of the South African Institute for Medical Research, Johannesburg, and Dr. Gilles de Kock, Deputy Director of Veterinary Services for the Union, the discussion being opened with papers by Dr. L. I. Braun of Johannesburg and Dr. P. Fourie of Onderstepoort.

On Tuesday morning the plenary gathering discussed surgical conditions of the liver, including the gall-bladder; the subject was introduced by Mr. I. W. Brebner, professor of surgery at the University of the Witwatersrand, and the opener of the discussion was Dr. W. J. May of Durban. On Thursday morning the subject for general discussion was infant feeding, introduced by Dr. S. C. Heymann, the opener being Dr. B. G. Melle; both of these members practise paediatrics in Johannesburg.

THE SECTIONS

Congress was divided into the same five Sections as at previous meetings: (1) medicine; (2) surgery; (3) gynaecology and obstetrics; (4) public health; and (5) special subjects. Under the last of these a very useful subsection on comparative medicine was added, papers being contributed by three veterinary officers from Onderstepoort. The value of their papers to a medical gathering was evident from the titles—for example, the paper by Dr. G. Steyn on poisonous plants associated with bread poisoning. In this subsection there were two contributions of great local interest, one by Dr. A. Pijper, on typhus-like diseases in South Africa, and another, jointly by Drs. F. W. Fox and L. F. Levy of the South African Institute for Medical Research, on the antiscorbutic value of some South African foodstuffs. The latter was of particular interest, since it followed on a recommendation made last year by the Capetown Congress that the Government should be approached with a view to instituting an inquiry into South African food substances. The Institute for Medical Research subsequently undertook such an inquiry, and this paper by two of its officers represents the first-fruits of its labours.

The contributions in the other Sections offered the usual varied fare, almost every branch of medicine, surgery, and obstetrics being touched on. In the Public Health Section the papers gave a reflex of the trend of public opinion in South Africa on health matters. Professor T. Shaddick Evans, medical officer of health of Capetown, read a paper, which was subsequently discussed at great length, on the housing problem, with special reference to the Slums Act. Dr. S. Annecke's contribution was on malaria control in the Transvaal, and Dr. Melle's on ten years' experience in the infant welfare centres in Johannesburg. In the Subsection of Radiology and Physiotherapy Dr. F. H. Domisse of Capetown read a paper on the dangers of x rays and radio-active bodies, and the methods of protection against them. The grave dangers to workers and the public if such bodies are uncontrolled in South Africa had recently been given prominence, and the Congress Committee had specially asked for a discussion of this subject.

SCIENTIFIC AND TRADES EXHIBITION

The Scientific and Trades Exhibition was opened on Monday morning by the President. Thirteen firms had taken stands: Allen and Hanburys (Africa) Limited; Leannon Limited; South African General Electric Company; Smith and Nephew (Pty.), Limited; B. Owen Jones, Limited; Surgical Instrument Company, Limited; Sive Bros. and Karnovsky, Limited; Westdene Pharmacy; Keating's Pharmacy; Menley and James

(Colonial), Limited; Tacuber and Corssen (Pty.), Limited; Schering-Kahlbaum S.A. (Pty.), Limited; and Fassett and Johnson, Limited. This exhibition is worthy of more support by delegates than is usually given at Congresses, because on the fees charged to the various firms depends very largely the financial success of the Congress as a whole.

ENTERTAINMENTS

Plenty of entertainment was as usual provided for visiting delegates and their wives. On Monday, after the official opening, the President's Reception took place at Berea Hall. Visits were provided on the other afternoons to various places of interest, such as the Government Steel Works, the Onderstepoort Laboratory, the Royal Mint, and the Police Depot, where detective dogs are trained. Even lighter fare was provided by a night at the theatre, at the end of which delegates were sustained by tea and cakes, and a night at the Greyhound Racing Ground. On Wednesday afternoon the Administrator of the Transvaal held a garden party at Burgers Park, and on Wednesday night the Mayor of Pretoria gave a Civic Ball. Congress closed with a very successful, at times hilarious, dinner at the Pretoria Club on Friday night.

India

Medical Aid by Women for Indian Women

In 1935 the original Countess of Dufferin's Fund will celebrate its jubilee; it will also be the twenty-fifth year of the Queen's patronage. Known otherwise as the National Association for Supplying Medical Aid by Women to the Women of India, which incorporates also the Women's Medical Service, it has played a noble part in improving the lives of Indian women by carrying the potentialities of modern medicine behind the hitherto rigid veil of the purdah. The report of this organization for 1933 points out that, although in many places purdah has been broken, and women can now call upon the services of medical men, there are still millions of Indian women living in strict purdah, and many more women doctors are needed. There is also the work of preventive medicine, the building up of a new generation of healthy children in the great new India which is foreshadowed. The waste of maternal and infant life continues, as also much unnecessary suffering and invalidism of women, with many a child born only to become blind or crippled. So the work of the Dufferin Fund is far from finished; indeed, further immediate advance is urgently required. In 1933 the Government's grant could not be paid in full, as was the case also in the previous year, necessitating the continuance of a cut in the salaries of those employed by the Fund, though to a less extent. The earthquake havoc in Bihar and Orissa will still further handicap the financial capability of a Province which has already had to default as regards its usual contribution towards the salary of the Women's Medical Service officer at Gaya, as well as rendering the local needs more urgent. The present report contains, as usual, interesting details about the progress made in various hospitals, training, and other activities of the National Association. The wards of the Lady Hardinge Medical College Hospital at New Delhi have been over-full, and the steady increase of gynaecological and midwifery patients has compelled separation of the two units. This will be made possible by converting at a nominal cost part of the out-patients' block, which at present is not in use, into an isolation ward for septic and infectious cases. By this reorganization a large ward with its side rooms will be freed for septic gynaecological cases, leaving the present gynaecological ward for maternity cases. The amount of radium in this institution has been increased so as to bring it up to the requisite optimum dose for a case of uterine cancer. There has been a marked increase in the number of patients

who have been treated successfully with electrotherapy of different kinds. The training departments for nurses and compounders have made satisfactory progress. The Dufferin Hospital at Karachi was in a rather dilapidated condition, and much work on it still remains to be done when funds permit. In the year under review the out-patients' department was rebuilt, but it is necessary to raise the level of the whole compound to that of the roads outside. The two operating theatres have received better equipment, but there is still needed a galvanocautery and diathermy apparatus, as well as an ultra-violet ray lamp. A septic midwifery block is being constructed, but the present obstetric block urgently needs extension, for there is almost constant congestion in the general wards, and accommodation is lacking for ante-natal or waiting patients, and for such conditions as threatened eclampsia, albuminuria, and osteomalacia. A diploma course in maternity and child welfare has been started in the All-India Institute of Hygiene in Calcutta. The ante-natal clinic at the Dufferin Hospital in this city affords abundant material and excellent teaching, but individual instruction has been hampered by the large number of patients and the limited accommodation in the out-patients' department. There are good facilities for post-graduate experience in advanced midwifery at the Eden Hospital, so far as lectures and bedside clinics are concerned, and practice in the administration of anaesthetics is adequate, but the opportunity for the actual performance of obstetric manipulations is very limited. It is pointed out in the report that practice in midwifery is a most important part of the training. The Eden Hospital is a most suitable place in which to gain experience, and it will be very unfortunate if the necessary changes cannot be made to bring the post-graduate practical work up to a reasonable standard. Lectures and demonstrations in general hygiene, public health chemistry, ante-natal care, and the organization of midwifery services have been proceeding at the All-India Institute of Hygiene and Public Health. The foregoing illustrates some sides of the widespread work of the great scheme that has grown out of the Countess of Dufferin's original fund. Small as well as large hospitals and dispensaries are slowly multiplying in areas where they are most required, and achieve swift popularity as the benefits of modern scientific medicine are realized by the women in backward communities. Despite financial handicaps and occasional local setbacks the work goes on.

Medical Services in Mysore

According to the Government report just issued medical services have shown a considerable expansion in Mysore during the past year. The opening of two new dispensaries brings the number of State medical institutions up to 280. The construction of a new building for the Yam Valas Hospital, and a radiology block at the Victoria Hospital, both in Bangalore, are other important pieces of work, as well as the construction of the Sri Rukminamma Maternity Hospital at Chikmagalur, a new hospital at Ghimoga, and the addition of maternity and children's wards and ophthalmic blocks to leading hospitals throughout the State. The total number of attendances in the various institutions increased from 3,851,000 to 4,231,000. This does not imply an increase of disease, but rather that the population, in the past doubtful of the value of Western medicine or outside its reach, are now making full use of the new facilities provided. The volume of work in the electrotherapeutic and pathological departments in Bangalore and Mysore also showed a very large increase. Total expenditure has risen to the equivalent of £1,053,000, mainly as the result of larger staffs, as well as medicines and diets needed for the increased number of patients.

Ireland

Medical Treatment of School Children

At a recent meeting of the Clogher Regional Committee a letter from the Ministry was read in which it was stated that the education authority was responsible for providing free medical treatment where absolutely necessary, but that it was generally expected the parents or guardians would bear the cost of such treatment. The secretary remarked that the committee had been complying with the Ministry's regulations in this matter, but it was resolved that all applications for medical treatment should come before the subcommittee of the district in which the applicant resided, and that the nurse should see that the small sum of 2s. 6d. was contributed in every case. While the regional committee mentioned the minimum of 2s. 6d., it was expected that in most cases the parents would meet the full amount.

Anaemia: Yesterday and To-day

Dr. Francis J. O'Donnell read a paper entitled "Anaemia; Yesterday and To-day," at the inaugural meeting of the Biological Society of the Royal College of Physicians and Royal College of Surgeons, which was held in the Examination Hall of the latter body in St. Stephen's Green, Dublin. Dr. O'Donnell stated that in any case of serious anaemia accurate diagnosis and proper treatment and after-care demanded considerable and constant laboratory investigation. These requirements presented in concrete form—but only in one section of medicine—problems of medical service to the community at large and of hospital organization upon which it would be wise for the medical profession in this country to come to specific decisions within the next few years. As concerned hospital work on anaemia, the necessary laboratory investigations required the services of a reasonably well-paid or whole-time pathologist, since no member of a staff could be expected to undertake such a time-consuming work and make his livelihood afterwards. To utilize to the full these paid services a large hospital was essential, and it was apposite to point out that in several British teaching hospitals not merely whole-time pathologists but whole-time *directors* of the various units had now existed for some years past. The treatment of anaemia illustrated very aptly the problem raised by the rather crisp assertion that under existing conditions two sections of the community could secure proper medical care and treatment—the wealthy, who paid for them, and those who could get them for nothing in a hospital. That generalization remained substantially correct, because the kernel of the problem was not the part-extension of gratuitous medical service, but rather the necessity of placing adequate facilities for proper diagnosis and treatment at the disposal of people with moderate incomes, who were willing to pay for such facilities within the limit of their incomes and social responsibilities. The difficulties of such a question were obvious, but its importance in a country where the middle classes had increased enormously could not be denied. In Great Britain some efforts had been made to meet that need by means of voluntary insurance, a solution with at least considerable possibilities if sufficiently supported. In the same connexion the general practitioner had to be considered. It would be agreed that any system of medical education worthy of the name aimed at producing a doctor alive to the first warnings of disease, and the logical corollary was that the general practitioner should be afforded the assistance of all modern advances in direct relation to all classes of his patients. Proposing a vote of thanks to Dr. O'Donnell, Dr. T. G. Moorhead, Past-President of the

British Medical Association, referred to the time when the extraction of teeth was considered to be a cure for anaemia. Archaeologists of the future, he said, would think that at that period there had been a sudden disappearance of teeth. He was particularly interested to observe that Dr. O'Donnell had referred to the necessity for adequate after-care, and that brought them once again to the importance of establishing in connexion with every hospital a social service unit. He hoped that in a comparatively short time he would have established such a unit in his own hospital. Again and again he had pointed out that hospitals were dealing only with sickness, and were taking no part in its prevention.

England and Wales

Liverpool School of Tropical Medicine

At a special reception at the Liverpool School of Tropical Medicine, on November 6th, the Mary Kingsley medal was presented to Dr. Henry Beeuwkes, Sir George Buchanan, Colonel Sir Rickard Christophers, and Sir Malcolm Watson. Honorary recipients were Miss A. P. Caton and Mrs. Middlemass Hunt. The Duke of York, who is president of the School, sent congratulations to the recipients, and expressed warm wishes for the future success and prosperity of the institution.

Lord Leverhulme, chairman of the School, said that the munificence of Liverpool citizens had brought it into being originally, and that the School had amply repaid the debt by adding lustre to the name of the city in the eyes of the world. Liverpool, he hoped, would continue to lead in tropical medicine, not necessarily in the size of its buildings, but in the importance of the discoveries which it made. In the past the School had rendered it possible for 40,000 persons to live and work in the region of the Panama Canal, where once 90,000 had perished. From its foundation in 1898 until 1914 it had dispatched thirty-two expeditions to West Africa and other tropical areas. At the present time, in its laboratory at Sierra Leone, it continued to deal with the everyday problems of tropical diseases, and by patient research was extending knowledge how to conquer them. The Mary Kingsley medal had been instituted in 1904 to commemorate the services of the niece of Charles Kingsley, the novelist, to the welfare of the West African native. The qualifications for it were service in the prevention and fighting of disease in the Tropics. Professor Warrington Yorke described the contributions made by the six recipients. In the person of Mrs. Middlemass Hunt, he said, the School was publicly acknowledging the services rendered by her late husband, Dr. John Middlemass Hunt, its honorary dean from 1921 until 1932, who had endowed the chair of tropical diseases of Africa. This chair was occupied by the director of the School's research laboratory in Sierra Leone, where members of the staff could gain first-hand experience by working in the actual climatic conditions of an unhealthy part of the Tropics. It had been realized that lack of adequate endowment was likely to endanger the existence of this laboratory. Dr. Middlemass Hunt, by his far-sighted generosity, had taken the first great step towards its proper endowment, and the resulting professorship would constitute a permanent and conspicuous landmark in the development of the School. Miss Caton's father, the late Dr. Richard Caton, had taken a prominent part in the foundation of University College, and in 1902 was appointed to represent the council of the College on the governing body of the School. In 1913 he was elected its vice-chairman, and held this post until his death in 1926. Miss Caton's generosity subsequently had enabled a research fellowship to be founded. She had taken a

prominent part in promoting the welfare of people inhabiting tropical countries—particularly India, where she was at present honorary secretary of the Village Welfare Association. Dr. Henry Beeuwkes, a graduate of Johns Hopkins University, after distinguished work in connexion with the Armenian Relief Mission and child welfare in the United States, had studied yellow fever in Brazil and Central America, and had organized and directed the Yellow Fever Commission in West Africa. He had subsequently conducted researches which had ultimately incriminated the *Stegomyia* and other mosquitos as carriers of the ultra-microscopic causative virus, and had elaborated a protective serum. Outstanding features of the work of Sir George Buchanan were his great administrative abilities at home and in conjunction with the Health Organization of the League of Nations. Many far-reaching international agreements, such as the Brussels Convention, had been largely due to his negotiations. Most important of these was the International Sanitary Convention of 1926, which had recast and modernized the whole international system of preventing the spread of small-pox, typhus, cholera, plague, and yellow fever, while the International Sanitary Convention for Aerial Navigation of 1932 had intensified the control of yellow fever and the prevention of its spread, especially to the East. He was still prominent in his double capacity of president of the International Office of Public Health in Paris and vice-president of the Health Committee of the League of Nations. Sir Rickard Christophers, a Liverpool graduate in medicine, had been a member of the classical Malaria Commission of the Royal Society and Colonial Office. With Professor Stephens he had been the first to establish the malarial nature of blackwater fever, and he had given valuable services with regard to increasing knowledge about the great epidemics of India, the transmission of *Protoplasma* through the tick, and the practical study of malaria generally. Sir Malcolm Watson's antimalarial work since Ross's great discoveries had introduced a large variety of preventive measures, and had saved innumerable lives since 1901. He had devised and introduced the valuable subsoil drainage system, and was largely responsible for its present widespread utilization in Malaya. In connexion with the Ross Institute, of which he was director, he had made numerous and most fruitful contributions to the knowledge of malaria and of its pathological effects.

Tuberculosis in Birmingham

Dr. G. B. Dixon, chief clinical tuberculosis officer to the City of Birmingham, reports a decrease in the number of notified cases of all forms of this disease in 1933, the case rate per 1,000 of the population (1.45) being the lowest yet recorded. Statistics are supplied which show that the mortality rate has been falling steadily since 1901, and the present five-year period (1931-5) seems likely to establish a new low record for quinquennial periods. This decrease affects both pulmonary and non-pulmonary forms. Birmingham's case rate of 1.4 per 1,000 compares favourably with other great centres of population, and notably with Liverpool (3.3), Sheffield (3.2), Glasgow (2.1), Manchester (1.8), and Edinburgh and London (1.7). At the end of 1933 there were 7,180 cases of tuberculosis on the current register. Ten nurses are engaged as visitors, and a total of over 30,300 visits were paid in the twelve months. It was discovered that 771 patients out of 1,640 were sharing a bed with some other person, while 592 shared a bedroom, but had a separate bed. Efforts are always made to get a separate bedroom, or at any rate a separate bed, for each patient, but it is noted that lack of accommodation or unwillingness of patients often renders this impossible. In order to promote segregation, ninety-seven persons received bedding from the department on loan or hire purchase, while, in addition, twenty

chalets were sent out to patients who were in a position to use them. There were 5,180 consultations with medical practitioners during the year, and the number of reports received from them in the same period was 1,814. It is noted that 22.6 per cent. of adults were notified in the first instance while their working capacity was unimpaired, whereas 35.9 per cent. only came when totally incapacitated for work. The statistical table devoted to family histories brings out the interesting point that the father is known to have been a sufferer from tuberculosis more frequently than the mother. The large increase in the number of patients attending at the tuberculosis centre in the city is accounted for by the fact that the patients receiving light treatment have been recorded for the first time this year. Of the patients treated during the period 1913 to 1933 about 11,000 had tubercle bacilli in the sputum; of these, 26.9 per cent. are still alive, 65 per cent. have died, and the condition is unknown in about 8 per cent. During the same period over 12,000 patients whose sputum contained no tubercle bacilli were treated; of these, 63.5 per cent. are still alive, 19.6 have died, while trace has been lost of the remainder. In all of the municipal sanatoria occupational therapy is prominent, while a scheme for encouraging after-care employment has proved clinically as well as economically successful.

Scotland

Hospital Services for Scotland

In an address to the Edinburgh Women Citizens' Association Dr. R. W. Craig, Scottish Medical Secretary of the British Medical Association, criticized present-day medical services and outlined the features which were desirable in the future. He said that some thirty years ago poverty had been one of the chief claims for admission to hospital, but to-day the gravity or danger of the illness or injury was the criterion for admission. In 1871 the Glasgow Royal Infirmary, which was then the only voluntary general hospital in Glasgow, admitted 2,225 medical cases and 2,421 surgical ones. Thirty years later, in 1901, there were three large voluntary hospitals in the city, and the number of surgical cases had increased to 9,000. In 1924 the medical cases had increased only to 6,000, while the surgical patients numbered 21,000. This development naturally gave rise to new problems in connexion with the accommodation in hospitals. The Departmental Committee on Hospital Services, under the chairmanship of Lord MacKenzie, had recommended that hospital treatment should be entirely dissociated from the Poor Law, and effect had been given to this in the Local Government (Scotland) Act of 1929. The voluntary hospitals had done splendid work for the country, and it was remarkable that, faced as they had recently been with the steadily increasing demands upon their facilities, they had been able to maintain their functions at a high level of efficiency. That had been possible because the community realized that such essential services must be subsidised at all costs. People who had given serious consideration to the hospital problem felt that the continuance of the voluntary system was in the public interest. It was evident that hospitals would be affected by any development which took place in the general medical service of the country. It was safe to say that in the near future there would be a considerable increase in the provision of organized medical services for great sections of the community. At present there was a superfluity in one direction and a deficiency in another, with very little co-ordination between certain branches. In the sphere of family practice there was overlapping, which was wasteful and sometimes chaotic; it had often

been found that in the same family medical care was being provided from ante-natal clinics, child welfare clinics, the school medical service, the public assistance service, hospitals, and the general practitioner. The British Medical Association strongly believed that the large expenditure of funds involved in these services could be more usefully employed if it were diverted to the provision of medical attention by a system based on the family as a unit instead of by a system which regarded the family as a loose arrangement of unrelated components. If a general and complete medical service were readily available to all members of the family it would lessen the need for hospital beds, since more cases could be treated at home than at present, and existing beds would be more efficiently used. It would also increase the efficiency of the family doctor if opportunities were afforded him in hospital for the treatment of those of his patients who did not require more than general practitioner treatment, while at the same time the services of specialists would be immediately available. The British Medical Association was of the opinion that an arrangement of this nature in every area would be of great value; it would not necessarily require the establishment of new hospitals, for the provision might be made by setting aside a number of beds in existing institutions.

Central Midwives Board for Scotland

The examinations of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, have just concluded with the following results. Out of 170 candidates who appeared for the examination 155 passed. Of the successful ones twenty-nine were trained at the Royal Maternity Hospital and eighteen at the Elsie Inglis Memorial Hospital, Edinburgh; forty-six at the Royal Maternity Hospital, Glasgow; eleven at Stobhill General Hospital; two at the Eastern District Hospital; two at the Western District Hospital; seven at Govan Maternity Hospital; nine at Bellshill Maternity Hospital; four at Barshaw Maternity Hospital, Paisley; one at Motherwell Maternity Hospital; seven at the Maternity Hospital, Aberdeen; fourteen at the Maternity Department, Royal Infirmary, Dundee; two at the Maternity Department, Royal Infirmary, Perth; and three at the Royal Infirmary, Stirling.

Reports of Societies

"SOME PERSONAL PREJUDICES"

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland, held in the Royal College of Physicians on October 12th, with Sir WILLIAM SMYLY in the chair, the president of the Section, Dr. T. M. HEALY, read as his presidential address a paper entitled "Some Personal Prejudices."

Dr. Healy gave an analysis of the 13,347 intern and extern maternity cases occurring in the first five years of his mastership of the Coombe Hospital. The intern morbidity rate—the B.M.A. standard—for the period was 3.6 per cent., and the case mortality rate in puerperal sepsis was 10 per cent. He gave figures showing that operative cases ran a risk of sepsis five times greater than that of cases delivered spontaneously, yet the case mortality from sepsis was only 1.5 per cent. higher in operative deliveries. He was in favour of induction of premature labour as a method of preventing difficulty from disproportion, and attributed the fact that he was unable to show a decrease in his incidence of Caesarean section to the reluctance of the patients to enter hospital sufficiently early in pregnancy.

Sir WILLIAM SMYLY said that he still believed that "meddlesome midwifery" was bad. It was difficult to compare results obtained in an intern and extern department, because the bad cases were generally sent in to

the hospital, so internal statistics were bound to be worse than those of an extern department. He would like to see added to the induction column in the statistics shown by Dr. Healy the number of babies which were born alive but died before they left hospital. He thought that one of the disadvantages of induction was that premature babies were more likely to die within a few weeks of birth than babies who were not premature.

The MASTER OF THE ROTUNDA said that at his hospital he had tried as far as possible to accomplish vaginal in preference to abdominal delivery. He felt that ante-natal care had now gone almost too far, and statistics showed that it had led to increased operative midwifery, which he felt was a thing to be avoided. He had no doubt that the increase in induction of labour had definitely led to an increase in the performance of Caesarean section. Induction of labour by puncture of the membranes was both a blessing and a curse. It was a curse when one attempted to bring a borderline case into labour. He thought the great difficulty was that unless the head fitted down on the lower uterine segment no method of induction would bring the woman into labour in a reasonable time and give the baby a chance of living. Cases in which the head did not fit well into the pelvis should be left to deliver themselves, and Caesarean section should only be done if it was absolutely necessary. He felt that the proper way of inducing labour had not yet been found out. Referring to the question of external version in breech presentations, he said that the modern tendency was probably to interfere too much. He did not agree with the method of antisepsis in the vagina before delivery, and thought that the less done in the vagina before delivery the better.

Dr. J. S. QUINN disagreed with the idea that an increase of Caesarean sections was due to induction of labour, and thought that Dr. Healy's statistics showed induction to have fewer disadvantages than Dr. Davidson was inclined to believe. He would be interested to hear the number of cases in which perforation as a means of delivery was adopted.

Dr. NIXIAN FALKNER said that although induction of labour was becoming somewhat unpopular, he felt that if the results from another type of treatment proved to be worse induction would have to be resorted to. He believed that induction was followed by a higher rate of Caesarean sections than if induction was left out altogether in cases of disproportion. In cases where the head was high and labour was induced by bougies and the stomach tube, the results might be better than in cases where labour was induced by puncture of the membranes. Dr. F. DOYLE thought that puncture of the membranes was a very old method which had been discarded and had now come into fashion again. He felt that the great difficulty was in connexion with primiparae, as it was so hard to know what they could do regarding labour. He was inclined to take the view that it was better to let them go on with labour and not resort to induction, as subjecting a primipara to Caesarean section impaired her attainment of subsequent labours. Dr. R. M. CORBET said he was often impressed by cases which were brought into hospital with disproportion in which the baby was dead, perforation was done, and the head was found on the perineum a short time later. There were many cases in which disproportion was not due to the size of the head but to its alignment. This did not include all cases, and did not explain why uterine inertia was so very much more common in the primigravida. He liked the operation of external version in an easy case, but if it was difficult he was inclined to let the case alone. He did not like delivering a primipara's breech presentation, and avoided it as much as possible. He saw no objection to performing external version early, but in elderly multiparae he thought that this operation was perhaps unwise. In some of these cases he had had to do an internal version to get the case back to a breech again. He was against doing internal version for disproportion in primigravidae, and felt that the more induction of labour was done the less one tended to be dogmatic about it. He personally used induction a good deal, and had very rarely been sorry he had used it, while he had come across many cases in which delivery was

very difficult, and he had felt that if he had induced the patient sooner delivery would have been very much easier.

Dr. HEALY, in reply, said he thought that better results could be obtained when it was possible to allow patients to have spontaneous deliveries. The neo-natal deaths were practically the same after inductions and after spontaneous deliveries. He could not see any other means of avoiding Caesarean section beyond induction of labour. He hoped that when more was known about the proper time for induction better results would be obtained. He thought that external version when easy was generally a correct procedure. He mentioned one case he had seen in which the placenta became completely detached and the patient bled to death in about eight minutes' time, but he did not think accidents such as this should stop the performance of external version. He referred to a recent case of induction of labour in which there was a medium degree of flattened pelvis. The woman had had induction on three former occasions, and had had one baby by spontaneous labour. This baby, which was born spontaneously in the district, was nearly two pounds heavier than any of the babies which had been induced in the hospital. He believed that the difficulty was in knowing the proper time to induce labour. During the present year the attitude in the hospital towards induction of labour had not changed, but the number of cases suitable for induction was less than in the previous year. There was no falling off in the number of perforations as a result of either the increased number of Caesarean sections or the increased number of inductions. In New York, when statistics were compiled, induction was not regarded at all as an operation, and lower segment sections were done on all patients who were in labour, and classical sections on the remainder. Referring to the stillbirth rate with sections, forceps, and inductions, he said that the rate was best with sections and worst with forceps, inductions coming between the two. He had yet to see a case of inertia with a fixed head. In all the cases he saw the head was above the brim.

GEE'S DISEASE

A meeting of the Medical Section of the Royal Academy of Medicine in Ireland was held on November 2nd, with the president, Dr. V. M. SYNGE, in the chair.

Professor HENRY MOORE, in collaboration with Drs. W. R. O'FARRELL, J. A. GERAGHTY, M. MORIARTY, and J. MURRAY HAYDEN, read a paper on Gee's (coeliac) disease in adults. After a consideration of the literature, of the work of Hess Thaysen in Denmark, and of Bennett, Hunter, and Vaughan in England, eight cases of Gee's disease in adults were described. In seven of them (one not tested), Professor Moore said, there was a high percentage of total fat in the stools; the lowest fat percentage was 32, and the highest was 51.4 (the average normal being 18). In all patients the amount of split fat and the amount of nitrogen in the stools was normal, but some had a high soap-fat content. All had a history of diarrhoea at one time or another, two had macrocytic anaemia without achlorhydria, five had hypochromic anaemia, five had hypocalcaemia, two had tetany, and all save one had calcification of bones. In three cases the skeletal changes were so advanced as to cause multiple pathological fractures. Seven cases (one not tested) had a low blood sugar curve with the glucose-tolerance test, and the blood urea was low in five. Three had achlorhydria. Blood cholesterol was normal or subnormal. One case had hyperthyroidism and in five there was some degree of infantilism. One patient had ununited epiphyses at the 26 years of age, and another a similar condition at the age of 20; the former patient grew four inches between the ages of 23 and 25. In three cases there was a decrease in height. Lens opacities were present in two cases of seven (tested by Dr. D. O'Donoghue). The macrocytic anaemia yielded to treatment by liver extract and marmite, and the hypochromic anaemia to iron by mouth in all cases. Calcium and vitamin D in large doses, with a fat-low diet, relieved tetany. Hydrochloric acid by mouth was used for achlorhydria. The fractures united in the three fracture cases, and the calcium content of

the bones increased in all those showing bone decalcification save one. One patient died, but in six others the results of treatment were considered satisfactory, one case being too recent to form a judgement. The terms "non-tropical sprue" and "idiopathic steatorrhoea," used to describe the disease, were unsatisfactory. Gee was aware that the malady occurred in adults. Therefore, honour being given where due, the disease should be known as "Gee's disease."

Dr. E. HARVEY referred to the results obtained by McCarrison in experimental vitamin B deficiency. Rabbits put on a diet of rice developed many of the symptoms of coeliac disease. When butter was added to the diet the condition, instead of improving, grew worse, and the diarrhoea changed to steatorrhoea. He asked if the question of vitamin B deficiency had been considered in Professor Moore's cases. Dr. D. PRICE asked if the non-union of the epiphyses was the result of infantile coeliac disease which had remained untreated. Dr. GEORGEY THOMPSON said that in such a complex syndrome as Gee's disease there was almost certainly some fundamental underlying factor common to all cases and from which all the features of the syndrome resulted. The probable primary fault was defective fat absorption, resulting in the fixation of calcium in the intestinal contents. From this would follow the defective calcium absorption and the resulting abnormal calcium metabolism producing the clinical features of bone disease and tetany. He drew attention to two peculiarities of fat absorption—namely, the fact that the molecule of fatty acid was very large compared with molecules of hexose or amino-acid in the case of carbohydrate or protein absorption, and, secondly, the fact that fat was largely absorbed by the lymphatic vessels, whereas the other foodstuffs were absorbed by the blood. He suggested the estimation of changes in the blood fat following fat meals as a method of throwing light on the condition. Dr. W. A. MOORE asked why, in a case of his, there was no sign of bone decalcification, in spite of steatorrhoea of six years' duration. There was a typical blood picture of pernicious anaemia, but no achlorhydria. Dr. ALAN THOMPSON wanted to know if any examination of the faeces had been made for bile salts, and if the cases showing macrocytic anaemia had shown any evidence of central nervous system changes.

GROWTH OF *B. COLI* IN WATER

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, held in the Royal College of Physicians on October 19th, with the president, Dr. W. R. O'FARRELL, in the chair, Professor J. W. BIGGER read a paper on "The Growth of Coliform Bacilli in Water."

Professor Bigger said that the organism with which most of the work was done was almost a typical *B. coli*. This organism grew in autoclaved Vartry water in flasks which were kept at 37°C., the counts rising from an initial level of from 20 to 2,000 per c.cm. up to almost half a million per c.cm. Periods of growth with high counts alternated with periods in which the count fell to 0 per c.cm. At 22°C. the bacillus grew and remained alive for more than 200 days. It was shown that the growth of the bacillus did not occur in distilled water, but did in a solution in distilled water of the dry residue obtained by evaporating tap-water. A number of other coliform bacilli of various types also grew in tap-water, and the bacillus chiefly used was capable of growth in water obtained from Belfast and Bohernabreena as well as in Vartry water. Professor Bigger pointed out the importance of the phenomenon in connexion with the bacteriological examination of water supplies.

The PRESIDENT said that it was very interesting to note the length of time that bacilli lived in water, and the fact that in some waters bacilli grew and in others they did not seemed to show that there was some solid deposit present in the water in which they did grow. He asked whether, if water was left lying in a pipe for a long time, there would be any increase in the number of bacilli in it which would be formed by the water lying in the pipe, and if that water would show similar peaks to those

shown in the experiments carried out by Professor Bigger.

Professor W. D. O'KILLY referred to some experiments which had been carried out some years ago by Dr. Houston and Dr. Coplans. Dr. Houston said that if water was stored for a certain length of time the bacilli present in it died, while Dr. Coplans said they did not. At the end of the experiments no satisfactory conclusion was arrived at. He referred to the view of the utilization of atmospheric nitrogen, and also to the "cannibalistic" view, and asked which Professor Bigger considered the more satisfactory. He also asked if there was any difference in the growth of the organisms in bottles and in flasks.

Professor T. T. O'FARRELL drew attention to the reports of the Metropolitan Water Board, recording the experiments of Dr. Houston, in which it was proved that artificially grown bacilli had a greater vitality than those obtained freshly from carriers. The fact that Professor Bigger had used stock laboratory strains might have some influence upon the experiments. As to the peculiar diminution and subsequent increase in the number of organisms he suggested the following considerations: (1) In the primary growth an inhibitory substance was produced causing the diminution, but the breaking down of the bacilli offered a new pabulum and hence the increase. (2) That the culture used contained two varieties of organisms, analogous to "rough" and "smooth," one type being reduced and the other enhanced. (3) A change might have taken place in the reaction of the water. Dr. W. P. O'CALLAGHAN said that the growth curves obtained in these experiments by Professor Bigger were of the order one was accustomed to find in these circumstances—that is, microbial growth in culture media. He asked if the flask cultures had at any stage been investigated for evidence of a lytic principle, since uniform results had not been obtained with the several culture strains in different water media, and also the frequencies of the total counts and the time intervals of the cultural counts where the graph values read zero. Dr. ALAN THOMPSON said it would be interesting to take a flask at peak of growth and the same flask at zero, and see if the amount of substance of inorganic body and bacterial body was the same. He mentioned the possibility that the microbes might be growing on water and gas, and turning into inorganic solubles. Dr. J. MACGRATH asked how Professor Bigger made sure that the organism he was dealing with was not a mixture of different types. He referred to the possibility of diluting Vartry water with different amounts of ordinary water, and said he thought the organisms reached a certain stable point beyond which they did not increase. He asked if the speaker had tried adding twice the amount of residue to a flask, and said he thought this might bring the top peak higher. Dr. G. C. DOCKLARY suggested that if nitrogen estimations were done early and again at a later date it might be a help.

Professor BIGGER, in reply, said that he had no data which would lead him to be in favour of the atmospheric nitrogen view or the cannibalistic view, but he thought that once the first step was taken the cannibalistic view might be quite a possibility. There was no difference at all in the growth of the organisms in the bottles or in flasks. His impression was that water which he had obtained from Belfast was much better for growth than Vartry water was. He had had no failures in the secondary or tertiary samples.

Mr. J. F. Jennings, F.R.C.S., who died on July 5th, left estate of the gross value of £47,660, with net personally £45,790. Subject to a legacy of £500 to his wife, he left the whole property in trust for her for life, and then to St. Bartholomew's Hospital for the endowment of beds or the foundation of scholarships for medical students.—Mrs. Elizabeth Fountaine of Watford bequeathed £2,000 to Guy's Hospital, the income to be applied to the Students' Exhibition Fund in such a way as to commemorate her late husband, Dr. David Fountaine, who was a medical student there.—Mr. W. M. Barnes of Malvern bequeathed a sum not exceeding £7,000 to his trustees, to be devoted to such medical research work or religious institutions as they may think fit.

CORRESPONDENCE

Dilating the Cervix in Placenta Praevia

SIR,—I was horrified to read in your issue of November 10th (p. 884) the suggestion that the cervix should be dilated in placenta praevia. Dr. W. J. Young considers that "over a score" of cases is a considerable experience. Such a letter as his is bound to be responsible for an increase in the maternal death rate if the treatment he suggests is carried out by other practitioners.

The cervix should never be dilated for placenta praevia, even though Dr. Young has "got away" with it in over a score of cases.—I am, etc.,

BETHEL SOLOMONS, M.D., F.A.C.S. (Hon.).

Dublin, Nov. 10th.

Mortality from Haematemesis in Peptic Ulcer

SIR,—I have read with much interest the valuable statistical review of haematemesis in the *Journal* of November 10th (p. 858) by Dr. Lloyd Davies and Mr. R. W. Nevin. While they compare their series with those dealing specifically with the mortality from haematemesis in peptic ulcer they have not divided the cases into aetiological groups, for reasons which appear to them to be adequate. It must be pointed out that an error is thereby introduced, and that correction of the figures for fatal cases, at any rate, is possible if post-mortem examinations are carried out. It is by no means clear what they mean by their mortality percentage. Is it the mortality from haematemesis from all causes, or is it the percentage arrived at after excluding cases proved to have a disease other than peptic ulcer? In any case comparison with the series quoted by the writers seems hardly justifiable.

While agreeing with the writers that "when considering the prognosis from any disease it is necessary to carry out a statistical investigation of a large number of cases," I can hardly condone their omission of my own series which was recorded in the *Lancet* (1927, ii, 168, and 1932, ii, 720). In this analysis every case admitted to the medical wards of the General Hospital, Birmingham, for the treatment of haematemesis as the leading symptom between the years 1902 and 1931 was included—a total of 649 cases. Seventy-one cases were discarded as being due to causes other than peptic ulcer, and the mortality was calculated for a total of 578 cases of peptic ulcer. The results may be summarized as follows:

Number of Cases	Deaths from Haematemesis	Mortality
240 males	39	16.2%
338 females	23	6.8%
Total = 578	62	10.7%

At the time of my original analysis in 1927 haematemesis in peptic ulcer was not regarded very seriously, and my figures excited some comment but little expressed agreement; subsequent reviews in this country have confirmed my suggestions as to the gravity of the condition, and indeed have shown the experience in London to be even worse than that in Birmingham.

Apart altogether from the establishment of haematemesis in peptic ulcer as a very grave complication, interesting points arise which give food for thought. I was able to show that at every three-year period since 1906 the mortality in women was less than half of that in men. I feel tempted to think that the explanation of

one of the ward sisters contains much wisdom. She had herself noticed that men did not do so well as women, and attributed it to the temperamental differences between the sexes: while a female patient will lie quietly and contentedly in bed, the male patient tends to be fidgety and impatient at his enforced inactivity, restless in both mind and body.

In 1927 I drew attention in the Birmingham figures to a steadily rising percentage mortality in both sexes since 1902. The cause of this must remain a matter of speculation, as so many factors are involved; but there appeared to be one marked difference between the treatment of cases, both from a study of treatment sheets and from a survey of the standard textbooks of the day, in the early years of the century and that in more recent years—I allude to the use of morphine. Morphine was apparently reserved for the relief of pain, whereas it is now nearly always given. There are theoretical objections to its use—perhaps not founded on unimpeachable physiological premisses—in that it tends to relax the stomach and to abolish that rugosity which should surely aid in blood-clotting over the bleeding spot, and that it may produce pylorospasm in some persons. I advised a caution in its use without actually incriminating it as the main factor in the rising death rate. My doubts as to the advisability of giving morphine are not shared by many, and its administration is still advocated, and by some in large doses and combined with hyoscine so as to cause practically a mild narcosis comparable to "twilight sleep."

It would be of value to have an analysis of the mortality from haematemesis in peptic ulcer with a careful study of the amount of morphine and other narcotics employed in each case: the advocacy of the "semi-narcosis" treatment of haematemesis by certain of the London physicians, and the considerably heavier mortality in the various series published from some of the London hospitals, may have a demonstrable correlation.—I am, etc.,

ERNEST BULMER.

General Hospital, Birmingham, Nov. 10th.

Local Treatment of Coryza

SIR,—It was with great pleasure that I read Dr. W. C. Spackman's letter in the *Journal* of November 3rd (p. 835), for he has drawn attention to one of the most curious inconsistencies of medical practice.

In acute inflammatory conditions one of the main objects of treatment should be to produce a hyperaemia of the affected part, so as to reinforce the defences of the body and defeat the invading organisms. The hot stupe, of course, is the time-honoured method of accomplishing this, but other means, such as Bier's passive hyperaemia, show the end in view. But in dealing with acute inflammation of the nasal mucosa the ordinary prescriptions for "oils, inhalations, sprays, pastes, and snuffs" which contain adrenaline, ephedrine, menthol, or other vaso-constricting agent have precisely the opposite effect. An anaemia of the mucous membrane is produced.

The reason for the popularity of such treatments is clear. Vaso-constriction causes shrinkage of the turbinates, which are congested in an effort to fight the infection; this makes the patient considerably more comfortable for the moment, and relief of the outstanding symptoms is mistaken for cure of the disease. Nasal respiration is restored and secretion is diminished—but at what a price! The vaso-constricting agent causes the retirement of the home forces and leaves the invading organisms in possession of the field. Apart from the increased likelihood of bronchitis, sinusitis, etc., there is grave danger of the infection settling down and becoming chronic, instead of spending itself in one battle royal. I am convinced that

the prevalence of chronic nasal infections is due in no small measure to the use of such drugs during acute coryza.

The medical profession is not entirely responsible for this, for the advertisements of commercial firms have made the public "catarrh-conscious," and have taught it to use a "cold cure" or "catarrh remedy" in acute coryza. But the medical profession has so far failed to condemn such measures with the unanimity with which it ought, and by silence on the subject it seems to have given its consent. It is to be hoped that Dr. Spackman's letter may awaken the medical conscience and be the start of a reorientation of opinion on this very important subject.—I am, etc.,

Dublin, Nov. 8th.

R. R. WOODS.

SIR,—The recent correspondence on this subject suggests to my mind that the therapeutic of the common cold threatens to rival in complication that of asthma. My experience, both in my own person and in my practice, convinces me that the ingestion of alkalis in considerable quantities diminishes the symptoms, cuts short the illness, and prevents complications such as Eustachian catarrh and tonsillitis. The treatment is an old one, but in my opinion the dosage was inadequate. Common colds repeatedly were followed in my own case by such complications until I adopted this alkaline treatment, which amounts to the ingestion of a teaspoonful of sodium bicarbonate dissolved in a tumbler of water, a like dose being kept at the bedside for sipping at night. This practice was based upon the idea that my own alkalinity was diminished, and results appear to support this. It is well known that the taking of a meal reduces the symptoms of a cold, as I think, by raising the alkaline tide, thanks to acid gastric secretion. And it is significant that recent research has shown that asthmatic attacks are associated with reduction of normal alkalinity. I make the suggestion that the alkaline treatment should be given a more general trial before resort is had to the many remedies enumerated in the recent correspondence.—I am, etc.,

London, W.1, Nov. 10th.

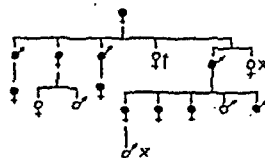
BERNARD E. POTTER.

Female "Bleeders"

SIR,—I should like to thank your three correspondents (October 20th, p. 744) who made comments on my letter of October 13th (p. 700). I must apologize for the fact that the information I gave, though quite correct, has proved incomplete. The father of the Winsford branch of the family was taken by relatives when his mother died—that is, when a day old—and has had practically nothing to do with his brothers and sisters since. In view of the interest shown and the absence of mention in your columns of any further female bleeders, I have done my utmost to obtain the fullest information I could about this family. With much difficulty I persuaded the mother to visit, at my expense, all her husband's known relations and find out all she could about them and the matter of bleeding. Unfortunately, the family are rather shy about the matter, and asked particularly that I should not make this investigation personally. She visited three different localities for the purpose, and seems to have taken an intelligent interest in the matter; so I hope that the revised family tree I give below is not merely correct but complete. It provides somewhat more material for those interested in the laws of inheritance, and suggests that the coming generation should provide a very pretty objection in Mendelism.

From the inquiries made there seems no doubt that the grandmother was a true bleeder—scratches, etc., bleeding profusely and for a long time, as in the case of her

granddaughters. The enlarged tree shows that the mother is not a female carrier, for it is inconceivable that three brothers should each marry female carriers, and the parents, grandparents, and numerous relations of the mother have lived in this town and are known to be normal. While the grandmother lived at Barton near Northwich, I have not been able to find out from what part of the country she originally came, for it would have been interesting to inquire whether any collateral families exist with a similar defect.



* Unknown. † Nine children, no bleeders among them.

As regards the actual defect itself, I have, as suggested by Dr. Garland, examined those members I could, and only in one did I find anything suggestive—a minute bright red spot just anterior to the right tonsil. Whether this is sufficient to clinch the diagnosis of hereditary telangiectasia I do not know, but I should be very interested to hear, especially if the diagnosis will lead to any effective treatment.—I am, etc.,

Winsford, Cheshire, Nov. 3rd.

W. N. LEAK, M.D.

Differential Diagnosis of Chronic Rheumatic Disease

SIR,—Dr. H. Warren Crowe's communications with regard to his activities at the Charterhouse Clinic are always of interest. In the letter published in the *Journal* of November 10th (p. 884) he announces, however, a new pathognomonic sign for differentiating early osteo-arthritis from other forms of arthritis. I would like respectfully to suggest to him that he is mistaken in believing this sign to be either new or reliable.—I am, etc.,

London, W.1, Nov. 12th.

W. S. C. COPEMAN.

X-Ray Examination of Empyema Cavities

SIR,—In the admirably lucid and concise account of his method of examining empyema cavities which Mr. Denis Browne gives in the *Journal* of November 3rd (p. 807) it would appear that one consideration is omitted—namely, the condition of the underlying lung.

There will be general agreement with his conclusions as to the nature of the process of cure by adhesion of the two pleural surfaces, and failure of cure due to thickening and stiffening of the walls of the cavity. It seems to me, however, that the latter condition, while in the majority of cases arising as he suggests, may in a minority be due, not to too early closure of the wound and subsequent filling of the cavity with discharge, but to too prolonged drainage, the cavity being filled with air through the wound, and thus kept open until its walls thicken, and no cure is possible save by the process advocated. I would put forward the suggestion that the "impressively quick cures" to which Mr. Browne refers occur in those cases where the discharge rapidly ceases at a time when the walls of the cavity are still pliable and the underlying lung expansile, that allowing the wound to close at this juncture enables the lung underneath to expand so that the visceral and parietal layers of pleura adhere, thus constituting cure according to the standard laid down.

Further, I believe that cases in which this is likely to occur may be identified by ordinary clinical and radiological examination of the lung. Surely it is better to attempt to assess the possibility of rapid cure rather than apply the same treatment to all cases on the ground that it is for the benefit of the majority.—I am, etc.,

Brighton, Nov. 11th.

A. DUFF, M.D., F.R.C.S. Ed.

Ingrowing Toe-nail

SIR,—In the *Journal* of August 11th (p. 262) you reviewed in an annotation the results of various operations for ingrowing toe-nail. Many years ago I pointed out that the nail was normal and that the term "ingrowing nail" was a misnomer.

To cure it quickly and effectively remove the soft tissues that are being pushed into the nail. Remove a flap of skin only from the dorsal surface of the lateral border. Insert a scalpel just beyond the posterior extremity of the lateral edge of the nail; hold it vertically and cut away the whole of the lateral border, including the skin and soft tissues of the plantar portion; cover the raw surface with the skin flap. Raise the lateral edge of the nail and keep it above the level of the skin flap by a piece of lint for a few days. Any failure to cure would be due to insufficient removal of lateral border. To cure early cases insert pledgets of cotton-wool very gradually under lateral border so as to raise it away from the injured soft tissues. This action, together with proper footwear, will suffice to cure most early cases.

—I am, etc.,

W. KENT HUGHES, M.B.LOND., F.R.A.C.S.

Melbourne, Sept. 27th.

Position of Patient for Tonsillectomy

SIR,—During a recent visit to Vienna I noticed that it was the routine practice in Professor Neumann's clinic for the patient to be placed in the upright position for the operation of removal of tonsils and adenoids, both for general and for local anaesthesia. In Great Britain the horizontal position with extended head is commonly used when a general anaesthetic is given, but a vertical position for the operation under local anaesthesia. The vertical position is definitely uncomfortable for the surgeon, and I fail to see any advantage for the patient.

It has been my practice for the last three or four years to have the patient in the horizontal position, and to use a Davis-Boyle gag for the operation under local anaesthesia. I have not found the patient complain of the Davis-Boyle gag, nor of the position; in fact, it is preferred by the patient, as it tends to avoid sensations of faintness.

The following points are in favour of the horizontal position: (1) The blood and saliva flow back by gravity into the nasopharynx, where it forms a pool, which can be kept clear by means of suction through a catheter passed through the nasal passage. (2) The danger of blood clot, or small fragments of tonsil and adenoid tissue, getting into the lower respiratory tract is obviated, in that such fragments cannot but fall back downwards into the nasopharynx. (3) The head of the patient is very much more readily controlled, as it cannot be pulled backwards away from the surgeon if the patient experiences unpleasant sensations.

I should like to know why the vertical position is chosen by so many surgeons, and whether they think there are important contraindications to the horizontal position. I would suggest that the greater comfort of the surgeon is of material advantage to the patient.—I am, etc.,

S. W. GRIMWADE,

Surgeon Captain R.N. (ret.).

London, N.11, Nov. 5th.

Tobacco Angina

SIR,—Much has been written concerning coronary occlusion, but no attempt seems to have been made to classify this disease in separate groups. I should like to indicate one group which I consider forms a definite syndrome. (1) Anginal pain on exertion; (2) a history of excessive tobacco smoking; and (3) terminal attacks of coronary occlusion, frequently associated with glycosuria and acidosis. I would suggest that the pathology of the condition is similar to that encountered in cases of obliterative arteritis in the legs of heavy smokers associated with intermittent claudication—namely, a direct action of nicotine upon the blood vessels supplying the heart muscle and pancreas.—I am, etc.,

London, W.1, Nov. 6th.

JOHN H. HANNAN, M.D.

Use of Fascia Lata Sutures

SIR,—Though he makes no reference to it, Mr. W. S. Brindle will find the description of a simple fascia cutter of my invention in the *Journal* of August 1st, 1931 (p. 194).

This instrument, which was evolved gradually prior to publication, gave, and continues to give, me good satisfaction. In it is incorporated the very feature the lack of which Mr. Brindle points out in the Meath instrument—namely, in subcutaneous fasciotomy, the liberation of adhesions normally present between the skin and fascia. My fasciotome has a quadrilateral fenestration at its cutting end, and its upper flat margin strips the skin off the surface of the fascia. This dispenses with the need of a second part to the instrument. Further simplification is also possible with it, as the second incision advised by Mr. Brindle can usually be dispensed with as follows. If, as the cutting comes to an end, the handle (made at a slight angle to the shaft) is depressed against the thigh and pushed on with a sudden jerk, the upper end of the strip usually yields and is cut free without the need for an upper incision. In regard to late results I find, on examining many of my cases later, no complaint of disability.—I am, etc.,

Bristol, Nov. 5th.

A. WILFRID ADAMS.

The Pre-asthmatic Phase

SIR,—In a communication of mine to the *Journal* (July 28th, 1934, p. 192) I referred to a probable pre-asthmatic phase in the case of asthmatic children. The following case history is interesting in this respect.

In 1930 I attended a boy, R. B., aged 3 years, the younger of a family of two boys, suffering with laryngismus stridulus. The condition cleared within two days, and he remained well till February, 1932, when he developed a similar but more severe attack, followed by bronchopneumonia. Recovery was slow but progressive. On September 1st, 1932, I approached his parents with a view to further investigation. I examined him, and found him to be apparently in a good state of health, but a differential leucocyte count showed an eosinophilia of 9 per cent. In view of this and of his past history I ventured to label him as a potential asthmatic. All went well until March, 1934, when he developed acute bronchitis, with a 2 per cent. eosinophilia during the pyrexial stage. Within a week the symptoms subsided, while the eosinophilia rose to 10 per cent. During April, 1934, he was sent from another source to the local anti-tuberculosis clinic for investigation, but the findings were negative. I saw him next on August 16th, 1934, and on this occasion he was suffering from his first attack of typical asthma. Since then he has had numerous attacks.

Such a history is not isolated, but illustrates a pathological sequence common amongst asthmatic children in their pre-asthmatic years. There is abundant evidence of increased sickness incidence during the early years of

ordinary school life, and this is particularly applicable to the allergic child, who often develops the classical phenomena of asthma during this period. In view of the excellent results obtained from the open-air school line of treatment in established cases, it would appear to me justifiable to segregate by school age children suspected of potential asthma, and give them the benefit of an environment and routine control that does offer some hope of success as a preventive measure.—I am, etc.,

Birmingham, Nov. 3rd.

A. W. DOCKAR.

Obituary

DAVID WOOD INGLIS, M.D.

The death of Dr. D. W. Inglis, which occurred on November 2nd, will leave a great void in professional circles on Tyneside, for he was not only a very well known and highly respected practitioner, but a worthy representative of that scholarly type of doctor so often the product of the Scottish universities in the old days. As a young man he went up to Edinburgh from his home near Biggar in Lanarkshire to take an Arts course with the intention of going in for the teaching profession. To that end he took his M.A. in 1876, and had it not been for the influence of a fellow lodger, who was himself a medical student, he might never have thought of medicine as a vocation. It was the large numbers of medical students and the consequent lack of clinical opportunities in the Edinburgh of those days that made him select Glasgow for his medical studies. There he took his M.B. and C.M. with high commendation, and later his Doctorate. He afterwards held house appointments in the Western Infirmary, and for a time was an assistant surgeon to the dispensary for diseases of the skin. About fifty years ago he went to Tyneside, and had lived and worked in Hebburn and district ever since. About three years ago Dr. Inglis retired from active practice, but he kept on his appointment as factory surgeon, largely because of the interest which he found in keeping in touch with men with whom he had worked amicably for so many years. As a J.P. he was most assiduous, and attended the courts regularly.

Although an excellent practitioner, most helpful and considerate, his real interest was in the humanities, and all his spare time was devoted to the study of literature. He was not only a good classical scholar, but was also very fond of German, which he read fluently. Years ago he had travelled abroad a good deal, but more recently nearly all his holidays were spent in the Island of Skye, and up till about two years ago he regularly did some climbing among his beloved Coolins. Dr. Inglis died in his eighty-first year, after an operation for a fulminating type of appendicitis: he was only laid up for a few days, and up to the onset of this fatal illness he was active in every way. His was a character whose influence in the higher things of life seemed to permeate all around. A delightful habit of conciliation made him welcome everywhere, while a consistent equanimity and a never-failing sense of humour were helpful in many trials. He had been a member of the British Medical Association for twenty-seven years.

He will be sadly missed by a large circle of friends, and by none more than his fellow-members of the "Sphalma."

A correspondent writes:

The death of my old friend Dr. David Inglis of Hebburn-on-Tyne, only a fortnight after spending a week-end with him in Scotland, should not be allowed to pass without paying some slight tribute to his memory. We went away twice a year, in spring and autumn, and he has motored with me for the past seven or eight years. One saw David Inglis at his best when he was taking

a country walk of sixteen to twenty miles, and when one heard him discussing all things: his knowledge was encyclopaedic, but he had a particularly intimate liking for the plants and animals that one sees in a tramp of miles. His interest extended to geology, and he knew a great deal about the characteristics of the Lowlands. Anything antiquarian appealed to him—from an inscription in Dryburgh Abbey from Horace's Odes, "*Amara lento tempora risci*," to the church of Samuel Rutherford at Anworth. All the places we recently saw together—the castle of the Maclellans in Kirkcudbright, Dundrennan Abbey, Sweetheart Abbey, and Lanercost Abbey—he knew by frequent visits, and he showed off their features with enthusiasm. Perhaps his greatest interest, however, was in place names. He had a working knowledge of Gaelic, and knew enough of the languages of the Norwegians and Danes to place their occupancy in this country. To hear him speak on the local names of places he visited showed what a grip he had of his favourite subject. Inglis was a mountaineer fifty years ago, and a keen member of the Alpine Club. For thirty years he had gone to Skye, climbed the Coolins, and fished from his favourite hotel; and he knew every stream and tree in the district. To hear him talk of his mountaineering experiences was a treat, for he shone as a conversationalist. Alas that such men should die with their abundant knowledge and philosophy of life. He was a good companion to the last.

J. H.

Dr. WILLIAM HEWSON MOOK died suddenly, from pneumonia and cardiac failure, on November 3rd, at the age of 56. He was assistant professor of dermatology, St. Louis, Mo., and the author of many papers on dermatological subjects. Dr. Mook came to France in 1917 with the American Expeditionary Force, and was first attached to the R.A.M.C., among whose members he made many friends. Subsequently he was appointed chief dermatologist to the American Army in France.

Dr. THOMAS ALEXANDER BROWN, who died at his home in Rhos-on-Sea on November 8th, was a well-known practitioner in the Midlands. He practised in Birmingham for many years and later at Sutton Coldfield. Born in Dunfermline in 1860, he belonged to a family of doctors: he had three brothers who were doctors, one of them his twin. After some years of working with Duncan, Flockhart and Co., Dr. Brown studied medicine at Edinburgh University, and graduated M.B., C.M. in 1884; he also took the M.R.C.S., L.R.C.P. immediately afterwards. He was for a year senior demonstrator of anatomy at Surgeons' Hall, Edinburgh, and, after being an assistant to a Keswick doctor, he settled down at Small Heath, Birmingham, where he quickly developed a very large practice. He subsequently practised at Sutton Coldfield, until his health gave way, when he retired to live at Rhos-on-Sea, North Wales. Although for some years past an almost helpless cripple, he never grumbled, but preserved to the very last his happy, cheerful disposition. His loss will be mourned by a vast number of patients and friends. He is survived by his wife and a son and daughter, the son practising as a doctor at Rhos-on-Sea.

We regret to announce the death in Liverpool, on November 1st, of Dr. GEORGE GILBERT FLEMING, of 37, Maresfield Gardens, N.W.3, late surgeon of the s.s. *Homer*, White Star Line. Dr. Fleming, who was 65 years of age at his death, received his medical education at Dublin, where he graduated B.A., T.C.D., in 1891, proceeding M.D. in 1894, the same year in which he took the M.B., B.Ch., B.A.O. He was appointed to the Australian service in April, 1903, and resigned two years later. In 1908, after leaving the *Persic*, he entered the New York service, and subsequently worked on a number of these liners. From 1919 to 1921 he was on the *Baltic*, and continued on the transatlantic service until 1931, being appointed to the *Homer* in 1927. On the death of his wife in 1931 he resigned.

Universities and Colleges

UNIVERSITY OF OXFORD

Brian Gilmore Macgrath, M.B., B.S., B.Sc., of Adelaide University and Magdalen College, has been elected to the Staines Medical Fellowship at Exeter College.

UNIVERSITY OF LONDON

Dr. A. M. H. Gray has been elected Dean of the Faculty of Medicine for 1934-6.

A meeting of the Court, held on November 7th, with the Deputy-Chairman (Mr. Loney) presiding, was informed that the Essex County Council had decided to make a grant of £33,000, payable over ten years, towards the erection of new buildings in Bloomsbury. The Court has conveyed its most cordial thanks to the Essex County Council and Education Committee for their munificent gift. The Court accepted with gratification a donation from the Worshipful Company of Tallow Chandlers towards the ceremonial hall to be built on the Bloomsbury site. The thanks of the Court were conveyed to the Middlesex Education Committee for grants towards university extension courses and tutorial classes.

The title of the University Chair of Obstetric Medicine tenable at University College Hospital Medical School has been changed to "University Chair of Obstetrics and Gynaecology tenable at University College Hospital Medical School."

Dr. Sophia Jevons has been nominated for appointment as Governor of the Strand School.

The following appointments have been made: Dr. Amy M. Fleming to the University Chair of Obstetrics and Gynaecology tenable at the London School of Medicine for Women as from October 1st, and Professor George Grey Turner to the University Chair of Surgery tenable at the British Post-Graduate Medical School as from October 1st or such later date as may be found practicable.

Brown Institution Lectures

The Brown Institution Lectures for 1934, entitled "Primitive Forms of Life," will be delivered by Dr. F. W. Twort, F.R.S., professor of bacteriology in the University and superintendent of the Brown Institution, at the London School of Hygiene and Tropical Medicine on December 10th, 12th, 14th, 17th, and 19th, at 5 p.m. Admission free, without ticket.

The University Medal in Branch I (Medicine) at the M.D. examination for internal and external students, July, 1934, has been awarded to Dr. Leslie George Norman (University College Hospital), and the University Medal in Branch I (Surgery) at the M.S. examination for internal and external students, July, 1934, to Mr. David Trevor (St. Bartholomew's and Charing Cross Hospitals).

UNIVERSITY OF LIVERPOOL

The Council of the University of Liverpool has conferred the title of Professor Emeritus upon Dr. J. M. Beattie, formerly professor of bacteriology, and upon Dr. John Hay, formerly professor of medicine.

UNIVERSITY OF GLASGOW

At the graduation ceremony held on November 3rd the following degrees were conferred:

D.Sc.—N. Morris, M.D.

M.D. (with commendation)—H. B. W. Morgan.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a special meeting of the council, held on November 5th, the Honorary Fellowship was conferred on Emeritus Professor Archibald Donald (Alderley Edge) and Sir William Josiah Smyly (Dublin).

Dr. W. F. T. Haultain (Edinburgh) was admitted to the Fellowship of the College, and the following were admitted to membership: Frederick Arthur Clift (London), David William Currie (Leeds), Morgan David Arwyn Evans (Cardiff), William Dawson Galloway (Holmefirth), Lionel George Higgins (Woking), Russell Norfolk Howard (Melbourne), Robert James Kellar (Edinburgh), John Harold Peel (London), Jack Polonsky (Capetown and Liverpool), Arthur Lloyd Potter (Wigan), John Lekan Scholes (Melbourne), Percy Norman Leonard Seager (Dublin), Thomas Francis Todd (Preston), Charles Henry Walsh (Liverpool), Charles Alexander Whitfield (Tidworth), Bryan Williams (Birkenhead), James Smith Young (Kilmarnock).

The following were admitted, *in absentia*, to the Foundation Fellowship: F. Brown Craig (Sydney), Benjamin Philp Watson (New York); to the Foundation Membership: William Allan Dafee (Toronto); and to Membership: John Nicholas Chesterman (Sydney), Thomas Frederick Corkill (Wellington, N.Z.), Frieda Ruth Highway (Sydney), Nora Proctor Sims (Baluchistan).

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on November 8th, when the President, Sir Holburt Waring, was in the chair.

The President reported the award of Mackenzie Mackinnon Research Fellowships to E. G. L. Bywaters and L. C. Bousfield, both Members of the College, for a research into rheumatoid arthritis, to be carried out in the Middlesex Hospital Medical School.

Diplomas of Membership were granted to A. H. Khan, S. H. Awad, and 123 other candidates whose names were published in our issue of November 3rd (p. 838) in the report of the proceedings of the Comitia of the Royal College of Physicians of London, as were the names of the eight candidates to whom the Diploma in Public Health has been granted, and the name of the candidate who has received the Diploma in Gynaecology and Obstetrics.

The Buckston Browne Dinner

The seventh annual Buckston Browne Dinner of Fellows and Members was held in the library of the College on November 8th, with the President, Sir Holburt Waring, in the chair. In the course of a general welcome to the guests the President said that the dinner had been founded by Sir Buckston Browne to promote good fellowship among the various diplomates of the College. He then gave an account of the activities of the College during the past year, and emphasized particularly the surgical research in progress in the laboratories in Lincoln's Inn Fields and at the Buckston Browne Farm at Downe, enumerating the various researches being carried out by scholars and others. He also referred to the Proffit Trust for cancer research, in connexion with which the College has set on foot two parallel researches—the radium beam therapy at the Radium Institute and the mass radiation with deep x rays at the Mount Vernon Hospital. Turning to education, Sir Holburt said that the examinations for the Membership and other diplomas had been carried on as usual, and that primary examinations were being conducted over-seas this winter by examiners sent out from England to Australia, New Zealand, and India, large numbers of candidates having entered in each case. In the College itself a great loss was caused by the retirement of Mr. S. Forrest Cowell, who during a period of thirty-three years as secretary had missed only one meeting of the Council. Mr. Henry George, the articulator, had also retired, and carried with him the good wishes of the many examiners and examination candidates with whom he had come into contact. Finally, the President referred to the progress of the Royal Australasian College of Surgeons, whose new building in Melbourne he, as President of this College, was formally to open next March. Under the circumstances it was appropriate that he could couple with the toast of "The Guests" the name of the Right Hon. S. M. Bruce, High Commissioner for Australia. The High Commissioner for Australia expressed thanks to the College on behalf not only of the guests present, but also of Australia, and particularly of the Australasian College of Surgeons, for the presentation of a replica of the mace of this College, for the holding of examinations over-seas, and for the coming visit of the President to Australia to open the new College. The interest shown by actions such as these was of the utmost value in the encouragement of surgery over-seas. In proposing the health of the donor the President spoke not only of the dinner, but also of the Surgical Research Farm at Downe which Sir Buckston Browne had endowed. The farm buildings were now nearly complete, and could provide accommodation for almost any animal required by research workers, except perhaps the elephant. Sir Buckston Browne replied in suitable terms, and expressed his thanks to all the officials who had helped to make the dinner a successful institution. After dinner the guests went round the museum, where special exhibitions had been arranged under the direction of Dr. John Beattie, its conservator and director of research.

The following is a complete list of those present:

Council.—Sir Holburt Waring (President), Mr. Walter Trout and Mr. A. H. Burgess (Vice-Presidents), Mr. Ernest W. H. Groves (Bristol), Sir Cuthbert Walker, Mr. F. J. Smeaton, Mr. C. H. Fagge, Mr. W. Sampson Handley, Mr. G. E. Gaskell, Mr. Victor Bonney, Mr. G. Grey Turner (Newcastle-on-Tyne), Mr. H. S. Lett, Mr. Leonard Gamgee (Birmingham), Mr. R. G. H. H. Lett (Nottingham), Mr. R. E. Kelly (Liverpool), Mr. Graham Wilson (Sheffield), Mr. A. James Walton, Mr. A. E. Webb-Jones, Mr.

R. C. Elmslie, Mr. L. R. Braithwaite (Leeds), Mr. H. S. Souttar, and Mr. W. Girling Ball.

Fellows.—Mr. F. H. Bentley, Mr. A. M. Boyd, Sir Buckston Browne, Mr. D. A. Davies (Deal), Mr. W. D. Doherty, Mr. E. Laming Evans, Mr. E. R. Flint (Leeds), Mr. Thomas C. Graves (Birmingham), Mr. R. Vaughan Hudson, Mr. J. A. James (Bristol), Mr. C. Naunton Morgan, Mr. Cyril A. R. Nitch, Mr. C. A. Pannett (Richmond), Professor Miles H. Phillips (Sheffield), Mr. L. Carnac Rivett, Mr. Charles Roberts (Manchester), Professor Leyland Robinson (Liverpool), Mr. W. G. Rose (Derby), Mr. Cecil Rowntree, Mr. W. R. Spurrell (Tadworth), Mr. R. M. Vick, Mr. Cecil P. G. Wakeley, Mr. Norman L. White, and Dr. R. Salisbury Woods (Cambridge).

Members.—Dr. G. P. Anning (Leeds), Mr. R. E. Apperly, Dr. K. J. Aveline (Buckley), Dr. Roland Brinton, Dr. H. Allen Bulman, Dr. Ronald Burn (Richmond), Mr. C. E. Clay (Dewsbury), Dr. W. S. C. Copeman, Dr. T. B. Davie (Liverpool), Dr. Max E. Delafeld, Dr. H. E. Dyson, Mr. John L. Farquharson (Weston-super-Mare), Dr. N. S. Finzi, Dr. T. F. Fox, Dr. V. B. Green-Armistage, Dr. Charles Hadfield, Surgeon Vice-Admiral R. W. B. Hall, Mr. J. D. Hay (Liverpool), Mr. C. Bowdler Henry, Dr. Stuart Hensman, Dr. R. A. Hickling, Dr. A. B. Howitt, M.P., Dr. Bernard Johnson, Mr. Murray P. Jones (Ashford), Mr. H. C. Lees (Darwen), Dr. D. C. Muir (Hull), Mr. B. Rait-Smith (Redhill), Dr. F. H. Robbins, Mr. H. D. Rollinson (Coventry), Mr. G. W. Rose (Toronto), Dr. R. A. Rowlands, Dr. W. Sirr Sheldon, Dr. T. H. G. Shore (Plymouth), Dr. D. B. Smallshaw (Epsom), Dr. J. Forest Smith, Dr. W. B. Stanford, Dr. H. J. Stirling (Norwich), Dr. Penison Stillwell (Beckenham), Dr. R. Tilbury, Dr. H. T. M. Townsend-Whitling (Market Harborough), Mr. F. B. Winfield (Birmingham), Mr. W. L. René Wood (Ossett), and Professor Samson Wright.

Others Present.—The Right Hon. S. M. Bruce (High Commissioner for Australia), Sir Robert Bolam, Dr. Mervyn Gordon, Dr. John Beattie (Conservator), Mr. Kennedy Cassels (Secretary), and Mr. T. D. McCown.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on November 6th, when the president, Dr. Edwin Bramwell, was in the chair. Dr. J. R. Currie (Glasgow), Dr. A. G. Cruikshank (Edinburgh), and Dr. Douglas A. Miller (Edinburgh) were introduced and took their seats as Fellows. Dr. J. A. D. Iverach (Dunedin, N.Z.), Dr. J. Burnett King (Edinburgh), Dr. J. Alastair Bruce (Edinburgh), Dr. D. K. Henderson (Edinburgh), and Dr. R. F. Ogilvie (Edinburgh) were elected Fellows.

The Hill Pattison-Struthers Bursary in Anatomy and Physiology was awarded to A. T. R. Hamilton.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on November 5th, the following officers were elected:

President, Dr. J. M. Munro Kerr. *Visitor*, Mr. Archibald Young. *Honorary Treasurer*, Mr. James H. MacDonald. *Honorary Librarian*, Mr. W. R. Spodgrass.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Poor Law Bill was read a third time by the House of Commons on November 9th. Sir Francis Fremantle expressed satisfaction at the exemption of maternity benefit from calculations of the means of applicants for public assistance. He hoped it was the forerunner of further measures next session respecting health and maternity benefits. On November 13th the Poor Law Bill was read a second time in the Lords.

On November 9th the House of Commons approved Additional Import Duties Orders, including Order No. 28, regarding importations of medical and surgical instruments. Dr. Burgin said the Order increased the import duty on these from 10 to 20 per cent. There was a very large industry in the United Kingdom, the factories of which were equipped with most modern plant. Public bodies and voluntary hospitals used almost entirely British instruments, and there was also a very considerable export trade in British-made instruments. The British preference was not to have a surgical instrument standardized and made by mass production at a low price, but a hand-forged instrument produced here. The

committee therefore recommended that there should be a 20 per cent. duty upon these surgical instruments.

The Parliamentary Medical Committee invited Dr. Addison to dine with them on November 14th to mark his re-election to the House of Commons.

The Betting and Lotteries Bill, which had already passed the House of Lords, was read a third time in the House of Commons on November 13th, and was due to receive the Royal Assent, with other measures, before the prorogation of Parliament on November 16th. On November 14th the House of Commons discussed the reports made by the Government Commissioners to the necessitous areas of Scotland, Cumberland, Tyneside, Durham, and South Wales. These reports contained references to the physical condition of the unemployed and their families in these districts.

Anti-noise Committee

On November 13th Mr. HORE-BELISHA informed Mr. Anstruther Gray that the terms of reference of the Anti-noise Committee were limited to noises arising from the operation of mechanically propelled vehicles. Examination of the problem of deafness caused by pneumatic drills was not included.

Replying to Mr. Touche, Mr. Hore-Belisha said that the Ministry of Transport had for some time been in touch with the Society of Motor Manufacturers with a view to preventing the manufacture of motor cars with inadequate or ineffective silencers. The society had also accepted an invitation to appoint a representative to serve on the committee which he had recently appointed to consider the steps that might be taken to reduce noise arising from the use of motor vehicles.

No Christmas Draws for Hospitals

During the consideration of the Betting and Lotteries Bill on the report stage in the House of Commons on November 12th, Sir W. WAYLAND moved a new clause providing that a Christmas draw promoted in a city, borough, or district to raise money for a local hospital should not be deemed to be an unlawful lottery provided that not more than one such lottery was promoted for the benefit of any one hospital in any year; no ticket was sold earlier than the month of November; no tickets were sold outside the city, borough, or district in which the hospital was situated; and no tickets were sent through the post. The clause also provided that after the purchase of prizes and payment of expenses the proceeds should be applied solely for the benefit of the local hospital, the name of which was printed on the ticket; the prizes should not be money prizes; accounts should be audited by a qualified accountant; and permission to hold the draw should be first obtained from the mayor of the city or borough or chairman of the district council. Sir W. Wayland explained that a draw held in a large works employing from 5,000 to 10,000 men would be legal under the Bill, but a Christmas draw on behalf of a hospital, whether small or large, for the sole benefit of that hospital, would be illegal. Vice-Admiral TAYLOR, in seconding the clause, said that it would be a severe blow to many small hospitals if these Christmas draws were to be made illegal.

Mr. RHYS DAVIES opposed the clause. He said that in some districts the working men paid a weekly contribution of 1d. or 2d., and in some cases up to 6d. If the clause were adopted it would destroy that practice altogether. The working men would probably drop the weekly contribution, and take a sixpenny ticket once a year. Captain HEILGERS said that while it was true the big hospitals did not want these schemes, especially in London, because they had a national appeal to which the whole country responded, the poor hospitals could not raise money in that way.

Captain CROOKSHANK, on behalf of the Government, said that it would be practically impossible to limit the sale of tickets of a lottery, authorized by a mayor of a city, to the city itself, and to ensure that no tickets were sold earlier than November. The great mass of the hospitals did not want money to be raised by lotteries. The British Hospitals Association passed a resolution at Eastbourne on June 2nd,

1931, declaring that it was "not in favour of an amendment of the law affecting public sweepstakes the purpose being for the benefit of voluntary hospitals." A great many hospitals realized that a large number of their willing subscribers would say to them, "Why ask me for a subscription? Why not have a lottery?" There would be no answer to that question.

The clause was rejected by 155 votes to 81.

Maternal Mortality.—Mr. SHAKESPEARE told Mr. Boothby, on November 7th, that a list of areas exhibiting a persistently high rate of maternal mortality was included by the Chief Medical Officer of the Ministry in his report for 1933. Of 125 maternity and child welfare authorities which functioned within the areas in question all but three provided milk or food for expectant and nursing mothers, and in one of these areas any necessary supply was provided by a voluntary society. The attention of all maternity and child welfare authorities had been drawn to the importance of this provision. Answering a similar question from Miss Cazalet, on November 8th, Sir HILTON YOUNG said it was intended to make a detailed review of the maternity services in each area of persistently high maternal mortality to determine what action was needed to render the services both effective and comprehensive. For this review he proposed to instruct expert medical officers to visit the areas concerned.

Medical Officer for Maternity and Child Welfare.—Mr. RYNS DAVIES, on November 8th, challenged the wisdom of the decision not to fill the vacancy caused by the resignation of the Ministry of Health medical officer for maternity and child welfare. Sir HILTON YOUNG replied that the Local Government Act of 1929 imposed more largely on local authorities the determination of their local administration of maternity and child welfare work. Consequently its supervision by his Department had been substantially changed in character and degree. He had decided, therefore, that on the retirement of the senior medical officer in charge of this work its supervision could best be entrusted for the future not to two higher posts, but to one. This post was held by a most experienced woman medical officer, who was directly responsible to the Chief Medical Officer of the Ministry. There was no ground for misgiving on the present arrangements for effective performance of this branch of the Ministry's work.

Dupuytren's Contraction.—Sir JOHN GILMOUR told Mr. Tinker, on November 8th, that the question of giving workmen's compensation for Dupuytren's contraction was fully inquired into in 1913 by the Committee on Compensation for Industrial Diseases, which took evidence from the Miners' Federation and others. The committee found that there was no established connexion between this condition and the workmen's employment which would justify its being scheduled. Since then no evidence had come to his notice to suggest that this conclusion ought to be reconsidered. He was prepared to consider any fresh evidence. Mr. Tinker suggested that in coal mining a large number of men were unable to follow their employment through Dupuytren's contraction, their fingers contracting into the palm of the hand.

Birth Control Clinics.—Replying to Sir Arnold Wilson, on November 8th, Sir HILTON YOUNG said, so far as was known in his Department, clinics at which advice on contraceptive methods was given subject to the limitations laid down in Ministry of Health circulars on the matter had been provided by thirty-two local authorities in England and Wales. A number of other authorities had made arrangements with the same object otherwise than by the provision of clinics.

Milk Supply to Schools.—Mr. RAMSBOTHAM told Mr. Hall Caine, on November 8th, that it was not possible to give statistical information on the operation of the scheme for the supply of milk at reduced rates in schools in England and Wales. He did not think that there had been any difficulty in getting milk approved by the medical officers, in the rural areas particularly. The Board of Education had not made it a requirement that pasteurized milk must be supplied to the

exclusion of all other types, though where the supply of sufficient pasteurized milk was available this should be supplied. Medical opinion was strongly in favour of supplying pasteurized milk where possible. On November 12th Mr. RAMSBOTHAM informed Mr. J. Duncan that the initial stages of the milk-in-schools scheme had given rise to a number of questions which it was hoped would be satisfactorily settled at an early date. The President of the Board of Education understood that, as the result of a special inquiry made by the local education authority for London shortly after the scheme came into force, it was found that about 364,000 children in that area were then receiving milk under voluntary schemes, and about 26,900 children through the local education authority's arrangements under the Education Act—a total of 390,000. Before the introduction of the scheme the corresponding figures were, approximately, 100,000 and 25,000 children, a total of 125,000. The scheme had met with an encouraging reception, and there was a general large increase in the number of children receiving milk in schools.

Dental Benefit.—Sir HILTON YOUNG told Sir Arnold Wilson, on November 8th, that the Dental Benefit Joint Committee, a voluntary non-statutory body, ceased to exist on December 31st, 1928. Subject to his general control, the arrangements for the provision of dental benefit were in the hands of a statutory body known as the Dental Benefit Council, set up in accordance with Regulations made under Section 16 of the National Health Insurance Act, 1928. These Regulations contained provisions for the administration of the benefit, including the scale of fees and conditions of service, and replaced the *Dental Benefit Handbook*, which would not be reissued.

Maternity and Child Welfare in Monmouthshire.—On November 12th Sir HILTON YOUNG informed Mr. Denman that his attention had been called to the report of the county medical officer for Monmouthshire, for 1932, which stated that the county council had ordered that the maternity and child welfare estimates should be reduced by the annual figure of £3,260; that in the following year, 1933-4, a further saving of £637 was required; and that it was necessary, therefore, to revise the scheme for the provision of milk for necessitous mothers and infants. The county council gave an assurance that the reductions referred to would not prevent the continued supply of milk to those mothers who required it on grounds of health, but he was making further inquiry into the position.

Deaths Following Anaesthesia.—On November 12th Sir HILTON YOUNG, replying to Captain Erskine-Bolst, said that the available records did not enable deaths attributable to anaesthesia to be distinguished from those occurring during anaesthesia, though not attributable thereto. For the six months ending March 31st last the deaths classified as attributable to, or having occurred during, anaesthesia included the following, in which avertin was used: three, avertin alone; one, avertin in conjunction with oxygen and nitrous oxide; one, avertin in conjunction with "gas, oxygen, and ether."

Pollution of River Tame.—Mr. SHAKESPEARE, replying to Mr. Mander on November 13th, said that the sources of the pollution of the River Tame in its passage through Willenhall had been difficult to trace, but he was informed that it appeared to arise from old culverts and impregnated subsoil. Active steps were being taken to abate the pollution, but from its nature complete abatement would take some time.

Notes in Brief

Sir Hilton Young states that the numbers of persons in Great Britain who, on December 31st, 1933, were insured for health and pensions purposes respectively were approximately 18,181,000 and 18,793,000. The number of insured persons who were under the age of 20 on December 31st, 1931, was approximately 2,500,000.

Mr. Shakespeare states that out of the £1,000,000 grant to assist rural water supply schemes £302,000 has been allocated for schemes of an estimated capital cost of £2,100,000.

Medical News

The Minister of Health, Sir Hilton Young, will be the principal guest at the annual dinner of the Society of Medical Officers of Health, to be held at the May Fair Hotel on Thursday, November 22nd, at 7.10 for 7.30 p.m. Dr. R. Veitch Clark, the president of the society, will be in the chair. Tickets are obtainable (12s. 6d.) from the Executive Secretary, 1, Upper Montague Street, Russell Square, London, W.C.1.

A meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, London, W.C., on Wednesday, November 21st, at 5.30 p.m., when papers will be read by Mr. J. E. Barnard, F.R.S., Mr. F. V. Welch, and Mr. John Smiles.

Sir Malcolm Watson will deliver the *Finlayson Memorial Lecture*, on "Some Pages from the History of the Prevention of Malaria," in the Faculty Hall, 242, St. Vincent Street, Glasgow, on Monday, November 19th, at 4 p.m. Fellows of the Faculty and medical practitioners are invited to attend.

The annual general meeting of the British Health Resorts Association will be held at 28, Portland Place, W., on Thursday, November 22nd, at 3.30 p.m., when the chairman of the council, Lieut.-Colonel R. H. Ellior, will preside.

The ninety-second half-yearly dinner of the Aberdeen University Club, London, will be held at the Trocadero Restaurant at 7.30 p.m. on Thursday, November 22nd, under the chairmanship of G. A. Morrison, Esq., LL.D., M.P. The secretary's address is 16, Tregunter Road, S.W.10.

The Master of the Society of Apothecaries of London (Sir George Buchanan) and the senior and junior Wardens (Sir William Wilcoxon and Dr. J. S. Fairbairn) have issued invitations to a reception at Apothecaries' Hall on the evening of Friday, November 23rd, to meet members of the Society of Medical Officers of Health.

The annual clinical "At Home" of the Royal Dental Hospital of London will be held at the hospital (32, Leicester Square, W.C.) on Saturday, November 24th, at 2 p.m. The dinner of past and present students will take place at 7.30 p.m. at the Trocadero, with Mr. J. Thornton Carter in the chair.

The British Science Guild announces that the Norman Lockyer Lecture, 1934, will be given on Wednesday, November 28th, at 4.30 p.m., by Professor J. B. S. Haldane, F.R.S., in the Goldsmiths' Hall, Foster Lane, E.C. His subject will be "Human Biology and its Applications." Tickets, for which there is no charge, are obtainable from the secretary, 6, John Street, Adelphi, W.C.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Tuesday, November 20th, at 2.30 p.m., when there will be a discussion on Section 5 of the Mental Treatment Act, to be opened by Sir Hubert Bond.

A meeting of the Medico-Legal Society will be held at 11, Chandos Street, W., on Thursday, November 22nd, at 8.30 p.m., when a paper will be read by Dr. Horace Shelley entitled "Observations on some Medico-Legal Experiences in Nyasaland." A discussion will follow.

A general meeting of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, W.C., on Friday, November 23rd, at 5 p.m., when there will be a discussion on "The Organization of the Domiciliary Medical Service," to be opened by Dr. J. A. Charles.

In celebration of the jubilee of the first operation for the removal of a cerebral tumour—performed by Sir Rickman Godlee at the Hospital for Epilepsy and Paralysis on November 25th, 1884—Mr. Wilfred Trotter will read a paper entitled "A Landmark in Neurology," in the Robert Barnes Hall, at 1, Wimpole Street, on Tuesday, November 27th, at 5 o'clock. At 7.30 p.m. a commemorative dinner will be held at the Dorchester

Hotel, with Lord Horder in the chair. The last day on which applications for tickets can be received is Monday, November 19th. They should be addressed to the secretary, Hospital for Epilepsy and Paralysis, Maida Vale, W.9.

The annual Benjamin Ward Richardson Memorial Lecture, arranged by the Model Abattoir Society, will be given on November 27th, at 5.30 p.m., at the Royal Sanitary Institute, Buckingham Palace Road, by Sir Leonard Hill. The society was founded in 1882, and its persistence in advocating the three objects of promoting merciful treatment of animals, advancing the health of the population, and obtaining economic management of slaughterhouses is being rewarded by their inclusion in proposals lately promulgated by the Ministry of Agriculture. Yet there remain many points regarding methods of painless killing that need careful study. The title of Sir Leonard Hill's lecture is "Electric Methods of Producing Humane Slaughter." Sir James Crichton-Browne will preside. Admission free, without ticket.

A course in infants' diseases, specially arranged for medical officers of welfare centres and others interested in nutritional disorders and dietetics, will be given at the Infants Hospital, Vincent Square, Westminster, from November 26th to December 7th. The fee is £3 3s. The names of qualified practitioners wishing to attend the course (number limited to fifteen) should be sent to the secretary of the Fellowship of Medicine, 1, Wimpole Street, W.1, by November 23rd. Cheques should be made payable to the Fellowship. Further courses at the Infants Hospital will be given as follows: April 1st to 13th; September 2nd to 14th; and November 25th to December 7th, 1935.

The Royal Northern Hospital Dining Club will meet at the Café Royal, Regent Street, W., on Friday, November 23rd, at 8.30 p.m. The president, Mr. M. Coleman, will be in the chair, and Lord Horder will be the guest of the club. Tickets, price 10s. 6d., can be obtained from the honorary secretary, Dr. H. A. Cowan, 32, Fitzroy Square, W.1.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 20th and 27th, at 2.30 p.m.; also on Wednesdays, at 8.30 p.m., in the series on diet and dietetics. Special courses of instruction until the end of the year will be as follows: proctology at St. Mark's Hospital, November 19th to 24th, all day; rheumatism at the British Red Cross Clinic, Tuesdays and Thursdays at 8.30 p.m., November 20th to December 6th; infants' diseases at the Infants Hospital, November 26th to December 8th, afternoons; dermatology at the Blackfriars Skin Hospital, November 26th to December 8th, afternoons; chest diseases (M.R.C.P.) at the Brompton Hospital, Wednesdays and Fridays at 5 p.m., December 12th to January 11th, 1935 (excluding Christmas week). Courses, lectures, etc., arranged by the Fellowship are open only to members and associates.

The issue of *La Medicina Ibero* for October 20th contains a biographical sketch of the late Professor Ramón y Cajal, together with a full-page portrait and a facsimile of his writing a few hours before death.

The November issue of *Tubercle* contains a translation, by Dr. Salvatore Lojacono, of Forlanini's original paper on artificial pneumothorax, which appeared in the *Gazzetta degli Ospedali* in August, 1882.

At the recent congress of the American College of Surgeons held in Boston, honorary fellowships were conferred on Sir Harold Gillies (London), Professor Josef Halban (Vienna), Mr. Harry Platt (Manchester), and Dr. Bethel Solomons (Dublin).

Dr. Sidney Gilford, J.P., has been elected chairman of the Reading Insurance Committee for the ensuing year.

The King has appointed Dr. J. R. Forde to be a Member of the Executive Council of the Gambia and an Official Member of the Legislative Council of that colony.

An Italian Society of Gastro-enterology has been founded at Milan with the Senator Micheli of Turin as president.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **THE EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and **LETTERS** forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to **ADVERTISEMENTS**, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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The **TELEGRAPHIC ADDRESSES** are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

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MEDICAL SECRETARY, Mediscera Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumshough Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

White and Brown Sugar

"A. F. S." (Co. Mayo) writes: I have found that many persons who suffer from flatulent dyspepsia, as a consequence of indulging in sweets or ordinary white sugar, can eat with impunity soft brown sugar. I should be obliged if someone would say what is the difference between the two chemically, and also if the more harmless form can be obtained from beet.

Treatment of Ménière's Disease

Dr. ARNOLD S. FERGUSON (Jersey) writes: If it is a case of true Ménière's disease, and not a Ménière symptom-complex, the Zund-Burguet offers great prospects. I have a case now of a farmer sent to me by Dr. Nicolson with true Ménière. After a fortnight's treatment the vertigo has disappeared, and the patient can now climb and prune a tree. I drew attention to this treatment in the *British Medical Journal* of September 10th, 1927 (p. 454). Why not the simple treatment first?

Dr. T. WILSON PARRY (London, N.S) writes: I should be glad to let "Inquirer" have reprints relating to treatment in the above-mentioned "complex of symptoms," which I trust he may find helpful. They include: (1) the case of a hospital nurse (aged 41) who had suffered for five years with typically distressing and prostrating vertiginous attacks. She had been under seven of the best London specialists without obtaining more than temporary relief, but was dramatically cured by the insertion of a seton which was kept *in situ* for six months (vide *Journal*, May 11th, 1907); and (2) the case of a solicitor's clerk (aged 44) who had become prematurely old after suffering for eight years from frequent attacks of the syndrome, which made it impossible for him to follow his profession. He was treated by hypnotic suggestion, and after one treatment, which lasted one and a half minutes (timed), never had another severe attack. This case was followed up by me (*Med. Press*, May 3rd and May 10th, 1908), and two years later (*ibid.*, March 27th, 1907) the patient replied to a letter I had written him telling me that he had had no severe attack since the treatment.

Treatment of Trichophyton Infection

Dr. JAMES HASSON (London, W.2) writes: I feel I must intervene in the discussion on the treatment of trichophyton, and give the result of my experiences. I see about four to five cases weekly of epidermophytosis, and all the classical treatments carried out were a failure in my hands. Most physicians overlook the fact that the disease nests on the nails, and if one treats the palms of the hands and soles of the feet only the disease certainly relapses. The best method is the carbollutecine paint, to which I add 2.5 per cent. of salicylic acid. Rub the nails thoroughly with the

paint twice daily, even after the disease seems to have subsided. Three months' treatment is, in my opinion, a fair period for a rapid cure.

Income Tax

Cessation of Employment

"T. S." ceased to act as an assistant on November 30th, 1933, and was then unemployed until he recently started a new practice. The inspector of taxes claims to revise the assessments for 1932-3 and 1933-4 to put them on the current year's basis. Is this correct?

** Yes. The point is governed by Section 45 (5) of the Finance Act, 1927, which provides that where a person ceases to hold an office or employment the last and penultimate years shall be adjusted to the current year's basis. The penultimate year is at the option of the Revenue—that is, the reverse of the position as regards the second complete year in the case of a person commencing to hold an office or employment.

LETTERS, NOTES, ETC.

Post-anaesthetic Coma

Dr. RACHEL IRWIN (Irish Mission Hospital, Kirin, Manchukuo) writes: A girl, aged 16, was admitted to hospital for excision of tuberculous cervical glands. The left side glands were excised under ether anaesthesia. Gwathmey's method of ether and oil per rectum was used (ether 4 oz., olive oil 1½ oz., with preliminary hypodermic injection of morphine 1/6 grain). Perfect anaesthesia was maintained for over an hour. The patient vomited while the bowel was being washed out, and was fully conscious about four hours later. She made an uninterrupted recovery. Twenty days later the glands on the right side were excised. Exactly the same method of anaesthesia was followed, but the return to consciousness was delayed for about six hours. At the end of that period the patient was conscious for about half an hour, and then relapsed into a comatose state. There was twitching of the arms and periodic attacks of violent restlessness. Pupils dilated, corneal reflex absent. Pulse full and regular. Respiration slow and regular, cheeks blown out. The temperature rose to 104°. Spinal fluid was not under pressure. Systolic blood pressure 110. Repeated irrigation of the bowel revealed no trace of ether, though the breath still smelt of ether twenty-four hours after operation. Glucose and saline were given intravenously and per rectum. After remaining in this condition for fifty-two hours the patient recovered consciousness. There were no further complications.

Routes Out of London

The second edition of the A.A. London Route Map, which is now available (free) to members of the Automobile Association, contains two new features which enhance its value. Colour printing makes the map much easier to read and marginal extensions of the main roads out of London indicate the important centres they serve. With a scale of one inch to the mile the map covers an area twenty miles square between Southgate, Purley, Hounslow, and Barking. Heavy lines indicate the principal exits; and important landmarks, such as war memorials, churches, public buildings, inns, and level crossings, are given in heavy type. Golf courses and county boundaries, new roads under construction and projected, tram-lines, and Ministry of Transport road numbers are clearly marked. Where a choice of routes to the same terminus is shown in the marginal extensions places on the recommended route from Hyde Park Corner are underlined. A footnote gives details of traffic regulations for Waterloo Bridge during the period of reconstruction.

We have received from the Evans Biological Institute, Runcorn, a copy of their brochure entitled *Medical Products of Precision*. An index of therapeutic products offered is classified in relation to the various conditions for which treatment may be required. A full description of each product is given. The booklet is eighty pages in length.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 48, 49, 50, 51, 52, 53, 56, and 57 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 260.

BRITISH MEDICAL JOURNAL

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THE CAUSATION AND TREATMENT OF OEDEMA*

BY

T. IZOD BENNETT, M.D., F.R.C.P.

PHYSICIAN WITH CHARGE OF OUT-PATIENTS, MIDDLESEX HOSPITAL, ETC.

The causation of oedema is one of those problems which have given rise to acute controversy in physiological and pathological circles for generations. Even to-day the mechanism is in several ways obscure; the disciples of many opposing schools continue to produce experimental support for their individual theories, and at times controversy is accentuated by the invocation of national patriotism and personal honour.

Oedema is a physical sign indicating an excess of fluid in the tissue spaces. It is met with clinically as a condition calling for treatment chiefly in cases of cardiac failure and of renal disease, and because of the importance of these two conditions it is with them that this opening paper will be principally concerned.

For oedema to be present there must in every case be a greater passage of fluid into the tissue spaces than out of them, and it may be laid down as a primary rule that the problem can only be understood if attention is concentrated on the forces which are in action in the immediate region of the tissue spaces and the walls limiting them, and that the shifting of consideration to other fields such as the kidney, the heart, or other special tissues of the body can only create confusion.

The tissue spaces lie between numbers of living cells, and always contain a certain amount of fluid consisting of water, some crystalloids, and dissolved gases, with at most a very small trace of protein. The blood in the capillaries is separated from the fluid in the tissue spaces only by the extremely thin capillary wall, which permits fluid both to enter the tissue spaces and to return thence to the interior of the capillary. Also lying in immediate proximity to the tissue spaces are the terminations of the lymph channels, formed by completely closed tubes with extremely thin walls, affording little opposition to the passage of fluid. In normal conditions water with dissolved crystalloids and gases passes through the capillary wall into the tissue spaces, and is largely reabsorbed with CO₂ added to it and oxygen and glucose removed, while a certain amount of fluid passes from the tissue spaces into the lymphatics and travels ultimately up the lymphatic system. Blockage in the lymphatic system produces a form of oedema well known in certain pathological conditions but sufficiently rare to be outside the scope of the present discussion.

In order to understand the commonest forms of oedema we must confine our attention to the examination of those forces which regulate the passage of fluid backwards and forwards through the capillary wall, and however complex the problem of oedema may seem it must surely be admitted that these particular forces are now rather fully understood. Only two are of great im-

portance: (1) the intracapillary blood pressure; and (2) the colloid osmotic pressure of the plasma proteins.

It is possible to explain nearly every form of oedema on the assumption that the thin capillary wall acts as semi-permeable membrane permitting the free passage of crystalloids, of which the diffusible ions will arrange themselves on the two sides according to the fundamental laws laid down by Donnan. The intracapillary blood pressure is the great force which propels fluid through the capillary wall into the tissue spaces. This transudation is a natural process of constant occurrence in health. Exact knowledge of the subject is largely due to the work of Krogh, and more recently of Landis and Drinker. Landis has shown that as the blood passes from an arteriole to a venule through a capillary the pressure falls from 27 mm. of mercury to about 13 mm.

If we inquire what conditions can increase the intracapillary pressure and so tend to increase the amount of fluid passing into the tissue spaces, we immediately encounter certain important facts. We find, for example, that in conditions of high blood pressure in the general arterial system—that is, in cases of hypertension and many cases of nephritis—there is no corresponding increase in the capillary pressure, a fact which corresponds with beautiful precision with the well-known fact that hypertension often exists for years without the appearance of oedema. It is, indeed, when hypertension has produced cardiac failure that oedema appears; or again it is in cases of valvular disease of the heart with cardiac failure that we encounter oedema. The explanation appears simple: it is increase in intracapillary pressure coming from the venous end of the capillary which produces oedema in these circumstances. Here we need not necessarily suppose that there is any increased transudation of fluid through the capillary wall; the assumption that the normal return of fluid into the capillary is impeded is sufficient to account for the oedema.

Colloid Osmotic Pressure

We owe to Starling our knowledge of the importance of colloid osmotic pressure. It is nearly forty years since he demonstrated that the presence of proteins in the blood serum is responsible for the osmotic attraction of fluid from the connective tissue spaces back into the capillaries. The term "colloid osmotic pressure" has come into general use, and there is no need at present to enter into discussion of the exact nature of this force, beyond pointing out that it is due partly to the true osmotic pressure of the total colloids and partly to the unequal distribution of diffusible ions, or, in other words, to a Donnan effect.

The colloid osmotic pressure tends to counteract the intracapillary blood pressure, and is a constant drag on the passage of fluid through the capillary wall. At the arterial end of the capillary the blood pressure is sufficient

* Read in opening a discussion in the Section of Medicine at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

to overcome this, and water and crystalloids pass through, but as one proceeds along the capillary towards its venous end this pressure becomes less and less, and concentration of the colloids leads to a steady increase in the reverse factor of osmosis. In this manner the transudation of fluid is first arrested, and later on there is an actual return flow from the tissue spaces into the capillaries. If for any reason the colloid osmotic pressure falls there will be both an increased tendency for fluid to pass out of the capillary and a greatly lessened force of attraction to drag fluid back from the tissue spaces.

Such a fall in colloid osmotic pressure is brought about if for any reason the proteins in the blood plasma are diminished. This occurs notably in those pathological states in which large amounts of protein escape into the urine. It does not matter whether one is confronted with a heavy albuminuria following acute nephritis, or whether the pathological condition falls into that group which some of us refer to as "nephrosis"; in any such circumstances the colloids of the blood will be diminished, and, albumin being many times more powerful as regards the osmotic pressure of its molecule than is globulin, it will follow that a relative diminution in the albumin of the plasma will have an even greater effect than if there is merely a lowering of the total serum proteins.

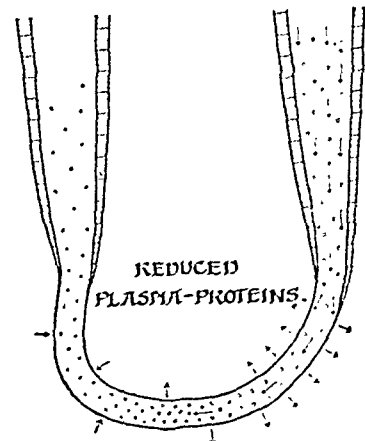
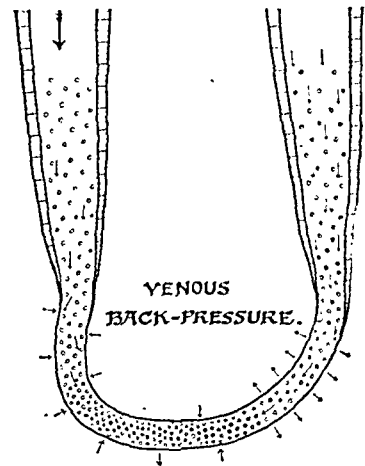
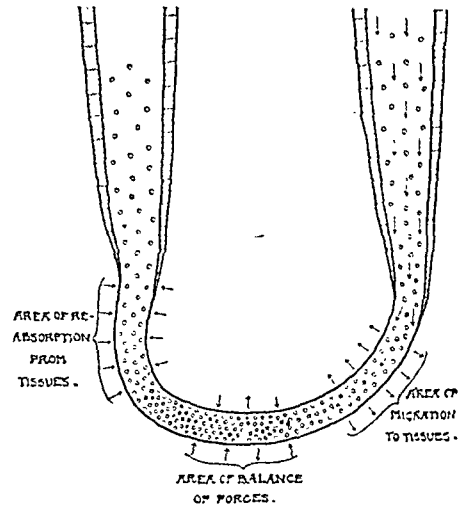
The importance in this conception of the role of the plasma proteins in regulating oedema has been recognized following the work of Albert Epstein of New York. It is true that by his experimental work Starling made himself the precursor of Epstein; it is also true that Bright, over a hundred years ago, suggested that albuminuria was the cause of oedema, but to Epstein must be given full credit for the present-day conception. There is still much controversy on this subject, but it is doubtful whether anyone conversant with the work of Krogh, of Govaerts, of E. H. Fishberg, or of Moore and van Slyke can remain sceptical as to the extreme significance of this factor. A number of observers, notably Leiter, Barker, and Kirk, have produced experimental oedema in animals by repeated bleeding followed in each instance by re-injection of the red cells in normal saline in such a manner that great depletion of the plasma proteins, without anaemia, has been produced. Bennett, Dodds, and Robertson were able some years ago to describe a series of cases in which a similar loss of serum proteins had occurred into the peritoneum, the stomach, and elsewhere in men, with oedema formation without evidence of any renal element being involved.

The Capillary Wall and Acute Nephritis

I have not yet referred to the importance of the capillary wall in the production of oedema; this omission has been deliberate. It is true that if the capillary wall is damaged the passage of fluid into the tissue spaces must be rendered easier, but this applies to the passage of fluid in both directions. On the other hand, increased permeability of the capillary wall may lead to loss of protein from the blood plasma, and so to a disturbance of the colloid osmotic balance. It is quite probable that in certain states, among which acute nephritis may be included, this factor is of some importance. Acute nephritis is, by its very nature, a disease which does not frequently come under the observation of any clinician, and writers such as Robert Platt have perhaps over-emphasized those examples of the condition in which extreme oedema has rapidly occurred without (so it is asserted) any appreciable diminution in the plasma proteins.

I can only say that, on the one hand, I have often been impressed by the frequency with which acute nephritis occurs without any appreciable appearance of oedema,

and that, on the other, I retain a vivid memory of the only large group of cases of acute nephritis ever seen by me. This latter group occurred during the war. The patients were healthy men in a battalion of infantry to which I acted as medical officer. In the years 1915 and 1916 there were periods when as many as ten men a day



Diagrams to represent the force regulating the passage of fluid between capillaries and tissue spaces. The blood pressure is represented by arrows within the vessel, plasma proteins are represented as minute globules.

had to be sent away from the front line with acute nephritis. The diagnosis was often made by the late Sergeant Needham, who, during our daily round of the trenches, would observe a man to be puffy under the eyes, and would call him down from the fire-step. On returning to the battalion aid post it would be demonstrated not only that the urine contained albumin, but that it was so full of albumin that, after boiling, the test tube could often be reversed without spilling. I have never seen such cases before or since, and they are quoted now to show that there is at any rate one group of cases of acute nephritis in which an immediate and tremendous loss of protein in the urine occurs.

The problem of the relative importance of the capillary wall in the production of oedema remains obscure. It is probable that in certain types of oedema, and particularly in urticaria, it is of great importance, but it is still more probable that in the two great groups of oedema encountered in cardiac failure and in renal disease the part played by the capillary wall is passive and unimportant.

The Importance of Sodium Chloride

The importance of salt in producing water retention in the tissues has been recognized by the medical profession for thirty years. At the beginning of the present century the late Professor F. Widal drew attention to the manner in which oedema can be influenced by the addition or withdrawal of salt from the diet. To this great physician we owe in large part the revival of interest in the chemical aspects of renal disease. It is, however, somewhat unfortunate that the conception of two functionally different types of pathological kidney—the one retaining nitrogenous substances and the other retaining salt and water—should have resulted from the researches of his followers, and become widespread. Not one, but a series of papers would have to be given in order to review all the work that has been done on this subject. Here it can only be said that the theory that nephritis creates a barrier to the passage of salt through the nephrons is no longer tenable.

But it remains true that salt is provocative of oedema through some property of holding water in the tissues. It must be borne in mind that salt possesses this property in cases of cardiac as well as of renal oedema, and it must further be borne in mind that the work of the late L. Blum has demonstrated that it is the sodium and not the chlorine ion which chiefly possesses this property.

Treatment of Oedema

The oedemas of cardiac and of renal origin are of such importance that it is not proposed to deal with the treatment of other types. Apart from cases in which there is local obstruction to a vein by thrombosis, adhesions, or pressure, right-sided heart failure provides the purest example of oedema due to increased pressure at the venous end of the capillaries. The regularity with which the relief of cardiac failure is followed by the disappearance of oedema is in itself very strong indirect evidence in favour of the theoretical considerations which have just been discussed.

Considering, in the first place, oedema of purely cardiac origin, we must recognize that a generalized oedema arising in this manner implies failure of the right side of the heart, and that this may occur with valvular disease, with a myocarditis of infective origin, or as the result of prolonged hypertension. Without discussing these groups individually, it may be said that any factor which diminishes the output of the right heart will necessarily tend to create congestion in the systemic venous circulation, and, conversely, it may be said that any treatment which tends to improve the output of the right ventricle

will tend to lead to an amelioration of such cardiac oedema. For these reasons prolonged rest is essential, and when factors such as auricular fibrillation are present digitalis is usually very valuable. Digitalis, of course, finds its most important indication in conditions of auricular fibrillation with right-sided cardiac failure, and in recent years many of us have found that the drug can most easily and effectively be given in the form of the powdered leaf. The one-grain pills of this preparation retain their potency even when kept for a long time, and make a very convenient medium for administration. When using this preparation one is relieved of anxiety as to the potency, as to the possibility of the drug being destroyed by other substances given with it, and of the danger of faulty measurement. It is usual to give at the outset from 6 to 10 grains to a patient of average size, and to reduce this gradually as the digitalis effect becomes evident.

In all cases of generalized oedema successful treatment demands a careful record of progress from day to day. It is very important to be able to judge at any time whether the oedema is waxing or waning. This can be accomplished either by the accurate weighing of the patient or by an accurate record of the water balance. Patients are often so ill, and good weighing apparatus is so expensive, that the former course is scarcely practicable; but estimation of the water balance is a relatively simple procedure, which should be carried out in all cases, both in private and in hospital. It is only necessary for the nurse or relative in charge of the case to keep an exact record of the amount of fluid taken by the patient, and to measure the volume of urine passed. The patient should be asked to pass urine just before the beginning of each official day—say at 8.30 a.m.—and this should be added to the urine of the previous day. It is well to place every patient on a fixed daily intake of fluid, which must include all fluids with the necessary allowance for the water contained in fruit, ice-cream, etc. A limit of 30 oz. daily can be imposed with no hardship; in severe cases of oedema this may be cut down to 25 oz., or even to 20 oz.; restriction below this point can only be obtained at the cost of considerable discomfort.

The next point of importance in the treatment of most generalized oedemas is that a salt-free diet should be imposed; salt must be forbidden at all meals, and the salt used in cooking must be eliminated. Bread is sometimes a difficulty, because ordinary baker's bread contains appreciable quantities of salt. Salt-free unleavened bread can now be readily obtained from Jewish caterers. The imposition of a salt-free diet implies a regime calling for considerable ingenuity if the diet is not to be unpalatable; the use of lemon juice and of sodium-free salt is a considerable help.

The Mercurial Diuretics

Reverting to the treatment of the oedema of cardiac failure: a salt-free diet having been imposed, the water balance correctly determined, and digitalis therapy pushed to the limits of its utility, it frequently happens that cardiac dropsy persists. A certain degree of improvement has been achieved, but the patient remains partially waterlogged. In such cases the new mercurial diuretics are often of great value. It is no exaggeration to say that these substances represent the greatest advance in the treatment of cardiac failure by drugs since the introduction of digitalis. It has been argued that to remove water from the tissues of a patient does nothing to improve his myocardium; it is very doubtful whether there is even academic justification for such a statement, but even if it were so no patient would hesitate to choose between lying in bed waterlogged with oedema and leading the life of an invalid who is able to get about a little and is free from superfluous water.

It is unnecessary here to enter into the mode of action of these diuretics, beyond saying that there is strong evidence to show that their main action is a direct stimulation of the kidney to secrete more urine, that there is no evidence as to any harmful cardiac effect, and that, in ordinary dosage, the renal effect is not dangerous. There were so many unfavourable reports concerning novasurol that numbers of clinicians were discouraged at the outset, and its use was largely abandoned. Concerning salyrgan experience tells a different tale. There are very few contraindications to its use, and it seems to be extremely safe. Its effect is enhanced when it is given in conjunction with ammonium chloride, 15 grains of which should be prescribed thrice daily for forty-eight hours previous to the injection, by the intravenous or intramuscular route, of 0.5 to 2 c.cm. of salyrgan.

A typical result is shown in the accompanying chart, which was obtained from a patient admitted to the

Middlesex Hospital suffering from severe hypertensive cardiac failure with anasarca. Digitalis had been pushed for many weeks in the patient's home, but he remained completely bed-ridden and helpless. On admission he was placed on a salt-free diet, and fluids were restricted to 30 oz. daily. Ammonium chloride was administered, and after three days the first intravenous injection of salyrgan was given, and the chart shows how this and subsequent injections produced responses varying

from 50 to 180 oz. of urine. The net result was that within three weeks over 50 pints of superfluous fluid had been removed from this patient, who was able to return home infinitely better than before.

Before leaving the subject of cardiac failure a word must be said concerning a somewhat rare but very important form of oedema—namely, the acute pulmonary oedema encountered in sudden left-sided ventricular failure. In cases of hypertension the hypertrophied heart will not infrequently, after years of favourable effort, suddenly give way. Such sudden cardiac collapse often manifests itself by pure left ventricular failure, a clinical syndrome characterized by attacks of cardiac asthma with paroxysms of dyspnoea often occurring at night, by dilatation of the left ventricle, and by the appearance of moist sounds at the bases of the lungs. In extreme cases there may be copious expectoration of pink, frothy sputum, and dyspnoea is often of extreme violence and terribly alarming to the patient and those around him. The recognition and treatment of such cases is important. Morphine and venesection are the sovereign remedies, the immediate application of which has often saved life in what is one of the most important medical emergencies occurring in general practice. It was recently my experience to see this condition in a patient in whom generalized vascular disease had produced thrombosis of many of the peripheral veins to such an extent that venesection was very difficult.

We were able, however, to open a vein after dissection, and the removal of 15 oz. of blood, together with the administration of morphine 1/4 grain, so revived the patient that he was able next day to describe a previous attack which had occurred during a cruise. On that occasion the ship's doctor had been unable to find the median basilic vein, but had pursued his efforts until he reached the artery. The patient was landed at the nearest port on the following day with a tourniquet round his arm, and made a good recovery, although to this day he is able to puzzle physicians who cannot find his radial pulse.

Renal Oedema

At least two, and probably three, varieties must be included under the heading of renal oedema. First it must be recognized that cases of chronic nephritis associated with high blood pressure often exhibit cardiac failure at the termination, and that this group sometimes

presents great difficulties of exact diagnosis and classification. Cardiac hypertrophy is usually present, but the systolic blood pressure may have fallen sufficiently to confuse matters, although the diastolic pressure is generally maintained at an abnormally high level. There is some albuminuria, but it may be impossible to decide whether this is the result of renal changes, or whether it is merely the slight albuminuria which accompanies the disordered renal circulation of

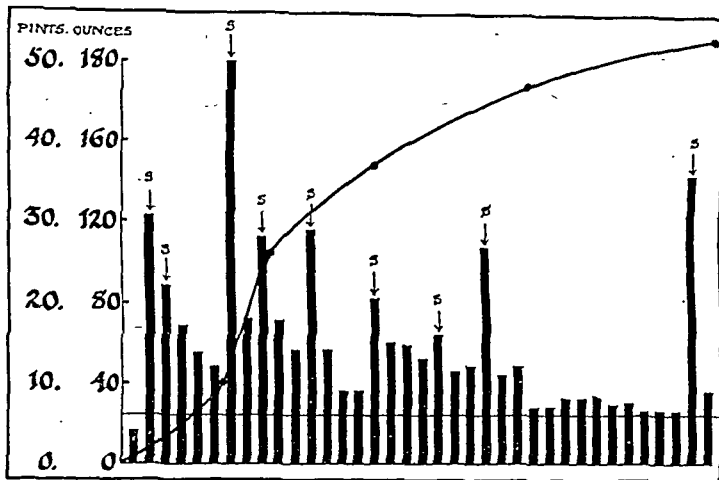


CHART 1.—Effect of salyrgan on urinary output in cardiac failure with oedema. Fluid intake 30 oz. daily; 1 to 2 c.cm. of salyrgan given intravenously on days marked "S"; urinary output in ounces indicated by vertical columns; total diminution in pints of body fluid during treatment indicated by curve.

cardiac failure. It must be noted that actual renal failure tends to diminish rather than to increase oedema, because polyuria is one of the earliest and most striking effects of declining renal function, and will tend to drain off superfluous water from the tissues. In chronic nephritis with high blood pressure oedema is not infrequently of complex origin, being partly cardiac and partly renal.

True renal oedema is seen in the condition sometimes described as "nephrosis," and in those cases of undoubted nephritis characterized by what is sometimes known as "the nephrotic syndrome." In such cases there is long-standing albuminuria of considerable degree, with the result that the plasma proteins are greatly reduced and oedema appears. It would be out of place here to discuss at any length the conception of nephrosis, beyond saying that this envisages a group of patients in whom there is no rise of blood pressure, no change in the retinae, no history of haematuria, no nitrogen retention, no impaired renal function, nor any objective sign of disease of the kidneys beyond albuminuria, that this group exhibits lowering of the protein content of the blood, particularly as regards the albumin fraction, and that this diminution leads many of them to develop oedema. It is believed that these patients live for years, that many of them recover completely, that, if they die, it is usually from pneumococcal peritonitis or from some other generalized infection, and that the kidneys, when examined, show

glomeruli which are practically normal, with convoluted tubules exhibiting degenerative changes.

The original conception of Epstein, that these cases were not of primary renal origin, but represented some disorder of metabolism, has not been confirmed, and although it still remains impossible in many cases to demonstrate a glomerular lesion the general opinion to-day is that the albuminuria in nephrosis must represent an increased permeability, and so an abnormality of the glomeruli. On the other hand, the fundamental conception of Epstein that the oedema of these cases is the direct result of the leakage of albumin from the blood plasma has become more and more firmly established. As regards prognosis the problem remains most difficult; all of us who have had much experience have seen some of these patients, after a long course in which albuminuria and oedema were the sole manifestations, suddenly begin to develop hypertension and proceed to a uraemic termination. We do not know whether the cases were misdiagnosed as nephrosis at the outset and were really extremely subacute cases of glomerular nephritis, or whether, as believed by Volhard and Fahr, it is possible for chronic nephrosis to proceed to a condition in which there is sclerosis of the kidney. In this connexion it is notable that A. M. Fishberg, in his latest work, states that he has never seen an example of nephrotic contracted kidney.

CASE 1.—Male, aged 42. Albuminuria Six Years

	1929	1930	1931	1934
Urea	45	31	38	33
N.P.N.	41	30.6	29	31
Ca	10.0	9.8	8.6	10.9
Cholesterol	167	238	195	205
Alb.	4.4	2.74	2.6	4.1
Glob.	2.1	1.57	2.1	2.1
Fibr.	0.5	0.3	0.2	0.3
Blood pressure	95/135	90/150	108/178	105/150

CASE 2.—Female, aged 38. Oedema for Fifteen Years

	1932	1933	1934
Urea	28	19	33
N.P.N.	25	23	29
Cl	495	625	610
Ca	—	8.9	—
Phos	—	3.3	3.2
Cholesterol	310	330	375
Alk. res	59	52	—
Hb	14.9	14.7	17.0
Alb.	1.7	1.8	1.5
Glob.	1.8	1.9	1.9
Fibr.	0.5	0.4	0.6
Blood pressure	85/142	93/140	90/140

Nephrosis

Nephrosis is, in my experience, a rare disease. In collaboration with Professor E. C. Dodds I have been able to publish a description of several cases, together with post-mortem findings described by Professor S. L. Baker. My clinical experience includes two cases which have been under my observation for from three to five years, in one of which albuminuria has now been present for over six years, and in the other for over fifteen. Details of these cases are set out in the accompanying tables, from which it will be seen that there is no nitrogen retention in either

case, and that otherwise their chemistry exhibits the hypercholesterolaemia, the lowered calcium, and the decrease in plasma proteins characteristic of nephrosis. In the more chronic case there has never been any suggestion of hypertension, but in the shorter case the blood pressure figures have during later years been somewhat disquieting. At the same time this patient remains in apparently perfect health; he came to me showing nothing except a profuse albuminuria, which led to a progressive fall in the plasma proteins and ultimately to the appearance of oedema. The institution of a rigid salt-free diet and a cure of dechlorination at Evian cleared up the oedema. He has followed a salt-free diet for three years now, and when seen a few months ago was in excellent health, with only a persistent trace of albumin in the urine, and with plasma proteins which have returned almost to normal.

The other patient has been troubled with chronic oedema, waxing and waning in intensity for fifteen years. Albuminuria is always considerable, and the plasma proteins are continuously very low, the globulin figure being actually in excess of that for albumin. But she is able, by persisting with a salt-free diet, and with the occasional use of diuretics, to keep well enough to lead an ordinary sedentary life. Two years ago the oedema became much more severe in spite of these precautions. The administration of urea failed to relieve it. On my advice her doctor gave her several intravenous injections of salyrgan, with the result that the oedema completely disappeared, and she has remained practically free from it since.

Treatment of Nephrosis and Nephrotic Syndrome

The treatment of renal oedema in cases of nephrosis and of the nephrotic syndrome should aim at the removal of the increased permeability of the glomerular epithelium and replacement of the diminished plasma proteins. Unfortunately, we have no means of achieving either of these ends, although it is interesting to note that Hartmann, Senn, Nelson, and Perley have succeeded in removing the oedema in certain cases of nephrosis by repeated intravenous injections of strong solutions of gum acacia. On the other hand, the diet originally advocated by Epstein, which contains abundant proteins, especially those of vegetable origin, is strongly indicated in these cases, because not only is it necessary to supply sufficient material from which the body may produce new serum-albumin, but the absence of any tendency towards nitrogen retention makes it permissible to supply the blood with sufficient amino-acids to create the full quota of urea to act as a diuretic. A salt-free diet is essential, and the water intake should be limited to a figure compatible with comfort. Mild diuretics are desirable, and among these urea occupies an important place, and may be given either in capsules or dissolved in small quantities of lemonade during periods of increasing oedema. Thyroid extract has often been advocated, but my personal experience in this respect has been discouraging. Salyrgan is certainly of the utmost value whenever it is necessary to reduce oedema of crippling degree. It must never be forgotten that extensive oedema carries with it the constant risk of infection; anyone who has had the experience of seeing a patient suddenly develop pneumococcal peritonitis or a spreading cellulitis will understand the importance of reducing nephrotic oedema whenever it becomes extensive. If this cannot be done with salyrgan or by other medical means it may be necessary to resort to the use of Southey's tubes or to drain the oedema by incision over the malleoli.

Treatment of Acute and Subacute Glomerular Nephritis

Treatment in glomerular nephritis must be very different from that of nephrosis and the nephrotic syndrome. In acute cases the utmost possible degree of glomerular rest

must be sought for. The cause of the oedema is somewhat obscure; not only may it be a combination of increased intracapillary pressure and of lowered colloid osmotic pressure, but such factors as increased permeability of the capillary wall cannot be eliminated. Renal function is usually greatly disturbed, and there is nitrogen retention or great loss of the concentrating power of the kidney. In these cases the water intake must be carefully controlled, and the diet must not only be salt-free, but the treatment must consist of virtual starvation for as long a period as can be maintained without risk to the patient.

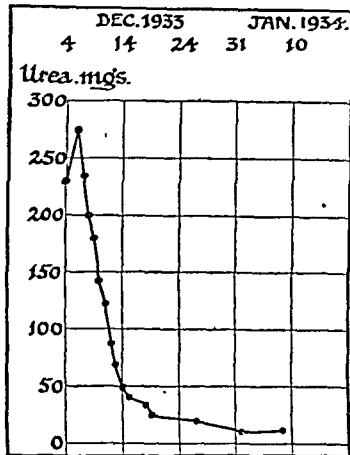


CHART II.—Blood analysis to show effect of starvation on blood urea in a case of acute nephritis.

The above diagram illustrates the effect of such treatment on a girl of 19, who was admitted to the Middlesex Hospital last December. On admission there was slight oedema in the form of puffiness below the eyes, and a considerable masked oedema manifested by an increase in weight of nearly a stone. The blood urea was over 200 mg., and the urinary output during the first week was below 10 oz. daily. Living on a water intake not exceeding 20 oz. and food limited to half an apple or some tiny pieces of orange daily, the blood urea was seen to fall rapidly to a very low level, and at the present time the patient appears perfectly normal, except that a trace of albumin is occasionally to be found in the urine.

The treatment of subacute and chronic nephritis with oedema is a matter of great difficulty. If cardiovascular change is minimal the therapeutic indications are closely similar to those in nephrosis; if, on the other hand, haematuria is recurrent and evidence of impairment of renal function marked, treatment must be directed towards these rather than towards the actual oedema. It would be out of place to discuss this further here, beyond emphasizing that oedema becomes a minor manifestation in such serious cases as these.

It cannot be laid down too strongly that, on the one hand, the syndrome to which the term "nephrosis" may properly be given demands treatment with a diet generous in protein, and that substances such as urea and salyrgan are not contraindicated in these circumstances; while, on the other hand, cases of undoubted nephritis with evidence of hypertension and impairment of renal function call for the greatest caution in the choice of the protein ration, require the avoidance of drugs which might stimulate the damaged kidney, and demand treatment calculated to remove infection and promote rest rather than merely to relieve oedema.

Summary

Oedema is a physical sign indicating an excess of fluid in the tissue spaces. Two great factors are chiefly responsible for the occurrence of oedema: (a) changes in the intracapillary blood pressure; and (b) lowering of the colloid osmotic pressure of the plasma proteins.

Increased permeability of the capillary wall is probably important in the production of oedema of the urticarial type; it is of possible importance in cases of acute nephritis. Sodium chloride is not a causal factor in the production of oedema, but is provocative of the condition, in that it tends to hold water in the tissue spaces rather than in the circulation; the sodium and not the chlorine ion is responsible.

As regards treatment, cardiac oedema demands prolonged rest, digitalis therapy in appropriate cases, a salt-free diet, and the employment of mercurial diuretics in resistant cases. In these, as in all cases of oedema, accurate record of the water balance is important. Acute pulmonary oedema tends to occur in cases of left-sided cardiac failure, and is an indication for venesection and the administration of morphine.

Renal oedema includes two and possibly three varieties: (a) the type seen in terminal cases of nephritis with hypertension; (b) the type seen in cases of "nephrosis" and the "nephrotic syndrome"; and (c) the type seen in cases of acute nephritis. The oedema of nephrosis and the nephrotic syndrome is due to loss of protein from the blood plasma, and calls for a diet which is salt-free and relatively rich in protein. Mercurial diuretics are not contraindicated in resistant cases. The oedema of glomerular nephritis requires very cautious treatment. In the acute phase virtual starvation is necessary; in chronic cases careful judgement is required for the accurate regulation of the protein in the diet, and the avoidance of anything that may further damage the kidney.

I am greatly indebted to Professor E. C. Dodds and to the staff of the Courtauld Institute of Biochemistry for many of the chemical analyses quoted in this paper.

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The number of suicides in Germany in 1932 numbered 18,934, or 29.2 per 100,000 inhabitants, as compared with 28.8 in 1931, 23.3 in 1913, and 21.2 in 1891, when the German statistics for suicides were first compiled. The number of suicides per 100,000 inhabitants in 1932 was 41.6 for males and 17.4 for females, as compared with 35 for males and 11.7 for females in 1913. The most frequent form of suicide was hanging, which was noted in 42.7 per cent. of the cases. Next, after a long interval, came poisoning by gas (15.9 per cent.), shooting (13.2 per cent.), drowning (11.6 per cent.), other forms of poisoning (7.1 per cent.), and other causes (under 10 per cent.).

CHRONIC CERVICITIS: ITS INFLUENCE ON THE URINARY TRACT AND ITS TREATMENT BY THE DIATHERMY CUTTING CURRENT CURETTE*

BY

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For the past eighteen months my attention has been more and more drawn to the fact that chronic cervicitis is responsible for certain diseases of the urinary tract the aetiology of which in the past has been only imperfectly understood. This conclusion is supported partly by clinical observation, partly by experimental evidence, and mainly by the results which have followed operative treatment of this focus of infection.

Any urological out-patient department is overcrowded with women whose chief symptoms are frequency, dysuria, pain in one or both loins, and varying degrees of backache, and with a history usually of having borne one or more children. Many are referred from the gynae-



FIG. 1.

logical department with a note: "Will the urologist please see and treat." Examination may reveal some urinary cause of the condition, such as cystocele, a stone in the bladder, or tuberculous kidney, but in the majority of cases no such abnormality can be discovered, the cystoscopic appearances being those of mild trigonitis, as shown by redness, swelling, and often pseudo-membranous patches on the trigone. Fig. 1 is a composite view of the bladder floor showing pseudo-membranous trigonitis. There is, as a rule, an associated chronic urethritis, the urethra being more tender than usual to the passage of an instrument, and if stretched with a straight Kollmann's dilator will not tolerate an expansion of more than about 25 degrees Charrière, as compared with the normal of 35 degrees.

The changes in the upper urinary tract are seen by intravenous pyelography, which may demonstrate some degree of dilatation of the renal pelvis and upper inch or two of the ureter, and, in neglected cases, kinking of the pelvi-ureteral junction, due to inflammatory adhesions between the renal pelvis and ureter, and a varying degree of hydronephrosis from the increasing urinary obstruction. The urine is usually sterile, but may contain pus cells and *B. coli*, in which case renal specimens are collected by ureteric catheterization. Almost invariably, however, these are normal, which proves that the kidneys are not the source of the bladder infection.

The Association of Urological Inflammation with Genital Infection

The most significant thing in the majority of these women is the evidence of some degree of genital infection as shown by chronic cervicitis or cervical erosion, with or without some laceration of the cervix, and often by tenderness and thickening in the fornices. This association of genital and urological inflammations is so constant that one has almost been able to predict from the cystoscopic findings what the cervix would look like when viewed through a speculum; thus much suspicion has come to fall on this structure, and with it a desire to know more about its habits and their consequences.

This led some two years ago to a series of animal experiments carried out by Winsbury-White, and described by him in his Hunterian Lecture in February, 1933, under the heading of "The Spread of Infection from the Uterine Cervix to the Urinary Tract, and the Ascent of Infection from the Lower Urinary Tract to the Kidneys." Briefly they consisted of the injection of Indian ink or tubercle bacilli into the cervixes of rabbits, rats, and guinea-pigs, and in killing the animals at periods of time varying from one hour to three weeks later. The pelvic organs and the soft parts of the posterior pelvic and abdominal walls were then sectioned in a serial manner and examined microscopically.

The Spread of Infection

Perivascular lymphatic spread was demonstrated both forward to the submucous coat of the trigone of the bladder and upward to the kidney by way of the base of the broad ligament, the hollow of the sacrum, the brim of the pelvis in the region of the common iliac vessels, the glands and lymph vessels of the renal hilum, and, finally, by invasion of the renal substance through the fibro-fatty tissue surrounding the calyces. That the invasion was not haematogenous was proved by the absence of pigment or inflammation in the glomeruli and capillaries of the renal cortex which is characteristic of a blood-borne infection. That it did not spread up the walls of the ureters was shown by the complete absence of pigment in all sections made through them at successive levels. Winsbury-White considers that this ascending spread is supported by the clinical facts which are so constantly observed and which include tenderness in the fornices and backache, and by x-ray examination, which shows phleboliths on the pelvic floor and calcified glands along the posterior abdominal wall.

These experiments and the fact that frequency and dysuria in women are often very resistant to treatment, if this be directed solely to the urinary tract, emphasize the importance of visual inspection of the cervix and careful bimanual examination of the uterus and adnexa in the investigation of patients with urological symptoms. That they should be resistant to treatment becomes simple to explain when often no attempt is made to deal adequately with a cervicitis the significance of which has not been realized.

Frankl of Vienna has shown that the area of infection is not only the cervical canal, but also that part of the endometrium lying immediately above the internal os and known as the pars intermedia. Dr. Knott of Guy's Hospital, by sectioning a series of cervixes removed by amputation by Mr. Lyle Cameron at the Royal Waterloo Hospital, has shown that the cervical glands, as a result of chronic inflammation, penetrate to a depth which rarely exceeds one-eighth of an inch. The complete cure of the condition, therefore, necessitates the removal of the lining membrane of the cervical canal and pars intermedia and all the subjacent glands.

*Read in the Section of Obstetrics and Gynaecology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Amputation or Cauterization of Cervix in Treatment

The methods of treatment which have been employed for chronic cervicitis are many and various. The non-surgical procedures, such as douches, local applications, tampons, ionization, ultra-violet light, and medical diathermy, are, on the whole, disappointing, and are usually followed by an early relapse when discontinued. Surgical methods are much more reliable, and the two procedures commonly employed are amputation of the cervix and dilatation of the cervix followed by cautery. In my opinion neither of these is satisfactory. Complete

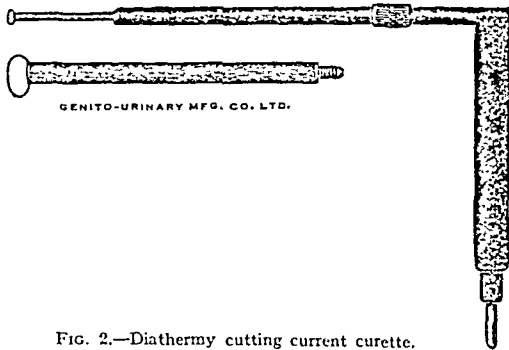


FIG. 2.—Diathermy cutting current curette.

amputation, if skilfully performed, will certainly remove the infected tissues, but this operation is not to be recommended in nulliparae or in younger women who are anxious to bear more children. Dilatation followed by cautery is a popular method, and although the whole of the affected area can be treated, the deep-seated glands are not completely destroyed, there is frequently but slight improvement of the local condition, and the treatment often has to be repeated. A number of women in whom hysterectomy was advised for other reasons were submitted either to partial amputation of the cervix or to dilatation and cauterization of the cervix before the uterus was removed. Microscopical examination showed

On the principle of the McCarthy cutting loop for the removal of fibrous prostates through a cystoscope, and by means of which longitudinal strips of the gland can be resected, Mr. Schranz of the Genito-Urinary Company has made for me a series of cutting current curettes of various sizes. They consist of a fine tungsten wire loop, elliptical in shape and fixed at an angle of 30 degrees at one end of a well-insulated metal rod. The other end of this rod is threaded, and screws into a larger rod about four and a half inches long, which engages in a socket fixed at a right angle on an insulated handle in such a

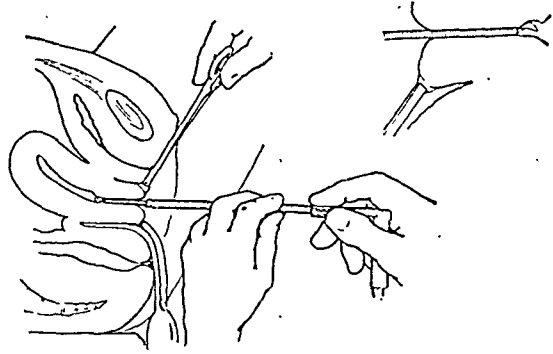


FIG. 3.—Method of using the cervical curette.

way that it can rotate but not disengage without a strong pull. The insulation of the rod is increased near the handle to form a collar, serrated at the circumference, by which it can easily be rotated with the thumb and index finger of the right hand. The cable from the cutting diathermy machine plugs on to the pin at the lower end of the handle (Fig. 2).

The patient, who should arrange to stay in a hospital or nursing home for a week, is anaesthetized and placed in the lithotomy position. A lead belt surrounding the waist is connected to the diathermy machine and constitutes the indifferent electrode. The skin and vagina are painted with surgical dettol, which is non-inflam-

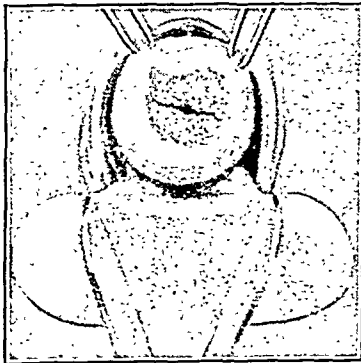


FIG. 4.

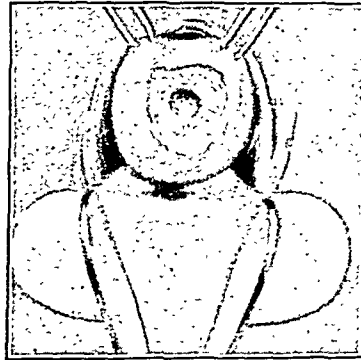


FIG. 5.

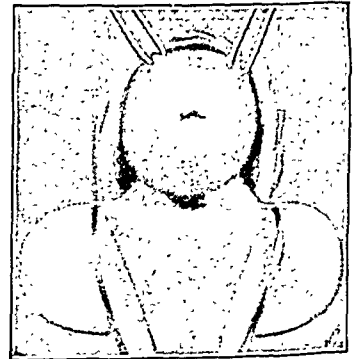


FIG. 6.

that in both methods much infected glandular tissue was left behind, which explains the relapses that may follow these operations.

The Diathermy Cutting Current Curette

In my opinion the ideal way of complying with the essentials of treatment is to remove the glandular tissues completely by means of a wire loop activated by the diathermy cutting current. The method was, I believe, first introduced by Everard Williams, and a loop made for him which he called the "coniser." I have used this loop, but have not been satisfied with its results.

mable, towels are adjusted, a speculum inserted, the cervix grasped laterally with vulsellum forceps and pulled forward. The uterine cavity is explored with a sound, the cervical canal dilated to No. 8 Hegar (25 degrees Charrière), and dried as far as possible with gauze.

The strength of the current is adjusted (dial setting 4 on the genito-urinary endodiathermy machine), and the curette passed a quarter of an inch beyond the internal os (Fig. 3). The current is then turned on with the foot-switch, and a strip of pars intermedia and cervix removed from the roof of the canal, the instrument being steadied with the fingers of the left hand. Great

care must be taken not to allow the cutting loop to slip as it leaves the external os, and to remember at this point to turn off the current with the foot-switch; also to hold the stem of the curette parallel with the cervical canal in order not to cut too deeply. The loop is so constructed that strips of lining membrane and underlying glands are removed in one piece if the instrument is correctly held. If for any reason it is necessary to make a deeper cut, the instrument can be tilted and tissue up to one-quarter of an inch in depth cut out. Strips are then cut from the sides, and lastly the floor. As each cut is made bleeding automatically stops from this area, until finally the endocervix is completely dry, which enables the operator to gain a perfect view and to deal with any small part which may have escaped resection. If an erosion is present it is excised by a larger cutting loop mounted on a bakelite handle, and the uterine cavity and cervical canal packed with gauze plugging soaked in 10 per cent. picric acid in absolute alcohol, which is removed eight hours later. The operation is completed by dilating up the urethra with a special pair of urethral forceps to 40 degrees Charrière in order to deal with the associated urethritis.

Saline douches are begun fourteen days later, and continued until the cervix is healed, which takes about two months. Intermittent dilatations of the urethra at fortnightly intervals are continued until a calibre of 40 degrees Charrière is attained without bleeding and without any appreciable resistance.

Figs. 4, 5, and 6 show a chronic cervicitis with an extensive erosion before treatment, directly after treatment, and three months after treatment. The results of this method of operative treatment for chronic cervicitis, especially if it has given rise to renal or vesical symptoms, I have found to be excellent, both clinically and pathologically.

Clinically the vaginal discharge, frequency, dysuria, renal pain, and backache disappear in the absence of any other gynaecological or urological cause, and in a series of eighty cases which have been followed up by Dr. Bryce Cooper and myself, both at the Royal Waterloo Hospital and in private, there was no distortion or contraction of the cervical canal. This was only to be expected, as excision of tissue by the diathermy cutting current is followed by a supple scar, which does not contract, and so resembles the results obtained in other parts of the body. Sufficient time has not elapsed for me to give an opinion on the effect that this treatment may have on conception and future pregnancy, but in one case in the series conception took place for the first time after twelve years of married life, and resulted in a normal pregnancy.

Pathologically a series of hysterectomies was performed by Mr. Lyle Cameron, in some cases immediately following the diathermy curette and in some six months later. By serial sections of the cervix Dr. Knott showed in the former that all the infected tissues had been removed, and in the latter that there were no signs of cervicitis.

In 1933 the British Science Guild began the Research and Development Lectures with the object of directing public attention to the importance of scientific research and of the utilization of its results in the service of mankind. Early in 1934 a proposal was made that the lectures should be given in the theatre of the Royal Institution, where special equipment and facilities exist for experiments and demonstrations, and arrangements were made by which the Guild had the use of the theatre on two occasions in May. Four further lectures have now been arranged, including one, on December 12th, at 9 p.m., by Dr. G. W. C. Kaye, on "Sound and Noise."

GAS GANGRENE RESTRICTED TO THE SUBCUTANEOUS TISSUES

REPORT ON A CASE

BY

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The following case is thought to be of sufficient interest to report on account of: (1) the limitation of the infection to the subcutaneous tissues of one limb; (2) the good general condition of the child, maintained until pyogenic organisms made their appearance; and (3) the uneventful recovery, whether due to the mild pathogenicity of the organisms or as a response to serum.

Case Record

A small boy, aged 7; ran a nail into the right leg, just below the knee, on February 10th, 1934. This was shortly afterwards withdrawn by his father. He was sent into hospital on February 14th as a case of cellulitis of the leg. On admission his temperature was 99.2°, and pulse 100. He did not look ill or toxic, nor did he seem in any great pain, but on questioning he said: "I'm all right in myself, but my leg hurts me."

On examination the entire right lower limb was very swollen, tense, of a whitish colour, and there was a very small perforating wound over the external tibial condyle above the site of origin of the anterior tibial group of muscles. There was no pitting or crepitus; the oedema was solid. The circumference of the thigh was 15½ inches, as compared with 12 inches on the left side. An anaesthetic was given, and on cleaning the wound preparatory to excision of the skin edges a few bubbles of gas and a small quantity of pus issued from it. The surrounding tissues were gently pressed, and a few more bubbles and thin, brownish serum appeared. A smear was taken, the edges of the wound excised, and the latter left open.

An immediate examination of the pus was made, and, on finding organisms typical of the *B. welchii* group, anti-gas-gangrene serum was given, 5,000 units intravenously and 5,000 intramuscularly. Hot fomentations were applied to the wound, and the leg placed on a back splint. The child's general condition remained good, and the condition of the limb unchanged, the oedema not extending above Poupart's ligament. An x-ray photograph showed gas bubbles subcutaneously only in the region of the knee. A further 10,000 units of serum was given on February 15th into the subcutaneous tissues of the right thigh, and 5,000 intravenously with 5,000 intramuscularly on February 17th.

Up to February 28th the circumference of the thigh had diminished by one inch, the child was well and comfortable, and there continued to be a small sero-purulent discharge from the wound; but on March 1st his temperature and pulse began to rise, and he complained of increasing pain on the inner side of the thigh. An inflamed indurated area was present along the inner side of the lower third of the thigh, which was very tender. Slight pitting oedema of the scrotum developed at this stage, but soon disappeared. On March 2nd an incision was made into the subcutaneous tissues along the inner side of the thigh and a small quantity of pus obtained, which was sent for pathological examination, the report being haemolytic streptococci only. Following this incision quantities of serum drained from the wound. Further incisions were made into the subcutaneous tissues in the now indurated areas in the popliteal region and inner side of the upper part of the leg on March 5th and 9th, and the small quantity of pus which was first obtained was soon followed by the discharge of large quantities of serum. Hot fomentations were applied and, later, eusol dressings. During the period of pyogenic infection the child had a raised temperature and pulse, but these became normal on March 14th, and he was discharged on the 19th. The limb was now 1½ inch less in circum-

ference round the thigh than the other, the incisions were granulating in healthily, and the movements of the limb normal. On recent inquiry from his doctor it was learnt that the wounds soon healed, and the child has since remained perfectly well.

Remarks

On reviewing the literature on this subject I can

find no statistics to show in what proportion of cases infection is confined to the subcutaneous tissues as above, but Choyce¹ mentions that it does occur. Thirty cases, however, have been reported of gas-gangrene infection following subcutaneous injections,^{2,3,4,5} either given hypodermically or as subcutaneous salines, but in the majority of these cases the infection became rapidly generalized and death ensued, or the patients recovered only after immediate multiple incisions and the administration of serum.

Perhaps Tissier's findings⁶ may explain the mildness of the infection. Tissier, in an article written in 1916, described experiments to show that gas-forming organisms in themselves had little power to cause gas gangrene, but when in association with other organisms they rapidly produced the typical disease. He showed that filtered cultures of *B. welchii* or *B. oedematiens* produced no effects; inoculation of animals with either of these organisms alone produced a hard oedema, which slowly disappeared, but when there was added to these cultures growths of aerobic bacteria the effects of malignant oedema were noted. He also stated that the presence of devitalized tissue was the necessary condition for the development of gas infection.

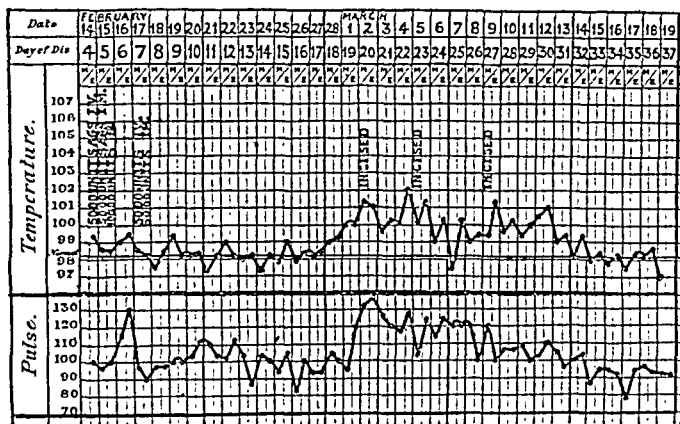
On looking at this boy's temperature chart it will be seen that the onset of severe symptoms coincided with the first appearance of pyogenic organisms in the pus. Up to this time on three occasions anaerobic organisms only were obtained from the wound, but on the twentieth day after infection the pus obtained on incision over the indurated area on the thigh gave a growth of haemolytic streptococci, and at this time the child's general condition was not so good. The hard, solid oedema of the leg, with absence of crepitus, suggested that the infection was mainly by organisms of the *B. oedematiens* type, although both groups of organisms were demonstrated in the pus.

It is also interesting to note in the cases quoted that the patients who received their infections by subcutaneous methods were in hospital suffering from some pre-existent disease or from loss of blood, and that other patients in better condition, who were given injections at the same time with the infected agent, did not develop gas gangrene.⁷ It seems strange in this case that, in the absence of devitalized tissue in a healthy child, gas gangrene should have developed at all, and it should be noted that at no time was there any evidence of infection extending beneath the deep fascia. How much of the child's good recovery was due to the early administration of serum or how much to the low pathogenicity of the organisms it is difficult to say.

In another case admitted to this hospital a few months ago, of severe compound fracture of the leg with much destruction of muscle, gas gangrene set in on the third day, although 12,000 units of anti-gas-gangrene serum had been given as a prophylactic dose on admission. It quickly subsided, however, following intravenous administration of large doses of

serum and free opening up of the wound. A reappearance of gas infection of the leg on the forty-fifth day after the injury followed encasement in plaster, but subsided again after serum injection and exposure of the wound to the air.

My thanks are due to Mr. Lewin for permission to publish this case, and to Dr. Knott of Guy's Hospital, who kindly confirmed the pathological findings.



IV = Intravenous. IM = Intramuscular. SC = Subcutaneous.

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INTERFERENCE IN THE SCHICK TEST BY DIPHTHERIA ANTITOXIN INJECTION IN THE HUMAN SUBJECT

BY

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The aim of this investigation was to find out how soon an injection of antidiphtheritic serum may be given to a suspected case of diphtheria after the performance of a Schick test without invalidating the result of that test.

Ker¹ (1924), in his presidential address to the Fever Hospital Group of the Society of Medical Officers of Health, gave an account of some work on this point. He assumed that all definite cases of diphtheria are Schick-positive at the onset of the disease, and, by testing such cases at varying intervals before the intramuscular injection of antidiphtheritic serum, he tried to find out how soon the serum had to be administered after the performance of the test in order to inhibit the positive reaction. He tested forty-seven cases two hours before the injection of serum, and of these forty-five yielded positive reactions and two were doubtful. Of nineteen cases tested one hour before the injection of serum, eighteen gave positive reactions and one a negative. The single patient reacting negatively died of circulatory failure within ten days after the test was performed, and it is possible that the circulation was already too depressed to respond to the stimulus of the test. Finally, fifty-six cases were tested immediately before the injection of serum, and of these forty-five had positive reactions, two were doubtful, and nine

were negative. He suggested various possible explanations as to why these nine cases reacted negatively. Two, for instance, were doubtful cases clinically, and in four there was some question as to the reliability of the test toxin. Nevertheless, nine out of fifty-six seems too high a proportion to be disregarded. Ker also reported results of seven Schick tests on cases of diphtheria immediately before the intravenous injection of antitoxin. Two of these reacted positively, four negatively, and one was doubtful.

Glenny and Hopkins² (1925) carried out similar tests on guinea-pigs. They found that the inhibition or reduction in size of a positive Schick reaction depended on the dose and the route of administration of a subsequent injection of antitoxin, and on the length of time that elapsed between the performance of the test and the administration of the antitoxin. For instance, a Schick reaction could be reduced to half its normal size either by giving 10 units of antitoxin intravenously thirty minutes, or 100 units intravenously ninety minutes, or 1,000 units intramuscularly forty-five minutes after making the test.

Nature of Investigation

In the present investigation it is assumed, as in Ker's work, that in the first few days of the disease all cases of diphtheria are potentially Schick-positive before receiving antitoxin. In making this assumption it is necessary to have strict standards by which to decide what is a case of diphtheria. The cases used for this work were a simple sample of those notified as diphtheria, and admitted to the North-Western Hospital, Hampstead, between November, 1932, and August, 1933; but only those which were undoubtedly diphtheritic from the clinical point of view, and which also yielded virulent cultures of *C. diphtheriae*, were considered to be proven cases of diphtheria.

Cases Receiving Intramuscular Serum

To begin with, only those patients who received all their antitoxin by the intramuscular route will be considered. Tests were performed as follows.

Group I.—Thirty-eight patients were Schick-tested immediately before an intramuscular injection of diphtheria antitoxin. Four of them were regarded as proven cases of diphtheria, and of these two gave positive and two negative reactions. Of the remaining thirty-four patients, fourteen yielded positive and twenty negative reactions.

Group II.—One hundred and fifty-one patients were each submitted to two Schick tests. In every case the first test took place one hour before, and the second immediately before, an intramuscular injection of antitoxin. Twenty-four patients were considered to be proven cases of diphtheria, and of these twenty-two reacted positively to both tests, and two were positive to the first but negative to the second. Of the remaining 127, eighty had positive reactions to both tests, fourteen were positive to the first and negative to the second, and thirty-three gave negative reactions to both tests.

Group III.—Three patients were each Schick-tested one hour before an intramuscular injection of antidiphtheritic serum. Two were looked upon as proven cases of diphtheria, and all three reacted positively.

Group IV.—Fifty-six patients were each submitted to two Schick tests. In every case the first test took place two hours before, and the second one hour before, an intramuscular injection of antitoxin. Sixteen patients were considered to be proven cases of diphtheria, and all of these gave positive results to both tests. Of the remaining forty cases, thirty-three were positive to both tests, one was positive to the first and negative to the second, and six were negative to both.

Table I shows the results of all Schick tests performed on patients who were regarded as proven cases of diphtheria, grouped according to the length of time the injection of antitoxin was delayed after each test. This

table is concerned with Schick tests and not with patients. If a patient is in, say, Groups II or IV, the results of his two tests are shown separately, each in its appointed row.

TABLE I

Time Elapsing between Schick Test and Intramuscular Injection of Antitoxin	Number of Tests Made	Result of Test		% +
		+	-	
0 hours	23	24	4	85.7
1 hour	42	42	0	100.0
2 hours	16	16	0	100.0

It is assumed that all the patients who formed the experimental material for Table I were potentially Schick-positive before receiving antitoxin. Four of the twenty-eight tests made immediately before the intramuscular injection of antitoxin were negative. Therefore a Schick test made immediately before such an injection of antitoxin does not give a reliable index of the patient's state of immunity at the time the test was performed. On the other hand, all of the forty-two reactions in the next row were positive. This, of course, is far from proving that all cases of diphtheria, if Schick-tested one hour before an intramuscular injection of serum, would show positive results to that test. First, these were all cases in which there was no doubt as to the diagnosis of diphtheria on clinical grounds alone. They therefore tended, on the whole, to be more severe than the average run of cases, and it is possible that they were, correspondingly, potentially more strongly Schick-positive than the average run of cases. Secondly, forty-two is a very small number from which to draw general conclusions. As might be expected, in the sixteen instances where the antitoxin was delayed for two hours after the test all the reactions were positive.

The reactions in Groups II and IV lend themselves to further consideration, because when a patient is submitted to two Schick tests the first, if positive, acts as a control on the second. Table II shows the results of the Schick reaction on all cases which were tested twice, and which reacted positively to the first test. This table is not confined to proven cases of diphtheria, but also includes those in which there was room for doubt about the diagnosis, and others which were not finally diagnosed as diphtheria at all.

TABLE II

Groups	Both Tests +	First Test + Second Test -	Total	% Positive to Both Tests
II	102	16	118	86.44
IV	49	1	50	98.00

Table II reveals that out of 118 patients in Group II who reacted positively to the test made one hour before the intramuscular injection of diphtheria antitoxin only 86.44 per cent. gave positive reactions to the test made immediately before they received antitoxin. Of the fifty patients in Group IV who reacted positively when the antitoxin was delayed two hours after the test, all but one, also yielded positive reactions when the interval between test and injection of antitoxin was only one hour. The fact that one of these fifty had a negative reaction to the second test suggests that the interval of one hour between test and antitoxin is not long enough to ensure that the result of the test is unaffected by the injected antitoxin. This is supported by the observation that in some of the Group IV cases which reacted positively to both tests the reaction to the second was weaker than the reaction to the first. (It should be mentioned that,

for the sake of simplicity, doubtful reactions were recorded as negative.)

Considering Tables I and II together, there is no doubt that the Schick test performed one hour before an intramuscular injection of diphtheria antitoxin, though subject to some extent to the nullifying influence of the injected antitoxin, yet possesses a high degree of reliability. It is further suggested that the test carried out two hours before the intramuscular injection of antitoxin is more reliable still, and can be accepted for practical purposes as giving a true index of the patient's state of immunity at the time the test was performed.

Cases Receiving Intravenous Serum

Fourteen patients who were considered to be proven cases of diphtheria were each Schick-tested twice, the first test one hour before, and the second immediately before, an intravenous injection of antidiphtheritic serum. Their Schick reactions are shown in Table III.

TABLE III

Time Elapsing between Schick Test and Intravenous Injection of Diphtheria Antitoxin	Number of Tests Made	Result of Test		% +
		+	-	
0 hours	14	1	13	7.14
1 hour	14	10	4	71.43

A comparison between Tables I and III reveals that the proportion of positive reactions to the test immediately before intramuscular antitoxin is about twelve times as great as the corresponding proportion in the intravenous series. The results of the tests made one hour before giving antitoxin show a similar but less striking difference. Tables I and III, therefore, illustrate in human beings the same principles which Glenny and Hopkins established in guinea-pigs in connexion with the length of time the antitoxin was delayed after carrying out the Schick test and with the route by which the antitoxin was given. There was no evidence, in the cases used in this work, that the inhibition of a positive Schick reaction depended on the number of units of antitoxin given. There was not, however, very much variation in the size of dose employed, the number of "inhibited" reactions was small, and there was considerable variation in the age and weight of the patients.

Conclusions

1. It is suggested that two hours is a sufficient interval in which to delay an intramuscular injection of antidiphtheritic serum after making a Schick test in order to get a reliable result to that test.

2. It has been demonstrated that antidiphtheritic serum is much more efficient in inhibiting a positive Schick reaction when introduced by the intravenous route than by the intramuscular.

I wish to express my thanks to Dr. A. Joe, medical superintendent of the North-Western Hospital, Hampstead, for suggesting the subject of this work, and for much helpful advice.

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The verbatim report of the twentieth annual conference of the National Association for the Prevention of Tuberculosis, held in London in June, 1934, is now published, and copies (7s. 6d., post free) may be obtained on application to the Association at Tavistock House North, Tavistock Square, London, W.C.1.

A CASE OF EVIPAN PARALYSIS

BY

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AND

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Singapore

The following case is one of widespread paralysis following the use of evipan for general anaesthesia with no premedication, and as we can find no similar case in the literature we think it may be worth recording.

A Chinese patient, aged 29, was admitted to the Johore Bahru General Hospital on February 5th, 1934, complaining of swelling, redness, and pain in the region of the left knee-joint of four days' duration. The surface appearance suggested a cellulito-cutaneous erysipelas. On February 8th operation was decided upon, and performed under evipan anaesthesia. The one gram of evipan in the usual stock ampoule was dissolved in the 10.5 c.cm. of distilled water in the other stock ampoule. Nine c.cm. of this solution was given intravenously at 11 a.m. very slowly, stopping for a few seconds after every 1/2 c.cm. and taking six minutes to introduce the total 9 c.cm. The patient began to yawn after 2 1/2 c.cm., and to snore after 4 c.cm. The operation was started at 11.10 a.m. and lasted seventeen minutes. An incision five inches long was made on the outer side of the left thigh, and a large abscess cavity was opened, evacuated of all pus, and irrigated; the abscess was found not to communicate with the knee-joint.

After the operation the patient was breathing normally and moving his eyeballs, but he did not recover full consciousness till 10.30 o'clock that night. During this long interval he made movements of the eyes, face, and limbs, and swallowing movements. His pulse was rapid (140), but had been nearly as fast before operation (134). An injection of strychnine 1/30 grain was given at 3 p.m. that day, and oxygen was then administered for half an hour because he was so long unconscious; coramine, as recommended by the manufacturers, was not available. At 10.30 p.m. he at last began to answer questions, and warm drinks were given. He was fully conscious next morning.

It was not until February 17th that the assistant surgeon in charge of the case noticed there was severe paralysis. The patient had in the meantime been gravely ill owing to his septic condition, and had not himself called attention to his paralysis; when questioned, he stated that it had been gradually coming on since the date of his operation, but had not been present before. On detailed examination there was flaccid paralysis of the trunk, so that the patient could not move himself in bed, of both lower limbs, and of the distal portion of the upper limbs. There was bilateral ankle-drop and wrist-drop. The knee-jerks, ankle-jerks, and biceps-jerks were absent; the plantar responses were flexor, and abdominal cutaneous reflexes present. There was no loss of control of the sphincters. Sensibility to touch and pain was diminished below the knees, but not affected in the upper limbs. Kahn test of the blood and of the cerebro-spinal fluid was negative.

General wasting of many muscles followed, with consequent loss of weight; by April the weight was down to 89 lb., but, unfortunately, it had not been taken earlier. On June 23rd, when recovery was almost complete, it was 100 lb. The septic condition of the leg gradually cleared up, although for several days after the operation it was spreading; the wound was healed by the middle of April, and all inflammation had then disappeared. There had been considerable pyrexia before the operation, but there was none after, except a temperature of 100° F. on the day following and a rise to a 100° on March 9th and 10th, which yielded at once to quinine. High fever occurred on April 22nd, with painful enlarged spleen and the appearance of blood and mucus in the stools; this subsided with quinine treatment in a week, and was probably malarial, though no parasites were found in the blood; there were no causative organisms in the stools.

For the paralysis the patient received massage, rhythmically interrupted sinusoidal current, and a general tonic of iron and strychnine; flexion and extension of wrists and feet

against resistance; and application of simple apparatus to prevent contractures. The paralysis gradually improved, and he was able to sit up by early April, and to walk slowly by the middle of May. By the middle of June his power was practically normal and his sensation tests also, but his tendon reflexes were still negative, and he still had very slight left-sided foot-drop.

Commentary

The manufacturers claim that no serious late consequences of evipan administration have been recorded, and in truth we have seen none in the literature we have consulted, though we have noticed one or two cases of early, though evanescent, toxic effects. The manufacturers quote authorities such as Ernst,¹ Specht,² and a committee of the Medical Research Council in London as warm advocates of evipan; Holtermann and Baetzner³ declare it to be safe; Jarman and Abel⁴ consider that the full dose is safe, though they mention low blood pressure as a contraindication. The patient in our case was admittedly very ill and emaciated before operation, but it is in just such cases that the manufacturers recommend full doses.

Willcox and others⁵ report peripheral neuritis as one of the late toxic manifestations of the barbiturates, of which evipan is one, the chemical formula being *n*-methyl-C-cyclo-hexenyl-methyl barbituric acid; Willcox mentions toxic states as greatly enhancing the susceptibility of patients to the barbiturates, and this appears to be borne out by our case.

The patient was demonstrated at a meeting of the Southern Division of the Malaya Branch of the British Medical Association on April 26th, 1934, and it was suggested that the case was one of acute beri-beri, but the prolonged unconsciousness after the injection and the great loss of power in the trunk muscles were against such an explanation. We think it was an undoubted case of late paralysis due to evipan administration, and that the lesson to be learnt is that great caution needs to be taken regarding dosage in patients already toxic.

We are indebted to the Acting Principal Medical Officer, Johore, for permission to publish this case.

REFERENCES

- ¹ Ernst. *Munch. med. Woch.*, 1933, No. 4.
- ² Specht. *Zentralbl. f. Chir.*, 1932, No. 5.
- ³ Holtermann and Baetzner: *Dent. med. Woch.*, 1933, No. 2, and *Lancet*, 1933, i, 648.
- ⁴ Jarman and Abel: *Lancet*, 1934, i, 511.
- ⁵ Willcox: *British Medical Journal*, 1934, i, 417.

Two intensive post-graduate courses have been arranged by the American Medical Association of Vienna for the six weeks beginning February 18th, 1935. These courses will provide a general survey of the newest methods and principles in the fields of gynaecology and obstetrics and of ear, nose, and throat, approximately 150 hours of lectures and clinical instruction being devoted to each of these specialties. The cost of the entire course, inclusive of life membership fee to the association, will be 900 Austrian schillings (about S. 5.20 for one dollar or S. 2.615 for £1). This is to be paid in the form of two instalments, the first of which, 200 schillings, should accompany registration, and the balance paid upon beginning the work. Applications must reach Vienna not later than January 1st, and if the minimum number of six physicians is not reached by January 15th the registering members will be notified and their deposits returned. Intensive courses of like nature and at the same cost may be arranged at any time for a minimum of seven participants in any of the specialties. All instruction is in the English language, and given by leading Viennese teachers. Further information may be had from the American Medical Association of Vienna, Alserstrasse 9, Vienna, Austria.

Clinical Memoranda

GLUCOSE-INSULIN THERAPY AND VASOVAGAL ATTACKS

The syncopal attacks described by Sir William Gowers and called by him "vasovagal" have the following signs and symptoms. The attacks begin suddenly with a sense of oppression in the stomach or chest and difficulty in breathing. There is usually precordial pain—acute in some cases, a discomfort only in others—and accompanying this is a sensation of impending death "so intense that no recollection of its falsity in preceding attacks prevents the conviction of its present reality." There is no impairment of consciousness, but often a slowing of the mental processes. The vasomotor disturbance shows itself by symmetrical coldness of the extremities, tingling, and numbness. The pulse becomes small and may be almost impalpable, and the blood pressure falls. Shivering is common, and may amount to a definite rigor. All these symptoms were present in the following case.

CASE RECORD

The patient, a woman of 58, had suffered from constant attacks of asthma for eight years, for which she had been treated in a variety of ways. In October, 1933, her myocardial condition seemed poor, and her blood pressure was low, though an electrocardiogram and a radiogram of the chest showed no signs of abnormality. She was exceedingly thin, and with a view to improving the general and myocardial nutrition ten units of insulin with two tablespoonfuls of glucose was given twice a day, as considerable improvement by this means of treatment in heart diseases has been reported from various sources (notably by Shirley Smith, *British Medical Journal*, April 22nd, 1933).

A very marked improvement in the incidence of the asthmatic attacks occurred, until in a short time she was entirely free from asthma. After a fortnight's freedom from symptoms she suddenly had a typical vasovagal attack, which within a few days was followed by a succession of such attacks, occurring so frequently that her life was despaired of. It was decided to discontinue the insulin-glucose treatment, and four-hourly injections of atropine 1/120 grain were substituted, and oxygen and adrenaline given at the times of the actual attacks. Within thirty-six hours of the commencement of these measures the syncopal attacks ceased, and she has not had one since, but the asthma promptly returned.

DISCUSSION

As, presumably, some disturbance of the sugar metabolism was the starting-point of these attacks, as soon as the patient was sufficiently recovered blood sugar estimations were done, and it was found that she had a permanently low concentration of sugar in the blood, the highest point to which it rose after a carbohydrate meal being 0.89 mg. per 100 c.cm.

Dr. Cammidge, in an article in the *British Medical Journal* of May 3rd, 1930, drew attention to the existence of chronic hypoglycaemia, not as a rare curiosity, but as a state of frequent practical importance, and in four of the cases to which he referred convulsive attacks occurred which were preventable by glucose administration.

In the case in question large doses of glucose (without insulin), together with 5-minim doses of the tincture of belladonna three times a day, have, to all appearances, prevented any further vasovagal attacks and checked the asthma. As in the previous eight years of this patient's history neither belladonna nor any other treatment attempted had had any effect on her asthma, and as she had had no vasovagal attacks before the insulin was given, the case seems to have a definite bearing on the problem of the relation of Gowers's syndrome to asthma and of both to hypoglycaemia, and appears to show that there may be some connexion between these conditions.

SUMMARY

1. A brief summary of Gowers's syndrome is given.
2. A case is described where this alternated with asthma.
3. The two conditions in this case are considered to be subsidiary to a chronic hypoglycaemia of unknown—possibly suprarenal—origin.
4. Treatment of the hypoglycaemia relieved the asthma and stopped the syncopal attacks.

My thanks and acknowledgements are due to Dr. Forest Smith, who saw the case in consultation, and with whose permission I publish these notes.

Hurstmonceux, Sussex.

L. SHILLITO, M.B., B.Ch.

TRANSPLANTATION OF A SINGLE URETER AS A MEANS OF RESTING A TUBERCULOUS BLADDER

Transplantation of the ureters in cases of ectopia vesicae or intravesical growth is a method of treatment proven and recognized. The following case illustrates, I believe for the first time, another use for this therapeutic measure.

CASE RECORD

An unmarried girl of 19, seen in September, 1932, gave a history of great frequency of micturition accompanied by considerable pain and smarting. Cystoscopy in the following month revealed both ureteric orifices much inflamed—more marked on the left side—but no other signs. A specimen of urine from the bladder and left ureter showed pus and tubercle bacilli in small numbers. A specimen from the right ureter showed normal urine. This latter finding was rather surprising, as the right ureteric orifice was definitely inflamed. A further specimen taken from this side a few days later again revealed normal urine.

In November, 1932, a left nephrectomy was performed and a small focus of caseation in a single calyx was revealed. The patient made an uninterrupted recovery, and, though her frequency and strangury were much improved, they never quite subsided. In 1933 she was still passing tubercle bacilli in the urine, though few in number, and was sent to Papworth Tuberculosis Colony, from which, feeling a little better, she discharged herself after about two months' stay. She was seen by me on several occasions after this, and a cystoscopy in the beginning of this year (1934) showed a definitely tuberculous condition of the right ureteric orifice, with advanced ulceration of the bladder. Her life was made miserable by frequent micturition, which occurred about every twenty minutes during the day and night. She lost about 2 st. in weight, and no type of drug, dietetic, or topical treatment appeared to have the slightest effect. She was kept in bed for a month without any improvement, though tying a catheter into the remaining ureter (the right) for five days brought welcome relief from frequency and pain.

In view of her pain and misery I felt that any means to relieve the frequency was justifiable, and after explaining the matter to her parents I transplanted the right (remaining) ureter into the sigmoid, by Coffey's second method, in March of this year. At operation the ureter was not appreciably thickened, and the operation was so easy that I did not tie in a ureteric catheter. Her recovery was uneventful, except for rather marked vomiting for the first two days. This I attributed chiefly to methylene-blue and hexamine pills, which I found her stomach totally incapable of retaining, although she tolerated neotropine well. A little urine was passed by the rectum on the first day, and a full amount by the third. The rectum rapidly accommodated itself to the urine, and within ten days of the operation her "frequency," now transferred to the rectum, became reduced to a two-hourly rhythm during the day, and her night sleep was interrupted only once for the bedpan.

She was discharged from hospital a month later. She is now (July) up and about, has put on over a stone in weight, and tells me she passes urine from the rectum only three or four times during the day, and not at all during the night. She feels perfectly well, and wishes to resume her work as a parlourmaid. She states that she cannot believe that for two years she was passing water every twenty to thirty minutes.

CONCLUSIONS

The following points are worth noting:

1. Whether increased well-being of the patient, combined with her freedom from pain, will allow her general condition to overcome what is probably a small focus in her only kidney remains to be seen.
2. The side-tracking of the bladder has been well worth the risk, whatever the final outcome may be.
3. In spite of being an only ureter transplanted through the sigmoid wall, no retained catheter was used or appeared necessary. This point might be worthy of note by those surgeons who feel diffident of transplanting both ureters at a time. In these cases I would suggest a retention of one catheter until the rectum discharges urine.
4. The possibility of a secondary tuberculous condition of the bowel must, of course, be borne in mind. She has no signs of it as yet.
5. The complete absence of any "abnormal" feeling in passing water, in women at least, should, I think, disabuse our minds of the present disposition to regard ureteric transplantation as an operation only to be undertaken as a last resource in certain conditions.

VERNON PENNELL, M.A., M.B., F.R.C.S.,
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Cambridge.

TRAUMATIC RUPTURE OF THE HEART WITHOUT EXTERNAL INJURIES

Rupture of the heart in the circumstances mentioned below is so rare that the case is worth recording.

The patient, a boy aged 9, had his chest pressed against a wall by the back of a double-bullock cart on April 21st, 1934. When examined soon after the accident, particularly for fracture of the ribs, he showed no external injuries, nor was there any evidence of internal ones. He felt quite well



The arrow "A" points to the right ventricle opened;
arrow "B" to the ruptured left ventricle.

the following day, and was therefore allowed to go to school, where he took part in the usual games. On May 1st, while playing at school, he complained of precordial pain, and fell down dead.

The post-mortem examination revealed a haemopericardium. On removal of the clot the rupture on the anterior surface of the left ventricle was seen. The site was blackish grey, roughly circular, and about one inch by three-quarters of an inch in diameter. The rupture was probably due to contusion of the heart wall at the time of the accident and yielding of the muscle so damaged. An interesting feature would appear to be the absence of pain during the ten days preceding the rupture.

My thanks are due to Dr. J. M. Somasundaran, judicial medical officer, Colombo, who was kind enough to send the specimen to me.

H. O. GUNewardene, M.B., B.S. (Lond.).

Colombo.

D. M. R. and E. Cantab.

Reviews

RATIONAL THERAPEUTICS

Hospital Practice for Interns is a pocket volume published by the American Medical Association¹ which provides a concise and carefully selected materia medica, and also contains a variety of useful data on such matters as the treatment of certain clinical emergencies and of poisoning, methods for the collection of specimens for biochemical analysis, etc. The authors explain the need for this volume as follows:

"Experience has shown that young physicians who fail to keep abreast of modern thought in medicine by the reading of new books and periodicals tend to deteriorate rapidly as far as concerns the standards inculcated in them in the medical college. They become a ready prey to the advertisements received directly from manufacturers of proprietary remedies, and they succumb easily to the facile flow of pseudoscience that emanates from the lips of the detail man. The lure of the fixed formula is also great, and tends to discourage thoughtful and scientific prescribing. The special mission of this book is to counteract some of the evils that have been mentioned, and to stimulate the young physician to continue the type of scientific medicine that is being taught in our medical schools."

In general it may be said that the material has been selected with great care and good judgement, and it certainly should do something to encourage young practitioners to regard drugs as chemical agents and not as charms whose potency depends on their proprietary name and style of packing. The evils which the authors of this volume seek to combat are prevalent in this country as well as in the United States. During the past year or two there has been an enormous output of literature on reform of the medical curriculum; yet scarcely anyone has emphasized the need for establishing habits of rational therapeutics during the student's course of training. The general idea among teachers appears to be that, provided the student is taught diagnosis, he will "pick up" therapeutics in his subsequent career. The trouble is that he picks the subject up from blotting-paper advertisements and commercial travellers, sources of information which are characterized by enthusiasm rather than by scientific accuracy. Too often the general result of this method of education is that the practitioner never uses an official preparation when a proprietary one is available, and often prescribes the same drug under half a dozen fancy names, being wholly ignorant of their identity. The American Medical Association has made great efforts in the past to combat this evil, and its latest venture seems to be a very useful one.

EXPERIMENTAL PHYSIOLOGY

Sir E. SHARPEY-SCHAFER's *Experimental Physiology*² and Professor D. T. HARRIS's work on the same subject have recently appeared in new editions. Sir E. Sharpey-Schafer's book, an old favourite with students of physiology, is now in its fifth edition. Its revision has been undertaken by the author himself with the co-operation of Dr. W. A. BAIN, and much new matter has been added, more especially of a kind that is likely to be of value later to the student—for whom the book is primarily intended—in his clinical work. There is considerable rearrangement of the subject-matter in some sections, and all parts of

the book show evidences of thorough revision. Many of the directions have been rewritten or amplified, and among much new matter may be mentioned descriptions of the regulations of the circulation, of the tendon and skin reflexes, of heat production in muscle, of the carotid sinus reflex, and of new apparatus that has been introduced in recent years. An indispensable addition has been made in the shape of a good index.

In the second edition of *Harris's Experimental Physiology*³ the author has adhered to his original intention of making the book of practical value to the student as a basis for his clinical work and at the same time a sufficient guide for those who propose to engage in the investigation of physiological problems in the laboratory. A new chapter has been added on *body temperature*, and one, contributed by Professor A. J. Clark, on the apparatus and methods used in practical pharmacy. The book has been further brought up to date by the addition or amplification of sections on, among other subjects, the capacity of the vascular system, group testing for blood transfusion, the chemical transmission of nerve impulses, the carotid reflex, the cardiac cycle in health and disease, the capillary circulation in man, the clinical estimation of the metabolic rate, water absorption and excretion, and the electrical analysis of the sensory discharge in nerves. These additions, with the descriptions of new apparatus, bring the work up to date as regards the requirements of the research worker.

MEAT INSPECTION

The practice of meat inspection owes much to pioneer effort in Germany, and Professor OSTERTAG's "Manual" on the subject has for long stood high in the esteem of those engaged in the work. After running into nine editions in German and four in English it has been replaced and superseded by an entirely rewritten "Text-book," this title being preferred by the author as permitting more condensation and more discussion of the general principles involved. The new book now appears in an English edition, edited by Mr. Dunlop Young and translated by Dr. C. F. Marshall.⁴

In an early section the importance is urged of the ante-mortem examination of animals intended for slaughter. Various ways of killing are noted; and weapons, pens, and traps are described. Instruments like pistols, if they destroy the medulla, are not conducive to effective bleeding. The method of electrical stunning does not labour under this disadvantage, nor does it lead to perforation of the brain membranes. This last feature allows of its being used, prior to the throat-cut, in the Jewish ritual slaughter. Operated in combination with the Weinberg casting pen, it serves to rebut the charge of cruelty which has been laid against the Jewish method of killing. The correct procedure in the examination of meat, the normal appearance and differentiation of the meat and organs of the various food animals, and departures from the normal which are within physiological limits are presented in order. Among the regional diseases tuberculosis of the udder is described and illustrated. In the chapter on animal parasites the German official instructions are quoted for rendering carcasses mildly

¹ *Experimental Physiology for Medical Students*. By D. T. Harris, M.D., D.Sc., F.Inst.P. Second edition (being the revised and enlarged edition of Anrep and Harris's *Practical Physiology*). London: J. and A. Churchill, Ltd. 1934. (Pp. 248; 230 figures, 1 plate. 12s. 6d.)

² *Text-Book of Meat Inspection (Ante-Mortem and Post-Mortem), including the Veterinary Control of Meat and Meat Products*. By Robert V. Ostertag. English edition, edited by T. Dunlop Young, O.B.E., M.R.C.V.S. Translation by C. F. Marshall, M.Sc., M.D., F.R.C.S. London: Baillière, Tindall and Cox. 1934. (Pp. xi + 743; 247 figures, 10 coloured plates. 45s.)

³ Chicago: 535, North Dearborn Street.

⁴ *Experimental Physiology*. By Sir Edward Sharpey-Schafer, F.R.S. Fifth edition, revised by the author with the co-operation of W. A. Bain, Ph.D. London: Longmans, Green and Co. 1934. (Pp. 168; 94 figures. 6s. net.)

infested with *Cysticercus bovis* fit for human consumption by exposure to cold for twenty-one days. A figure is shown of the projection trichinoscope which has taken the place of the microscope for the detection of trichinella. In the important chapter on the infective diseases, which occupies a quarter of the text, the part played by bacteriology in scientific meat inspection is strongly in evidence.

The account of bacterial meat poisoning is distinguished alike by its range and completeness. It begins with a historical review of individual outbreaks, including the great, and still enigmatical, seizure at Überehr in 1919. It deals with the *intra vitam* infection of the meat, and its infection during and after slaughter. It explores the somewhat complex history of the *Salmonella* group of bacteria, and explains their morphology, biochemistry, serology, and differentiation from one another. It discusses the question of latency in man and animals, and finally details the technique of the bacteriological examination of suspect meat, and the conclusions to be drawn from the results emerging. The fallacy of the mouse-feeding test is also pointed out.

Among other subjects dealt with is the putrefaction of meat, together with the effect of mincing in favouring its extension. Attention is devoted also to the boiling or steaming of infected meat with the object of rendering it fit for human consumption. The author, however, observes that such methods are not infallible, and states that mass infections have been known to occur. The diagrams and illustrations, in the text or in coloured plates, are of a high order. The translation has to some extent been adapted to the use of English readers by the omission of purely German references and by the addition in an appendix of a selection of Acts and Regulations which either apply to England or are in the English language. A work which originates from the hand of Professor Ostertag requires no commendation. The English translation, which is a credit to all concerned, is sure of a welcome in this country.

SPECIFICITY OF SEROLOGICAL REACTIONS

When Bordet discovered that specific immunization against microbes and toxins was only one manifestation of a universal mechanism which produced a reaction to any foreign substance injected into the body, a new era dawned in serological research. Workers quickly discovered various kinds of antibodies: an agglutinin which caused foreign cells to clump together, lysins which destroyed them, and precipitins which precipitated foreign protein bodies. All these substances were found to have a specific action—that is, one which was only evoked by the particular foreign bodies or by substances closely allied to them. Specificity is not confined to proteins but embraces simple chemical substances as well; it is at the same time the foundation of serology and one of its chief problems. Modern chemical knowledge does not extend to a complete understanding of the specific serum reactions, and it is not possible to investigate them by typical experiments with known substances.

Specificity is of course practically never absolute, but is a matter of a stronger reaction to certain antigens than to others. Even this concept does not take account of a number of phenomena which correspond in all their main particulars with serum reactions. Several vegetable toxins, such as abrin and ricin, will agglutinate blood corpuscles in much the same way as haemagglutinins. Some animal bloods are more sensitive to certain of these toxins than others. Some of the greatest differences are seen in the action of croton, the toxin of croton seeds. Hitherto these vegetable agglutinins have been largely

regarded as unspecific, but Dr. LANDSTEINER³ has produced cogent experimental evidence for a considerable and regular variation in their action. This work is a summary of a succession of papers published by him on the phenomena of serological specificity, and points the way to a definition of this group of phenomena as the dissimilar effect of a series of similar agents on a series of allied substrates, and a quantitative differentiation of specificity into grades. It is not a book for the beginner, but contains a great deal that is valuable to the research pathologist and bacteriologist. Like most German works, it is very fully documented, and is an admirable guide to the literature of the subject.

MALL OF BALTIMORE

In *Franklin Paine Mall: The Study of a Mind*,⁴ Dr. FLORENCE SABIN, who for twenty years worked in one capacity or another with the professor of anatomy at the Johns Hopkins University, has after five years of preparation brought out not only a most finished account of her former chief but also a sketch of the new birth of medicine in the United States, and in particular at the Johns Hopkins University, where this comparatively little-known pioneer unobtrusively played a most important part. He was described as the man in America who regarded "anatomy as a biological science, and rescued it from the position of the handmaid of surgery," whose name as an anatomist will be placed with those of Bichat, von Baer, and W. His, who founded an institute of embryology, and instigated the plan for full-time clinical teaching by which opportunities for research were made available in the clinics. Of German descent he was born in Iowa, and when 18 years of age entered the University of Michigan, where the medical course had just been raised to three years. It is rather surprising to learn that fifty years ago the proposal of President C. W. Eliot of Harvard, that American medical students should, for admission, be required to be able to read and write, was regarded as a radical and daring reform, likely to limit the number of medical students too greatly for the country's needs. Mall obtained the degree of M.D. in 1883, and then, as was often the procedure, went to Germany for clinical instruction. But the real work he undertook there was research, first in embryology under Wilhelm His on the thymus. A most interesting account is given of how he arrived at a conclusion different from that previously published by His, who, however, subsequently admitted it to be correct. Mall next went to Leipzig, where he became a favourite pupil of Carl Ludwig, who exerted a life-long influence on him; a series of charming letters from Ludwig is quoted, and Mall, when trying to express his gratitude, was told by Ludwig to "pass it on" to others, which became the leading motive of his life.

Returning to America, Mall was for three years pathological fellow at the Johns Hopkins University under Welch, and became associated with W. S. Halsted; then, somewhat changing his line of work, he was in 1889 appointed adjunct professor of anatomy at the new Clark University, Worcester, Massachusetts, where, however, the conditions were far from satisfactory; accordingly, he accepted an invitation from the University of Chicago to organize an institute of biology, and in a year had one on new lines in working order. But after this short interlude there came the call to return to the Johns Hopkins University as the first professor of anatomy, which he accepted and held until his death in 1917.

³ *Die Spezifität der Serologischen Reaktionen*. Von Dr. K. Landsteiner. Berlin: J. Springer, 1933. (Pp. 123. RM 8.60; geb. RM. 9.80.)

⁴ *Franklin Paine Mall: The Story of a Mind*. By Florence Sabin. Baltimore: The Johns Hopkins Press; London: H. Milford, Oxford University Press. (Pp. 342; 8 figures. 12s. 6d. net.)

These are the bare outlines of the intensely active life of one of the makers of the Great School where Osler, Welch, Halsted, and Howard Kelly were the four chiefs represented in the famous Sargent portraits. The story is told with sympathetic understanding, and in a fascinating manner reveals the personality of a great advocate of research and of the highest ideals for medical education.

Notes on Books

A second edition of *Massage and Remedial Exercises*,⁷ by Miss NOËL TIDY, has been called for within eighteen months of the appearance of the first, an indication of the welcome extended to this handbook of physical treatment. Advantage has been taken of this opportunity to improve and extend certain parts. Flat-foot is now discussed on more up-to-date lines, and some extra notes on light and electrical therapy have been added. The book is comprehensive and practical, and the lines of treatment are clearly shown in letterpress and figures. If the book still lies open to the criticism that here and there good judgement as regards the avoidance of risks by the lay physiotherapist seems to be taken for granted, it should be remembered that supervision by a medical practitioner is always presumed.

With a light and attractively whimsical touch which relieves the sordid details of crime, Dr. HAROLD DEARDEN, in *Death under the Microscope: Some Cases of Sir Bernard Spilsbury and Others*,⁸ brings together twenty-one accounts of medico-legal interest. This collection of true medical detective stories, besides being eminently readable, is a useful guide in showing the logical and, when pointed out, obviously correct steps in establishing the guilt of the ingenious murderer or poisoner. The account of Dr. Pritchard of Glasgow, who in 1865 poisoned both his wife and his mother-in-law, is an example of the excellent way Dr. Dearden can marshal the facts of a case.

In the little work on *Medicine in Persia*,⁹ which forms the latest addition to the Clio Medica Series, Dr. CYRIL ELGOOD, late physician to the British Legation at Teheran, states that the medical history of Persia may be divided into two periods—namely, the pre-Moslem or Avestan period, in which the teachings of Zoroaster were the predominant source of theory and practice, and the Muslim or Arabian period, in which the source was pre-eminently Greek. The book consists of seven chapters devoted respectively to the mythological and Achaemenian Ages, the Seleucid and Sassanid Ages, the Caliphate and Baghdad School of Medicine, Avicenna, the decay of the Caliphate, the Mongol and Safavid Dynasties, and the Qajar and Pahlavi Dynasties. A table of political and medical dates of Persian history compared with current events in Europe is appended. Dr. Elgood maintains that though Persian medicine cannot claim equality with the primitive Greek or modern Western School, it reveals, if it does not surpass, the Roman, Byzantine, and Alexandrian Schools, owing to the introduction of numerous drugs still in use to-day, such as nux vomica, croton oil, rhubarb, senna, and sugar, the description of various diseases, especially small-pox, jaundice, and leishmaniasis, and the preservation of the great Hippocratic doctrines.

We think it safe to predict that the *Concise Oxford French Dictionary*,¹⁰ compiled by the late ABEL CHEVALLEY, will soon find a place in many bookshelves beside the *Concise Oxford Dictionary* and Fowler's invaluable *Modern English Usage*. These three volumes are alike in price

⁷ *Massage and Remedial Exercises in Medical and Surgical Conditions*. By Noel M. Tidy. Second edition. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. 1934. (Pp. 430; 178 figures. 15s. net.)

⁸ *Death under the Microscope: Some Cases of Sir Bernard Spilsbury and Others*. By Harold Dearden. London: Hutchinson and Co. 1934. (Pp. 288. 9s. 6d. net.)

⁹ *Medicine in Persia*. By Cyril Elgood, M.D., M.R.C.P. New York: Paul B. Hoeber, Inc. 1934. (Pp. xiii + 105; 11 figures. 1.60 dollars.)

¹⁰ *The Concise Oxford French Dictionary*. Compiled by Abel Chevalley and Marguerite Chevalley. London: H. Milford, Oxford University Press. 1934. (Pp. 928; illustrated. 7s. 6d. net.)

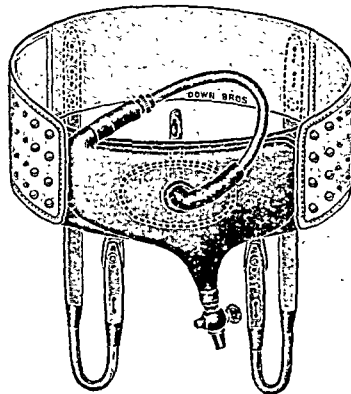
and binding, and their contents are informed by the same blend of accurate scholarship and ripe common sense. The latest member of the series is a "current use" French-English dictionary of nearly 40,000 judiciously chosen words, the general aim being not "to give information about the things represented by French words, but only about the nearest equivalence between French and English of the words and phrases which represent these things." It is based on a fresh survey of the field of modern French speech and literature, and of standard French literature. The commoner the word the more space and care are given to its uses and meanings and their nearest English equivalents. Printed indications and brief cautions are inserted wherever the student or translator needs to be warned against a pitfall: "beware of apparent analogy." Pronunciation is indicated by a simplified form of the Passy-Michaelis-system of phonetic notation. Typographically this dictionary is in all respects worthy of the Clarendon Press; it gives an immense amount of useful information in the least possible space without sacrificing legibility by the use of microscopical type, and its price is most reasonable.

Preparations and Appliances

NEW DRAINAGE BAG FOR PERMANENT CYSTOSTOMY

Mr. TERENCE MILLIN, F.R.C.S. (London, W.1), writes:

The apparatus illustrated is an attempt to alleviate the lot of the patient condemned to a permanent cystostomy. It has been in use now for almost a year in the hospital and private practice of myself and a number of colleagues, and has given much satisfaction. The discomfort of a bag "flapping" against the leg while walking is avoided. The emptying of the bag can be carried out quite surreptitiously in a public



lavatory through the usual exitus from the trousers, saving the penny demanded for privacy when the older type of bag is being operated! The capacity of the bag is twenty ounces, but it is preferable to empty it when containing between eight to ten ounces. Its inlet is provided with a valve, preventing regurgitation from the container to the bladder. The theoretical objection of "uphill drainage" has not been substantiated in practice. It is, of course, all-important for the satisfactory functioning of any cystostomy that the fistula should be made sufficiently remote from the symphysis pubis.

The apparatus has been made for me by Messrs. Down Bros., St. Thomas's Street, London, S.E.1.

EUBION

"Eubion" tablets (Messrs. Evans Sons Lescher and Webb) contain vitamin A concentrate and vitamin D made up with a chocolate basis. The makers state that the vitamin A content of each tablet is equivalent to a tablespoonful of best quality cod-liver oil. It is generally recognized that administration of this vitamin may in many cases improve the condition of epithelial tissues, and thereby increase resistance to infection. Therefore its prophylactic and therapeutic uses are numerous. "Eubion" tablets have a pleasant taste, and constitute an acceptable substitute for cod-liver oil.

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The first new work to which Dreyer set himself was to throw further light on the source of agglutinins and similar immune products and the general mechanism of the protective reaction. In this work he was assisted by Dr. Ainley Walker, and together they showed by experiment that in animals specifically immunized by inoculation with the bacillus proper to the agglutinins under examination subsequent inoculation with a non-specific micro-organism caused a new rise in titre of the specific agglutinins which followed a "curve" of the same character as that produced by specific inoculation. One very important site of formation of these immune bodies was the *blood-forming tissues and the reticulo-endothelial system*. It appeared probable that the leucocytes of the blood, liberated into the circulation from these tissues, would themselves contain definite amounts of the agglutinins during the period of their active formation. Blood serum was accordingly compared with blood plasma for agglutinin content, and experiments established the fact that the leucocytes of the blood, as well as of the plasma, contained appreciable amounts of agglutinin, and that these cells, and the cells and tissues from which they arose, were a source—not necessarily the only source—of these products of the immunity reaction.

An attempt was next made to ascertain the total quantity of agglutinin present in the circulating blood of immunized animals instead of merely its percentage concentration, and Dreyer undertook a reinvestigation of blood volume in certain animals. This work established the view by a mass of experimental results that the volume of the circulating blood must itself be related numerically to the area of the body surface; also that the bore of the principal channels carrying the blood, as well as the lumen of the tube which admitted to the body the oxygen needed for combustion, would both be found proportional to the surface area in animals of different size and weight throughout any given species. Some controversy arose with workers who had used the carbon monoxide inhalation method for determining blood volume, and who accepted it as a fraction of the weight, but Dreyer and his collaborators convinced themselves that the inhalation method was unreliable, and the conception that within a given species of warm-blooded animal the blood volume of the individual was proportional to the surface area of the body had since been independently confirmed.

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The population of British India in 1931 was estimated by the census as being 271,526,933; that of India as a whole was 352,837,778. The rate of increase during the decennium 1921–31 was no less than 10.6 per cent., and various competent authorities have agreed that this will be about the normal for the future in the absence of any catastrophic occurrence like the influenza epidemic of 1918. Since the date of the census the usual epidemic diseases of cholera, plague, and small-pox have all shown large decreases in incidence, while famine in a death-dealing form has been unknown. The total population of India must now number, therefore, about 365 millions, and the next census will probably produce a total of nearly 50 millions more than that of 1931. Where is this large increase of population to find bread and employment? Can improved methods of agriculture, and the extension of cultivation to unused land provide the additional food supplies required? Even to-day the diet of many millions of the Indian people is not such as can maintain physical efficiency and health. There is, therefore, also another problem to be faced, the taking of energetic steps for the prevention of disease, and equally energetic measures for the education of the people in regard to mastery over environment. There will have to come a wide development of both central and provincial health departments, manned by experts capable of advising on the many difficult health problems which confront the leaders of India, for on the lines of action adopted for their solution will depend the prosperity, health, and welfare of many generations yet unborn.

In 1932 the birth rate for British India was 33.7 compared with 34.3 in the previous year; the death rate was 21.6 compared with 24.8; and the infantile mortality rate fell from 178.8 to 168.7. The total area harvested was 9 per cent. below normal. The economic position of the agricultural population was depressed owing to the fall in prices, the resultant contraction in the credit of the cultivator, and the general depression in trade. Certain waterlogged areas were, however, greatly improved by drainage schemes.

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FACTORS IN THE REDUCTION OF MATERNAL MORTALITY

A meeting of the National Baby Week Council, presided over by Dame LOUISE MCLROY, was held on November 14th, when the subject for discussion was stated as a problem for the propagandist: "Has Ante-natal Work Reduced Maternal Mortality?"

Dr. T. WATTS EDEN pointed out that not only was maternal mortality obstinately high, but neo-natal mortality—that is, the deaths of infants during the first four weeks of life—was high also. Ten years ago neo-natal mortality was about 40 per cent. of the total infant mortality; it was now 50 per cent. Yet during this period there had been a great extension of ante-natal work, and of expectant mothers 42 per cent. actually came to the clinics, while probably 80 per cent. had some form of ante-natal supervision. Superficially it would appear that ante-natal work had failed to reduce maternal mortality. During the period that ante-natal work had been developing great changes had come over obstetric practice, such as an increase in the number of beds devoted to maternity cases. In Manchester ten years ago only 11 per cent. of confinements took place in hospital; in 1933 the figure was over 40 per cent. Nevertheless, maternal mortality had slightly risen in Manchester during that period. Probably ante-natal work was unequal in quality. Year by year the concept of what it included was broadening. The clinics required directors of ability, experience, and training. A weak point in the system was the rule in teaching hospitals for the ante-natal clinic to be placed in charge of a junior member of the obstetric staff. More ante-natal beds were necessary—perhaps more necessary at the present juncture than beds for confinements. Public provision for the working mother during the last month of her pregnancy was also needed.

Dr. G. F. MCCLEARY, late of the Ministry of Health, pointed out that the maternal mortality rate was based on a denominator which consisted of the number of live births registered and a numerator which consisted of the deaths classified by the Registrar-General as due to pregnancy and child-bearing. The denominator was plain sailing, but the numerator depended upon the system of classification obtaining, which had not remained constant. Further, the denominator included live births only, whereas the numerator took into account maternal deaths due to stillbirths and abortions, and for abortions no adjustment could be made. That would not signify if the proportion of abortions to live births remained constant, but there was reason to believe that abortion was becoming more prevalent, so that the numerator tended to increase without any corresponding increase in the denominator, with the result that the quotient went up. In recent years, again, medical certification had become more precise, and this tended to increase the apparent mortality. The decline in the birth rate also had increased the proportion of first pregnancies to the whole number, and first pregnancies were more dangerous than subsequent ones. With all these allowances, however, the figure for maternal mortality was intolerably high. Ante-natal clinics needed to be supported by the provision of pre-maternity beds and an adequate midwifery service.

Dr. ETHEL CASSIE, senior assistant medical officer of health for maternity and child welfare, Birmingham, said that experience had shown that at least 20 to 25 per cent. of women required institutional care and treatment at some time during pregnancy. Without the provision of ante-natal beds, ante-natal supervision was a cruel farce. Women's lives were not going to be saved by a few examinations at the clinics. Nutrition in pregnancy was a burning question. Milk sent into the home would be given to the other children, and not consumed by the mother, and badly nourished women would not go to dinners at the clinics and leave their families dinnerless. The only solution was a minimum family income sufficient to avoid malnutrition. The State provided old

age and widows' pensions; why not pregnancy and nursing benefit? Finally, many women were physically unfit to be mothers; here it was not ante-natal care that was needed, but the prevention of pregnancy.

After some further discussion, in which the need for consultant services provided by local authorities, for adequate post-natal supervision, for pre-marital examinations and certificates of fitness for marriage, and for the provision of home helps before and after parturition were variously urged, Dame LOUISE MCLROY summed up by saying that it was out of the question to turn human beings into a stock farm, however much that might be wished; also that at the back of every scheme for the betterment of the poor mother was the jealous ratepayer. One thing which she thought it most necessary to overcome was the existing break in continuity of supervision. At present a woman might be under one medical man during the ante-natal period, under another during the confinement, and perhaps under a third for any subsequent complication. She thought too much attention was paid to pelvic and abdominal conditions, and too little to general nutrition. Post-natal supervision, with beds where the results of obstetric misadventures might be set right, was also a necessity.

BRITISH EMPIRE CANCER CAMPAIGN

In the absence of Lord Reading, Sir Holburt Waring (President of the Royal College of Surgeons) presided at the quarterly meeting of the Grand Council of the British Empire Cancer Campaign, held at 12, Grosvenor Crescent, on November 12th.

Grants totalling over £20,000 were allocated for the year 1935. These included: £8,000 to the Cancer Research Department of the Middlesex Hospital; £5,000 to the Cancer Hospital (Free); £2,500 to the Cancer Research Department of St. Bartholomew's Hospital; £2,000 to Mount Vernon Hospital; £650 to the Cancer Research Department of St. Mark's Hospital; £600 to the Marie Curie Hospital; £550 to Mr. I. Hieger, working at the Cancer Hospital; £500 to the Westminster Hospital; £350 for the Radon Centre at the Middlesex Hospital (through the Medical Research Council); £350 to the Strangeways Research Laboratory, Cambridge; £300 to Dr. P. R. Peacock, for the salary of an assistant, at the Glasgow Royal Cancer Hospital; £200 to Dr. Alexander Haddow, working at Edinburgh University; £200 to Mrs. Barbara Holmes, working at Cambridge; £100 to Mr. W. S. S. Ladell, working at King's College Hospital.

The Grand Council also granted a sum of £1,750 for 1935 for the salaries and expenses of two whole-time workers, who will investigate certain important schemes of research initiated by the Scientific Advisory Committee of the Campaign. Notification was received that an allocation of £5,000 had been made to the Campaign by the trustees of the late Mr. David Shields Crawford of Edinburgh.

The French National Council of Defence against Tuberculosis has published its statistical report for 1933, with special reference to the work of the dispensaries, which numbered 820 at the end of December, representing an increase of 43 in the year. The decline in the mortality from pulmonary tuberculosis continues at a greater rate than that from other causes. There have been increases in the number of patients' attendances and of radiological examinations and treatments. Oto-rhino-laryngological examinations were fewer, however. Pneumothorax is gaining in favour steadily. Sanatorium patients totalled 19,137, and another 13,510 were admitted to institutions of the hospital type. Preventorium received 21,423, and the Grancher Foundation 4,203, of whom thirty-six were adults. Details are given in all these respects, and the activities in 1933 are compared with those of the seven previous years. A general survey is thus obtained of the progress made during recent years of the anti-tuberculosis campaign in France, with indications of changes in therapeutic outlook during the period under review.

British Medical Journal

SATURDAY, NOVEMBER 24th, 1934

THE PARLIAMENTARY SESSION, 1933-4

In the session of Parliament which began on November 21st, 1933, and ended on November 16th, 1934, legislation carried at the instance of the Ministry of Health was, with the exception of a minor Poor Law Bill, limited to emergency measures to facilitate the conservation and diversion of water during the drought and the provision of new rural supplies. Output of Statutes from the Ministry decreased pending consideration, in the session which began this week, of a further Housing Bill to prevent overcrowding and to promote the reconditioning of houses. This measure has already been in draft before the bodies which speak for local authorities. It is designed as a supplement to the national effort for slum clearance previously authorized by Parliament, and will be associated with the planning of town and country.

Public health has received little attention in either House during the past session; anxieties were expressed and reassurances given about the nutrition and general condition of people in distressed areas. Parliament is conscious of, and perplexed with, the problem of excessive maternal mortality. The Commons has learnt that the Ministry of Health has promoted special local inquiries into this. The old controversy on vaccination was scarcely mentioned; a private member's Bill for the registration of osteopaths was dropped on second reading, and the Board of Control did not come in for criticism. Generally speaking, the attitude of the House towards medicine and the medical profession varied between friendly interest and tolerant indifference. No comment was excited by an announcement made from the Treasury in July that the Medical Research Council now receives a State grant of £140,000 yearly. Behind the scenes the concurrence of a number of interested parties was gained for a draft of the Medicines and Surgical Appliances (Advertisement) Bill. A Government decision to take all the time of the House of Commons in the new session frustrates, however, the decision to introduce this as a private member's Bill. The Contraceptives Bill was carried through the House of Lords last year by Lord Dawson, but died in the Commons. A Domiciliary Nursing Services Bill also failed. Concern shown by back-bench M.P.s about the health and nutrition of school children induced a change of emphasis in Dr. Walter Elliot's Milk Act. In this was incorporated provision for more general supply of surplus milk to school children from the Milk Boards, whereas the original intention had been to dispose of

such milk for industrial use. Dr. Elliot has in preparation a Bill for reorganizing the British cattle industry. He may be able to promote, under this and the Milk Act, the reduction of tuberculosis in cattle. Other medical M.P.s had little chance of prominence. Dr. Elliot's medical colleague in the Government, Dr. J. H. Morris-Jones, has been fully occupied with his duties as a Whip. On the other side of the House, the Opposition has welcomed Dr. Christopher Addison back to its Front Bench.

Back-bench opinion in the Lords, and to a lesser degree in the Commons, compelled the Ministry of Transport to insert in the Road Traffic Act provision for a payment, through the insurance companies, towards the expenses of doctors or hospitals who treat victims of road accidents. The Act was directed to securing more safety on roads, and has been followed by experiments for protection of pedestrians, about which the Commons has lately put many questions. The claim of medical men for compensation in respect of their services to road traffic victims was admitted in the House of Lords, where Lord Moynehan and Lord Danesfort both carried Bills on the subject. On this and other matters deliberation and private negotiation by the Parliamentary Medical Committee, under the chairmanship of Sir Francis Fremantle, has been helpful both to the profession and to the Government. Sir Francis has also shaped Parliamentary opinion as chairman of the Conservative M.P.s' Health and Housing Committee. The heaviest work done by the Commons during the session was upon the Betting and Lotteries Act and the Unemployment Act. In the former the Government and House recognized that the voluntary hospitals of the United Kingdom do not wish to be supported by lotteries. A proposal to give general authorization for hospitals to hold "Christmas draws" was defeated, and provision was made to check the appeals for British subscriptions to the Dublin Hospitals Sweepstakes.

The Unemployment Bill draws a clear line between unemployment insurance benefit and the relief of able-bodied destitute persons who are not entitled to this benefit. A National Assistance Board is to fix scales of relief applicable to the whole country. The hope of the Government is that these scales, together with the restoration of the "cut" in unemployment insurance benefit, and the lowering of the age of insurance, will provide safeguards against malnutrition among the unemployed. The whole Act is a decisive stage in the break-up of the old Poor Law, and will transfer to central administration what was till lately a pauper class under the Boards of Guardians. The medical side of Poor Law work, meanwhile, is being changed by administrative action under recent Statutes. Medical men in public service were included in the restoration of half the 1931 "cut" in salaries and in the capitation fee under national health insurance. This relief was made by the 1934 Budget, and there are hints that the 1935 Budget may restore the other half.

STAPHYLOCOCCAL INFECTIONS: SPECIFIC TREATMENT

The study of the toxins produced by *Staphylococcus aureus* is one of the latest advances of bacteriology. That the commonest of pathogenic bacteria should have been the subject of important discoveries at this period of medical history is a fact which should be well assimilated by those who regard the study of ordinary bacteria as having neared the limits of its usefulness to medicine. The data we now possess are that the staphylococcus forms a toxin or toxins the chief demonstrable effects of which are the lysis of red cells, the killing of leucocytes, and necrosis of the skin: all these actions are neutralized by the serum of an immunized horse, and recovery from an acute staphylococcal infection is accompanied by an increase in the blood at least of the antibody which is most readily demonstrated—the anti-haemolysin. The nature of the toxins produced in culture finds a clear parallel in the characters of the staphylococcal lesion itself, and there is no reason for doubting that these toxins are weapons by means of which the tissues are actually attacked. There is therefore a sound theoretical basis for the therapeutic use of antitoxin, and several reports on this method of treatment have appeared.

The latest and most comprehensive of these is by C. E. Dolman,¹ who has now treated 104 cases. His serum is obtained by the immunization of horses first with toxoid and afterwards with unaltered toxin, is concentrated, and is administered preferably by the intramuscular route, intravenous injection being followed by hyperpyrexia and often a dangerous degree of collapse. The former and safer route is said to require double the dose, and as much as 600 c.cm. in all may be needed in the average severe case: one of Dolman's patients received 1,700 c.cm. The cases are placed in twelve categories, ranging from carbuncle to septicaemia, and perhaps the most significant single feature of the results is that of sixty-four patients in whom positive blood cultures were obtained twenty-nine recovered. Many of the cases are described in detail, and it is for those to whom sufficient opportunities of applying this treatment are likely to occur to study them and form their own opinions. It is notoriously difficult to furnish unassailable evidence on a question of therapeutics, especially in conditions which are by no means of everyday occurrence and which may be of such gravity that to set aside untreated control cases is scarcely possible to anyone who has faith in the treatment he is studying. Nevertheless, the experience of Dolman and others has been such that staphylococcus antitoxin demands a universal trial until its uses and their limitations have been fully ascertained. It is to be hoped that improvements in the product will obviate the need for the enormous doses now being given, if indeed these have any advantage now over a more moderate policy of dosage. Apart from the effects produced by foreign protein, and

the far from negligible question of cost, it may even be argued that the quantity of preservative (tricresol) administered cannot be without some adverse effect.

Dolman's papers refer also to the use of toxoid for active immunization, a proceeding which he recommends at an early stage in such conditions as carbuncle, when the patient is not severely ill. This is another subject, and one of which we may hear more in the near future, since the value of staphylococcus toxoid is at present under investigation in this country by the Therapeutic Trials Committee of the Medical Research Council. Of several reports already published the majority are favourable, but there is some conflict of opinion, and anomalous facts, especially in the relation between anti-haemolysin production and clinical progress, remain to be explained. Underlying this subject is an important question to which there is at present no certain answer: Is the state of resistance to staphylococcal infection dependent, either wholly or chiefly, on antitoxic immunity or on anti-bacterial? It is true that Parish, O'Meara, and Clark² have shown that immunization with toxoid confers a considerable degree of resistance to infection in rabbits, but parallel experiments with a bacterial vaccine were not carried out. Because the staphylococcus has been shown to produce exotoxin it is not therefore immediately to be classed with such an organism as the diphtheria bacillus, infection with which is almost purely a toxæmia and the issue similarly dependent on the development of antitoxic immunity. Bacteria, such as the pyogenic cocci, which besides producing toxin possess marked invasive powers, cannot be placed in the same category as this, nor can we rightly assume in the present state of knowledge that antitoxic immunity, such at least as present methods of immunization secure, is the whole of the necessary defence against their attack. It is also a noteworthy point of distinction that staphylococcus toxoid, unlike other toxoids, is being used not for prophylaxis but for the treatment of existing infections. Some of these, such as sycosis, are of a most obstinate type, and in the course of these efforts we may perhaps gain some insight into the mechanism by which chronic infections, particularly of the skin and of the mucosa of the upper respiratory tract, often resist every attempt at an active immunization which in theory should suffice to dispel them completely.

AURICULAR FIBRILLATION AND FLUTTER OF UNKNOWN AETIOLOGY

To say that a patient has auricular fibrillation is not to make a diagnosis, but merely describes the symptom—an arrhythmia resulting from some form of damage to the heart muscle. Most often this injury is rheumatic in origin; not uncommonly it results from toxic gout; sometimes it is associated with high blood pressure; and sometimes the only obvious associated lesions are the degenerations in the cardiovascular system which occur with advancing years. Rarely it appears to be connected with local infection—for example, a cholecystitis.

¹ *Canadian Med. Assoc. Journ.*, 1934, June, p. 601; July, p. 1; August, p. 130.

² *Lancet*, 1934, i, 1054.

It sometimes happens, however, that the cardiac irregularity appears as an isolated symptom, and no other abnormality is to be made out, either in the cardiovascular system or elsewhere. R. D. Friedlander and S. A. Levine¹ describe a series of twenty-five patients presenting such idiopathic fibrillation, thirteen having the paroxysmal and twenty-two the permanent form. In the former the age at onset was about equally divided in the various decades from the third to the sixth. A precipitating factor was stated to be present in some, the most frequent being exertion. Digitalis and quinidine, both alone and together, were given to five patients during attacks, and the results suggested that the treatment might have shortened the duration of the attacks. The group with permanent fibrillation comprised twenty-two patients, with one exception all males, and the average age at the onset of the attacks was 43. X-ray examination was carried out in only nine patients; in these the heart was normal in size in all except one, and this in spite of persistence of the irregularity for an average period of several years. Treatment with quinidine restored normal rhythm in ten patients; but in none of these had the onset occurred more than three years previously. One patient, for whom no attempt was made to restore normal rhythm, was stated to have had fibrillation for thirty-one years; and, although he had no treatment, he remained free from symptoms till five years before his death, when he developed a cerebral embolus. It is not stated on what grounds the original diagnosis of auricular fibrillation was made in this case, and some form of tracing is obviously desirable to substantiate such an unusual claim. Four cases of auricular flutter are also reported in men over 60 and unassociated with any demonstrable cardiovascular disease. In three it was paroxysmal, and here the exciting factor was exertion in two and an attack of lobar pneumonia in one. In one patient flutter had persisted for four years; no attempt was made to restore normal rhythm. Of the paroxysmal cases the arrhythmia was terminated with digitalis in two and quinidine in one. Auricular fibrillation is an arrhythmia which usually connotes a high degree of disturbance of the functions of the myocardium. In the solitary extrasystole or premature beat there is a harmless disturbance of cardiac rhythm which almost every individual experiences at some time or another. A more severe disturbance is paroxysmal tachycardia, but even here there is frequently no evidence of gross cardiac damage. There is reason to believe that these arrhythmias are often of neurogenic origin, and extrasystoles have been produced in animals by stimulating the hypothalamic region of the brain. Similarly, auricular fibrillation has been experimentally produced by stimulating the cardiac nerves, and it is plausible that in cases such as those described by Friedlander and Levine the alterations in auricular conductivity and refractoriness on which fibrillation directly depends are the result of abnormal nervous impulses. The role of exertion and emotion in precipitating attacks is consistent with this. Though the abnormal rhythm may be well tolerated, especially under adequate digitalization, these patients are unquestionably better off when normal rhythm is restored, and quinidine usually accomplishes this with ease,

except in cases of long duration. The grave risk of embolism resulting in the old-standing case, whether the arrhythmia persists or is terminated, is another reason for early treatment.

INFLUENCE OF HEAT AND LIGHT ON NASAL MUCOSA

It is common knowledge that in certain individuals changes in surrounding temperature produce greater or lesser changes in the freedom of the nasal air passages. A scientific study of this phenomenon by Sir Leonard Hill and his co-workers led to certain interesting results. Hill found that when rays from a dull red or dark source of heat fell on the skin of the face or body a reflex was set up which resulted in a congestion of the nasal mucous membrane and a consequent narrowing of the nasal airway. The reflex could be prevented by cooling the irradiated surface by means of a fan or by approximation of a cold surface. The rays used in the demonstration of this effect were long infrared rays. Further investigation showed that, if shorter rays were added in sufficient proportion to those coming from the dull source of heat, then the phenomenon was inhibited or at any rate antagonized. It was later stated that the effect is marked only in people with deflected nasal septa or with chronic catarrhal conditions, but that it becomes manifest in normal subjects if a slight degree of nasal obstruction is produced by a nose-clip. The antagonism of short and long waves was later extended by the demonstration that if during exposure to a heat source an electric lamp be brought near the face there is a subjective feeling of relief from heat and a sensation of relative coolness. These experiments have been examined in some detail by Winslow, Greenburg, and Herrington,² particularly those relating to the "nose-opening" effects of short waves as opposed to the "nose-closing" effects of long waves. These authors used two procedures designed to obtain quantitative data on these matters. In the first method the subject lay on his or her back in a darkened room. In one nostril a glass tip encased in plasticine was inserted so as to fit the nostril closely. This glass tip was connected to a rubber membrane tambour writing on a smoked surface on a kymograph. In this way records could be obtained of changes in pressure in the closed nostril during expiration, and hence gave a measure of any change in the degree of approximation of the mucous surfaces of the nasal airway. More accurate observation of the patency of the nasal airway was obtained by determining the time of passage of a fixed volume of air, delivered at low pressure from a spirometer, through one nostril and out at the other whilst the subject holds his breath. The inlet nostril is rendered airtight so that the circuit of the nasal airway must be made by the emerging air. This method is uncomplicated by varying respiratory activity and, according to the authors, gives reliable and consistent results. Using these methods, carefully controlled observations were carried out to test the validity of the claims made by Hill and his co-workers. It was found that constriction of the nasal airway (nose-closing) can be produced with reasonable certainty and constancy by exposure of the skin to the rays of a dark-glow

¹ New Eng. Journ. Med., October 4th, 1934, p. 624.

² Amer. Journ. Hyg., July, 1934.

radiant source of heat, by immersion of the arm in hot water, and by exposure to a high atmospheric temperature. Contrary to the views of Hill, these workers interpret their findings as due to a direct response to the warming of the skin, with no relation to any specific wave-lengths. Although these reactions are more readily demonstrated in subjects with deviation of the nasal septa or other nasal abnormality, Winslow and his co-workers, with their delicate spirometer method, have shown their occurrence in normal subjects. As regards the "nose-opening" effects of shorter wave rays described by Hill, these authors found the exact reverse—namely, an increase in nasal congestion was observed when electric light was directed on to the face of a subject already exposed to the dark-glow heater. These results appear to be supported by carefully conducted experiments, and it seems that the original observations of Hill will require re-examination before the extraordinary effects of the so-called "nose-opening" rays can be generally acceptable.

PROTECTION OF RADIUM WORKERS

The increasing use of large quantities of radium in medical practice, particularly in beam therapy, has emphasized the need for further information on the protection of radium workers from gamma rays. In a paper read before the British Institute of Radiology on November 15th Dr. G. W. C. Kaye, director of the physics department of the National Physical Laboratory (with whom were associated Mr. G. E. Bell and Mr. W. Binks) brought forward a number of observations on gamma-ray doses which have been made at the laboratory, thanks to a working association with the National Radium Trust. For α rays a system of protective recommendations has been built up on the basis of a tolerance dose, but in the case of gamma rays from radium, as Dr. Kaye explained, the position is less satisfactory, and it does not appear that enough data are available to evaluate such tolerance dose. The two main factors of gamma-ray protection are to place the radium source in as remote a position as may be convenient, and to enclose it in protective material to the greatest practicable extent. To double the distance from the source is roughly equivalent to increasing the lead protection by nearly 3 cm. But in many cases there is no alternative to lead protection, and accordingly Dr. Kaye and his colleagues have worked out the transmission curve of gamma rays in lead under conditions simulating as closely as possible those that obtain in practice. Here we must omit the elaborate tables and computations which these workers adduced, and give a brief summary of their practical conclusions. The tolerance distance for unprotected quantities of radium of 0.2 gram and upwards is greater than the distance between adjacent beds in the average hospital ward, so that discretion should be exercised if patients undergoing irradiation are placed in the same ward as other patients. As far as nurses and attendants are concerned, the tolerance distance for 0.2 gram of the unprotected element is about 2 metres, so that they should only approach within that distance when it is essential. For quantities of 0.5 gram the tolerance distance for nurses and attendants is about $3\frac{1}{2}$ metres. Therefore it is undesirable for staff to remain in the

immediate vicinity of patients undergoing treatment with such quantities. The carrying boxes used for the transport by hand of reasonable amounts of radium within the confines of hospital or laboratory are usually small and constructed of wood, both box and lid being lined with lead of about 1 cm. thickness. Such boxes are regarded by the National Physical Laboratory investigators as suitable for occasional transport of small quantities of radium, but where substantial quantities are frequently transported larger boxes with centrally situated small containers and more adequately protected should be provided, and should be conveyed by trolley rather than by hand. As for transmission by post, these investigators explored the relative merits of size and lead protection in the case of various packages containing radium which are subject to the limitations of the British parcel post (namely, maximum weight, 11 lb.; length plus girth, 6 feet), and their results showed the superiority of distance over lead protection, and that a bulky package employing no lead may have only half the weight and yet be thrice as effective as the smallest package with the maximum lead protection. The use of bulky packages in the post, moreover, is likely to result in their being transported by vehicle rather than by hand, which is an advantage. The increasing use of radium beam therapy has suggested some experiments, leading to the conclusion that nurses and attendants should not remain for any appreciable time at distances within, say, $1\frac{1}{2}$ metres behind the bomb, $2\frac{1}{2}$ metres from the side of it, or $4\frac{1}{2}$ metres in front of the bomb in the direct beam. In general, the results obtained at Teddington lend support to the recommendations of the international and British committees for α -ray and radium protection, and afford evidence that these recommendations provide a sound basis for radium protection, particularly in such matters as storage, the employment of temporary workers, and the importance of expeditious manipulation in busy radium centres.

A MENTAL HOSPITAL CLINIC

The Herts County Mental Hospital at Hill End, St. Albans, is fortunate in having a progressive and broad-minded committee which does not quibble about the introduction of the latest ideas in mental hospital work. One of the outstanding features there is the out-patient clinic, which is conducted, not by the medical superintendent, but by a visiting psychiatrist. The authorities at Hill End feel, with reason, that the position of a medical superintendent is bound up with an atmosphere of authority and discipline which makes the psychotherapeutic approach singularly difficult. To this objection is of course to be added the fact that the administrative duties he is compelled to carry out make it hard for him to find time for prolonged and patient investigation. He has an out-patient clinic at the general hospital, where he sifts out patients suitable for intensive psychotherapy, and refers them to the Hill End clinic. At the same time in-patients at Hill End attend this clinic when suited for it, and can continue their treatment there when they are discharged from certificate. The clinic is run on the team principle, and a skilled social worker from one of the London hospitals visits the patient's home and school and

acquires as much knowledge of the environmental background as possible, in order to help the psychiatrist. She is also a great help to the relatives, and is responsible for continuing this service after patients have been discharged. A psychologist makes investigations of a non-medical nature, and provides vocational guidance and educational training. Child guidance is also undertaken, and there is a playroom for observation of children. Patients are sent by magistrates, probation officers, private doctors, teachers, and social workers throughout the county. The clinic is designed to be a training centre for doctors and lay workers alike. The committee has authorized the provision of bursaries for social workers and also the appointment of two house-physicians. This provision offers a unique opportunity to the young medical man or woman who wishes to learn something about psychiatry as a preparation for general practice, but who is not willing to join a special service, with its administrative obligations and other restrictions. The house-physicians will be relieved as far as possible of administrative duties, and they will be taught how to treat the physical ailments of mental patients, and how to deal with the manifestations of mental illness which can be treated outside an institution. Their appointment will be for six to twelve months, and during that period they will also be able to attend the bi-weekly conferences of the out-patient clinic, where patients and methods are discussed.

TONSILS AND THE RHEUMATIC CHILD

The exact part played by tonsillar infection in the rheumatic group of disorders in childhood is not yet altogether clear. Dr. A. D. Kaiser, whose book, *Children's Tonsils In or Out*, attracted a great deal of notice some two years ago, has now repeated his statistical method,¹ this time dealing with a group of 1,200 rheumatic children in an endeavour to analyse the factors associated with the primary and recurrent manifestations of this disease. Because of his previous interest in the tonsil problem Dr. Kaiser's conclusions as regards juvenile rheumatism and the tonsils are of particular value, although his detailed analysis of other factors may also be profitably studied by those especially interested. It is quite generally accepted that there is a relation between an initial infection in the tonsils and a subsequent rheumatic manifestation. If this is true there should be a lessened incidence of rheumatic disease in children whose tonsils have been removed. A broad analysis in a previous study had shown that about one-third more children had their first attack of rheumatism when their tonsils were "in" than in those where the tonsils were "out." But Dr. Kaiser is not satisfied with this broad view: he is able to compute the expected incidence of rheumatic disease among the "tonsillectomized" (vile word) children of Rochester because of his previous knowledge of the distribution of tonsillectomized children at different age levels, and thus he shows that for the entire group of children the presence or absence of tonsils made only a slight difference on the frequency of an attack of rheumatism. Chorea was slightly more prevalent among the tonsillectomized children than was expected, and the same was true for muscular rheumatism or "growing pains." On the other hand, rheumatic carditis was less frequent among the tonsillectomized

children than the expected rate, and this is reflected in a still more important difference in the mortality rates. In almost comparable groups the mortality rates were 13 per cent. among the children whose tonsils were in and 7 per cent. among those whose tonsils were out at the time of the initial attack. As to recurrences, the presence or absence of tonsils appears to make no difference. It would seem possible from these results to deduce what course should be taken in the treatment of diseased tonsils in a rheumatic child. Removal will not prevent recurrences, and, in fact, it will slightly add to the risk of the child's having chorea or growing pains. On the other hand, if the tonsils are removed early in the course of the rheumatic infection there is slightly less chance of heart disease developing and considerably less risk of severe disease of a fatal type. As to age, Dr. Kaiser's present analysis makes the following point—that the advantages of removal of the tonsils to the rheumatic child are almost confined to the younger age groups, and after the tenth year the presence or absence of tonsils makes no appreciable difference.

SYPHILIS TESTS WITH SCANT SUPPLY OF SERUM

A report¹ by Dr. E. J. Wyler, which has recently been issued by the Ministry of Health, should help to solve the problem of what is to be done when it is impossible to obtain blood from a vein for the Wassermann or for a flocculation test. This difficulty is commonly met with in young children, not rarely in women, and occasionally even in men. Where a suitable vein cannot be found blood in small quantities may be obtained from various sources such as the lobe of the ear, the finger, or the heel. The author shows how with 0.15 c.cm. of serum, which is obtainable from as little as 0.5 c.cm. of blood, a Wassermann reaction and three flocculation tests for syphilis can be carried out. The tests which he has chosen are modifications of those associated with the names of Wassermann, Kahn, Meinicke, and Rosenthal: positive reactions with the Wassermann and any one of the three flocculation tests are quite sufficient to establish a diagnosis of syphilis (with the usual provisos), so that the author has made a most useful contribution to the subject. All four methods are described in detail, and their relative advantages and disadvantages are compared and discussed. With the report beside him any competent serologist could carry them out in a normally equipped laboratory.

The next session of the General Medical Council will open on Tuesday, November 27th, at 2 o'clock, when the President, Sir Norman Walker, M.D., will take the chair and deliver an address. The Council will sit thereafter from day to day until its business is concluded.

A special meeting of the Royal Society of Medicine (for Fellows only) will be held at 1, Wimpole Street, on Thursday next, November 29th, at 9 p.m., when Professor R. G. Minot of Harvard will lecture on "Some Aspects of Anaemia."

¹ Journ. Amer. Med. Assoc., September 22nd, 1934, p. 886.

¹ On Serological Tests for Syphilis with Very Small Amounts of Patients' Serum. By E. J. Wyler, M.D. Ministry of Health, Reports on Public Health and Medical Subjects, No. 74. H.M. Stationery Office. (6d.)

Scotland

Mental Disorder in Scotland

The twentieth annual report by the General Board of Control for Scotland¹ shows that on January 1st of the present year there were 19,538 insane persons in Scotland, exclusive of those who were maintained at home by their natural guardians. This number included 9,983 males and 9,555 females, while of the total number 2,823 were maintained from private sources, 16,638 from the rates, and seventy-seven at the expense of the State in Perth Criminal Lunatic Department. At January 1st, 1933, the total number had been 19,411, which showed an increase of 127 during the past year. Certified mental defectives on the register of the Board at January 1st, 1934, numbered 4,012, including 2,042 males and 1,970 females. Of these 1,137 were maintained in institutions for adults; 1,520 in institutions for juveniles; 1,341 in private dwellings; and 14 in the State institution. The total number of admissions of insane persons (including transfers) during 1933 was 2,862, which was eighty-one more than in the previous year, but 310 fewer than the average for the quinquennium 1925-9. Private patients admitted numbered 431, which was thirty-five more than in the preceding year, but thirty-nine fewer than the average for the quinquennium 1925-9. The number of pauper patients admitted was 2,431, which was forty-six more than in the previous year, but 271 fewer than the average for the quinquennium 1925-9. There were 359 private patients and 1,851 pauper patients admitted for the first time to establishments during 1933. Voluntary admissions are not registered, but a record is made of the names and particulars of patients so admitted, the total number in 1933 being 801, while the total number resident on January 1st, 1934, was 1,088. During 1933, 140 private patients and 923 pauper patients were discharged recovered. With regard to deaths, 200 private patients died in establishments during 1933, and 1,148 pauper patients. These figures were respectively eighteen and twenty-one fewer than in the previous year, with a death rate of 7.5 per cent. of the average number resident for the year. In the course of the year 146 patients were discharged on probation, of whom eleven were finally discharged recovered, thirty-seven returned to asylums, and three died. The number of escapes from establishments was 104; forty-eight of these patients were brought back within twenty-four hours, twenty-six within a week, and thirteen after a week, leaving twelve still absent at the expiry of the period of twenty-eight days. Accidents reported as having taken place numbered 186, of which twelve ended fatally, being due to suicide in seven cases. With regard to the boarding out of mental cases, the number of patients who were not paupers in private dwellings at January 1st, 1934, was sixty-three, while the number of pauper patients was 1,290, a decrease of twenty-eight as compared with the figure for the preceding year. Favourable comments are made upon the high standard of care bestowed upon rate-aided mentally defective patients by their guardians in private dwellings. Very few of the latter consider their duty accomplished when they have complied with the regulations by providing suitable accommodation, occupation, food, and supervision, but go much further and arouse the interest of the patients, arrange occupation for leisure time, and give them a real home. The success of the boarding-out system is attributed to the careful selection of patients and guardians, the supervision exercised by local authorities, and the interest of medical officers, although the

real success is due to the guardians themselves. It is urged also that a benefit is conferred upon the community by the presence of such patients in their midst, in so far as it produces greater sympathy and understanding among the general public and helps to develop a new and enlightened attitude towards mental illness and defect. A table shows that the proportion of recoveries in royal and district asylums averages over 30 per cent. of the number of admissions, and the significance of this relatively high proportion in recent years is connected with the fact that an increasing number of the patients from whom recoveries are to be expected now enter asylums as voluntary patients. Another factor of importance is that a number of patients suffering from early forms of mental disorder are now treated in observation wards of general hospitals, so that only the less hopeful cases are passed on to the asylums. Attention is drawn to the difficulty experienced by many patients, after discharge as recovered, and by mental defectives who have undergone a period of specialized training, in becoming reabsorbed into industry. It is pointed out that local authorities have no official duty in this matter, and that most of the after-care falls upon voluntary agencies. It is suggested it would be desirable that local authorities in urban areas should have powers to provide for the education and training of children reported as unsuitable for education in special schools or classes, and for whom, accordingly, the education authority has no duty to make provision. As an example of what might be done for such cases, there is cited a training centre established in 1930 by the local Care Committee in Edinburgh, under the charge of three teachers, which has a daily average attendance of seventy-nine. Attention is also drawn to the important work, during the past eleven years, of the Scottish Association for Mental Welfare. With regard to the financial burden of mental disease, it is stated that during the year the cost of maintenance of pauper lunatics was £932,947. The average weekly charge varied from 13s. 5d. in private dwellings to 21s. 9d. in royal asylums. The expenditure by local authorities on mental defectives for the year involved a total sum of £205,743.

Ireland

Ulster Medical Society

At the opening meeting of the Ulster Medical Society, which was held in the Whitla Medical Institute, the outgoing president, Professor W. J. Wilson, M.D., D.Sc., introduced his successor, Dr. S. R. Hunter, to the presidential chair in a happy speech, after having thanked the fellows and members of the society for their support during his year of office. Dr. Hunter acknowledged the very high honour the society had conferred on him by electing him as its president for the year 1934-5, and appealed for encouragement in his term of office. He referred to the loss the society had sustained in the past year by the deaths of Sir William Whitla, Professor Andrew Fullerton, and Professor John A. Milroy, as well as a young member, Dr. John H. Gillespie, as the result of a motor accident in London. Dr. Hunter then gave his address on his experiences during the war with the medical unit in Janesh, on the Balkan front. He handled his subject in a most interesting manner, and kept the attention of his audience throughout with a record of his impressions and experiences, dealing with illnesses rare in this country and the manner of treating them. There were interludes of exciting experiences, as well as pleasant surprises of acquaintances of more peaceful days arriving

¹ H.M. Stationery Office, 120, George Street, Edinburgh. (1s. 2d. net.)

for duty. The thanks of the meeting were conveyed to Dr. Hunter, as well as wishes for a most successful year of office.

Action Against a Public Hospital

Mr. Justice O'Byrne, in the High Court, Dublin, granted an application for further particulars in two cases in which Mr. Owen Denenny, Clane, County Kildare, was the plaintiff, and the Kildare Board of Health and Public Assistance were the defendants. In one case plaintiff sued on behalf of his daughter, aged 6½, for £3,000 damages, and in the other for £1,000 on his own behalf. Plaintiff alleged that about November 10th, 1933, his daughter was suffering from scarlet fever, and when this had been notified to the medical officer of health she was removed to the Fever Hospital at Naas, in which it was the duty of defendants to provide reasonably skilled medical and nursing treatment and attendance. He alleged that the Board failed in this duty; that they retained at the hospital a doctor and nurses whom they knew to be careless; and that they had failed to relieve the doctor and nurses of their duties in the hospital as required by an order of the Department of Local Government and Public Health. By reason of this negligence so alleged, plaintiff claimed that his daughter did not receive sufficient medical and nursing treatment and attendance, that she was discharged from the hospital and permitted to return to his house while in an infectious condition, and that she was verminous. He also claimed that his daughter infected another child, who died. Defendants denied all the allegations of plaintiff, and now asked for further particulars.

England and Wales

Ambulances for Maternity Cases

Arrangements for the free conveyance of maternity patients to hospital by the London Ambulance Service, provided to deal with street accidents, were first made in 1920, but at first such conveyance was available only during the night, except on sudden emergency and on the application of a doctor or midwife, who must accompany the case. It is now considered by the Hospitals and Medical Services Committee of the London County Council that the absence of free facilities for the conveyance of non-urgent maternity cases in the daytime is not justified, and that the ambulance service should be available without charge for such cases at all times. The conditions are that the patient shall have made arrangements for her admission to a hospital or municipal institution, that she shall be accompanied by a doctor, nurse, or female friend, and that she shall be wrapped in blankets ready for removal.

Approximately 10,000 maternity cases are admitted every year to the L.C.C. hospitals, 10,900 to the voluntary maternity hospitals, and 2,550 to the municipal maternity homes, while in the voluntary general hospitals 681 maternity and gynaecological beds are provided, giving accommodation to possibly some 10,000 patients a year. The number of cases conveyed by the Council's ambulances under the existing arrangement for night cases and urgent day cases was 4,416 in 1933. It is believed that, with the extension of service to non-urgent cases in the daytime, the probable number of cases so conveyed will be from 50 to 75 per cent. of all maternity patients, who number, as shown above, more than 30,000 a year. It is considered that at a time when every co-ordinated effort is needed to reduce the risks incidental to childbirth, and greater use is being made of municipal and other hospitals

for confinement, it is essential that no unnecessary limitations or conditions should be placed on the use of the ambulances for the conveyance of such cases to hospital. In most cases the patient does not go into hospital until labour is imminent or has commenced, and maternity patients in this condition should not be compelled to rely upon the ordinary public conveyances. Further, patients who have booked a bed in a maternity hospital have not engaged a private doctor or nurse (who, under the present regulations, must accompany them), and in many cases could not afford to do so. Possible difficulty, owing to the fear of confinement taking place in a public vehicle, must also be considered. The proposal involves an increase in the number of ambulances in commission from 147 to 153, and twenty-four additional attendants. A suggestion that daytime maternity cases might be conveyed more cheaply by taxicab at the Council's charge was ruled out, chiefly owing to the difficulty of obtaining taxicabs at certain times and in poor districts.

The Bed-bug as a Housing Problem

Dozens of live bugs were exhibited at a meeting, held to discuss the bed-bug as a housing problem, at the Royal Sanitary Institute on November 13th. They had been collected by officers of the Woolwich Borough Council, and were part of an exhibit demonstrating the life-history of the bed-bug, its place of lodgement, and methods of disinfestation. There was also a film, prepared by the lecturer, Mr. McKenny Hughes, with the aid of Mr. Leonard Day, which showed the bed-bug in its accustomed habitat, the insect feeding on the lecturer's arm, the effect of the bites, and the various steps necessary to eradicate the insect from furniture and houses. Lord Balfour of Burleigh presided at the meeting, and an appeal for a by-law controlling the sale of secondhand furniture was put forward by Mr. McKenny Hughes, who is an entomologist at the British Museum (Natural History). Prevention of infestation of new houses, he said, was not difficult. Tenants' furniture could be fumigated in transit to the new house with hydrocyanic-acid gas in one of its forms, or, alternatively, all furniture should be fumigated in the new house within one week of its arrival. The latter method necessitated a clearing place where people whose houses were being fumigated could spend the night. The disposal of material from bug-infested houses demolished under clearance orders was another difficult problem to be faced. Woodwork, as firewood and in other ways, was liable to be an important factor in the dissemination of the bed-bug. The presence of this insect should not be considered as a social stigma and something to be hidden, but as a misfortune from which any of us might suffer.

Central Midwives Board

At its November meeting the Central Midwives Board for England and Wales considered a letter from the medical officer of health for Willesden, stating that on January 1st next the Willesden Maternity Hospital would be greatly enlarged and asking that permission should be granted for eight pupils to be trained instead of five. It was agreed to reply that in accordance with the Board's practice in these matters the question of an increase in the number of pupils to be trained could not be considered until it was seen from the number of cases actually taken in the new beds that such an increase was justified. The medical officer will be asked to submit a later application when the new beds have been in use for a time. The Board stated, in reply to a letter from the county medical officer of health for Flintshire, that it saw no necessity for a local supervising authority to supply practising midwives with books of detachable pulse and

temperature charts, in addition to the ante-natal record book, approved by the Board, which contains pulse and temperature charts. The terms of the following resolution, which was passed at the annual conference of the National Council of Women of Great Britain at a meeting in Edinburgh last month, were noted by the Board:

"That, in view of the serious rate of maternal mortality and morbidity, it is desirable that more practical experience should be required of medical students and pupil midwives during their training in midwifery, and that additional post-graduate courses should be arranged for doctors and midwives practising midwifery, and all possible encouragement should be given to them to attend such courses periodically."

Approval as lecturer was granted to Dr. Beatrice Turner, Elizabeth Garrett Anderson Hospital, and Mr. Richard Glyn Maliphant was appointed examiner at the Bristol centre in succession to the late Dr. B. K. Tenison Collins. The new form of advisory memorandum, as to the drugs which may properly be carried and administered by midwives, was approved. The report on the work of the Board for the year ended March 31st, 1934, was approved as amended.

Reports of Societies

SHORT-WAVE THERAPY

A discussion on short-wave therapy took place in the Section of Physical Medicine of the Royal Society of Medicine on November 16th, Dr. J. B. BURT presiding.

Dr. W. J. TURRELL discussed the principles which govern short-wave therapy. The fundamental action of all electro-magnetic vibrations, he said, was that of a blow or impact. One of the results of the impact was the conversion of the arrested kinetic energy into heat. When diathermy was first introduced it was supposed that its results were to be attributed entirely to thermal effects, but d'Arsonval had established the fact that when administering high-frequency currents two types were dealt with—namely, currents of capacity and currents of conduction. With the former a dynamic, disruptive, or pounding action must be more in evidence than in currents which flowed freely through a good conducting medium. When high-frequency currents were applied to the human body they encountered resistance of skin and subcutaneous tissues. If these tissues were well bathed in the highly conducting fluids of the body the current would be one of conduction, but there was also set up a dispersive or disruptive action, varying in degree with the shortness of the wave-length, the energy applied, and the viscosity and dielectric hysteresis of the tissues concerned. A most noticeable feature in short-wave therapy was the very slight appreciation of heat during administration. In this way burns were more likely to occur than in diathermy, because the patient at the time did not experience heat sensation. The "burns" differed from the true heat burn of diathermy, being far more painful, owing to the induration of surrounding tissues; he had himself seen only two, but they were not uncommon. Redness of the skin following diathermy quickly disappeared, but that following short-wave therapy persisted for some time. The first was a vasodilator effect produced by heat, the second an extravasation effect caused by the pounding effects in the skin area. Surprisingly quick results were obtained by short-wave therapy; he had certainly not observed such immediate results in any form of physical treatment. Perhaps the most striking were obtained in certain varicose conditions which had shown prolonged resistance to other forms of treatment. He had successfully treated two cases of boils, and he thought short waves might be useful in some skin diseases, notably psoriasis.

Dr. A. EIDINOW related experiments to determine whether there were marked differences between the biological action of diathermy currents of above 300 metres in length and that of the ultra-short high-frequency

currents emitting wave-lengths as low as 1.9 metres. The final physiological action of high-frequency currents was heat, but it was claimed by many that, apart from heating effects, ultra-short waves had specific action on certain tissue cells and on bacteria. In his experiments he had studied the effects of ultra-short waves of 4.5 and 3.4 metres on bacteria and blood as tested on the living animal, *in vivo* and *in vitro*, and he had been unable to demonstrate any bactericidal action whatsoever with these wave-lengths provided the tissues were effectively cooled. Experiments carried out by the exposure of a suspension of living bacteria mixed with defibrinated blood had in all cases failed to demonstrate any direct bactericidal action or any change in virulence of bacteria or bactericidal property of leucocytes. The effect of ultra-short waves could be adequately explained by heat effect, varying from a temporary dilatation of the blood capillaries to massive necrosis of the tissues. There seemed to be no other biological effect.

Dr. JUSTINA WILSON said that she had used short and ultra-short waves now for about nine months. It was the character and function of the capacity current not to excite the skin and subcutaneous tissues, but to go right through all the tissues down to the depths. This was not a case of bombardment, and there was no disruption of atoms; it was a vibratory effect. She had given 500 or 600 treatments in hospital and private practice, and never had seen or heard of a burn. If a few simple precautions were taken burns were not likely to occur. So far as the heating effect went the resistance of the tissues no longer played a part in short-wave therapy as it did in diathermy. But the outstanding difference was the peculiar way in which the ultra-short waves acted on acute infective conditions and conditions of suppuration. She had found great advantage in the Pandora type of apparatus with very high energy output and continuously changeable wave-lengths of from 7 to 3 metres. The spark-gap apparatus gave insufficient power for dealing with wave-lengths of this order. Extremely good general treatment to the whole body could be given, however, with a spark machine and 15-metre wave-length—far better than general treatment with diathermy. She begged that the profession would take up this new therapy, encouraging the making in England of adequate machines, both in quality and in range; otherwise it would get into the hands of the quack.

Dr. J. H. DOUGLAS WEBSTER thought that Dr. Wilson's condemnation of the spark-gap method was premature. Having had six months' experience with a spark-gap apparatus he was able to say that certain types of cases benefited. These included fibrositis, headache and neck-ache (due, perhaps, to wind on the back of the neck when motoring), sciatica, lumbago, bladder irritability, and also, as he had stated in a letter to the *British Medical Journal* of November 10th (p. 882), those distressing colds which began with fever and depression and pain in the trachea.

Dr. MAY of Freiburg (who did not care to trust his English, and was "interpreted" by Sir Robert Stanton Woods) said that in his clinical experience of this method, which extended over four years, he had found a very pronounced depth effect depending on the wave-length, and this was even more pronounced than any surface effect. With regard to Dr. Eidinow's experimental work on bacteria, his criticism was that there had been a very arbitrary choice of wave-length (3.5 to 4.5 metres). His own experience went to show that there was not only a diathermic or heating effect, but also a specific effect.

Dr. KERR RUSSELL stated that he had given a large number of ultra-short-wave treatments. The technique was most important in such conditions as sinusitis, of which he had treated eleven cases with very good results. He had seen two burns, but in both instances he was aware of the slight mishap—such as accidental contact with the cables—which had caused them. He had treated twelve cases of boils, also with good results, and six dental abscess cases which had not shown a favourable response to diathermy, but had done well with ultra-short-wave treatment.

Dr. TURRELL and Dr. EIDINOW briefly replied, the former urging that the idea should not get about that burns could not happen: the absence or slightness of the sensation of heat experienced at the time made the treatment deceptive in this respect.

RADIOLOGICAL DIAGNOSIS OF GASTRO-INTESTINAL CONDITIONS

At a meeting of the Section of Radiology of the Royal Society of Medicine on November 16th, with Dr. F. HERNAMAN-JOHNSON in the chair, a lecture was delivered by Dr. B. R. KIRKLIN of the Mayo Clinic on "Problems of Diagnosis and their Solution by Radiological Examination of the Digestive Tract."

Dr. Kirklin began by saying that in the United States the medical profession had sought to impress the public, by broadcasting and otherwise, with the need for seeking medical counsel concerning all symptoms, however trivial, in order that malignant growths might be discovered at a time when there was a chance of cure. Speaking as a radiologist, he claimed that it was only by *x* rays, that the earliest cancerous growths of the alimentary canal could be found. Similar considerations applied to certain non-malignant growths, which could be treated with greater success early than late. He dealt in turn with some symptoms or signs which called for a thorough radiological examination of the alimentary canal. The first of these was haemorrhage, which was an urgent indication for radiological investigation. Here peptic ulcer was so often the cause that it might be the only condition considered by the clinician, but, as he showed by a series of cases, other conditions, such as a small growth in the oesophagus, might give rise to similar haemorrhage. Unless radiological examination was so carried out as to permit direct frontal inspection, small lesions of the stomach would certainly escape observation. It had always been his practice to make a complete study of the mucosal pattern after the first swallowings of barium. Bleeding from the rectum called for careful examination of the colon. In one such case by the double-contrast method—that is, insufflation of air following barium enema—a very definite polypoid growth was located at the juncture of the descending colon and the sigmoid, and proved to be a low-grade adenocarcinoma.

One of the most perplexing signs was anaemia when not accompanied by other manifestations. To discover its origin often entailed laborious investigation. In every case of unexplained or simple idiopathic anaemia a radiological study of the gastro-intestinal tract should be made. He described the case of a man of 54 whose blood picture was quite typical of pernicious anaemia, but because of the routine employed in these cases the stomach was examined, and on the posterior wall, very near the greater curvature, two very definite adenomatous polyps were discovered, which proved to be of low-grade malignancy, and the removal of which cleared up the condition. In another case, where some anaemia seemed to be the only sign, it was elicited that there was slight bleeding from the rectum. By the usual barium method nothing abnormal was visible, but the double-contrast method revealed a small, round, pedunculated polyp, which proved to be a benign lesion of the colon. With the double-contrast method it was very important to make stereoscopic films, because only in that way could these shallow defects be differentiated from the contents of the bowel. Loss of weight without any other objective manifestations of ill-health was sometimes regarded lightly by the patient, but few physicians would underestimate the gravity of the sign. It might seem illogical to give consideration to cancer of the stomach or colon in such a connexion, but actual cases proved that that was not so. The onset was insidious, and radiological examination should be among the first tests applied. In one woman who had lost twenty-four pounds in three months radiological examination showed a rather large ulcerating carcinoma in which the only symptom was loss of weight; there was an ulcerating carcinoma involving the distal half of

the lesser curvature of the stomach of a rather high degree of malignancy. Recurring vomiting without obvious cause was such an emphatic reason for radiological examination that there was no need to labour the subject, but nausea, especially when slight, was not an impressive symptom, yet it might be the sole indication of a serious condition of the stomach. In one patient with persistent nausea a very small lesion was discovered on the lesser curvature, the radiological picture including the typical meniscus sign, which was quite indicative of an ulcerating carcinoma of the stomach. On exploration a perforating lesion was found.

In patients with epigastric pain after taking food one would, of course, suspect the presence of a peptic ulcer. It was not always easy to distinguish between gastric and duodenal ulcer and between benign and malignant ulcer, and here the radiologist could be of service. In duodenal ulcer a deformity of the duodenal bulb, if constant, was characteristic. Another type of duodenal ulcer which might be overlooked was one that revealed itself under barium meal examination, when, after the barium had been pressed out, a very definite flake remained behind. This meant that there was a crater ulcer without deformity of the duodenal bulb. Workers at the Mayo Clinic now thought that in a certain group of cases they could recognize duodenitis, and differentiate it from simple duodenal ulcer. If there was a transient deformity of the duodenum, the deformity not being constant in character, and the duodenum was very irritable and spastic, the barium rushing through, and, in addition, if there was a rather fine reticular network of mucosal pattern, it was felt to be a very definite radiological picture of duodenitis. The criteria for differential diagnosis between benign and malignant ulcers of the stomach on *x*-ray examination were as follows:

Benign	Malignant
Niche usually less than 2 cm. in diameter.	Niche exceeding 2.5 cm. in diameter strongly suggests malignancy.
Niche regularly hemispherical; dense; margins sharply defined.	Niche often conical or irregular; faint; margins poorly defined.
Ulcers on lesser curvature, not over pylorus.	Ulcers on greater curvature almost invariably malignant; ulcers on posterior wall likely to be malignant; ulcers near pylorus open to suspicion.
Gastric peristalsis likely to be active.	Peristalsis often diminished or absent.
Spastic manifestations common; narrowing of antrum; hour-glass contraction.	Spastic manifestations rare.
Rugae commonly accentuated and converging towards niche.	Rugae adjacent to niche often faintly marked or effaced.
Pylorus spastic.	Pylorus gaping.
Localized tenderness over ulcer.	Ulcer seldom tender to pressure.

Dr. Kirklin went on to describe one of his errors, which had taught him much. The case was that of a middle-aged woman with a history of cholecystitis. In the course of gastric examination a definite annular defect was found radiologically. He made a diagnosis of annular carcinoma of the stomach, and because of that diagnosis and gall-stones it was thought advisable to operate. Much to his chagrin no carcinoma was discovered, but the surgeon found a definite smooth mass, which he thought was a simple hypertrophy of the pyloric muscle. In an endeavour to differentiate these conditions radiograms in a series of pyloric hypertrophies were examined, and it was found that a true case of pyloric hypertrophy had two distinctive features: (1) a slight invagination of the bulbar base, which was thus rendered concave, so that the shape of the bulb resembled that of a mushroom; and (2) a distinct cleft in the inferior border of the elongated canal, at about its middle, the anatomical basis of which had recently been established by the work of Twining of Manchester. On the basis of at least one of these two signs in combination with prepyloric canalization it had been possible to make a diagnosis in several cases. He dealt also with cases following constipation and diarrhoea calling urgently for radiological investigation of the colon; the shortness of the history here might be important. Again, cases with only indefinite peri-abdominal symptoms

sometimes showed on radiological investigation a perforating lesion on the greater curvature which appeared, radiologically at least, to be malignant. The smallest malignancy he had ever had the opportunity of recognizing was an ulcerating carcinoma 1 cm. in diameter in a man who came with quite indefinite symptoms of occasional "indigestion." In conclusion, Dr. Kirklin said that he did not wish to leave the impression that the signals he had described invariably denoted organic disease, or that x rays would invariably find it. Often the stomach sent out an alarm when the "fire" was elsewhere. If the clinician availed himself freely of radiological help he must expect to receive many negative reports; but if the findings were interpreted competently x rays gave worthy assistance.

The brief discussion, in which Professor A. E. BARCLAY, Dr. R. S. PATERSON, Dr. H. K. GRAHAM-HODGSON, Dr. G. VILVANDRE, and Dr. J. E. A. LYNHAM took part, chiefly consisted of complimentary remarks addressed to the lecturer. In response to a request to describe the technique, Dr. KIRKLIN said that the first and most important principle in colon work, whether using the ordinary barium enema alone or with air in addition, was the adequate preparation of the colon. No one would think of examining the stomach while it contained an ordinary meal, and it was just as important to make no attempt to examine the colon while it contained faeces or fluid. The most efficient method was to give the patient 2 oz. of castor oil. This was insisted upon at the Mayo Clinic, where they refused to make the radiological examination without it. A warm, normal saline enema was given next morning, and repeated flushing took place until the solution returned clear. Only then, when the colon was perfectly collapsed, was the condition considered satisfactory for examination. The barium enema was then given, and the patient was instructed to evacuate it, which as a rule he could not do completely. When he returned after such evacuation air was injected under fluoroscopic control. On such injection the patient probably again had the desire to defaecate, when he would most likely eliminate all the barium. This was repeated until the colon was completely free. The air method was not carried out as a routine procedure, but it was done in all cases of bleeding from the rectum if the other methods were negative. This examination was not as laborious as it sounded, and, on the average, when one had become accustomed to the technique, a patient could be examined in from fifteen to thirty minutes.

PSYCHOLOGY AND RELIGION

At the meeting of the Section of Psychiatry of the Royal Society of Medicine on November 13th, Dr. DAVID FORSYTH delivered his presidential address on "Psychology and Religion."

Dr. Forsyth said that modern psychology was in the best position to help in the conflict between religion and science. The light it had to throw on religion, however, did not at all serve to reconcile it to science, but rather showed more plainly than ever the incompatibility of the two. Freud had early pointed out the remarkable likeness between certain religious practices and obsessional neurosis, and had traced many sacramental rites to a common origin. Conscience had been found to take shape only about the sixth or seventh year of life, and to be based entirely on parental injunctions and prohibitions. Nor was the idea of God ever found in early childhood. A child's feeling for its father would decide the nature of its first feelings for God. The attributes that grown-ups customarily attached to God were those which had previously been experienced in the father. Children developed along one of two lines: those who gradually established their self-dependence outgrew the theistic stage, while others maintained throughout life dependence on a heavenly father. The latter line was, psychologically, a partial failure to mature. The sense of guilt and shame was also first experienced about the seventh year, arising from conflict between the child's in-

clination and the parent's wishes. There seemed to be a relation between the vast stores of guilty feeling finding daily expression in religion and the corresponding huge amount of misunderstanding and mishandling of children whereby their animal biological tendencies were checked and damaged. The less a child's guilt and shame were appealed to, the better its chance of growing up happy.

Prayer was one of the many ways of expressing a wish, and by invoking a greater authority it revealed itself as a survival of infantile dependence on a parent. The frame of mind favoured by the devout of every religion for prayer and worship seemed indistinguishable from the emotional state of auto-suggestion. Psychology had found no further evidence for the existence of a soul, but had observed that the idea arose from the implicit belief of savages in the reality of their dreams. It suggested the interesting possibility that the religious mind was essentially the child mind, incapable of discriminating reality from imagination. The reason for the almost universal belief in immortality needed accounting for, and, indeed, the idea was found also in modern science. It was as if the biological fact of immortality had come all the way through to psychological expression as a religious belief. A general relation between sexuality and religion was evident. Conversion, for example, was essentially a phenomenon of adolescence, and psychologically was no other than the new strong tide of sexual feeling being deflected into religion. The check to its usual course was the outcome of undue strictness in earlier training.

The almost universal human need to approach God through some intermediary was at first sight a strange one. Its psychological explanation was to be found in the common awe and fear of the father felt by the small boy, who preferred to go to his mother and ask her to intercede for him. Sadism was easily recognizable in religious persecution and spread of the faith by sword. Masochism was exhibited in the widespread habit of self-denial, penance, mortification, and martyrdom. The teaching of Mahomet was essentially sadistic, and that of Christ essentially masochistic. In the early days of Christianity Europe had been governed by violence, the rulers being sadism personified. Christianity had always been imposed from without and above, it being well in the interest of the rulers that their subjects should embrace such a submissive religion. At the same time Christianity eased the sufferings of the oppressed. History had no record of a time when the aggressive few were not ruling the submissive many, and Christianity had become a political force to help them.

In the concern of religion with the supernatural lay the cause of perhaps the deepest cleavage between religion and science. Infants became very familiar with what was going on in their psychic world while they were still learning their first lessons about the real world. For a time, therefore, they could only regard the psychic world as real and the outer world as part of it. Later they began to recognize the differences and the existence of two kinds of truth—psychic truth and objective truth. Infants were entirely, and children largely, incapable of discriminating between the two. At one moment a mental image took shape, and was seen as if it were outside the child; at another moment the real mother disappeared through a doorway or behind a screen. Apparition or corporeal form dissolved equally suddenly, completely, and inexplicably. The spiritual world was recognized by psychologists as another product of the fantasy-making function of the mind, which existed in all normal people, was more noticeable in neurotics, and was most marked in the insane. The whole world-wide mysterious business of gods and their worship was an example of projection on a colossal scale. The Christian Church had vigorously defended miracles against the criticism of science; this was understandable when it was remembered that in the realm of psychic reality natural law did not operate, but the miraculous was happening daily, hourly, and momentarily. The more this imaginative faculty was cultivated by the religious-minded the more familiar they must become with miraculous events. The vitalists among the scientists were mechanists as far as established science

went, and reserved their vitalistic views for unsolved problems. Their scientific sense ceased to work when confronted with the unknown. The probable explanation for such a failure of mental function was that fear had paralysed it. Fear of the unknown was one of the commonest terrors of childhood. Psychic truth, then, was an expression of the pleasure principle, and objective truth of the reality principle. Magic, religion, and science were three expressions of normal psychological activity, magic and religion appearing earlier in children, and being deeper and more primitive. Of the two, psychic truth was the more primitive, and expressed the deepest needs of the individual, and objective truth was the more highly acquired and best served in subduing the forces of nature in the interests of the individual. Neither could be disregarded, and the strife between them could not cease until both were directed to a common end. There was an antagonism between them amounting to incompatibility, and modern civilization must take its choice. Only a fraction of the total human energy available for social enterprise was being used in the service of science; very much of it was still running to waste in the interests of religion. The need was to cease pleasure-thinking, and use it in advancing science. In this way psychic and objective truth would be directed to a common end. Science alone could not satisfy.

MEDICAL LICENSING AND TEACHING IN THE PROVINCES

At the meeting of the Manchester Medical Society held on November 7th Professor J. A. NIXON of Bristol read a paper entitled "Licence to Practise and Liberty to Teach in the English Provinces."

Giving a brief description of monastic medical teaching at Monte Casino, a Benedictine monastery founded in A.D. 543, and the Arabian School of Medicine at Salerno, Professor Nixon said that organized teaching dated from the eleventh century in England, at a time when the craft guilds originated in this country and the barber-surgeons instructed their apprentices. This system of pupilage obtained for general practitioners from the twelfth century up to 1880, and for a time there existed, side by side with it, monastic medical teaching with hospital practice such as was founded in the Priory of St. Bartholomew in London. The Universities of Oxford and Cambridge, which were well established by 1209, when 300 students and professors withdrew from Oxford to Cambridge, taught medicine without hospital practice, as was the case in all universities until the foundation of the Edinburgh Infirmary in 1729. In 1363 an Act of Edward III compelled all surgeons to belong to one of the guilds (not necessarily the Barbers or the Barber-Surgeons) if they wished to practise in a town where the gild system prevailed. In 1421 medical practice was first regulated, and Henry V directed that no one should practise in physic unless approved by a university, and surgery by the Masters in that Art. In 1506 James IV of Scotland made anatomical instruction compulsory for surgeons and barbers in Edinburgh. After this time demonstrations in anatomy were the rule in the Barber-Surgeons' Companies all over England. In 1511 episcopal licences were introduced, whereby the bishops or their vicars-general examined medical practitioners, and, being satisfied of their proficiency, and in some instances of their orthodoxy, licensed them to practise. There was a singular example in 1524 of a licence granted by Thomas Cromwell, permitting "Roger Smyth, Citizen and Grocer in London, to practise physic and surgery in any part of the realm." The lecturer was at a loss to explain in what category this licence fell. In 1536 the monasteries were suppressed, and with the suppression hospital practice disappeared. During the sixteenth and seventeenth centuries the educational system was that of apprenticeship to barber-surgeons, or, in some instances, to apothecaries, for the Apothecaries' Society of London had been founded in 1617. This system consisted of apprenticeship to established practitioners, supplemented by gild lectures and demonstrations of anatomy in towns where guilds existed, but without hospital practice.

The reign of Charles II saw many radical changes. In 1662 the Royal Society was founded, and scientific study began to arouse some interest. But alongside of this birth of scientific study there were to be found instances of licences granted to mountebanks to vend medicines and practise medicine and surgery in any city, town, or borough in the kingdom. By the end of Charles II's reign the opposition to the sale of monopolies was so great that all action which could be construed as restraint of trade was held to be contrary to the public interest. Among other monopolies licensed medical practice was condemned, and anarchy prevailed. The guilds were forced to return their Charters in 1683. Thus, soon after the beginning of the eighteenth century, the Barber-Surgeons' and Surgeons' Companies ceased to attract candidates for admission. Their monopoly of practice was gone, and with it the value of their licences. The period of their demise fortunately coincided with a new impulse to found hospitals. The Restoration had meant a revival of commerce, the thinkers of the nation turned their attention to science, and both commerce and science reacted on religion. The Edict of Nantes, 1685, caused exiles from France to swarm into England and all Protestant countries. They brought with them treasures of character, as well as skill in new crafts and industries. This religious and intellectual revival was responsible for the foundation of hospitals all over the country, of which the first was St. Peter's in Bristol, founded by the Corporation of the Poor in 1696. This was not, strictly speaking, a charity hospital, although many voluntary contributions of money were given for its foundation, and Dr. Thomas Dover gave his professional services gratuitously. The foundation of many other charity hospitals followed in quick succession: 1710, York; 1719, Westminster; 1737, Bristol; 1753, Manchester. Among the promoters of these hospitals were many medical men ready to give their professional services gratuitously. From the earliest days surgeons were allowed to bring their apprentices to assist them and to receive money for teaching their pupils. This right to teach pupils at the hospitals gave such surgeons an advantage over private practitioners unconnected with any hospital. Henceforth apprentices were rarely satisfied with instruction in private practice alone. Without any force of legislation all medical students who were able "walked the hospitals," either in the capitals or in the provinces. These medical students were not as a rule the illiterate men of low social standing depicted by the novelists. The records show that they were frequently sons of gentlemen of good position, and the standard as to social position of the pupils and officials at the Bristol Infirmary was very high. Whilst opportunities for hospital study were increasing the Government made scarcely any attempt to see that medical practitioners were qualified to practise. The guilds had lost their authority. The bishops' licence was no longer required. The areas of jurisdiction of the colleges in the capitals were very restricted. Apparently the slave trade called for closer supervision of shipsurgeons, and the professional standing of many of the "African" surgeons was exceedingly high—notably, Falconbridge, whose evidence was one of the powerful factors in bringing about the abolition of the slave trade. An Act passed in 1789 required surgeons on the "African" ships to produce certificates of having passed an examination at Surgeons' Hall in London, or at the College of Surgeons of Edinburgh or Dublin, or at "some public or county hospital." Under this Act the surgeons of the Liverpool Infirmary met once a month regularly between 1789 and 1807, examining 634 candidates and passing rather less than 500. The lecturer could not discover records of any other public or county hospital exercising this right. There seemed to have been very little attempt made to license private medical practitioners. The qualification of a doctor was ability to get patients. There were obvious advantages in having studied in recognized hospitals under competent teachers, and very shortly after the revival of hospitals the hospital surgeons began to form private medical schools, where anatomy was taught regularly. There was keen competition to form these schools in the great provincial cities such as Manchester, where schools of medicine or anatomy were started.

In 1809 the Royal College of Surgeons in London was granted its Charter, and aimed at obtaining a monopoly for teaching and licensing all surgeons in the realm. It was given practically no compulsory powers, and unlicensed practice flourished unchecked. The licence of the College was optional, but the numerous independent schools quarrelled for recognition and the right to prepare candidates for examination by the College. In addition to the practitioners licensed by the Royal College of Surgeons there were many general practitioners apprenticed under the Society of Apothecaries. The apothecaries could take no fees for attendance, but could charge for their medicines. At length the Apothecaries, in 1815, obtained an Act of Parliament enabling them to hold an examination for all England and to prosecute unqualified apothecaries. The provincial medical schools then began to claim recognition to prepare candidates for the Apothecaries' examination and licence. The College of Surgeons refused to recognize the provincial hospitals as complete clinical schools, and insisted that all candidates for its examination should spend some time "walking" a London hospital. The idea of the College was to make all candidates come to London, and its opposition to the claims of the provincial medical schools was unrelenting. But the London surgeons reckoned without the Apothecaries and the powers conferred on them by the Act of 1815. In 1821 Jordan's lectures in Manchester were recognized, and the barrier against provincial teaching was broken down. The College, faced with the prospect of provincial candidates ignoring its licence and preferring that of the Apothecaries, was driven to surrender to Manchester in 1834. The open-mindedness of the Apothecaries' Society had established once and for all the provincial medical schools, but its influence was going to be once more exerted in an unexpected way. When the *Register*, set up by the 1858 Act, was opened a woman doctor, Miss Elizabeth Blackwell, made successful application to be entered on the *English Register* by virtue of her American medical degree (M.D. Geneva). This did not open the door for other women practitioners unless they could secure a medical education and a licence from some British authority. Miss Elizabeth Garrett (Anderson), having applied without success to the other examining and licensing bodies, was in 1862 admitted to the examinations of the Apothecaries' Society, and eventually obtained its licence to practise, which entitled her to be placed on the *Medical Register*. The provincial schools owed their whole existence to that society, whilst it should also be held in high esteem for throwing open the medical profession to women. In 1880 the Victoria University was the first in the provinces to receive its Charter. By a natural corollary the right to confer medical degrees was shortly (in 1883) granted to that university in Manchester. The year 1880 saw also the abolition of medical apprenticeship.

By slow degrees the responsibility for teaching and the right to license tended to be controlled by the same educational authority. The licensing corporations with no responsibility for teaching had come to the end of their useful existence. They did not now contribute in any way to the progress of medical education. But there was an increasing danger that they might multiply the issue of diplomas in special subjects in which they offered no instruction. This tendency should be very closely watched and discouraged. If specialist diplomas were necessary it was essential that they should only be issued by corporations which accepted responsibility for giving instruction. Some of these diplomas were issued by universities which could offer facilities for study in particular branches of medicine. Such courses of study might well be encouraged. On the other hand, there were others issued by what must be designated as educationally irresponsible bodies. The time had come, in Professor Nixon's view, for irrevocably combining the licence to practise with the liberty to teach. The privilege of educating recruits to our profession was more important than the responsibility for examining and licensing.

The address concluded with a quotation from a sermon by Dr. Dell, who was Cromwell's chaplain, and was intruded at the Commonwealth as Master of Gonville and Caius College. He was the first to suggest that there

might be other universities than those of Oxford and Cambridge. "Doubtless it would be more suitable and more advantageous, to the good of all the people, to have universities or colleges, one at least in every great town or city in the nation, as in London, York, Bristol, Exeter, Norwich, and the like. . . ."

THE ALLERGIC STATE

At a meeting of the Pathological Society of Manchester on November 14th Professor O. C. W. PRÄUSNITZ discussed "Idiosyncrasy."

Dr. Präusnitz said that case-histories of urticaria, asthma, and digestive hypersensitivity demonstrated the general uniformity of the chief symptoms, which, no matter what the exciting cause, were fairly independent of the particular tissue affected. This was well illustrated by researches on hay fever. The fundamental work was carried out by Blackley of Manchester, who, himself a hay fever patient, in 1873 described the characteristic features of the malady and cleared up its aetiology; he also found the way to prevent the onset of the attacks. Dunbar and Präusnitz studied the aetiological agent of the disease, and prepared an antiserum, which was shown to act not as an antitoxin, but as a kind of cytolytic. Comparison of this and kindred diseases with anaphylaxis had led the speaker to demonstrate in the serum of hypersensitive patients a substance which transmitted the sensitive condition to normal persons. The chief feature of the test—the Präusnitz-Küstner test—was to inject intradermally 0.1 c.cm. of the patient's serum into a normal subject, and to inject into the same spot on the following day 0.1 c.cm. of a suitable dilution of the causative agent. A local urticarial reaction developed: there was no danger of general sensitization to the person subject to the test. This method was applicable to many forms of hypersensitivity. The aetiology of hypersensitivity was twofold. (1) The attacks were brought on, probably in every case, by a specific agent. The specific antibodies in the patient sensitive to this agent would liberate from it some decomposition product, perhaps Oriel's P-substance, which caused the lesions. (2) The liability of certain persons to produce such antibodies must depend on a constitutional factor, which in many cases was inherited. Treatment was directed against the agent by desensitization with the specific substance or non-specific substances—for example, peptone. General measures served to lower the vagal hyperexcitability present in most cases; this was sometimes achieved by the administration of calcium preparations.

COCCYGEAL SINUS

At a meeting of the Liverpool Medical Institution held on November 8th, with the president, Dr. J. MURRAY BLIGH, in the chair, Mr. J. B. OLDHAM read a short paper on "Coccygeal Sinus."

Mr. Oldham reported a series of twenty-three cases of coccygeal sinus seen since 1933, fourteen of which were in female patients. Twenty were infected when first seen. Of these nineteen were excised and the wound sutured, and primary union was obtained in all. Mr. Oldham considered that if primary union was to be obtained there must be asepsis or adequate antisepsis, avoidance of post-operative infection from the anus, complete haemostasis, avoidance of buried absorbable sutures and ligatures, obliteration of the cavity left after excising the sinus, and the use of an everting stitch that would overcome the tendency of the skin edges in this region to turn in. The patient was prepared as for haemorrhoids, and after the operation fluids only were given; in this way the bowels are kept unopened for six to eight days. A wide elliptical incision was made down to the sacro-coccygeal ligaments. Haemostasis was secured by *forcipressure* and hot packs. The cavity was obliterated by deep sutures—usually six—of silkworm, which passed through all the thickness of the tissues in the edge of the cavity

left after excision, and also took a bite of the ligaments in the dorsum of the sacrum. Mr. Oldham noted that in eighteen of his cases there were secondary sinuses, and of these fourteen opened on the left of the mid-line. In only one case had a correct diagnosis been made before the case was referred for consultation. This failure to make a correct diagnosis Mr. Oldham considered natural, as in only one of the standard English textbooks of surgery was coccygeal sinus even mentioned.

Spinal Tumours

Professor HENRY COHEN read a paper on "Hour-glass Tumours of the Spine." He said that in a series of fifty cases of compression paraplegia due to tumours of the spinal canal he had observed three cases of so-called hour-glass tumours which merited separate clinical description, because, despite their varied pathology, they displayed characteristic features which gave rise to special problems, both in diagnosis and in treatment. Professor Cohen confined his detailed records to those cases having extradural and intradural masses joined by a narrow pedicle passing through an enlarged intervertebral foramen. He emphasized that any level of the spine was a possible site for such a tumour which might arise from nervous, fascial, osseous, and other local tissues. These tumours displayed the usual symptomatology of spinal compression with corresponding changes in pressure and chemistry of cerebro-spinal fluid, but additional features which merited emphasis were: (1) the frequent and severe root pains which resulted from the situation of the tumour; (2) the presence in the cervical, and occasionally in the lumbar, region of a palpable mass; and (3) pain on movement of the spine, rigidity, etc., arising from the vertebral damage. The x-ray picture was in most cases typical, though commonly interpreted as tuberculous disease of the spine with secondary abscess formation. In order to prevent recurrence of the tumour, both intraspinal and extraspinal portions must be removed, the primary attack being on the intraspinal portion. In the discussion which followed, Dr. G. S. SWAN said that in a case under his care the first symptom was severe pain along the course of a nerve, which Professor Cohen had stressed as an important point in the differential diagnosis. For about six months before the onset of pressure symptoms the patient had severe "neuritis" of the left arm. Pressure symptoms arrived suddenly and affected the leg arm and leg. He was then seen by Professor Cohen, and later operated upon by Professor Kelly. Convalescence was uneventful, and, except for slight paresis of the left arm, relief of symptoms was complete. The patient had been at work at his old job as a labourer, carrying heavy loads, for over two years. He stated that he was quite well, and able to do the heaviest work. There was no trace of any paresis, and recovery seemed complete.

WILLETT'S FORCEPS IN PLACENTA PRAEVA

At a meeting of the North of England Obstetrical and Gynaecological Society held at Liverpool on October 26th, with the president, Professor DOUGAL (Manchester), in the chair, Mr. C. H. MARSHALL (Liverpool) read a note on "Willett's Forceps in Placenta Praevia."

Mr. Marshall said that this method was introduced in 1925 by the late J. Abernethy Willett. He considered that the simplest means of controlling bleeding in cases of placenta praevia was to puncture the membranes and make downward traction on the presenting vertex by means of Martel's scalp forceps, which had since been modified and called after him. The method involved minimal handling, and consequently less risk to the mother and a better chance for the baby. No large series of cases treated in this way had been reported, although the principle has been used sporadically in this country and elsewhere. At Liverpool Maternity Hospital between 1926 and 1931, 170 cases of placenta praevia were treated either conservatively or by podalic version or Caesarean section with fourteen maternal deaths (8.2 per cent.).

Less than 12 per cent. of the babies of the cases treated by version survived. In 1932, 1933, and the first ten months of 1934, 118 cases had been treated with four maternal deaths (3.4 per cent.); 50 per cent. of the babies of the cases treated by Willett's forceps survived. The use of Willett's forceps was introduced in 1932, and an increasing number of cases had been treated by it, with a corresponding decrease in the number of versions. The percentage of cases treated by Caesarean section in each year had remained about 20.

As regards the method of application, the lithotomy position was desirable but not essential. Anaesthesia was not used in a very anaemic patient; indeed, it was often omitted in multiparae. It was important to remove any clots present from the vaginal vault; this could be done simply by inserting a Sims's speculum along the posterior vaginal wall and then depressing the vulval end. An assistant fixed the head; two fingers were passed into the vagina, and one or both, according to its dilatation, through the cervix. A point was sought where only membranes intervened between the head and the examining finger: this was most likely to be in front, as the placenta was usually found on the posterior wall of the lower segment. The membrane hook was guided along the fingers and the membranes scratched through against the head. Without withdrawing the fingers, the forceps was similarly guided in, opened, pressed firmly against the scalp, and closed. The grip on the scalp was tested by traction, which should control any haemorrhage at once; before the fingers were withdrawn. A cord carrying a pound weight over a pulley at the foot of the bed was attached to the handles of the forceps. If anaesthesia had been used the tension should be controlled with the hand until vomiting had stopped. The forceps was removed when the head had descended completely into the pelvis.

In Willett's method anaesthesia might often be omitted; the manipulations were gentler, less blood was lost, and less liquor escaped than during a bipolar version. The disadvantages of a breech presentation, especially in a first pregnancy, were avoided. Version tended to be used in cases of complete placenta praevia, and this partly accounted for the high foetal mortality. If a de Ribes bag could be inserted easily the forceps could be applied still more easily, and with better results.

Vaginal packing was a bad method, owing to the high incidence of sepsis. It was generally used if the os was closed or nearly so; if there was, as there almost always was, room for one finger and the forceps to pass through the os, the forceps might be applied. When the forceps was applied against the most accessible part of the head and the jaws were closed, a ridge of scalp was raised. If traction was now applied a wider area of scalp was drawn out in the form of a cone, the apex of which was drawn into the internal os; in this way pressure was made on the bleeding surface and haemorrhage at once checked.

In connexion with the indications for its use, Mr. Marshall said that the vertex must be presenting. If the breech was downwards, external cephalic version could be done and the forceps applied, but this was not recommended; it was simpler to bring down a leg. With a transverse lie it was probable that the placenta praevia was complete. With a complete placenta praevia, owing to the profuse haemorrhage which might accompany any vaginal procedure, the mother's interests were often best served by Caesarean section. In an emergency it was probably easier to burrow with the fingers through the placenta and grasp a foot than to apply the forceps to the scalp of a head which was difficult to fix and perhaps even to bring to the middle line. In disproportion, which was seldom met with in these cases, owing to the frequency of prematurity, Willett's forceps was contraindicated. Rarely, the forceps lost its grip and came off before fulfilling its purpose, and this necessitated reapplication or some other form of treatment. It occurred most commonly if the scalp became macerated. On applying the forceps it was important to ensure that the amount of scalp grasped had completely and evenly filled the

of the instrument. Other disappointments were usually due to factors common to all methods of vaginal delivery in this condition; not infrequently the foetus died *in utero*.

In conclusion, the speaker summarized his observations as follows: (1) Traction on the scalp perfectly fulfilled the greatest of its aims—the control of haemorrhage. (2) Fewer mothers would die and more babies would survive if this method were more widely used. (3) The method was simple and could be more easily carried out than bipolar version. (4) No attempt was made to compare it with Caesarean section, which had its own special sphere of usefulness in the treatment of this condition.

Other Matters

Mr. J. ST. GEORGE WILSON (Liverpool) read a note on "The Aschheim-Zondek Reaction in Genital Tuberculosis." He concluded that this test was commonly positive in association with tuberculous salpingo-oöphoritis; that the presence of a positive Aschheim-Zondek test associated with amenorrhoea when pregnancy could be excluded was suggestive of tuberculosis; and that the presence of a modified Aschheim-Zondek test might indicate healing or retrogression of genital tuberculosis, especially if it had been previously positive. Mr. P. MALPAS (Liverpool) described a case of hypersexuality associated with cystic ovaries treated by partial ovariectomy. Dr. J. W. BRIDE (Manchester) described a case of adenocarcinoma of the corpus uteri associated with squamous carcinoma of the vagina. Dr. C. H. WALSH (Liverpool) described a case of actinomycosis of the ovary, and showed a specimen of tubal chorion epithelioma.

CORRESPONDENCE

Elections to G.M.C.

SIR,—May I have the courtesy of your columns to express my thanks to the registered medical practitioners of Scotland for the renewal of their confidence in their direct representative on the General Medical Council.—I am, etc.,

Edinburgh, Nov. 15th.

NORMAN WALKER.

Bacteriological Examination of Milk

SIR,—Dr. J. B. Howell, medical officer of health for Hammersmith, has drawn attention, in the *Journal* of November 10th (p. 882), to the great variation in the laboratory reports he has received on samples of milk submitted for bacteriological examination. I am sure he has not overstated the difficulties, administrative and otherwise, of the present situation.

It may interest your readers to learn that three years ago, with the aid of grants from the Empire Marketing Board and from the Ministry of Health, an investigation was commenced in this school into the technique of the bacteriological examination of milk. Professor G. S. Wilson has been in charge of the work, and has had the advice of a strong consultative committee, consisting of members appointed by the Ministry of Health, the Ministry of Agriculture and Fisheries, the Department of Health for Scotland, the National Institute for Research in Dairying, the Society of Medical Officers of Health, and the London School of Hygiene and Tropical Medicine. It is expected that a full report on the results of the investigation will be published about the middle of next year.—I am, etc.,

London School of Hygiene and
Tropical Medicine, Nov. 13th.

W. W. JAMESON.

London University and its Medical Schools

SIR,—As a member of the Court and of the Senate of the University of London I have been impressed by the very small proportion of students studying at London medical schools for a London degree who actually complete their course and proceed to a degree. That this ratio is indeed glaringly small will be evident when I mention that in one recent instance a medical school reported in a certain year thirty-three students as following courses for the London medical degree, but only one actually graduated. When we consider the very large sum—over £100,000 for the current year—which the Court of the University distributes as grants to the medical schools of London such a result cannot fail to be disappointing.

It has been explained in various ways at interviews which the Court has held with the medical schools; the principal reason given has been that owing to economic stress students have been obliged to enter practice with lower qualifications than the degree, and have been unable to wait to take the degree itself. They have thus wasted, as regards any university recognition, several years of education of the highest university standard, and their position is all the more galling as London University students at the medical schools meet with large numbers of students who come for their clinical training from the older universities to the medical schools. These students come to London with a degree (usually B.A.), from their university as a result of three years' study in medical sciences, whereas the London University student, after three years' equivalent study, achieves only the second M.B. examination, which is of an intermediate and not a degree status, although the subjects and the level of attainment in them are entirely comparable with those which qualify for a B.A. degree at the older universities. Statistics supplied by the schools demonstrate that the majority of students entering for the London degree pass the second M.B. but are unable to stay the course for the third examination. The London University student is thus obviously handicapped as compared with his fellow-student from the older universities. This is a grievance of old standing, and I submit that the time has come to rectify it in the interests both of the students themselves and of the University, which is deprived of large numbers of students who by the standards of the older universities would have taken a degree. This would be an advantage to the student, even though he failed subsequently to achieve the qualifying examination of M.B., B.S., and the reform would incidentally remove the reproach that the London medical schools produce very few actual graduates of London University.

The remedy I propose is that the Senate should institute a new degree in the Faculty of Medicine, which might have the name of "Bachelor of Medical Sciences," attainable after a three years' course of study. This name is suggested to me by my recollection of the effort made some thirty years ago to found an "Institute of Medical Sciences," which would have covered all the subjects leading to the second M.B. examination, but the name adopted is a secondary consideration so long as it involves a degree. This degree would be a degree in the Faculty of Medicine as the Bachelor of Pharmacy now is. It would take the place of the present second M.B. examination, and would, of course, not be a registrable qualification to practise medicine. To give this degree a standing comparable with the other degrees of the University the standards of the first and second M.B. examination would, where necessary, have to be raised to the level of the intermediate and final examinations in other faculties. Such an adjustment would not be difficult, and the

stiffening of the earlier examinations would not in the long run hurt the student, who would find out his weakness before wasting time upon a hopeless task.

I submit this proposition for consideration by the teachers in medical schools of the University, who are primarily interested in the matter, and this letter is written in the hope of eliciting their views.—I am, etc.,

House of Commons, Nov. 16th.

E. GRAHAM-LITTLE.

A Plea for Abolition of the Pelvimeter

SIR,—One of the chief aims of ante-natal examination is to estimate the size of the pelvis, in order to prevent the risk of difficult labour due to disproportion between the size of the head and the capacity of the pelvis. This is done chiefly by a system of external measurements which might, at first sight, be assumed to provide an idea of the absolute size of the pelvis. I am going to suggest that reliance placed upon this method of diagnosis is liable to lead to a large amount of unnecessary inductions of labour and Caesarean sections, and is therefore not only useless but actually dangerous.

Let us ask ourselves a few questions:

1. Is it possible to obtain accurate and comparable readings of the measurements of the external bony points in the living subject? The bluntness of the bony points and the variable covering of fat make it impossible to be accurate within a quarter or even half an inch. Experienced people measuring the same pelvis will usually obtain different readings. A variation of half an inch in an external diameter is within the limits of error, and yet if that half-inch be transferred to an inference of the internal diameter it might seriously influence opinion on the diagnosis of contraction.

2. Do the external measurements, even supposing they can be accurately made, bear any useful relation to the size of the pelvic canal? If we are to infer that the size of the canal is reflected by external measurements sufficiently exact to be of clinical value, then the bony walls of the pelvis must be of substantially the same thickness in all women. But we know this is not true. Further, by external pelvimetry we infer that the distances between the iliac plates, as measured by the intercrural and interspinous diameters, must be closely associated with the size of the true pelvis, which again is not true. It is a common clinical experience that internal palpation of the pelvis, and also often a subsequent normal labour, belie the inference made from reduced external measurements, and, conversely, that difficult labour due to disproportion sometimes follows in women who show normal measurements.

3. Does the absolute size of the pelvic canal within the comparatively narrow limits of the great majority of women have much influence on labour?

4. Are we not liable to stress the importance of contracted pelvis as a cause of difficult labour rather than recognize the much greater frequency of inertia, wrong position of the child, incomplete flexion of the head, and rigidity or spasm of the soft parts?

Experience of labour leads me to believe that too much stress is laid upon disproportion and not sufficient attention is given to other factors. Believing, therefore, that the pelvimeter is unreliable, I would submit, further, that not only is external pelvimetry useless, but that it is positively harmful. Either because measurements cannot be accurately read or because fallacious deductions are drawn therefrom, it commonly happens that a diagnosis of contracted pelvis is made when there is nothing more abnormal than a reduction of the ample pelvic reserve. But, nevertheless, the diagnosis of contraction is made and the woman is advised to have either induction of labour or Caesarean section.

It has been shown by Holland and others that the vast majority of inductions of premature labour for contracted pelvis (or disproportion) are unnecessary, if judged by the

subsequent easy spontaneous labours; while, on the other hand, induction by bougies is not without risk. Of 533 septic patients admitted during two years to the isolation block of Queen Charlotte's Hospital 7.3 per cent. are described under aetiology "following induction." Induction of labour is commonly regarded as a trivial and harmless interference; but this is not so, for in addition to its role in the production of sepsis it bulks largely in the aetiology of severe inertia. In forty-nine cases of true and severe inertia (mortality 10 per cent.) induction was performed thirteen times (26 per cent.). Caesarean section performed unnecessarily for a wrong diagnosis of contracted pelvis is even more liable to be followed by misadventure, including not only a mortality risk of 1.6 per cent. (Kerr and Holland), but also later sequelae of various forms. If, therefore, delivery is made by Caesarean section the woman is subjected to a risk four times as great as that of normal labour. This increase of risk is incurred for the woman under consideration largely because of a wrong impression of the size of the pelvis based upon the use of the pelvimeter.

Any measure which will reduce interference in labour, including induction and Caesarean section, and will increase the number of spontaneous labours, will contribute largely to the reduction of maternal mortality. Let us abolish, therefore, the misleading pelvimeter, and in its place rely upon a diagnosis based upon the internal examination of the pelvis, the sacrum, the lateral walls, the subpubic angle, and the "knuckle test" of the width of the ischial tuberosities. In other words, let us examine with our finger the canal through which the child must pass. The final decision must rest upon the capacity to push the head into the brim, though the more experience I have the more I rely upon the internal palpation of the pelvis than upon the relation of the head to the brim. It is said that the best pelvimeter is the child's head; I would rather say that it is the instructed finger making a digital examination of the pelvic basin and outlet.

I have taught and used the pelvimeter for many years, but I feel that it is time to reconsider our ante-natal methods, in view of the increasing death rate. A contribution to this stocktaking is a plea to revise our ideas of "disproportion," which can best be done by abolishing the pelvimeter.—I am, etc.,

London, W.1, Nov. 17th.

ALECK BOURNE.

Puerperal Morbidity and Mortality

SIR,—It would seem from pronouncements in both lay and professional press that we are in for another drive in connexion with puerperal morbidity and mortality. I think it would be valuable, therefore, if we might survey the whole situation from ten years ago, when Professor Munro Kerr launched his first diatribe on the mortality attending childbirth. It will be remembered that the general practitioner was blamed for the high mortality and morbidity rates, and that Professor Kerr advised then that all midwifery in Glasgow should be in the hands of twelve specialists, with ample hospital bed space to fall back upon. It was pointed out then that Professor Kerr's scheme would prove a futility and an expense for the following reason.

The morbidity and mortality rate was heaviest in hospital. It was also as heavy in the private practice of the consultant as it was in the poorest general practitioner practice. Such a position was a greater reflection on the work of the consultant class than it was on the general practitioner class, for in the former, with every facility that money could procure, their returns were as poor as those of the general practitioner, who had to produce his

results under all conditions of poverty, dirt, and degradation. Such a position rendered it an impertinence of the consultant class to ascribe the blame to the general practitioner, and an added impertinence to suggest that this work should be taken from the general practitioner owing to his incompetence and transferred to hospital and specialist attention. Their record made it a certainty that at the very best there would be no fall in morbidity and mortality rates.

It was pleaded ten years ago that before embarking on all this expenditure of public money a lesson might be learned from the records of those general practitioners and nurses who had proved themselves able, year after year, to attend hundreds of midwifery cases with a morbidity and mortality that were practically negligible. All to no purpose. To-day we stand amazed to see the colossal expenditure—largely futile—that has resulted from attempting to put into execution the ill-digested schemes of the powers that be. The situation is a veritable puerperal Passchendaele. Here in this city of Glasgow the effect of all this ramp has been to put midwifery upon the rates. The general practitioner has now practically no midwifery, and some midwives have had to draw parochial relief owing to their cases being hospitalized over their heads. Nevertheless, in the forefront of the experts' programme is the slogan that the general practitioner and nurse should return frequently to hospital for refresher courses in the subject that they are now no longer allowed to treat.

Ante-natal care was to solve all our difficulties. So it might if these centres had been properly staffed with experienced men. Here in this town we offered a general practitioner service in ante-natal work to the public health authorities only to have it turned down almost with contempt. It was made abundantly plain that the public health authorities did not desire our help on any terms. Meanwhile the morbidity and mortality rate goes merrily upwards. Colossal sums have been and are to be spent, while the unprecedented propaganda in the lay press, in which professors and politicians vie with each other in creating scare lines, steadily convinces the wives that caution is best; and the birth rate falls continuously except among the careless, the reckless, and the ignorant. There is still time for reason to prevail, to cut our losses, and to return to a study of the methods of those general practitioners and nurses who have demonstrated over long terms of years that midwifery can be made as safe as defaecation.

It may astonish Dr. G. W. Theobald (*Journal*, November 10th, p. 850) when I say that the methods which he has discovered give the best results are precisely those that have been in use among general practitioners for a quarter of a century.—I am, etc.,

Glasgow, Nov. 12th.

JAMES COOK, M.D.

SIR,—It is perhaps impertinent for a physician who has had no practical experience since his student days in midwifery to intervene in a discussion upon maternal mortality, but may I suggest that obstetric surgeons should consider whether a change in the traditional position during labour and in the subsequent lying-in period might not materially reduce the liability to sepsis. The usual lateral position is surely not conducive to efficient drainage, whilst the dorsal, with the shoulders well raised, would mechanically assist labour, lessen the liability to laceration, and materially hasten the elimination of discharges, in addition to rendering the douching of the parts easy and effectual.—I am, etc.,

H. J. CAMPBELL, M.D., F.R.C.P.

Dartmouth, Nov. 19th.

Obstetric Methods at St. Mary Abbots

SIR,—While congratulating Dr. G. W. Theobald on his report in your issue of November 10th, I would like to challenge his statement that "the morbidity rate was, it is believed, the lowest recorded by any hospital in this country." In the *British Medical Journal* of August 16th, 1924, he will find the records of the Louise Margaret Hospital, 1920 to 1923, reporting 1,850 consecutive maternity cases with three maternal deaths. This is less than half his death rate of four maternal deaths in his 846 cases. Yet at the Louise Margaret Hospital operative intervention was higher—eight Caesarean sections as against his one, and 7 per cent. forceps rate against his 3.5 per cent.

The 1,850 cases had all been seen ante-natally by me with the exception of four, two of which were emergency cases that were fatal. He will find full particulars in the paper I read at Bradford before the British Medical Association. Non-intervention can be carried too far, and I have come to believe that possibly those obstetricians who condemn Caesarean section so loudly do so because their own surgical results have not been so good as those of their more surgically spirited colleagues. I have seen worse damage done with forceps than with Caesarean section, and probably some of the unnecessary Caesareans that are done would fare worse with forceps in the same hands. Statistics, however, are often fallacious, and a few concealed accidental haemorrhages will convert pride into humility, as was my experience later on.

I agree most emphatically with Dr. Theobald that at least three years' continuous practical work and at least 1,000 cases alone fit a man to supervise and offer sound judgement in obstetrics. If the public would turn their attention from criticizing the doctors and nurses, and see to it that the Government and administrators provide a real maternity service for the country, officered by men of obstetric experience, with diplomas of the College of Obstetricians instead of by medical officers of health with the diploma of public health, which has nothing to do with midwifery, better results might be expected. Would the public be surprised if the target was never hit by the guns of its Navy and Army if the artillery were officered by the infantry? Nature exterminates mothers who are bad reproducers. It is pretty wonderful what we achieve in our fight against Nature when you think of so many of the mothers we are expected to rescue from her attempt to improve the race. We will never reach perfection, but if the public think it worth while saving a higher percentage of mothers' lives they must pay for it pretty heavily in cash, and this is not popular. What we might save in mothers and babies will soon be killed off on the roads.

Dr. Theobald seems to advocate a return to old methods that have been tried for years and failed to satisfy us. I prefer to try and advance, profiting by the exhaustive bacteriological work that has thrown light on epidemics of puerperal sepsis, and hence I like masks and dettol at present. But here is an interesting point. He maintains that the normal temperature—98.4° F.—is pathological in the puerperium. To explain this, I have read his routine very carefully, and wonder if it is the war Le wages on the alimentary canal that gives rise to this idea. On admission, two ounces of castor oil, then an enema, and another two ounces of castor oil the day after delivery, followed by a purge every night that the mother is in hospital. I am director of a unit where bed-pans are automatically cleaned and then boiled. I take it there would not be much time for this in his unit, and that is why they are flushed and the rims rubbed with pure lysol. Pure lysol is uncomfortable if it reaches certain

parts of the anatomy. But during acute diarrhoea it is difficult to push the temperature up to 96° F., let alone 98.4°.

But the thing that interests me more than all the rest is in his rules for the nursing staff. He says: "A further enema is given towards the end of the second stage." I prefer light anaesthesia, and surely the mothers would too; but is the nozzle introduced also with forceps, for he forbids the fingers to touch the patient's perineum at this stage? Is it true that this method of keeping the bowels in a free state originates in Ireland? Does not the author call it the "Modified Garden of Eden"? Where is the analogy? It leaves me still guessing.—I am, etc.,

London, W.1, Nov. 13th.

E. LAWTON MOSS.

Professor Briggs

SIR,—It is proposed to place a bronze plaque on marble base in the museum of the department of obstetrics and gynaecology, University of Liverpool, to signify that the department was founded by Professor Henry Briggs. It is thought that some old students and other friends may wish to contribute towards the cost, which will be from £80 to £90. Intending subscribers should communicate with J. St. George Wilson, F.R.C.S., 11, Rodney Street, Liverpool, stating what they would like to give. No contributions should be sent as yet.—I am, etc.,

Liverpool, Nov. 19th.

J. HAYWARD WILLETT.

Dilating the Cervix in Placenta Praevia

SIR,—I do not think W. J. Young's statement (*British Medical Journal*, November 10th, p. 884), on dilating the cervix in placenta praevia, should pass without comment. Recently, in recording fifty cases of placenta praevia I have attended in the past six years, I came across the records of three cases attended by other doctors that terminated fatally. In each of these cases the cervix had been manually dilated to allow internal version to be performed, and in one of them the practitioner wrote to me that he had carried out the dilatation and internal version without anaesthesia. This woman arrived at the hospital in a state of extreme collapse suffering from profound shock, and in spite of every effort to combat the shock died suddenly a few hours later. After the internal version there had been no further vaginal haemorrhage. In the other two cases there had been a number of vaginal haemorrhages spread over a period of days prior to admission. Both died from shock after manual dilatation of the cervix and internal version had been performed.

I would stress two facts now recognized by most obstetricians: (1) That haemorrhages in pregnancy, especially after the twenty-eighth week, render the patient peculiarly liable and susceptible to surgical shock. (2) That the obstetrical manoeuvre of manual dilatation of the cervix, more than any other, causes severe shock. So that to dilate manually the cervix in a patient who has had one or more haemorrhages is to invite a fatal termination from shock. The statement "if placenta is detached from uterine wall as far as the finger can reach" contains advice to a line of treatment fraught with great danger. I would point out that:

1. With the patient in the lithotomy position it is possible in many cases of so-called central and marginal placenta praevia to separate more than half the placental attachment from the wall of the lower uterine segment with the finger introduced through the internal os. This would engender severe bleeding, and would add to the surgical shock of manual dilatation of the cervix that of

obstetric haemorrhage. (I have seen severe haemorrhage follow vaginal examination performed clumsily by a midwife, with blood spouting from the vulva with each cardiac pulsation. She had detached a small lobe as big as a two-shilling piece, into which a large placental vessel passed.)

2. Such a manoeuvre, by further placental detachment, must add to the foetal mortality which is already appalling in placenta praevia.

3. Digital interference with the placental site would add to the risk of sepsis, which is well known to be considerable in these cases. The statement "the whole hand should be passed into the uterus... the child turned and slowly delivered" contains a piece of advice which is not in keeping with the accepted practice of our best obstetricians.

I would further point out that:

1. After manual dilatation and internal version it would be best to allow the patient to deliver herself later, after she had recovered to some extent from the shock and haemorrhage.

2. However slowly the delivery is effected consecutive on internal version, further manipulative intervention required for extended arms and the after-coming head is in a number of cases inevitable, with the immediate consequence of added shock to the patient.

3. Full manual dilatation of the cervix could not be attained without grave risks in this condition, and even "slow" delivery through an undilated os entails a degree of added shock, which is to be avoided in the treatment of placenta praevia.

The last statement that "... very great prior loss of blood may entail more rapid delivery" contains the germ of very unsound teaching. The patient, shocked and exsanguinated by the haemorrhage of placenta praevia, is in no state for delivery at all. Surely the bleeding should be stopped by the safest possible methods (preferably that of Braxton Hicks) and every immediate effort expended to combat the shock. Some hours later the delivery would be effected with at least a small margin of safety. In this I offer no criticism of Mauriceau's heroic effort to save his dying sister, but point out to practitioners some possible dangers in the treatment of placenta praevia at a moment when the problem of maternal mortality is being reviewed with much anxiety.—I am, etc.,

J. STANLEY COLEMAN, M.B.,

Forest Gate, E.7, Nov. 12th.

B.S. Lond., M.R.C.S.

The Duodenum and the Kirby Grip

SIR,—New fashions have a way of setting up some curious by-products, and sometimes these take the form of new problems for the medical man. The advent of the present fashion of bobbing and shingling has caused the virtual disappearance of the hairpin and the appearance, in enormous numbers, of an appliance called the Kirby grip, used as a hair slide. Many girls hold the grip in their mouths whilst their hands are engaged in doing their hair, and every now and then it is accidentally swallowed. In an adult this probably does not matter; the foreign body is generally passed without difficulty. In children it is otherwise. The length and shape of the Kirby grip are such that, though it gets out through the pylorus, it cannot negotiate the fixed curves of the duodenum, and it comes to lie vertically in the second part. Here it will remain for an indefinite time, and no doubt eventually perforation of the bowel would occur in a good many of the cases. I have within the past two months had two such cases under my care, in girls of 2 and 5 years respectively. In both the skiagram showed

the grip lying vertically in the duodenum; after fourteen days its position had not changed. In these circumstances we felt that operative removal was necessary, but here an unexpected difficulty was met with. The duodenum in a child lies deep, and is not easy to approach; the surgeon is very loath to make an incision in it because of the well-known dangers of duodenal leakage. An effort was therefore made to push the foreign body up into the stomach, or on round the third and fourth parts of the duodenum into the jejunum. In both patients this was found to be quite impossible.

In my first case, very reluctantly, I incised the second part of the duodenum, extracted the grip, and closed the incision. There was rather alarming vomiting for about twelve hours, but the child happily made a good recovery. One did not care to run such a risk again in the second case, so I made an opening in the stomach, dilated the pylorus from within with the finger, and fished for the foreign body through the stomach and pylorus with a forceps. This presented no difficulty, and the child did well, without any alarming symptoms. This is undoubtedly the proper way to deal with children suffering from this mishap.—I am, etc.,

Department of Surgery, Bristol
University, Nov. 11th.

A. RENDLE SHORT.

Anaesthetic Explosions from Static Discharge

SIR,—Although attention has been drawn in this country from time to time, as the result of accidents, to the danger of ignition of anaesthetic vapours by such external sources as a light or cautery, it seems to have been generally assumed that the possibility of explosion from static or frictional electricity does not exist here. Such cases, however, have not infrequently been reported from the Continent and from America, and my own experience as given below shows that frictional discharges capable of producing dangerous sparks do occur in theatres in London at present, and that therefore, in the absence of precautions such as the grounding of apparatus and the use of non-insulating rubber, explosions of suitable vapours are to be expected here as they have occurred elsewhere.

On my first visit to a newly built clinic some years ago I was told by a theatre sister that shocks were got from the trolleys. Naturally sceptical, and thinking of ordinary short-circuits, I asked for a demonstration, and was shown that after drawing off the coverlet from a rubber-mattressed trolley a sharp spark, with shock, was obtained on touching the latter. Another example, though less striking, has often been met with in a hospital where, with gas and ether or gas and oxygen, an ordinary two-gallon bag is used with a mask and three-way cock. It has often been noticed—on one occasion before the filled bag was applied to the patient—that particles of fluff, cotton, etc., on it were standing on end and were attracted to the finger, showing that the bag was electrically charged. Further, on stroking the bag with the hand, distinct crackling sparks have been heard, though cautious attempts to ignite ether thereby have so far failed. The first occasion on which this electrically charged bag was noticed having been in the hot, dry weather of last summer, it was thought that this might be an important factor, but it has been met with since on damp, muggy days. The theatre in question has efficient central heating, and the sterilizers are at a distance in an adjoining room, conditions which apply also to the first-mentioned clinic.

It may be assumed, therefore, as stated above, that in modern hospital buildings explosions from "static" may be expected to occur from time to time.

Incidentally, it is of interest to note that Dr. M. Tiegel, in an article describing the use of superheated ether vapour in anaesthesia, states:

"Following an ether explosion in the operating room of a surgical clinic, by which persons taking part were seriously injured, the Minister of the Interior has recently issued an edict giving warning of this danger and laying down safety regulations (*Zentralblatt für Chirurgie*, 1934, No. 40, p. 2317).

—I am, etc.,

London, N.W.9, Nov. 19th.

R. J. CLAUSEN, M.B.

"German Measles"

SIR,—We may agree with Dr. Summerhayes MacRae (*Journal*, November 3rd, p. 835) as to the unsuitability of the term "German measles." Unfortunately, it has a long start and official recognition. The use of the term "rubella" to parents leads to questions which result in the admission that it is only a scientific name for German measles. It is better, at present, to devote one's efforts to explaining that measles and German measles are separate diseases.

It is not easy to settle a satisfactory nomenclature for this disease. In this country "rubella" is generally accepted as the professional term, but its international ring is deceptive. The Germans call it either "röteln" or "rubeola," and the French "rubéole." As you have pointed out, the official *Nomenclature of Diseases* unfortunately gives German measles first with "rubella" and "röteln" as synonyms; "rubeola" is not mentioned. The official *International List of Causes of Death*, 1931, gives "German measles," with subsidiary titles of "röteln" (spelt with the long-abandoned "h") and "rubeola." It gives "rubeola" as a synonym for measles, which must surely be incorrect, and in the *Suggestions to Medical Practitioners* it is stated that "the term is best avoided, as it is used for both measles and German measles."

The term "rubeola" is practically unknown in this country, while "röteln" is too Continental for our use. "Rubella" is clearly the best official title, but it will need many decades to make it familiar to the public.—I am, etc.,

London, W.1, Nov. 13th.

H. LETHEBY TIDY.

Spontaneous Regression of Cancer

SIR,—In the Long Fox Memorial Lecture, delivered in Bristol last November, and published in the *Bristol Medico-Chirurgical Journal* (1933, 1, 228), Mr. C. Joll declared that he had records of 400 cases of spontaneous cures of cancer. This surprising statement was made in criticism of my method of treating inoperable cancer. I wrote immediately to Mr. Joll and asked him to be good enough to publish details of only twenty really authenticated cases of spontaneous regression untreated by any medical, surgical, or radiological method. Such a publication would be of extreme interest to others than myself.

If one relatively so young as is Mr. Joll can have personal knowledge, or details, of such frequent spontaneous cure it leaves me to wonder whether there is a cancer problem, why there is a need for cancer research, and whether cancer hospitals are necessary, for spontaneous cure must be a thing of everyday occurrence. I have given Mr. Joll a year in which to reply to my challenge, but there has been no answer. He has made an incredible statement in a paper which might be regarded as of some scientific value. I now publicly ask him to

give some proof for his remarkable statement: authenticated details of twenty cases from his list of 400.—I am, etc.,

Clifton, Nov. 11th.

A. T. TODD,
Honorary Physician, Bristol Royal
Infirmary.

•• We find, in the *Bristol Medico-Chirurgical Journal*, that the words actually used by Mr. Cecil Joll were: "It is only fair to state, too, that there are records—some highly circumstantial—of nearly 400 cases of complete spontaneous cure of cancer."—Ed., *B.M.J.*

Ingrowing Toe-nail

SIR,—The letter of Mr. W. Kent Hughes, in your issue of November 17th, and Dr. L. Keyes's article,¹ annotated in the *Journal* of August 11th this year, do not draw attention to the fact that a touch of blue-stone, allowed to dry on, daily for about ten days, will cure any ordinary case of early ingrowing toe-nail. The daily coagulation should be left to peel off and should not be cleaned up. Some of the older country practitioners know this method well, and its use saves much needless suffering and risks. Another method is to cut a V down to the quick in the middle of the nail and to keep it pared. This method takes some weeks and often fails.

Considering the suffering caused by the condition of ingrowing toe-nail and the difficulty of feeling sure that all the matrix has been removed at the time of operation, as anyone knows is the case who has done it often, the advantage of the simple blue-stone method from the patient's point of view is obvious.—I am, etc.,

London, W.1, Nov. 19th.

G. H. COLT, F.R.C.S.

Differential Diagnosis of Chronic Rheumatic Disease

SIR,—I am glad of the opportunity afforded by Dr. Copeman's letter in your last issue to correct a misprint in mine of the previous week. For non-articular arthritis read non-articular *rheumatism* (eighth line from end).

Incidentally, I did not state that the sign was new. As to its reliability, we must await the verdict of those members of the profession who may try it out. Dr. Copeman's letter should, at any rate, help to stimulate their interest in what I believe to be an extremely important diagnostic sign.—I am, etc.,

London, W.1, Nov. 19th.

H. WARREN CROWE.

•• It was not a misprint. Dr. Crowe wrote "arthritis" and passed it on the proof.—Ed., *B.M.J.*

Dosage of Vitamin D

SIR,—I read the leading article on dosage of vitamin D in the *Journal* of November 17th (p. 907) with interest. I have not yet seen the actual report by the Toronto workers on this subject, but from your review there would appear to be many aspects of their experiments open to criticism. The children were treated at home, where it is impossible to ensure accurate supervision of such vital factors as exposure to sunlight, adherence to standard diet, etc. Hospitalization is essential to reliable data.

I welcome the final suggestion that "the time is surely ripe for an investigation, on an even wider scale than the present one reported from Toronto, to settle by clinical trial, in terms of vitamin D, what is the minimum protective dose at each age period, and what is the best medium for its administration." Might I refer you to my article in the *Lancet* (June 30th, 1934), in which I described, from the curative point of view, experiments

¹ *Journ. Amer. Med. Assoc.*, May 5th, 1934, p. 1458.

similar to those performed in Toronto and, I would suggest, possessing a more scientific basis? In these I found that one drachm of cod-liver oil given daily over a period of six to seven weeks would heal a moderately severe case of rickets at the age of 3 years, and I would presume a smaller dose would prove effective as a preventive measure for a younger child.—I am, etc.,

Cleethorpes, Nov. 17th.

JAMES R. W. HAY.

Residual Infection of the Jaws

SIR,—Agassiz, the naturalist, wrote: "Every great scientific truth goes through three stages. First, people say it conflicts with the Bible. Second, they say it has been discovered before. Third, they say they have always believed it." I thank Mr. Badcock and Mr. Ainsworth for commenting on my letter calling attention to the Novitzky technique for removing teeth. Their comments may accomplish more than I anticipated my letter would, for they focus attention upon the present methods of removing infected teeth.

If the ordinary method is entirely satisfactory to those who practise it, to those upon whom it is practised, and to those physicians and general surgeons who expect beneficial results to follow the removal of infected teeth of their patients, this pulling method will continue to be used without modification or improvement. There are, however, a not inconsiderable number of dental practitioners, patients, and medical men who are not satisfied. They do not consider this method the epitome and perfection of considerate, careful, complete surgery. Further, in a comparatively recent issue of the *Journal* there appeared a letter or letters complaining of the haemorrhages which physicians are called upon to arrest after the removal of teeth by this method. Medical protective associations are called upon to defend practitioners and settle claims for damages following the removal of teeth by the pulling method. Coroners not infrequently conduct investigations following the employment of the common method. Professor Anderson of St. Andrews spoke as follows, in Dundee, last August:

"I would ask you, gentlemen, as senior members and teachers of the profession, to warn the younger generation to treat these cases of massive extensive extraction as a major operation which should receive full reverence and care in pre- and post-operative treatment."

Mr. Badcock finally declares I have "a good case." It would be difficult for me to disagree with him. But if, as he suggests, I have "marred it," perhaps the following evidence will restore it: X-ray examinations of over 30,000 patients in the Mayo Clinic disclose that from 25 to 45 per cent. have roots left in their jaws after incomplete extraction by the ordinary method; 10 to 25 per cent. had infections still persisting in their jaws after the complete removal of the tooth or teeth. Almost any experienced radiologist could duplicate these percentages were he to tabulate the results of his dental x-ray examinations of patients who have had more than two or three teeth removed. An experienced radiologist in Paris, two or three in London, and my own personal experience in taking x-rays of teeth for twenty-two years confirm these percentages. These examinations, however, disclose only those cases in which nature has been unable to eliminate the infection or the roots after some months or years. There is still another large percentage, I believe, in which nature has eliminated the infection and the undisturbed roots—by extrusion, exfoliation, pus formation, and discharge, which frequently takes weeks, months, years. In the meantime the infection continues, which the extraction of the teeth is expected to eliminate.

I fail to detect any evidence in the two mentioned letters that the Novitzky technique has been employed

consistently on any considerable number of patients and has been discarded because it has failed in any particular to meet the claims made for it. Those who have employed it, however, after having practised the pulling method for years, report to me that they are surprised and gratified when comparing the results of the Novitzky technique with the older method, and note the great reduction in pain, the quickness of healing, the absence of complications, and the satisfaction of their patients.

The absence of reactions and the comparative safety with which Novitzky's technique may be employed on such patients who are seriously ill and in whom infected teeth are believed to be contributing to the condition have been reported by others. Where it is considered dangerous to remove teeth by the older method this method may be used, after proper preparation of the patient, with comparative safety. In regard to convalescence, 95 per cent. return in two, three, four, or five days; they walk in—are not carried in—to have sutures removed, and not a few to have impressions taken for plates to be inserted in a few days' time. This method is practised "in the patient's best interest." But it is also the dental practitioner's best interest to do complete, careful, workmanlike surgery.—I am, etc.,

London, S.W.19, Nov. 3rd.

ALONZO M. NODINE.

Local Treatment of Coryza

SIR,—If you will permit further correspondence on this subject I would like to endorse Dr. Douglas Webster's attitude (*Journal*, November 10th, p. 882), and am glad he mentions the use of short-wave therapy. Admittedly it is not an economic treatment. I have "aborted" some dozen cases which I have come across incidentally, only choosing those in which a cold invariably lasts about ten days. Perhaps more dramatic are cases of tonsillitis—for example, "Wimbledon throat"—tracheitis, and laryngitis, when treated early. Here one treatment usually relieves the symptoms, but should be followed by two further treatments in twenty-four hours to completely clear. When the infection spreads rapidly to the bronchial tubes irradiation with short waves does relieve, but with our present apparatus it is a tedious proceeding to deal with a large field adequately, and so some relief may be given, but reinfection takes place. The treatment is simple in application, with little inconvenience to the patient. I use the six-metre wave-length.—I am, etc.,

London, S.W.1, Nov. 12th.

JOHN KALMANSON.

Motor Backache and Neuralgia

SIR,—Dr. Astley-Weston's letter on this subject in the *British Medical Journal* of November 3rd (p. 834), while endorsing the views expressed in my letter of the previous week, suggests that in the proper construction of a motor seat it is important to eliminate the strain due to "cornering." Others have supported this view. In what was an individual description of experience there was no intention to deny other factors which might contribute towards motor backache. Physical build and health of the driver, construction of the seat and its setting, and suitability of the driver to the particular seat are all of importance. Most people try a pair of boots on before purchasing them, but few take similar care that the seat of a new car is suitably placed and shaped.

"T. W. G." points to the importance of the avoidance of lounging by motor drivers. No doubt this is one of the particular offences of the laid-back bucket-seat—it insists on the driver lounging. In seat construction vibration should be damped and the seat well set, and I believe that, while the back should be nearly vertical, the

floor should be at approximately a right-angle, level, and of sufficient depth. It might be advantageous to round off the angle between floor and back. The development of a large bulge at a higher level in the back, as commonly provided, is a mistake, I think; something flatter is really better. But all these points could easily be determined by experiment at any motor works where their significance was recognized.—I am, etc.,

London, W., Nov. 16th.

G. H. A.

Medical Benevolence

SIR,—As the son of a general practitioner, and as a subscriber to both the English and the Irish Royal Medical Benevolent Fund societies, may I say a few words on the views expressed in the correspondence now appearing in your columns regarding the alleged indifference of medical men as a whole to the distress among their professional brethren?

To begin with, it appears to be generally forgotten that after some forty to fifty years of day and night work the total estate of a doctor, according to the details which appear in the daily papers, averages the small sum of £3,000. This, he naturally thinks, is the bare minimum amount which gives some security to his dependants; but quite 25 per cent. of doctors fail to accumulate even this sum. Moreover, there is a constant drain on the country doctor's resources by way of subscriptions to the charities—religious, social, and political—associations, too, which are all bound up with the people among whom he lives, and who look upon him as their guide, philosopher, and friend. Things do not, therefore, appear so rosy when seen from the inner circle of the average doctor's life, and some measure of justice must be meted out to the much-misunderstood non-subscriber to the medical charities, particularly when they are criticized by wealthy specialists and by those doctors living in large towns and cities with large cash and panel practices, whose relations with their patients are not so intimate as that of the country man.

Until such times as an "all-in" insurance scheme, such as that under consideration by the British Medical Association, is in operation, it occurs to me that the Royal Medical Benevolent Fund authorities should consider the advisability of circularizing that numerous body of lay men and women who get good pay as secretaries, clerks, library assistants, and so forth from those institutions associated with the medical profession. These people depend upon it for their living; they have none of the risks involved in its practice; they all enjoy sheltered lives, save money, and live to a good old age in the enjoyment of a good pension.—I am, etc.,

FAIR PLAY.

London, N.W.3, Nov. 11th.

Whither General Practice?

SIR,—I am interested in Dr. Kenwood's letter in the *Journal* of November 10th, but I venture to think that the problem is not such a simple one as his letter might appear to suggest. He stresses the point that "in many cases patients enter these institutions [the smaller hospitals and nursing homes] solely because of the better nursing arrangements and facilities therein provided"; yet in the smaller hospitals staffed by local practitioners to which he refers the majority of cases are found to be surgical emergencies and road or other accidents, because, with a limited accommodation, the criterion is whether the case is such that treatment in hospital is essential; and, consequently, by reason of their lesser urgency, cases solely requiring better nursing arrangements and facilities are necessarily few.

The solution of the problem of the entry of the patient's own doctor into these hospitals to undertake treatment is by no means simple. Those mainly concerned are the patient, his doctor, the hospital authorities, and the medical staff, and each of these have points of view which must be brought into harmony for the successful working of any scheme. Without attempting to deal with the subject at all exhaustively, there are a few points to which attention should be directed. It must be remembered that, without constant practice in those branches of medicine and surgery which do not enter into the usual routine work of general practice, one is not able to maintain that standard of efficiency which the patient has the right to demand when in hospital—and the patient and hospital will suffer. Again, the satisfactory treatment of a patient in hospital is very dependent on a close understanding between the nursing staff and the doctor in charge of the case. Consequently, it seems that an entirely unrestricted access to treat patients in a hospital would not make for the efficient working of the institution or benefit of the patient. Moreover, from the hospital authorities' point of view, this free access would make it difficult to obtain a medical staff when all the privileges could be obtained without accepting any of the responsibilities.

As a suggestion, there seems much to recommend the policy of making the medical staff open to all practitioners residing and practising in the district, and restricting the treatment of patients to these doctors who accept their share in the medical administration, routine work, and the treatment of patients from other districts or those whose own doctors do not desire to treat them in hospital. This would ensure that those who have the right to treat patients in the hospital were in close touch with hospital work, the nursing staff, and the administration of the hospital.—I am, etc.,

Mitcham, Nov. 12th.

G. M. STOKER.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

ANNUAL MEETING OF FELLOWS AND MEMBERS

The annual meeting of Fellows and Members of the Royal College of Surgeons of England was held on November 15th. Sir HOLBURN WARING, President, was in the chair.

The Council's Report

THE PRESIDENT presented the annual report of the Council and called attention to some features of special interest. He said that overseas examinations was a subject which had been very much developed of recent years. In the present year there were to be examinations in Melbourne, for which fifty-eight candidates would present themselves, and in Dunedin, for which there were about twenty-seven candidates. A rather radical change had been made in the Final Examination for the Fellowship—namely, that candidates must have held for not less than six months the post of resident house-surgeon or other responsible post in charge of general surgical patients in the wards of a general hospital recognized by the Council for the purpose. He also stated that for some time dissatisfaction had been expressed with regard to the Primary Fellowship, and the Council had appointed a committee to go through all the complaints that had been made. He believed a number of minor improvements would be made in the examination itself and in the curriculum.

Legislation regarding patent medicines was a thorny subject, and the Council had appointed a special committee to deal with it. The subject had been under discussion at the Ministry of Health and in the profession generally, and, to a less extent, in the licensing bodies. After a very lengthy consideration the Council had come to the conclusion that certain recommendations should be made to the Committee on Scientific Research of the Economic Advisory Council—namely, that the sale of proprietary medicines and appliances should be under the control of the Ministry of Health, and that such control should ensure that the article in question

was not injurious, the description of its therapeutic action not fraudulent, and its sale and methods of advertisement not against the public interest; further, that no medicine or appliance should be advertised as a cure for certain specified diseases and conditions.¹ The British Medical Association and other bodies were taking an active part in connexion with this matter, and he trusted that the result of their efforts would be some satisfactory legislation to remedy the present iniquitous state of affairs, first, as it affected the community, and, secondly, as it affected the medical profession.

The President touched on other details in the report, and mentioned the appointment of Dr. John Beattie of Montreal as conservator of the museum and director of research on the retirement of Sir Arthur Keith. The Buckston Browne Surgical Research Farm had now been completed and was working very satisfactorily. With regard to the diplomas issued by the College, during the year there had been 600 new Members, 81 new Fellows, and 154 new Licentiates in Dental Surgery. A number of other diplomas had been issued, including eight in medical radiology. The Council had the right to elect two Members to the Fellowship every year, and this year had elected Dr. G. A. Buckmaster, Emeritus Professor of Physiology in the University of Bristol, and Mr. G. F. Stebbing, surgical specialist to the London County Council. The President added that he, as representing the College, was to open the new building of the Royal Australasian College of Surgeons at Melbourne next March.

A short discussion followed on the reception of the report. Dr. MORRIS WHITBY suggested that Members of the College who had been practising surgeons for ten years or more should be allowed to sit for the Fellowship in one stage, instead of two stages; he thought that would be of assistance to many Members who had served during the war. The PRESIDENT replied that this was not a feasible proposition, as the Charter of the College laid it down that there must be a Primary Examination and a Final Examination, but he hoped that measures would be taken which would be to the advantage of the persons to whom Dr. Whitby had referred.

Members and the Council

Mr. F. MCG. LOUGHANE then moved the time-honoured resolution:

That this forty-fifth annual meeting of Fellows and Members of the Royal College of Surgeons of England reaffirms that the Members, who constitute 90 per cent. of the College, should have some representation on the Council, a similar resolution having been passed forty-four times and never once lost.

In doing so, he said that the Members numbered about 18,000 and the Fellows only 1,800, and the full financial support of the College rested on the fees that came from the Members. It was very undemocratic that those who paid should not have any vote, and it was only fair that the Members should have a vote for members of the Council and that they themselves should be eligible for election to the Council. The Members had approached the Privy Council on the matter, but without success. In 1930 a poll was taken, and there was an overwhelming vote in favour of direct representation of the Members—6,536 in favour, and only 156 against.

Dr. P. B. SPURGIN seconded the resolution. He asked the Fellows whether, if they had relations who had contributed very largely to their exchequer, and who were suffering from some comparatively small ailment which required only a little surgical interference, they would hesitate to perform the operation in question. He thought it should be performed, as it was necessary to the good health, happiness, and contentment of the "patient." A large number of Members of the College had attained important positions in public life and would not be unworthy representatives of their profession if the Council would admit one or two or even three of them to its table. They would add lustre to the Council and increase its dignity in every respect.

The resolution was supported by Dr. RICHMOND ROCHER and Dr. H. E. WATKINS, who expressed the view that the training of medical students could be greatly improved if there were general practitioners of standing on the Council to assist the Fellows in their deliberations on the regulations for such training.

The resolution was carried by 26 votes to 1, and the meeting ended.

¹ See *British Medical Journal*, November 3rd, 1934, p. 822.

The Thomas Vicary Lecture will be delivered by Professor William Wright at the College on Thursday, December 6th, at 5 p.m. His subject will be "Galen on the Eye."

Mr. Victor Bonney will deliver the Bradshaw Lecture at the College on Thursday, December 13th, at 5 p.m., on the subject of "The Functional Derangement of the Intestine that follows Abdominal Operations."

UNIVERSITY OF CAMBRIDGE

At a congregation held on November 17th the following medical degrees were conferred:

M.D.—R. B. Mayfield, R. W. Butler.

M.B., B.Chir.—P. H. R. Ghey, B. S. Jones, J. C. G. Anderton, R. Q. Parkes.

M.B.—A. M. Barrett.

* By proxy.

Medico-Legal

MEDICAL MAN'S LIBEL ACTION SETTLED

On November 8th a settlement was announced of a libel action brought by Dr. David Nabarro, F.R.C.P., director of the pathological department of the Hospital for Sick Children, Great Ormond Street, against Messrs. Virtue & Co. Ltd., of Thavies Inn, E.C., the publishers of a book entitled *The Milk Trade and Dairy Industry*, and Mr. C. Raison, the editor of the book.

Mr. C. B. Guthrie (for Mr. Cartwright Sharp, K.C.) for Dr. Nabarro said that the case had been settled on agreed terms.

In the month of January, 1930, Dr. Nabarro jointly with one Mr. J. O. Hickman, a barrister-at-law, had written an article called "The Irradiation of Milk," which was published in the *Lancet*. The defendants, Virtue & Co. Ltd., in August, 1933, published a book called *The Milk Trade and Dairy Industry*, and in this book, which was edited by the defendant Raison (who had died since the action was brought), they included a chapter headed "Irradiated Milk," purporting to have been written by the plaintiff and Mr. Hickman. The chapter in fact was a truncated version of the article which had appeared in the *Lancet* more than three and a half years earlier, and the publication of it and the use of Dr. Nabarro's name in connexion therewith were entirely unauthorized.

Dr. Nabarro considered that the user of his name in a trade book on a technical subject might do him considerable harm in his profession, and the inclusion of his name as a contributor in the book might create the impression that he was the type of person who would disobey the rules of the General Medical Council with regard to advertising in order to make money out of journalism or out of the milk trade. Moreover, the investigation of the subject of irradiated milk was one which had made considerable progress since the time the article was originally written for the *Lancet* in January, 1930, so that at the time of publication of the book the contents of the chapter were stale and out of date. Dr. Nabarro's position in the profession left him no alternative but to bring an action to restrain the further publication of the book and for libel. Messrs. Virtue & Co. Ltd., immediately the matter was brought to their notice, consented to an injunction and deleted the offending chapter from their book. They further had agreed through their counsel to apologize to Dr. Nabarro for the inconvenience they had caused him by their action, and to pay him an agreed sum for damages and costs.

Mr. Herbert Malone, for the defendants, said that his clients very much regretted that Dr. Nabarro had been put to any inconvenience through any action of theirs, but they were under the impression that the editor, the late Mr. Raison, had obtained all necessary consents to the publication of articles in the book. They appreciated that the matter might have led persons to believe that Dr. Nabarro had been guilty of unprofessional conduct, and they realized the harm that might have been done to him thereby in his professional status. They had done what they could to remedy the damage immediately the matter was brought to their notice, and they desired through him to tender to Dr. Nabarro in open court their unqualified apology for their error.

Mr. Justice Swift, in allowing the record to be withdrawn, said that he was pleased the parties had come to an amicable settlement, and that Dr. Nabarro left the court without any aspersions on his professional behaviour.

Obituary

VINCENT MIDDLETON COATES, M.C., M.D.,
M.R.C.P.

The tragic death of Dr. Vincent Coates has come as a great shock to his many friends both in Bath and throughout the country. His circle of friends must have been a peculiarly large one, for both as a Rugby international in his earlier years and as a physician of repute in later life he made many contacts, and once a contact was made a friendship remained. Educated at Haileybury and Cambridge, he made his mark as an athlete from the first, captaining the school in 1906-7 and gaining his Blue in 1907 at the age of 18. Owing to trouble with his knee he was unable to take part in the Varsity match in his later years of residence, but subsequently played for Bath, Somerset, and England, gaining his international cap in 1913 and playing for his county on five occasions.

Dr. Coates qualified in 1915 and immediately joined the R.A.M.C., and, after being awarded the Military Cross in 1916 in France, proceeded to Salonica, where he was in charge of a bacteriological unit, and served there till the end of the war. After some months of post-graduate work, during which he took his M.D. Cambridge, he settled in Bath in 1919, in the house of his grandfather, the late Dr. C. M. Coates, who had attained distinction as a physician in the city in the pre-war period. Later



Coates was admitted a Member of the Royal College of Physicians, and became a member of the committee set up by the College for the study of arthritis. From the first he identified himself with the study and treatment of rheumatic diseases, and contributed several articles in various journals dealing with these and cognate matters, and published with L. Delicati a book entitled *Rheumatoid Arthritis and its Treatment*. He was appointed a physician to the Royal Mineral Water Hospital, Bath, in October, 1921, and had been senior physician to that institution since May, 1932. He took a leading part in both national and international societies dealing with rheumatic disease, spa treatment, and hydrology, and had come to be recognized not only as the representative of Bath in these activities, but as one of the chief representatives of Great Britain when these subjects came up for discussion. Coates was, however, not only a specialist in this one branch of medicine, but was an able general physician. Until the hospital was disbanded in 1925, he was specialist in tropical diseases at the Ministry of Pensions Hospital, and served in the same capacity to the medical boards of the South-Western areas. In May, 1921, he was appointed assistant physician to the Royal United Hospital, Bath, and for a short time was on the staff of the Hospital for Women and Children, Bristol. In April, 1934, he succeeded as full physician to the Royal United Hospital, and was already promoting the interests of this hospital with his usual stimulating suggestions for the improvement of its services. He was consulting physician to the Trowbridge and Froshford Hospitals, and cardiologist specialist for Wiltshire. At the time of his death he was president of the Bath Clinical Society and a Fellow of the Royal Society of Medicine and of the Medical Society of London.

At the Annual Meeting of the British Medical Association held in Bath in 1925 Coates was secretary of the Section of Diseases of Children, and had served on various occasions on the executive committee of the local Division. He had been chairman of the Spa Subcommittee of the Division, and was one of their representatives on the Spa Committee of the city council. He was always appreciative of the desirability of the closest co-operation between the Association's central activities and the local profession in hospital and other matters, and was a keen supporter and upholder of its various policies.

With all these public activities he had built up a large consulting practice chiefly devoted to the rheumatic group of diseases. His kindness and ability will be sadly missed by a host of patients, both rich and poor alike, in all parts of the country, for Coates never spared himself when once he had put his hand to whatever roused his enthusiasm, and his energy was extraordinary. With all this hard work and widespread activity he had time to go out of his way to perform those thoughtful and kindly actions which are the gems of human intercourse in all spheres of life. In all respects he upheld the best traditions of the medical profession, and had regard not only to the physical and mental aspects of his work, but also to the spiritual demands and requirements of his patients. Such an accident befalling such a man at the early age of 45 is a disaster of the first magnitude, and the sympathy of all will go out to his many friends, to his relatives, but especially to his widow.

[The photograph reproduced is by William Clark, Bristol.]

R. H. DICKSON, F.R.C.S.I.

Ophthalmic Surgeon, North Staffordshire Royal Infirmary

By the death of Robert Harper Dickson, on November 9th, at his home, Grindley House, Newcastle-under-Lyme, after a long and tiring illness, North Staffordshire has lost a well-known and much respected citizen, who has left behind him a long record of honourable professional work.

The son of a well-known Irish doctor, Mr. Dickson qualified in Dublin in 1887, and was then house-surgeon for two years at St. Mark's Ophthalmic Hospital. He came into close contact with the teachers of surgery and medicine of a former generation, for whom he had a great admiration. Mr. Dickson came to England and started in general practice in Newcastle, Staffs, eventually taking sole charge of a widespread district. For many years he was a familiar figure driving round this district in his dogcart. His duties entailed attendance at the local workhouse. Here he left behind a record of work well done and of many kind acts to the inmates. An inveterate pipe smoker, he often emptied his large tobacco pouch for the benefit of the patients. His interest lay chiefly towards diseases of the eye, and he eventually gave up general practice and devoted himself entirely to his speciality. He became assistant ophthalmic surgeon to the North Staffs Royal Infirmary, and subsequently proceeded to the senior post. He was also appointed eye surgeon to the Stoke Guardians' Institution and the Orthopaedic Hospital, and was medical referee for eye diseases under the Home Office, in which capacity he had to deal with many cases of miners' nystagmus.

He joined the B.M.A. in April, 1892, and always found time to devote to the affairs of the Association. He had been in turn president of the local Branch and also chairman of the Division. Mr. Dickson was a member of a small committee which successfully revived the North Staffordshire Medical Society, and it is now a flourishing and useful institution in the local medical life. He was one of the first presidents, and gave a most useful address on his work as an eye surgeon. During his forty years

in this district his work as a general practitioner and as a specialist brought him into contact with a large number of patients. He never lost interest in anyone he had seen professionally, and he had the faculty of keeping them as friends. For this reason his death is a personal loss and sorrow to a large number of the inhabitants.

Mr. Dickson had a wide sphere of interest outside his professional work, and was a keen and popular member of the Newcastle Rotary Club, of which he had been president, and of the North Staffordshire Field Club. He is survived by his wife and family, of whom there are three sons and two daughters: much sympathy is felt for them in their bereavement. Two of the sons are students of medicine in London.

The death took place, on November 16th, of Dr. JOHN SMITH, who had practised at Kirkcaldy for some forty years. Born in 1855 and educated at Ayr Academy and Edinburgh University, he graduated M.A. at Edinburgh in 1878 and M.B., C.M. in 1881, taking the English conjoint qualification also in 1885, and proceeding to the M.D. in 1886. After graduation he acted as resident surgeon in the wards of Edinburgh Royal Infirmary under the late Professor Annandale, and later in the Edinburgh and Glasgow Maternity Hospitals, and as clinical assistant in the Royal Ophthalmic Hospital at Moorfields. Entering practice at Kirkcaldy in 1894, he became one of the best-known practitioners in Fife, and had been a medical referee under the Workmen's Compensation Act since 1906. He was a Fellow of the Obstetrical Society of Edinburgh and of the Ophthalmological Society of the United Kingdom. Although he was locally well known as a practitioner of medicine, Dr. Smith was more widely celebrated in the world of sport, and was an international Rugby player of great fame. He had played Rugby football since his school days, and from 1877 he represented Scotland six times against England and four times against Wales. He was also the founder of Association football at the University of Edinburgh, and after 1884 he took up this form of the game and played in many important matches. In the year 1894 he went to Australia as manager of the Shaw-Shrewsbury British team, and again played Rugby football in that country. On taking up practice in Kirkcaldy, however, he gave up football altogether and took to bowls, golf, and curling, at which he achieved great skill. In bowls he appeared in several international contests, and was vice-president of the Scottish Bowling Association in 1924. Dr. Smith had been a member of the British Medical Association for fifty years.

By a sad coincidence *A Soldier in Science*¹ reached us almost at the same moment as the news of the author's death, at his home in Porto Rico, at the age of 61. Colonel BAILEY KELLY ASHFORD, professor of tropical medicine and mycology at Columbia University, was the son of a professor of surgery and dean of the medical school at Georgetown, who, dying when the boy was but 10, left him with the passion to be a doctor of medicine. How he forged ahead with his programme of active life and research to reach an eminence far beyond his most ambitious dreams is told vivaciously in his book. For it was research that called him as soon as he realized its possibilities. On graduating, therefore, he joined the Army, hoping thus to secure a settled income and adequate spare time, but shortly afterwards war with Spain broke out. He had a brief spell of active service, and then settled down in charge of a hospital near Porto Rico, thus entering, unsuspectingly, upon the drama of his life. A furious hurricane was followed by epidemic anaemia, and the way began to Colonel Ashford's discovery of hookworm infection. The description of the stages in convincing others of the truth of this explanation makes arresting reading, as does also his account of the subsequent founding of the

¹ *A Soldier in Science*. The Autobiography of Bailey K. Ashford. London: George Routledge and Sons, Ltd. 1934. (12s. 6d. net.)

Porto Rico Commission in 1904, which began the first campaign against the disease in the Western hemisphere, and reduced the death rate from this cause by 30 per cent. From this Colonel Ashford turned to uncinariasis, and then, in 1913, to tropical sprue. The late war brought him to France, where he was actively engaged in 1917 and 1918, receiving battle clasps for the Aisne-Marne and Argonne-Meuse and the D.S.M., and being created an honorary C.M.G. The war interfered with his important work in connexion with the Rockefeller Medical Commission in Brazil, and the establishment in that country of a centre for the study of tropical diseases, as the result of what he aptly terms "a reconnaissance," but the work was completed, nevertheless. On his return from Europe Colonel Ashford was called upon to edit the *American Medical History of the War*, when, as he writes, he was all the time impatient to complete his work on sprue and to convert the Institute of Tropical Medicine in Porto Rico into something permanent and worth while. So he insisted on returning, but the "no truce in the Tropics" sent him first to investigate an outbreak of fever in Cuba. He then achieved his ideals, and was hopefully looking forward to fresh exploits when death overtook him. His autobiography, simply narrated without hyperbole, reads like a modern saga—which, in fact, it is. It tells the tale of the still-continuing yet oldest war of all, man's struggle against nature, carried on with the undying hopefulness and determination which enabled humanity in past eras to overcome many physical foes. This story of the life of a pioneer in restoring many thousand sick and apparently dying to full physical efficiency, of an insatiate explorer of the mysteries of disease, and of a great lover of mankind was eminently worth telling, and is excellently told.

We regret to announce the death, at Mundesley Sanatorium, Norfolk, on November 8th, and after an illness of only a few months, of R. H. MORLEY, M.D., M.R.C.P., aged 30. Dr. Morley was educated at Kingswood School, Bath, and Leeds University, graduating M.B., B.S.Lond. in 1928. He held clinical and pathological appointments at the General Infirmary, Leeds, and then went to London, where he was house-physician at the Brompton Hospital and later house-surgeon at the East London Hospital for Children. After this he went into general practice in Norwich, hoping to get appointed ultimately to the staff of the Jenny Lind Hospital for Children, at which he was clinical assistant at the time of his death. Morley was one of the outstanding students of recent years at Leeds. He was president of the Leeds Students' Union and vice-president of the National Union of Students of Great Britain; he was also a good athlete, representing the university at Rugby football, swimming, and tennis. Though very able, he did not strive after academic honours, but was widely read and possessed a finely critical and original mind. He was keenly interested in art and literature, and had recently written more than one play. He was, moreover, a delightful and stimulating companion, the one above all others one would choose for a holiday. His untimely and unexpected death comes as a great tragedy to his friends, who had foreseen a notable future before him and will deeply feel his loss.

The sudden death occurred, on October 29th, at his home, Hamilton Road, Bangor, Co. Down, of Dr. JAMES C. NICHOLSON. Bangor mourns his death, for he was a most popular practitioner, and the loss is felt all the more because he apparently had many years of useful work before him. Dr. Nicholson had lived for a time in America, but returned to this country to study medicine both at Belfast and at Edinburgh, obtaining the L.R.C.P. and S. diplomas in 1901 and the F.R.C.S.Ed. two years later. From the time he qualified until 1916 he was attached to the John G. Paton Mission, and had charge of the hospital in Tanna in the New Hebrides. He answered the call for doctors during the war, joining the Australian Army Medical Corps, and saw service in France. On

demobilization in 1919, he settled in Bangor, and built for himself a most successful practice. By colleagues and patients alike he was always admired both for skill in his professional work and for uprightness of character: his passing leaves a gap which will take a long time to fill. He was an enthusiastic believer in outdoor sports, and a valued supporter of both Rugby and Association football, being a vice-president of Bangor Rugby Club. He was a member of the British Medical Association and a Fellow of the Ulster Medical Society. His only son, Dr. John C. Nicholson, assisted his father for a time in his large practice. Dr. James Nicholson leaves a widow and four daughters as well as his son.

Dr. A. A. STEWART, who died on November 10th at Northampton, graduated at the Royal University of Ireland in 1893. He entered into general practice at Northampton about forty years ago, and continued his work with marked success practically up to the time of his death. His whole heart was in medicine—so much so that he allowed himself a holiday only with great reluctance, and never had time for recreation. He was greatly esteemed by his patients and a large circle of friends, as was evidenced by the very big congregation at the church service. An old and enthusiastic member of the British Medical Association, he seldom missed the local Branch meetings. He had been an active member of the Local Panel Committee from its inception, and for a number of years up to the time of his death had acted as its treasurer. In 1900 he married Ada, the daughter of James Whyte Stenhouse of Manchester, who, with a son and daughter (both in the medical profession), survives

The following well-known foreign medical men have recently died: Dr. ANGEL GALLARDO, rector of the University of Buenos Aires and member of the Academy of Medicine of Buenos Aires, aged 67; Dr. THEODORE H. WEISENBURG, professor of neurology at the University of Pennsylvania Graduate School of Medicine since 1907, and editor-in-chief of the *Archives of Neurology and Psychiatry* since its foundation in 1919, aged 58; Geh. Med.-Rat Professor Dr. WILHELM VON STARCK, for nine years professor of children's diseases and director of the Children's Hospital at Kiel, aged 76; Dr. ALBERT FERNAU, professor of radiology at Vienna, aged 56; Dr. ALFONSO POGGI, emeritus professor of surgical pathology at Bologna; Dr. G. SALUS, emeritus professor of hygiene at Prague, aged 72; and Dr. W. H. JOHNSON, professor of orthopaedics at Charlestown, South Carolina.

The Services

The King has conferred the Efficiency Decoration of the Territorial Army on Colonel H. F. Humphreys, O.B.E., M.C., K.H.P., A.D.M.S., 48th (South Midland) Division; Lieut.-Colonel R. A. Broderick, D.S.O., M.C., R.A.M.C.T.A.; and Major A. C. Haddow, R.A.M.C.T.A.

NO. 29 GENERAL HOSPITAL

The sixteenth annual reunion dinner of the 29th General Hospital will take place at the Princes Galleries on December 15th, when Lieut.-Colonel S. H. Withers, C.M.G., will preside. Officers are asked to communicate with Captain Percy Groves, Heronfield, Meadowcourt Road, Leicester.

DEATHS IN THE SERVICES

Lieut.-Colonel Ernest Brodribb, R.A.M.C. (ret.), died at Hove on November 10th, aged 61. He was born at Warminster on December 13th, 1872, took the M.R.C.S. and L.R.C.P.Lond. in 1896, and entered the R.A.M.C. as surgeon-lieutenant on July 28th, 1897. He became lieutenant-colonel on March 1st, 1915, was placed on half pay on account of ill-health on January 10th, 1917, and retired on January 19th, 1921.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

A new session of Parliament was opened on November 20th by a speech from the Throne, which promised legislation for the future government of India, for the assistance of distressed areas, for shipping, on electricity supply, and for imperial air communications. The paragraphs referring to housing announced that so great a measure of progress had been attained that the Government was able to contemplate the next step in the process of improving the housing conditions of the people. A Bill would accordingly be submitted for preventing overcrowding and making provision for the rehousing of those found to be living in overcrowded conditions. There would also be a similar Bill applying to Scotland. Measures would be introduced, if time permitted, for the control of building development along the main thoroughfares, for providing better housing of the metropolitan police, and other subjects.

Debate on this programme followed in both Houses. In the Commons the Government proposed that the whole time of the House should be taken for Government business. This does not forbid introduction of Bills by private members, but precludes their passage.

Before Parliament was prorogued, on November 16th, the Royal Assent was given to the Betting and Lotteries Act and the Poor Law Act.

National Health Insurance

Sir HILTON YOUNG told Mr. Tinker, on November 14th, that the number of persons in Great Britain who, on December 31st, 1933, were insured under the National Health Insurance Act was approximately 18,481,000. The age distribution of the persons so insured was last ascertained as at December 31st, 1931, and the number of insured men aged between 55 and 60 was then about 799,000.

The Minister told Mr. Buchanan on that day that he had decided to grant the same extension of the period of grace for the redemption of arrears by insured persons as was given last year, and publicity had already been given to this decision in a circular to all approved societies and by notices in the public press.

In an answer to Sir Arnold Wilson, on November 16th, Sir HILTON YOUNG said that out of about 12,000,000 insured men and 6,000,000 insured women, 9,000,000 men and 2,000,000 women were members of approved societies giving dental benefit. The great majority of the societies paid half the cost of treatment.

St. Mary's Hospitals, Manchester, Inquiry

Sir Hilton Young announces that the authorities of St. Mary's Hospitals, Manchester, have concurred in the request by the City Council of Manchester for an inquiry into the death of a patient. The circumstances of this case were so special as to justify an exception to the established rule against publication of the report of the inquiry.

The Ministry of Health subsequently announced that the report of the inquiry into the death of Mrs. Taylor would be sent to the Manchester City Council very soon for publication, and would also be sent to St. Mary's Hospitals.

Fitness for Marriage

In the House of Lords, on November 14th, Lord KILMAINE moved that the marriage laws should be so amended as to make it obligatory for both parties to produce medical certificates of fitness when they came before a minister of religion or the civil authority. He said he had talked over the subject with many medical men, and found general agreement that legislation on the lines he suggested was needed. He proposed that the solemnization of any marriage in this country should be made illegal unless both the contracting parties could furnish medical certificates of fitness to marry

and to raise a family. These should be signed by some competent medical authority. The fee for them should be fixed as low as possible, and steps taken to ensure that the answers given were true. He proposed four certificates. "A" would show the parties were perfectly fit to marry and raise a family. "B" would show that for reasons of health delay was advisable, but the parties might present themselves again in three or six months; this would be an important provision in suspected venereal infection. "C" would say the parties could marry without danger to each other, but that it must be a childless marriage. It followed that some kind of birth control must be used for the unfit; he hesitated to say sterilization. Lastly, certificate "D" would prohibit marriage altogether in a case where there would be danger to the parties themselves. Legislation on the lines suggested would also diminish the number of lives spoilt by close in-breeding, which, in isolated communities, often resulted in mentally deficient children. He did not propose that couples should undergo medical examination; that would only be necessary where there was venereal disease. In all other cases it would simply be necessary to answer questions relating to general health and family history.

The Bishop of Norwich feared that, failing to receive any of the certificates suggested, many would form alliances from which children might result. He could not imagine that the certificates could be separated from careful medical examination. Many mental disorders were intermittent in their effects, and he foresaw difficulty in disqualifying for marriage, because their fathers or grandfathers had shown some mental disaffection, people who apparently were perfectly sane. Yet these people, adequate in themselves, might be the ones who could not be trusted to rear families. The Archbishop of Canterbury asked who was to certify; was it to be some State official? How was the private practitioner to take the responsibility except perhaps for the clear-cut certificate "A" or "D"? How was he to take on himself the responsibility of saying, "You must delay," or "I think you must be prepared to render yourself childless." What was the minister of religion to say when certificate "B" or "C" was brought? "Have you delayed long enough?" or "Are you quite sure you have made it impossible for you and your proposed wife to have children?" The recent report on sterilization and kindred subjects merited careful consideration, but he hoped the House would not pass Lord Kilmaine's motion as it stood.

Lord GAGE, replying for the Government, said the Ministry of Health regarded the subject as important. There was strong evidence for limiting the right to marriage of the mentally defective. The evidence of the recent report on the sterilization of mental defectives showed the suffering and misery which so often afflicted their children. The Committee on Sterilization had not dealt with the legal marriage of mental defectives, but the Board of Control on several occasions strongly recommended its prohibition. At present mental defectives in institutions were incapable of marriage. Under guardianship the consent of the guardian was required, but if a defective evaded the guardian's consent the marriage was valid. The Departmental Committee on Sterilization did recommend a form of voluntary sterilization, but was also of opinion that any hint of institutions being associated with compulsory sterilization would keep people from going for treatment and induce concealment from medical attendants. The loss of rights of marriage was less severe than sterilization, but any action by the State of that kind might drive underground facts which, in the interest of the State and of the individual, ought to be brought to the notice of the medical profession. To some people of nervous temperament dread of a medical examination would deter from a legal marriage, and it might tend to increase the illegitimate births. He agreed with the Archbishop that a medical certificate based on anything but a medical examination would not be a medical certificate at all. The Minister of Health and his advisers felt there was enough evidence, over a large number of years, to justify their testing public opinion, as they were doing in regard to the reports of the Board of Control and the Committee on Sterilization. The report of that Committee was being considered by institutions and bodies interested. Beyond that the Government could not go for the time being. To go on the lines suggested by Lord Kilmaine without large evidence of public and medical support would be disastrous.

Lord Kilmaine then withdrew his motion. He remarked that any doctor examining people should put down consumption, insanity, venereal disease, or close blood relationship as bars to the production of children.

Compensation for Compulsory Vaccination

Replying to Mr. Groves, on November 15th, Sir HILTON YOUNG stated that his attention had been called to the death of a nurse at Birmingham from vaccination, the operation being imposed by a Sheffield institution as a condition of employment. He referred to the remarks on this subject which were contained in the annual report of the Chief Medical Officer of his Department for 1933. Sir JOHN GILMOUR told Mr. Groves, on the same day, that he could not recommend legislation to extend the Workmen's Compensation Act, 1925, to death or injury due to vaccination where the circumstances were not such as to bring the case within the terms of Section 1 of the Act. This restricts compensation to cases of personal injury by accident arising out of, and in the course of, employment. Mr. Groves suggested that the Act should be amended to put on employers the responsibility for the injurious or fatal result of vaccination performed as a condition of employment.

Medical Inspection and Free Milk.—Mr. RAMSBOTHAM told Miss Rathbone, on November 15th, that the Minister of Education was not prepared to withdraw the restriction placed by Circular 1437 upon the freedom of local authorities to give milk or meals free to children on account of their parents' poverty without first requiring a medical inspection. Under any system other than that of medical selection there was a danger of overlooking children who required attention. He attached the highest importance to a close study of defective nutrition and its treatment, and regarded it as in every way advantageous that this part of the work of the school medical service should be linked with the arrangements for provision of meals and milk. Replying further to Miss Rathbone, Mr. Ramsbotham regretted that in the returns supplied to the Board of Education the salaries of school medical officers were not apportioned between the various forms of medical inspection and their other duties. Therefore it was not possible to state the average cost of every special medical inspection and also of every routine inspection of a school child. Asked whether a cost for inspection of 7s. per child was not a large expenditure for the purpose of determining whether a child should receive 2½d. worth of milk, Mr. Ramsbotham said he hoped this would not be grudged in view of the importance of the subject.

Milk-in-Schools Scheme in Scotland.—Mr. SKELTON told Mr. Anstruther-Gray, on November 15th, that the Glasgow education authority had not yet in operation a scheme for the provision of milk under the new milk-in-schools scheme, but a draft scheme had been prepared. When this was in operation about 142,000 children would be included; at present 5,900 children in Glasgow were having milk in schools. Sir GODFREY COLLINS told Mr. Boothby, on November 15th, that the North of Scotland Milk Marketing Board proposed to make arrangements for the supply of milk for schools within the area of its administration. In Aberdeen and district the matter was under consideration by the Milk Marketing Board concerned.

Deaths from Asbestosis.—Replying to Mr. Thorne, on November 15th, Sir JOHN GILMOUR stated that about sixty deaths from asbestosis had been brought to the notice of the Home Office. After investigation all were attributed to exposure incurred previous to the Asbestos Industry Regulations of 1931. The disease usually took years to develop, and the period between commencement and death varied widely. Special inquiry in 1932 as to the risks in warehouse and certain other processes revealed no need for any extension of the regulations. Their effectiveness would continue to be closely watched.

Maternity and Child Welfare Services.—Replying to Miss Cazalet, on November 15th, Sir HILTON YOUNG stated that where there had been a reduction of the amount spent on the maternity and child welfare services the first step was to ascertain the reasons for, and the effect of, the reduction.

If there was reason to fear less efficient services, he directed a local investigation and made the necessary representations to the authority concerned. The expenditure of the grant of £5,000,000, which was included in the general Exchequer contribution for each year in the first fixed grant period under the Local Government Act, 1929, was within the discretion of the local authorities. A condition was that they should maintain a reasonable standard of efficiency and progress in the discharge of their public health functions. The policy of the Government was to secure a development of the maternity and child welfare services, and steps had recently again been taken for the purpose.

Welfare of the Blind: Advisory Committee.—Replying to Mr. T. Smith, on November 15th, Sir HILTON YOUNG said that on the Central Advisory Committee for the Welfare of the Blind, in addition to the representative of the National League for the Blind, there was another member closely connected with the League. He could not at present undertake to add to the size of the committee.

Outbreaks of Foot-and-Mouth Disease.—Sir GEORGE BOWYER stated that no general cause had been discovered for the outbreaks of foot-and-mouth disease in six areas of England during November. In no area had the initial cause been traced, but there was no reason to suspect that the outbreaks were caused maliciously.

Medical News

The Sheffield medical dinner will be held at the Royal Victoria Hotel on Thursday, December 6th, at 7.45 p.m., when Lord Dawson will be the chief guest. Applications for tickets (13s. 6d.) should be made to the honorary secretary, Dr. T. E. Gumpert, 331, Fulwood Road, Sheffield, W.

The annual old students' reunion dinner of the London (Royal Free Hospital) School of Medicine for Women will be held on the evening of Thursday, December 6th, at the Savoy Hotel.

The annual dinner of the London Jewish Hospital Medical Society will take place on December 9th at the Trocadero Restaurant, when Sir Humphry Rolleston will be the guest of honour.

A meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, W.C., on Friday, November 30th, at 4 p.m., when Dr. J. M. Greenwood will open a discussion on "Puerperal Fever." At the same place and on the same day the Maternity and Child Welfare Group will meet at 8.30 p.m., when a discussion on "Heredity and Mental Deficiency" will be opened by Dr. J. F. Roberts.

A meeting of the medical section of the British Psychological Society will be held at the Institute of Psycho-Analysis, 36, Gloucester Place, London, W.1, on Wednesday, November 28th, at 8.30 p.m., when a paper on "Femininity and Passivity" will be read by Dr. Sylvia Payne.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 27th and December 4th, at 2.30 p.m., and on November 28th and December 5th, at 8.30 p.m., lectures on diet and dietetics. On December 8th, at 3 p.m., Dr. B. T. Parsons-Smith will give a demonstration of heart cases, especially suitable for general practitioners, at the National Temperance Hospital, Hampstead Road, N.W. The following courses of instruction will take place during the last six weeks of the year: infants' diseases at the Infants Hospital, Vincent Square, S.W., from November 26th to December 8th (afternoons only); dermatology at the Blackfriars Skin Hospital, from November 26th to December 8th (afternoons only); special M.R.C.P. course in chest diseases at the Brompton Hospital, Wednesday and Fridays, at 5 p.m., from December 12th to January 11th (excluding Christmas week). Courses, lectures, etc., arranged by the Fellowship are open only to members.

The offices of the Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England, at the Examination Hall, Queen Square, W.C.1, will be closed on Thursday next, November 29th, on the occasion of the Royal Wedding.

The governing body of St. Mary's Hospital Medical School has decided that after October 1st, 1935, admission to the school will be restricted to students reading for university degrees. In practice this means the Universities of London, Oxford, and Cambridge. In making this announcement the dean, Dr. C. M. Wilson, states that for some years St. Mary's has given preference to students taking university degrees in the selection of its annual entry. It is now prepared to take the further step of committing the school to this policy.

The annual congress of the British Institute of Radiology will be held at Central Hall, Westminster, S.W., on December 5th, 6th, and 7th. In association with the congress an exhibition of x-ray apparatus will be held in the same building, under the auspices of the British x-ray industry.

The Ministry of Health has issued a Circular (No. 1417) relating to the contents and arrangement of the annual reports of medical officers of health for 1934. The reports this year are of the "ordinary" and not of the "survey" type, the information being limited in the main to recording alterations, improvements, or developments which have taken place during 1934, together with statements of any noteworthy conditions prejudicial to the health of the area and of any special action taken to arouse public interest in the prevention of ill-health. When the boundaries of a district have been materially changed during the twelve months under review, the medical officer of health should comment on any new problems of public health administration created thereby. It is also necessary for the medical officer of health of every district council to report specifically on the administration of the Factory Acts in workshops and workplaces.

The remains of Laennec, which had previously been exhumed in 1846 on the death of his wife, were again exhumed on September 23rd and placed in a leaden coffin in a vault of the church at Ploaré, Brittany, where he died in 1826.

Dr. William Moodie, director of the London Child Guidance Clinic, has been appointed medical consultant to the National Institute's school for mentally retarded blind children at Court Grange, Abbotsekerswell.

The following medical men were elected mayors on November 9th: Dr. W. E. Jones (Leamington), Dr. J. V. Shaw (Hereford), and Dr. H. F. Curl (Wokingham).

Dr. I. A. Jackson (Lincoln's Inn) and Dr. J. C. Pickup (Middle Temple) were called to the Bar on November 19th.

Professor Fernand Bezançon has been nominated general secretary of the International Union against Tuberculosis, in the place of the late Professor Léon Bernard.

Dr. Leon Cardenal, professor of surgery at Madrid and president of the last International Congress on Cancer, has been nominated rector of Madrid University.

Dr. Marion, professor of urology in the Paris Faculty of Medicine, has been elected member of the Académie de Médecine in the Section of Surgery.

A Dutch association for cardiology has recently been founded, with Professor K. Wenckebach of Vienna as president of honour and Professor W. Kuennen of Leyden as president.

The well-known psychologist Dr. C. G. Jung of Zurich has presented 200,000 Swiss francs to the Higher Technical School of Zurich to form a fund for the advancement of psycho-analysis and allied studies.

The Belgian Society of Gynaecology and Obstetrics offers a prize of 10,000 Belgian francs, to be awarded every four years, for the best gynaecological or obstetrical work. Further information can be obtained from the secretary, Dr. M. Cheval, 16, Rue Alphonse Mottat, Brussels.

From March 18th to July 14th 3,107 cases of typhus were notified in Chili, exclusive of 101 doubtful cases.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:
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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegram: Bactillus, Dublin); telephone: 62550 Dublin, and of the Scottish Office, 7, Drumshigh Gardens, Edinburgh (telegram: Associate, Edinburgh; telephone: 24961 Edinburgh).

QUERIES AND ANSWERS

Priapism after Circumcision

"D. R." writes: Could any of your readers give me any help in the following case? A little boy, aged nearly 5 years, was circumcised when about 3 months old against his father's wish, but by order of the doctor, and the mother wished him to be done. The child was kept by a nurse, but the mother and father noticed, when they kept the child some nights, that immediately on awakening there was an erection. This was when the child was about 2, and this has been noticed since, and the same also when the boy's bladder is full or when he wishes to have a motion. It has caused a lot of unpleasantness, as the father blames the operation for circumcision. It should be stated that the child's father suffered from erections which had nothing to do with sexual excitement, but he was found to have glycosuria, due to renal deficiency, probably congenital. The boy is a normal healthy boy in every way, very intelligent, but the mother is very anxious in case it should lead to masturbation or any other sequel.

Hexyl-resorcin during Lactation

Dr. S. P. WILSON (Wakefield) writes: About two years ago I tried caprolol in a case of cystitis due to *B. coli*. The immediate result was good, but recently the same patient has had a recurrence of symptoms. She is breast-feeding her six-months-old baby. Is the administration of caprolol now likely to affect the milk, either in taste or quality? British Drug Houses Ltd. inform me that as far as they know caprolol is not contraindicated, but the patient is still unwilling to try it at present. I should be glad to hear of experiences bearing on the question.

Income Tax

Replacement of Car

"H. S. F." bought a car in 1925 for £660, but has never claimed the depreciation allowance. In September, 1934, he sold the car for £45 and bought another car for £335. What can he claim?

* A claim for the cost of replacing a car has to be treated as one to deduct a professional expense; that expense was incurred in 1934, and the claim would therefore affect the assessment for 1935-6 only. The amount is the out-of-pocket cost—that is, £335 - £45 = £290. It will be seen that on this basis "H. S. F." loses the allowance for half the original cost of the old car, and it would have paid him much better to claim yearly "depreciation," plus the obsolescence allowance, on replacement being made. He can, however, put in a six years' claim now under Section 24 (1) of the Finance Act, 1923; this

is probably his best course, but possibly it might be advisable to have the assistance of an accountant with that claim.

Interest Paid out of Profits

"R. C." puts the following query. A lends B £1,600 for the purchase of a practice on which B pays £50 per annum interest, and that sum is included in the assessed profits of the practice. Does A also pay tax on the £50?

* B pays tax on the £50 (at full standard rate) as part of the profits of the practice. When he makes payments to A he is entitled to deduct tax, so that a quarterly payment would be £12 10s. less £2 16s. 3d. (tax at 4s. 6d. in the £)—that is, £9 13s. 9d. net. Thus ultimately the tax is borne by A, who, of course, is not assessable for that item of income. If B omits to deduct tax, A is still not assessable.

M.O.H.—Use of Residence

"W. S. H." is M.O.H. under a local authority. He is provided with office accommodation at the council offices and with a telephone at his private residence. Occasionally visitors call at the residence outside office hours. Do these facts justify any claim to deduct a part of the rent, etc., of the residence?

* We fear not. To be deductible from the emoluments of employment expenses must be incurred wholly, exclusively, and necessarily in carrying out the duties of the appointment, and "W. S. H." would probably be unable to convince the authorities that his residential expenses are increased by the installation of the telephone or the occasional calls of visitors on business.

LETTERS, NOTES, ETC.

Metal Cider Taps and Lead Poisoning

Dr. H. H. MOYLE (Stalbridge, Dorset) writes: In a case of lead poisoning in a patient of mine, a mason with nothing whatever to do with lead, I was at a loss as to the cause, for the usual channels were negative. The solution is as follows. The man, of very temperate habits and the only one in the house to take anything at all, used to have a glass of cider at night, sometimes missing a night or so. On examining the tap which he brought up for my inspection I found it to be one of the usual combination wood-and-metal type, and the metal was lead, the key and four small brads being of other metal. Malic acid acts very quickly on lead, and it seems there should be some iron on this type of article for use with cider or other drinks liable to act and cause trouble. The ironmonger from whom the tap was obtained said he had sold lots of these taps and had, in fact, supplied the farmer from whom my patient had obtained his supply. At this time of the year, when supplies of cider are being taken in after cider-making is over, it does seem that this tap may be the cause of no little trouble.

Calcium Lactate as a Muscle Tonic

Dr. G. P. BARFF (Holyhead) refers to a previous letter of his, published in the *Journal* of March 9th, 1929, on the above subject, and describes the case of an ex-athlete, aged 73, who sustained a remarkable improvement in his muscular development and tone as a result of calcium lactate therapy. He writes: I am of opinion that the constructive changes brought about in muscular metabolism resulted from prominent articles of his (the patient's) spare and regular diet containing synthetic products of human milk, or products similar to those formed by the suckling infant during the course of infantile digestion. He adds: I see no reason why the shrinkage of muscular tissue, usually associated with the last stage of life, should not be eliminated by reconstructive measures taken in time. Further particulars can be supplied to anyone interested, on application to Dr. Barff, Trigfa, Four Mile Bridge, Holyhead.

Fractured Spine Caused by Strain

Dr. ALFRED A. MASSER (Penistone) writes. The following case of fractured spine following a sudden muscular strain may prove of some interest to your readers. The patient, aged 47 years, was employed as a clerk till April, 1932, prior to which date there was no history of any injury whatsoever. One morning during that month he was called upon to help unload some heavy bags of money from a taxi outside the office. While lifting a particularly heavy bag from

the ground, he suddenly felt something snap in his back, and collapsed on the floor. He says that he felt the use go out of his limbs below the waist for a few moments, but this passed off, though he still complained of a severe pain in the lumbar region of the spine. After resting for a little while in the office he was able to travel home by bus unattended, having fastened his belt firmly round his waist. He continued in bed for three weeks, and after another month's convalescence he returned to work. He continued his employment for twelve months, apparently in good health, except for occasional pain in the lumbar region and a jarring sensation down the spine on walking downhill. In view of the persistence of the pain he sought medical advice, and on x-ray examination a fracture of the body of the third lumbar vertebra was reported by the radiologist. The nature of the accident as the cause of a fractured spine, and his ability to travel home by bus shortly after it had occurred, appear very unusual, and his continuation at work for twelve months with an ununited fracture of the spine seems worthy of note.

Identification of Glass by Ultra-violet Rays

Dr. FRANK W. MARTIN (Forensic Medicine Department, Glasgow University) writes: Samples of glass, all similar to the naked eye, when exposed to filtered ultra-violet light sometimes show great variability in the colour of the fluorescence. Symons (*Police Journal*, vol. iii, No. 2) has drawn attention to the fact that glass may be identified by exposure to filtered ultra-violet light. I was recently able to prove the accuracy of this statement. In a "smash-and-grab" raid in a large city some time ago a man was arrested for breaking the window of a public-house and stealing a bottle of whisky. On the shoulder of his jacket were two small splinters of glass. The writer was asked by the police to try to identify these splinters of glass with glass from the public-house window. The window in question was made up of two kinds of glass, clear and frosted. Samples were obtained of both, and these, along with a large variety of pieces of glass unconnected with the scene of the raid, were submitted to the fluorescence test, and the result compared with the fluorescence of the splinters on the accused's jacket. From the fluorescence colour exhibited it was possible to state that one of the splinters from the public-house window and the two splinters were of the same make. While it is not claimed that this is absolute identification, it was accepted in court as good presumptive evidence.

Prevention of "Steaming" Glass

Dr. J. ROLAND MURDOCH (Liverpool) writes: A preparation, "Cee-all" (anti-steam), has recently appeared on the market for use in keeping motor-car mirrors and screens perfectly clear in fog or rain. I have found it of service when applied to laryngeal mirrors, as it saves time in dispensing with the necessity for heating the mirror before use. It may be of service to surgeons who wear eyeglasses in the operating theatre. One drop of this preparation is smeared over the glass and afterwards polished off with a clean dry cloth. One application lasts for many days. The label bears the name of O. R. Rowlands, chemist, Wallasey, who is, I presume, the maker.

Corrigendum

The writer of the appreciation of Dr. David Inglis (November 17th, p. 923) misquoted Horace. The passage (*Odes*, 2, 16, 26) should read: "... amara lento temperata nix." The learned correspondent who points this out suggests that "an apology to the genial shade of Horace is indicated"—and we agree.

Messrs. H. K. Lewis and Co., Ltd., submit a specimen of their serviceable ante-natal record card for use with the card index system, size 8 in. by 5 in. Their new "systems" catalogue, also received, describes the many different applications of card indexes and vertical filing systems of use to medical practitioners for book-keeping, case-taking, etc. A very full range of cabinets and cards is offered.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 48, 49, 50, 51, 52, 53, and 54 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum-tenencies at pages 54 and 55.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 255.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, DECEMBER 1st, 1934

INTERNATIONAL ACTION TO CONTROL THE SPREAD OF INFECTIOUS DISEASES*

BY

SIR GEORGE S. BUCHANAN, C.B., M.D., F.R.C.P.

A conviction that international co-operation for the control of the spread of infectious diseases deserves to be better known among public health workers than it often is—or at least to be appreciated in better proportion—has led me to address you on this subject this afternoon. In effect I would invite you to inquire with me into the progress made by international methods in the post-war years, and what those methods are. It will not, I hope, be too dull or profitless an inquiry.

In recent years we have come almost imperceptibly to increase co-operation with fellow workers in foreign countries and in other parts of the British Empire on almost every technical subject. Whether it is economics, trade, air routes, water problems, athletics, or what you will, we cannot go far before asking ourselves how they manage the matter, say, in America, or in France, or in Italy, or in the Dominions: Do they do things our way? Have they a better or a worse? Are we cutting one another's throats? Are we pulling together or can we pull together to mutual advantage? Health questions are no exception in this respect. The cosmopolitan tradition has always been strong in medicine and in public health. It was long ago embodied in the Red Cross, and we know what that meant in terms of curative treatment for friend and foe alike during the war. Some of my audience will remember how closely mutual action for disease prevention brought the allied forces together at that time; nearly all will have personal knowledge since then of the advancement effected in some health subject or other by consultations in which nationality and race have hardly needed to be thought of.

To take a non-infectious disease, cancer: it was four months ago at Zurich, in German-speaking Switzerland, that I found myself at a busy and well-organized international congress at work on its radiotherapy. The physicists, radiologists, physicians, and surgeons one met there had come not only from Central Europe but from all parts of the earth to do common work and to make friendships. The cause was the thing, and for them put completely into the background the happenings in Austria and in Germany during that historic fortnight between July 20th and August 3rd. It was, in fact, a big cause and an enduring one. If radiotherapy offers our best method of curing many forms of cancer, and if the philanthropists and the health authorities everywhere are to provide it and spend vast sums of money in obtaining it, the proofs must be offered, the methods declared, and the results estimated. The last is no easy task for cancer, where it must be made a condition before expounding results that the treated cases have been followed up for at least five years to ascertain if the patients die or if the cancer has recurred, and it cannot be done at all without a close

understanding between the workers on the use of terms and on the practices followed.

None of this, as things are now, is within the compass or resources of the workers in a single nation. The big radiotherapeutic work is being done, in different ways, in a few institutes which are scattered all over the world. The Zurich congress had not met for combat between them, but to learn what each had done and is doing, and, as a preliminary, to secure that all successes and failures are observed and reported so that they can be understood and compared. It is a good topical example of voluntary co-operation on the international side, successful for the same reasons that national congresses like the present are successful—namely, the possession of an essential subject, thorough preparation, and meetings held at reasonable, not too frequent, intervals. A list I have of such voluntary international congresses on health and medical subjects in different countries during the past year exceeds a hundred. One does not want to exaggerate their significance, or to claim that no work is good until it has been talked about in a foreign capital. But the point to be made is that in these days in almost any expert work the element of international consultation is required sooner or later, and that we have come almost imperceptibly to accept its necessity and to welcome it.

International Health Organizations

What I have said so far relates to intercommunication—the international congress is only one method—arranged voluntarily between individual workers of different countries, helped, as they often are, by the authorities which they serve or by world health agencies, of which the Rockefeller Foundation is the chief. But the same tendency towards international consultations and understandings has in recent years been evident in the health work of national Governments, and it must be remembered that now in some countries, such as the U.S.S.R., every medical and every public health activity is State-organized and State-directed. This has largely been brought about, or at least facilitated, by the League of Nations, through its Health Organization. The Covenant of the League contains an article [Art. 23(f)] which states:

"Subject to and in accordance with the provisions of international conventions existing or hereafter to be agreed upon, the Members of the League . . .

"(f) Will endeavour to take steps in matter of international concern for the prevention and control of disease."

This obligation of States members of the League has from the beginning been taken seriously. The Assembly votes a substantial annual health budget for its Health Organization, which consists of a medical director and a technical health section of the Secretariat, aided by a committee of health experts of different nationalities.

* Address to the Public Health Congress, November 19th, 1934.

During the last twelve years a great variety of public health and medical subjects has been taken up internationally by this Health Organization. This can be illustrated easily from the world map, which recalls in some places missions to countries asking for foreign experience in the organization of their health services (notably the Balkan States and the Republic of China); in other places meetings of experts on particular subjects such as malaria, leprosy, and sleeping sickness, or the "interchange" visits, with which British medical officers of health are especially familiar. To these must be added particular conferences, say, on cancer statistics, or on the standards and definitions to be adopted for serums, vaccines, and vitamins. The League work also includes the powerful aid to knowledge of epidemic diseases in the Far East provided by the Far Eastern Bureau, which it maintains, largely as a result of Japanese initiative, at Singapore, and to which I will allude again in a moment.

I cite this work of the Health Organization at Geneva not so much because of its bearing on my theme this afternoon, which is international control over the introduction of infectious diseases, as for the example it gives of the international collaboration going on in other fields. Most of the Geneva work has had the advantage of new ground to occupy. It is otherwise with international measures for the control of the introduction of infectious diseases, which have behind them some centuries of tradition, and have been the subject of active international or diplomatic interventions from time to time ever since the plague periods of the Middle Ages. Some of these traditions are strong, and in many places continue to govern the national practice. Some, it must be admitted, are, or until quite recently have been, quite out of date when modern knowledge of the causation of epidemics and modern methods of intercommunication are considered.

Here, therefore, progress in reform and rationalization is by no means easy. It cannot be rapid or be dealt with by short cuts. It has, however, been a notable and encouraging progress, which will bear comparison with the newer type of international work. Some of it has been effected through the new machinery of the League, but most is done through the earlier established International Office of Public Health, which was set up in Paris under the Rome Convention in 1907, and has since had various new duties added to it by subsequent international agreements. This body, often better known as the *Office International d'Hygiène Publique*, since its official language is French, has various ties with the Health Organization of the League to avoid overlap, and, if the League of Nations' spirit consists in working for and obtaining international understanding and camaraderie, it works, side by side with the League, fully in that spirit.

First Public Health Services

Sanitary organization for the defence of frontiers, which at ports meant quarantine services, was among the earliest, if not the first, of the services established in the name of public health. The largest organized State public health service in the world, that of the U.S.A., sprang from frontier defence, and still depends upon it. Our own State medical services were at the beginning deeply concerned with quarantine, and started with the cholera menace of last century. Only the other day a new Government, the National Republic of China, decided to set up an effective port sanitary service as a preliminary to the organization of its internal public health administration.

Owing to modern knowledge we need have far less apprehension than used to be the case of the results of the mere importation into a country of a disease to which we are strangers, and it is unfortunately true that many of the worst infections—*influenza*, for example—will defy

all frontier measures. Our recent tendency with many epidemic and endemic diseases is to rely more on immunization, on specific curative treatment, and on general measures of hygiene, such as the prevention of overcrowding, than upon mere defence against the introduction of, or exposure to, the infection itself. One can conceive, indeed, that by another generation or two frontier defence against infections may almost come to be disregarded in view of other available measures; a time when we could be content, and the public we serve would be content, to disregard even the importation of cases of major smallpox; to accept the arrival of the plague-infected rat, or the dog which may be incubating rabies; to chance the anthrax-infected shaving-brush or the psittacosis parrot—always in confidence that, if these or any other infections come into the country, local action will circumscribe and extinguish them, and local action will suffice.

But if this time is to come, it is not here yet, and I do not see local authorities asking for it. We may not place as much value as we did on protection against exposure to infection, but at least we expect to have that protection provided when it can effectively be exercised. For home administration this is a truism: at home we insist on maintaining disinfection, hospital isolation, and many other measures to keep people from exposure to infection, sometimes even at a greater cost and effort than a strict sense of proportion would warrant. In the case of importations from abroad parallel action must be maintained, and is expected. If defence against the introduction of infections is only one of the measures required, defence there must still be.

Now in the past, and indeed until quite lately, defence was usually the only measure thought of. If you are interested enough to study the literature of what was called the Levantine plague or of cholera diffusion—you will find much of it epitomized by Simon and in the Local Government Board Medical Reports, and more recently by Professor E. W. Hope in his book on *Health at the Gateway*—you will soon appreciate how ruthlessly, from the seventeenth century well into last century, these national self-protective measures were applied.

Early Port Sanitation

Leaving aside land frontiers, it was common practice at seaports for passengers and crews, sick and healthy together, to be kept in isolation for weeks in the cramped space of the ship at a quarantine anchorage or be herded into lazarets on shore, or for the ship to be incontinentally repulsed to any other port in which it could find refuge; or for merchandise to be destroyed wholesale and ship-owners ruined because the ship had come from a port where pestilential disease was suspected to exist. It was from this aspect, inhumanity and restraint of commerce, that international agreements about infectious diseases came to be made. The formal International Sanitary Conventions on the subject, which started in 1892, were directed far less towards joint action for controlling the spread of disease than to getting rid of the intolerable administrative position created by the working of the individual national defences. Enormous diplomatic energy was for this purpose expended in the successive pre-war International Sanitary Conventions, up to and including that of 1911, and they were not unsuccessful. They limited the detention of ships and passengers and freed the cargoes. They gave port sanitary authorities a defensible code of action to work upon with medical authority behind it, and helped to make them, at least in this country, the practical bodies they are. But to understand these international agreements you must think of them as being essentially of the nature of armament conventions which limit the range and calibre of the guns per-

mitted, rather than the occasions on which the guns need to be let off.

It has not been an easy task to intrude into this elaborate defence-regulating system new methods of international co-operation directed against the diseases themselves. When dealing with infections every administration has a traditional, as well as a natural, prejudice to rely solely on those measures which are wholly in its own control, while in many countries age-long legislation and practice have been based on the conception of this being the only line that a responsible authority can accept when it has to protect its own nationals.

We have, nevertheless, gone some way on the new lines and found them profitable, using as the chief instruments, first, the remodelling of the International Sanitary Convention effected in 1926, and secondly, the International Health Office at Paris, which has a permanent committee of technical officers representing nearly all the nations of the world, and includes a quarantine commission that regularly keeps the practical application of this important Convention under review.

Rat-plague Infection After the War

Let me take, as a good example of the change over, the spread of plague by the carriage of plague-infected rats on ships. When port sanitary authorities, old and new, got to normal work after the war they found that the spread of rat-plague infection from port to port by means of shipping had become a rather formidable affair in many parts of the world. When a rat-plague infection was introduced it could, in some circumstances, cause a considerable prevalence of human plague; even if it did not, the continued presence of epizootic plague among rats in the port had definite dangers and inconveniences, and its existence was naturally considered a reproach to the local sanitary authority and the health administration of the country. Many ports had attacked the position energetically, and they were encouraged to do so by the efficiency with which rats on shipboard could be destroyed by new fumigation processes—notably, by hydrocyanic gas in one form or another. It came about, therefore, that on the basis of individual port defence ships had only to go from, or to have touched at, ports in plague-infected countries for the authorities of the port visited to require them to be submitted to fumigation processes which, besides being costly to the shipowner, were as often as not unjustified by any evidence of the existence of plague-infected rats on the ship.

Now so long as this extreme measure of defence was only adopted in a few ports and on a few sea routes, it was accepted without much protest by shipowners, but when the ship, from the mere fact of having at some time or other during the voyage been at a plague-infected port, had to be fumigated again and again at many subsequent ports, the position became intolerable for the shipping trade, and, once the possibility of international co-operation was admitted, it was impossible to justify it.

Successful Measures for Its Control

The system which is now adopted is a really co-operative one. If there is actual plague infection on the ship it must, of course, be dealt with at once. But what we have now done is simultaneously to go for the root of the trouble—namely, the ship rat itself. Every six months, according to present international practice, a ship has to be properly overhauled at one of the recognized ports (there are now over 400 of them available throughout the world) to ascertain whether she harbours rats. If the inspection shows that does so, deratization by fumigation or by any other effective means is required. Other ports then recognize what has been done on the production of certificates carried with the ship's papers.

The whole system is regulated by the 1926 Convention itself, and its working is subject to periodical survey at Paris by the Permanent Committee of the International Health Office. It has now been in operation for seven years. Naturally it has not been established without anomalies and hard cases arising, but when they do there is machinery for their investigation and representation to the Government concerned to prevent their repetition. And, in fact, we find such cases get fewer year by year. The system has the full sympathy of shipowners, who now know what is expected of them in this respect, and on their side have come to realize how much can be done on the ship itself to avoid fumigation by making the ship, as it is termed, "rat-proof." A notable example of this tendency was lately furnished by a report, made by the joint committee appointed by the Chamber of Shipping of the United Kingdom and the Liverpool Steamship Owners' Association, where the essentials of rat-proofing are laid down for the guidance of shipbuilders.

That all these measures have enormously diminished the rat-infestation of ships is indubitable. They need to be supplemented, more than at present, by rat-proofing and rat-destruction at certain docks and warehouses, but if both continue as they are doing the object will soon be achieved. Plague will continue in certain regions of the world, but it will no longer be a disease of world diffusion. Its lines of communication will have been effectively cut. I could give you no more striking example of the advantages of combined international action supplementing, or even ultimately superseding, individual national defence.

The same principle has been applied in different ways to other diseases, notably to cholera, which, if it follows its usual epidemic cycles, will require special attention next year. Here we have secured a common recognition by all countries of precautions taken in the cholera-infected country, including anti-cholera vaccination. Of yellow fever I will speak in a moment in connexion with aircraft.

Varola Minor in England and Wales

I may dwell for a little while on the importation of small-pox, in view of the interest which all local authorities represented here have in dealing with that disease. Let us consider small-pox for a moment from the British end. The two epidemiological types of small-pox, *variola major* and *variola minor*, are now well understood, though both of them remain, and rightly, notified and notifiable under the term "small-pox." In most parts of England, though happily not in Scotland or in Ireland, we have, since 1922, become habituated to local prevalence of *variola minor*, the kind of small-pox which practically stops with the first characteristic rash, does not go on to the secondary fever or pustulation, leaves little or no pitting, and causes an almost negligible mortality and usually only a brief period of real illness, if any, to the patient. From 1922 to 1933 we had no fewer than 81,061 such cases notified in England and Wales. Regarded simply as small-pox, the number of small-pox cases in this country has been relatively far higher during this period than in any part of the Continent, with the possible exception of Soviet Russia.

Besides this we have the fact that the severe epidemic type of small-pox, *variola major*, exists and persists in Eastern countries—a notable epidemic of it occurred in Alexandria in the early months of last year—in which none of the characteristics of small-pox which have made that disease so much to be dreaded are absent. There is the heavy toxicity, the severe mortality—I am, of course, referring to persons unprotected by vaccination—the pitting, the scarring, and all the rest. If this infection is imported into this country it breeds true; in other words, it is the small-pox with which we were only too

well acquainted in 1893 and 1902. That it can do so has been proved by several examples of its importation by persons coming to England or Scotland in the incubation stage, or when the importation has been by cases that were missed at the ports. We are able to deal with such cases before they get much hold on the local population by strict measures of isolation, by surveillance of contacts, and by vaccination. The success of our practice in this respect, thanks to our system of central intelligence and the vigilance of local authorities, is well known and needs no restatement; I find that it constantly brings us credit when described to my colleagues of other countries. But it is a formidable and costly business for local authorities. The importation ought not to happen, if it can possibly be avoided.

This being the case, we have had, during recent years, to ask two things of the health administrations of other countries. The first was that they should recognize our epidemic variola minor, a differentiation on which we ourselves took—and needed—some time before we could make up our own minds. If you put yourselves in the position of the European countries you will realize that they, with no experience of variola minor, required some convincing. Apart from Switzerland, which had had an experience of the mild epidemic type of small-pox very close to our own, the Continental countries knew small-pox only in its classic or major epidemic form, and knew it from fairly frequent importations—in France, for instance, from her African possessions. When these importations took place and epidemics of small-pox occurred the health authorities applied drastic measures for their extinction, including obligatory vaccination of persons in the infected regions or entering other regions from infected areas. They had every right, confirmed by the text of the international agreements, to treat in the same way arrivals from a foreign country in which small-pox was epidemic. These arrivals should satisfy them of their immunity by producing evidence of recent vaccination, or should be vaccinated.

Episode of the Ship "Tuscania"

Even as late as 1929 the question came to a head by the episode of the ship *Tuscania*, which many of you may remember. For reasons I need not go into, the *Tuscania* landed at British ports forty-five persons actually incubating small-pox of the major type, who developed the disease in this country, nine of them dying from it. Our system of notification of contacts and surveillance was so good that no more than six secondary cases occurred; in other words, the whole group of variola major cases in the country only totalled fifty-three, all duly isolated and controlled. But the incident had become good newspaper copy all over the world, and at once the fact of our ordinarily having at the time a hundred or more notified cases of small-pox in England every week was mixed up with it. Variola minor was taken as a mere term of camouflage. England was a country in which small-pox was epidemic, and vaccination and other measures must be applied to those coming from it. For a while this was the view taken at French ports, and much inconvenience resulted until the situation was cleared up.

As a digression, I may say here that this foreign action had nothing to do with the English Vaccination Acts. It would not have mattered whether those Acts had or had not a conscience clause, or did not exist at all. The English Vaccination Acts, so far as they apply compulsion, relate only to the vaccination of infants. What the foreign countries were concerned with was the vaccination of the travelling adult. The international understanding on this point is that it is only vaccination within three years which counts in the case of arrivals from a small-pox-infected area. It is perhaps as well to

point this out, as the question of "international reprisals" has, I think without sufficient warrant, been introduced into some of the discussions about our own vaccination legislation.

Recognition of Two Epidemic Types of Small-pox

Apart from the *Tuscania* incident, no inhibitions have been imposed abroad upon travellers from England on account of the considerable small-pox prevalence of recent years, and another *Tuscania* incident now would not have the same consequences. The characteristics of our variola minor are now well understood in all responsible quarters, and this has been brought about in large measure by the system of international co-operation which the Post Office provides. If you have your facts, and can bring them twice a year before a committee of critical official technical representatives of every country interested, and can reply to their questions and get their experience, the administrative position is bound ultimately to clear, at least if you have enough persistence. In this case the Permanent Committee of the Office International d'Hygiène Publique, beginning with many doubts and hesitations on the question of stability of epidemic type, collected, session by session, the facts of past epidemics—for example, in Australia—and of the actual distribution of small-pox at the time. Though Europe was not generally familiar with it, extensive epidemics parallel to our own were going on in the United States and elsewhere, persistently mild in clinical type, of lower power of spread, and tending to natural extinction after three or four years of local prevalence. There emerged a mass of evidence, well put together for us by the delegate for Portugal, Professor Ricardo Jorge, on which the differentiation of the two epidemic types, major and minor, could be accepted both for scientific and, if need be, for administrative purposes. With this authority the two terms were embodied in the last *International Nomenclature* of causes of death, as also in the last official *Nomenclature of Diseases* issued by the Royal College of Physicians of London. They now govern the national precautions which we decide to take, and we know where we are.

If I have dwelt on variola over-long it is because of the advantage of presenting you with a good concrete example to show how one side of the international work is done.

Work on Other Infectious Diseases

The same system is habitually applied to other infectious diseases where the great necessity is to have prolonged international epidemiological study. It is in this way that the Permanent Committee of the Paris Office dealt with the discovery of that rare condition called *post-vaccinal encephalitis*. It was as invaluable to Holland and to two or three other countries as it was to ourselves to pool experience with a view to determining the circumstances of age, vaccination, etc., which were associated with this newly understood complication of vaccination. You will find abundant evidence of the practical use made of these studies in the reports of the English Departmental Committee on Vaccination.

The occurrences a few years ago, in several countries, of a virus disease contracted from parrots received similar international study with great advantage, since we were not only able to collect information bearing on the origin and causes of *psittacosis*, but also to settle between ourselves the advice which should be given to our Governments regarding the exclusion of parrots or attempts to control their importation. No one country wanted to be the dumping-ground of parrots which other countries refused to take. So also with *undulant fever*, which used to be called Malta or Mediterranean fever, as soon as it was ascertained that it could be prevalent in Northern

Europe. The warning of its prevalence in Scandinavian countries, brought to the table in Paris, led to inquiries here by the Ministry of Health, on which much of our present understanding and recommendations about this disease have been based. I could continue the list, mentioning particularly *cerebro-spinal meningitis*, on which information about prevention or treatment comes up to the Paris sessions year by year, and gives each of the delegates something new to take back and work upon. All inquiries of this kind ultimately appear in the *Monthly Bulletin* of the Office International d'Hygiène Publique, which represents one of the most solid contributions to the science of epidemiology which we possess to-day.

An International Intelligence System

To illustrate another side of the international work I go back to small-pox and to the second English requirement—namely, to keep down importation of small-pox from countries where the severe type is prevalent. Here we have to encourage all measures taken in small-pox-infected countries to prevent the embarkation of infected persons, and to know if particular ships are likely to be carrying small-pox cases or contacts, without complicating our administration with a mass of unnecessary inquiries at the port of entry, or, subsequently, in all parts of the country in order to keep particular individuals under daily observation until the incubation period is up.

For this day-to-day administration a system of international intelligence is essential. The work done here goes on independently of the six-monthly discussions in Paris which I have just described. We are dealing with intelligence about epidemic occurrences rather than with epidemiology. Under the terms of the International Sanitary Convention, 1926, the occurrence of new outbreaks of small-pox, cholera, plague, typhus, and yellow fever in different parts of the world is to be made known at once to the different health administrations, and followed by information about their progress. For this purpose the Convention provides for immediate notifications to the International Health Office in Paris, which transmits them to the various Governments concerned. By a further provision of that Convention Paris is able to work regionally in this matter, for a large part of the East, through the Far Eastern Bureau of the League of Nations at Singapore; for the Near East, through the Quarantine Board of Egypt; and for the Americas, through the Pan-American Sanitary Bureau.

As compared with the conditions which obtained before the 1926 Convention, the results are certainly satisfactory. The countries for which we have still to depend wholly on consular information are few. For countries as a whole it can be said that neither with small-pox nor with other diseases dealt with in the Convention is there anywhere any notable inclination to withhold information or to delay its transmission. Telegraphic codes and wireless messages, including wireless telephoning, are freely used. Indeed, if any reproach can be brought against this service it is usually either for an excess of activity in sending telegraphic or wireless messages about occurrences which, except possibly to their immediate neighbours, can have no administrative interest in other parts of the world, or when, in addition to transmitting the official communications received from the health departments, some of the international bodies add their own commentaries.

To meet these objections the Paris office has lately done a good deal to encourage direct local communications between neighbouring countries and from port to port. A recent agreement has been made, for example, to cover all the North Sea area, by which port medical officers of the different countries, including the United Kingdom, communicate direct with their opposite numbers abroad where any special risk has been noted. Again, we have

special arrangements with the Suez Canal health authorities and with Marseilles about small-pox on ships bound for English ports.

I mention these details only as an indication that the intelligence system which now obtains, effective as it is, always requires attention. No doubt there will be some revision and simplification of it when another international sanitary conference is held. The important point now, however, is that as a whole it is working very well and producing the results desired. In this it affords a striking contrast to previous methods. In the earlier years, when we worked not on co-operation but on the system of regulating our mutual defence against one another, everything depended on the declaration of ports as "infected," and such declarations were often made in a most arbitrary fashion. The label was put on and taken off often for quite unsubstantial reasons, and there was every inducement to avoid having it put on at all. It was not until 1926 that the international convention explicitly stated that information about the occurrences of infection at a foreign port was merely to be taken as a guide to the extent of inspection or inquiry necessary on the arrival of the ship, and that it was the condition of the vessel itself which should determine the quarantine measures taken.

Present Position Concerning "Bills of Health"

So, too, this co-operative international system of intelligence about epidemics has removed almost the last vestige of reason for the traditional document carried by the ship called the "bill of health." The bill of health records that a particular port has been free or otherwise from pestilential diseases at the time the ship was there, and every owner and ship's captain has been brought up to consider it as one of the most important of the ship's papers which they have to produce.

Dating as it does from the period when no country would be satisfied with statements from another without confirmation from its own representative, these bills of health have to be seen, stamped, and viséd by the consul of the country which the ship is going to visit. This does not apply merely to the original port of departure of the ship, but to every other port at which it calls and in relation to every port at which it proposes to call. The delay in the ship's time and the cost of the bills and fees are very considerable. The practice was so consecrated by centuries of use that it had never been assailed in any international sanitary convention before that of 1926, when, for the first time, an article was inserted by which the signatory Governments undertook to take any practicable measures to dispense with the consular visa and ultimately with the bill of health itself. The article was by no means a strong one, but the Office International d'Hygiène Publique has kept it to the forefront by efforts to secure local agreement between different nationalities on the subject.

Lately, in the *British Medical Journal*, attention has been forcibly drawn to the inconveniences of the system; to use no stronger term, by a ship surgeon, who quoted some extreme instances of the waste of time and money it involved. I trust that with patience—for it requires patience to deal with deep-rooted sea traditions—their number can soon be diminished. Governments have now before them an international agreement for dispensing either with visas or bills of health, or both, for ships of their respective nationalities, and there is every reason to believe that this agreement will receive the adhesion of most of the important maritime countries of the world. Here it is the shipowners who stand to benefit, and one may expect them to do all they can themselves to support the efforts which the hygienists are making to get rid of proceedings taken in the name of health but bringing no advantage to it.

Importation by Aircraft

Lastly, I must add a few words about the importation of infectious diseases by aircraft, since, with any sort of vision, we must appreciate a growth of air routes and air lines which will make them as ordinary and as much used for travel from distant countries as sea and land routes. Already the world air routes are considerable, although the total number of passengers carried is but a small fraction of the whole. Already we have had demonstration that they can carry infections, and that passengers from one non-malarious country to another can contract malaria in course of an ordinary air journey from the bites of infected mosquitos on the aircraft.

Air flights are so short in time that they mock at incubation periods, and rarely allow initial symptoms to occur before the aircraft reaches its destination. If the notion is now out of date and usually futile of putting passengers by sea, and the ship they go in, under special observation for no other reason than that the ship has touched at a seaport labelled as "infected," how much more futile is it when applied to airports! Blindly following precedent, some countries have, in fact, demanded that the commander of the aeroplane must, as a condition of landing his passengers or crew, produce bills of health, attested in each instance by the appropriate consuls, to show that every place of embarkation on the air route was free from plague, cholera, or other maladies. How seldom could this procedure ever be a guide to the discovery of dangerous persons or infected articles? The whole matter has had to be taken on a wider basis, with all the help that the Air Ministries and air lines, and particularly the International Commission of Air Navigation, could give us, and with separate consideration of the natural history of each disease with which we were able to deal. If for us in this country Eastern small-pox is the chief importation to be guarded against, in the tropical and subtropical parts of the world, where the *Stegomyia* mosquito is common, it is yellow fever. This disease now could easily be imported through air traffic by infected persons or insects into countries where yellow fever would have all the opportunities of spread possessed by a new disease which is introduced into highly susceptible populations.

A Sanitary Code in Aerial Navigation

The International Sanitary Convention for Aerial Navigation, signed at The Hague last year, was hammered out at the International Office of Public Health in order to meet all the chief contingencies of transmissible and preventable infections, and to provide an international code of conduct—on the one hand something practicable and reasonable from the side of air traffic, and on the other something which, when it had to be applied, would offer a substantial security without illusory formalities. This convention deals, naturally, with the action to be taken if infectious diseases occur on aircraft, and with those insanitary conditions *en route* which require an international understanding to deal with—for example, the throwing out of excreta.

The guiding rules for special diseases are particularly detailed in the case of yellow fever, and have been drawn up with the aid of the experience of America as well as of Africa. In regard to the detection of persons arriving in an infectious state from any disease, we have two key positions. The first is that the airports open to arrivals from other countries are, for political and customs reasons, few. It is thus not difficult or costly to see that they are provided with the necessary nucleus medical service, able to deal with an infectious case, and with

access to hospital and laboratory; able to supervise the health of the personnel of the aerodrome and its cleanliness; able also, when circumstances require, to make necessary interrogations regarding the recent movements of particular persons coming from distant countries and exposed to particular infection, and so to secure the same surveillance of them in the places on land to which they go as would be imposed if they had arrived at a seaport.

In this country the co-operation of the local authorities and medical officers concerned has already been secured for this purpose. The second key position, without which the first would be useless, is the existence of the international intelligence system about the chief preventable diseases which I have already described. Without it no rational or tolerable system could have been devised; with it we may reasonably hope that the agreement is one which will help and not hinder both the national health authorities and the interests of air passengers and air lines.

The wide acceptance it has already received, and the advantage which it has even at this early stage been shown to possess in dealing with yellow fever in Africa, are good auguries for the success of the Convention. Of course, where conditions change so rapidly as they do with air travel, no code of conduct can be expected to be complete once for all; the Convention itself contains provisions for its amendment as the result of experience, and its working is already being reviewed regularly by the Permanent Committee of the Office International d'Hygiène Publique, which reports on it to all the Governments concerned.

Co-operation of British Public Health Officers

If time permitted I should have been glad to add details of the International Agreement of Brussels providing for treatment of venereal diseases in seaports; as it is, I mention it in passing as an important section omitted. I trust, however, that even with this omission I have not selected the examples so badly that a representative audience of British local authorities and medical officers of health will think of my subject as too remote from their own practical work. I cannot think it is so; the daily work of public health departments and their officers on the prevention of communicable diseases cannot help being affected by the results of these regular international studies and pooling of experience. In this matter what I have said about small-pox, plague, undulant fever, or psittacosis would apply to many other diseases. If the results are not brought to public health officers directly, through the *Bulletin Mensuel* of the International Health Office, or through the *Quarterly Journal* of the Health Organization of the League of Nations, their lessons are considered and incorporated in circulars and reports from the Ministry of Health or other central Departments, and presently come into the stock of the accepted technical knowledge on which our health authorities work, whether they are central or local.

Local authorities and public health officers sometimes can help the work materially. It may be that, as in a recent international inquiry about disinfection, in which the medical officers of health of several of our larger local authorities were good enough to participate, the information to be had from other countries in return for the trouble of answering an interrogatory sometimes is not, and could hardly be expected to be, of much use to ourselves. But often the boot may be on the other leg, and I venture to express the hope that when information is asked of local authorities for international health purposes it will never be grudged. There is much to take as well as give.

Results Obtained without International Dictation

If you ask me to go further and end by specifying in some conveniently quotable figures what this international system has saved the country in the way of avoiding importations of infectious diseases, I fear I must be disappointing. It is impossible to estimate events which have not occurred. Even if it were attempted the increased individual efforts and efficiency of our own port sanitary authorities in recent years, as well as changes in epidemic characterization, would have to be weighed in with the international factor, and responsibility apportioned between the three. But at least the extreme rarity of these importations, notwithstanding modern facilities of communication, when contrasted with the experiences of the end of the last century and the pre-war period, in which we relied almost wholly on our own "defence" measures, is some testimony to the value of the willing international co-operation I have outlined. I would insist on its willingness; in my experience the best work has been done by avoiding any semblance of international expert dictation, any suggestion of international inspection, or any interference with national administration. It has been achieved by working steadily for conferences and agreements between responsible health officers throughout the world, determined to help one another to carry out their respective national duties.

THE TREATMENT OF ADOLESCENT KYPHOSIS*

BY

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The danger against which the orthopaedic surgeon must fight in adolescent kyphosis is the spontaneous formation of compensatory lordoses in the cervical and lumbar regions. This is true of all types of the deformity, whether due to late rickets, sometimes called "kyphotic disease" and characterized by an osteomalacia of the dorsal vertebrae with a poor general state of health, a type that may be called "somatic kyphosis"; or whether it is the painful adolescent kyphosis, which is a special disease of indeterminate nature, regarded by some (Schmorl and his pupils) as connected with a subcartilaginous nuclear hernia, by others (Schauerbach, Sorrel, and Delahaye) as with epiphyseal trouble, and by others again (Calvé, Galland, Meyer, etc.) as connected with nuclear hernia combined with epiphysitis—a kyphosis of disk origin as opposed to the preceding type. This orthopaedic principle applies whether the kyphosis is capable of being actively and passively reduced—that is to say, a kyphosis due to bad posture—or whether it is irreducible with a certain number of dorsal vertebrae attacked by definite lesions, forming, as in Pott's disease, an actual focus. The aim of this short paper is to show why, in adolescent kyphosis, spontaneous lordoses form: why they are harmful; how they can be avoided; and by what they should be replaced. First of all it is necessary to recall several essential points in the normal and pathological physiology of the spine.

Movements of Flexion and Extension of the Normal Vertebral Column

Ignoring, for the moment, lateral, rotary, and twisting movements, the vertebral column can be divided into (1) regions of hyperextension, and (2) regions of flexion.

* A communication to the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

There are two regions of hyperextension: the cervico-dorsal, and the dorso-lumbar and lumbar region. As shown in the attached diagrams, the cervical spine with the three first dorsal vertebrae form the principal region of hyperextension—that is, a region in which the vertebrae as a whole allow quite a pronounced movement of hyperextension, very pronounced in certain persons who can touch the upper dorsal spine with their occiput. On the other hand, this region allows little or no range of flexion. The dorso-lumbar and lumbar region includes the ninth, tenth, eleventh, and twelfth dorsal, and the first, second, third, fourth, and fifth lumbar. Movements of hyperextension are highly developed here, and, in supple persons, when the trunk is bent backwards the head can be placed between the heels.



(1) Maximum of flexion. (2) Intermediary position. (3) Maximum of extension.

FIG. 1.—Normal physiology of the dorsal vertebrae. Region of flexion: (a) a certain degree of flexion is possible; (b) impossibility of extension.



(1) Maximum of flexion. (2) Intermediary position. (3) Maximum of extension.

FIG. 2.—Normal physiology of the lumbar vertebrae. Region of extension: (a) a certain degree of hyperextension possible; (b) with possibility of flexion.

The regions of flexion are the suboccipital and the dorsal. The movements of flexion which occur at the occipito-atlodian articulation should be considered separately from the rest of the vertebral physiology. They are, moreover, very limited, and play no part in the subject with which we are dealing. There remains the dorsal region, the seat of most of the movements of flexion of the vertebral column in its entirety. There are no movements of hyperextension.

The Disk and the Nucleus Pulposus in Flexion and Extension

This matter, which I have discussed elsewhere, has been the object of some very important research in Germany—research that is very well described in a recent work (Mauric: *The Intervertebral Disk*). It must be remembered that the disk acts as: (1) a nuclear axis through its gelatinous centre—the "nucleus pulposus" (Luschka); and (2) as a true anterior and posterior check ligament through the fibrous ring which connects the intervertebral disk with the overlying and underlying vertebrae (see diagram).

In the regions capable of flexion (mid-dorsal) the nucleus is situated at the junction of the posterior and middle thirds of the disk. The movement of flexion pinches the disk in front and pushes the nucleus backwards to a very slight degree. If the reverse movement is attempted—that is, an effort is made to stretch a dorsal intervertebral disk in front and pinch it behind—failure results. It seems as if, on the one hand, the anterior margin of the fibrous ring acts as a check, and on the other, the somewhat posterior situation of the nucleus in this region prevents the compression of the disk behind. Movement is thus blocked in a position in which the

surfaces of the overlying and underlying vertebrae are parallel. By contrast, in the regions capable of hyperextension, the nucleus pulposus is situated further forward; it generally occupies the middle third of the disk. The disk can be stretched in front and pinched behind. This movement of anterior stretching is especially pronounced in the lumbar vertebrae. If, however, an attempt is made to destroy the parallelism by flexion—that is to say, to stretch the posterior part of the disk—this cannot normally be achieved. The posterior part of the disk acts as a check.

We must remember that this physiology, so to speak, of the vertebral column exists only in childhood, adolescence, and the early years of adult life. Premature senility of the disk, and especially of the nucleus pulposus, appears towards the age of 30, and is generally definitive at the age of 40.

What occurs in the upright position? The normal attitude is such that the line of gravity should fall in the middle of the base of support. The upright position is characterized by a slight cervico-dorsal lordosis, a slight dorsal kyphosis, and a slight dorso-lumbar and lumbar lordosis.

Pathological Physiology of the Vertebral Column

From what has just been said about the normal attitude of man in the upright position, it can be seen that kyphosis is merely an exaggeration of the natural curves. All causes which may increase these curves will bring about a kyphosis—for example, the occupational kyphosis of certain adolescents who are obliged to carry heavy weights on their shoulders and head. Here there is a special malleability of the vertebral bodies (dorsal rickets), which, destroying the equilibrium between the weight and the resistance of the vertebral bodies, constitutes a new cause of kyphosis. Every destructive or pathological modification of the dorsal vertebrae will be a new cause of kyphosis (the painful kyphosis of adolescents, cuneiform deformities of the vertebrae, etc.).

Another cause, which I mean to discuss more fully in a subsequent work, would seem to be a congenital predisposition to kyphosis, and, in my opinion, enough stress has not been laid on this point. This is the abnormal and posterior position of the nucleus pulposus in certain young people. We know that the nucleus pulposus is merely the remnant of the notochord. It is easy to imagine that, in certain cases, this notochord occupies a more posterior plane than is normal.

Be that as it may, a physiological kyphosis is followed by a pathological one. The posterior convexity of the back increases and becomes a prominence. In order that the upright position may still be possible, in spite of this deformity—that is to say, in order that the line of gravity should continue to fall in the middle of the base of support—compensatory cervical and lumbar lordoses immediately and spontaneously occur in the regions which are normally capable of hyperextension.

Why are Cervical and Lumbar Lordoses Objectionable?

In the first place, they are ugly. The neck becomes short, the abdomen prominent, and the dorsal prominence accentuated; this is the hunchback type. Secondly, they are harmful for two reasons: (a) under the effect of weight they become more and more accentuated, and, in consequence, tend to bring about a progressive increase of the kyphotic prominence; (b) a prominence is formed, not only of diseased or deformed vertebrae, but of sound vertebrae, a condition comparable with that of Pott's disease, where, even with a limited focus, healthy vertebrae help to form the gibbus as much in the upper segment as in the lower segment of the latter.

In the third place, when the compensatory lordoses become very accentuated, and this is found particularly in the lumbar region, a considerable expansion of the disks in front takes place, with a true propulsion of the nucleus into the anterior third of the disk. In this position the nucleus acts as a wedge, and blocks the overlying and underlying vertebrae. In this extreme position it prevents a return to the normal. Finally, these lordoses, which fix the vertebral column permanently into a bad posture, sooner or later become the seat of more or less tolerable pain. Every orthopaedic surgeon knows that kyphotics suffer more pain in the lumbar region than in the dorsal.

How can Spontaneous Cervical and Lumbar Lordoses be Avoided and Replaced?

In other words, how can a patient with kyphosis, when he is cured, be given an upright position consistent with the static laws—that is, so that the line of gravity always falls in the middle of the base of support and with a minimum of deformity? The same problem occurs in dorsal Pott's disease; for the spontaneous and natural cervical and lumbar lordoses there must be substituted

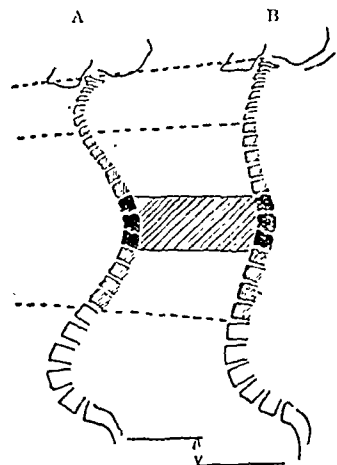


FIG. 3.—A, Spontaneous and wrong compensation of kyphosis by cervical and lumbar lordosis. B, In the same degree of kyphosis artificial and correct compensation by therapeutic curves produced immediately above and below the kyphosis.



FIG. 4.



FIG. 5.

FIG. 4.—Irreducible lumbar lordosis.
FIG. 5.—Modified physiology of the dorsal vertebrae after progressive adaptation, needing time and care.

therapeutic compensatory curves situated immediately above and below the kyphosis. To obtain therapeutic lordoses the normal physiology of the dorsal vertebrae must be modified; movements of hyperextension must be brought about at the level of each sound disk.

This involves a work of repair and adaptation which needs time and care. Two procedures are employed. (1) The Minerva plaster jacket and recumbency in an outstretched position and in complete hyperextension. This plaster apparatus, made with the whole spine in extension, blocks the body in such a position that the physiological, cervical, and lumbar lordoses are suppressed and can no longer occur. It is enough then to make a large window at the level of the kyphotic region, and

exercise a slow and progressive correction with the aid of a compression pad, to achieve the desired result in a more or less lengthy space of time. (2) Correction in horizontal recumbency and a hyperextended position. A cast of the shape described by the attached figure can be used, or—and I prefer this procedure—the plaster bed. Whichever procedure is adopted the position of the recumbent patient is such that the lumbar lordosis is completely suppressed, and in the segment of the upper vertebral column, at the apex of the kyphotic deformity, a permanent and progressive straightening force is exercised under the influence of the weight of the upper part of the trunk and head. The action thus taking place can be compared to a permanent pressure on the shoulders.

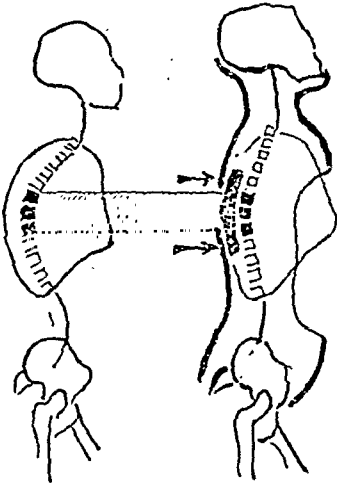


FIG. 6.—First procedure. The Minerva plaster jacket with window at the level of the kyphosis. Progressive correction with the aid of compression pad (cotton or felt). Impossibility of cervical or lumbar lordosis.

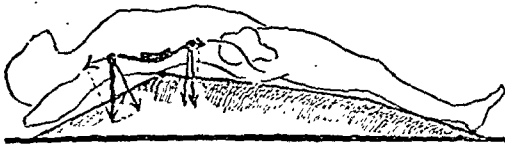


FIG. 7.—Second procedure (the better). Correction in horizontal recumbency and in a hyperextended position. No cervical and no lumbar lordosis. At the same time, and in this position, massages and exercises are carried out.

In my opinion the second method only should be used in an adolescent kyphosis. It permits a number of orthopaedic measures which are indispensable for these patients—that is, in the recumbent position many gymnastic and massage movements can be carried out which develop the muscular system of the young patient, and little by little endow him with a solid muscular corset, which will allow him to maintain the correction when it is obtained. In horizontal recumbency the action of the kyphotic forces is destroyed, and the principal one—weight—becomes, on the contrary, a valuable help.

M. TSURUMI (*Bull. Off. Internat. d'Hyg. Publique*, October, 1934) states that in June, 1933, antityphoid inoculation by mouth was carried out on 32,130 persons in the prefecture of Saitama, near Tokyo, while 45,790 persons in ten other towns served as controls. Up to the end of December, 1933, six cases of typhoid fever occurred among the inoculated as compared with thirty-nine among the controls. One of the six persons fell ill six days after inoculation, which therefore took place during the incubation stage, so that there were really only five cases among the inoculated and forty among the controls.

ALLERGY, METABOLISM, AND THE AUTONOMIC NERVOUS SYSTEM

BY

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My object here is to give you what I consider should be a clinical conception of allergy. In previous papers^{1,2,3} I have led up to this conception. First of all allergy should be distinguished from infection and its reactions. One big difference clinically is that allergic manifestations tend to be afebrile and evanescent, and infectious illnesses febrile and of slower subsidence. Allergy arises from processes which, though initiated by foreign proteins, are primarily metabolic, internal, and autonomic in nature. Infectious illnesses arise from reactions to the foreign invading toxins of bacteria. Allergy must not be confused with immunity. Clinically the first is an irritative and the second a protective phenomenon. Rich⁴ has shown experimentally and quite clearly that hypersensitiveness to bacterial allergens and immunity to the same bacteria can be separated: when the serum of allergic immune animals is injected into normal ones the immunity is transferred, but not the hypersensitiveness.

Bacterial allergy may be connected with infection in that individuals may be infected and become sensitive to the proteins from the bacteria in some septic focus in their own bodies, but this reaction is an irritation phenomenon, and is not necessarily related to immunity. An infant *in utero* may conceivably be sensitized, and is often prepared for sensitization by irritating body fluids from the mother. It can also be given a temporary immunity by the stimulating effect of body fluids from the same source. In the first case, however, the infant inherits the peculiar type of internal metabolism that can be irritated into sensitization, while in the second it receives a transferred acquirement which is only temporary and which depends on the chance of the mother's illnesses and their effect on her body fluids. Allergy, then, is internal and due to peculiarities in the individual endowment; infection and acquired immunity are foreign and fortuitous.

Inheritance

That heredity plays an important part in relation to allergy is shown by family histories and by the early age at which the symptoms become evident.

Case 1.—A baby of 8 months had curd dyspepsia with chronic diarrhoea, urticaria, and seborrhoeic eczema. The mother and the grandmother had had asthma, and there was also a history of eczema in the same branch of the family.

Case 2.—In another family the mother has eczema and a tendency to rashes with cineraria flowers. Of eight children one has hay fever, another urticaria, and a third asthma. The last baby has eczema, and was allergic to the mother's milk, and the penultimate child had eczema and developed asthma as the eczema disappeared.

Case 3.—In one family of ten children one had milk dyspepsia, two eczema, one croup, one asthma, and one serum sickness. Of the children of the last individual one had asthma, eczema, and urticaria, and the other angioneurotic oedema. One of the children of the asthmatic had asthma.

The following three histories show that in addition to inheriting a tendency to allergic manifestations a child may inherit a sensitive metabolism.

Case 4.—A baby aged 8 months had eczema, and had had acidosis three months before. There had been milk dyspepsia, and the child had decided digestive disturbances if given cod-liver oil or orange juice.

Case 5.—Another child, aged 7 years, had mucous colitis, urticaria, acidosis, and a tendency to catarrh and sneezing. Oatmeal, malt, and milk all very definitely upset her digestion, causing furred tongue and loss of appetite. Her father had asthma, her mother eczema, and her sister eczema.

Case 6.—In another family the father has eczema and asthma. Three older children have asthma. The penultimate baby had eczema, asthmatic wheezing, milk dyspepsia, and intolerance to cod-liver oil. The last baby was, I believe, saved from eczema because we kept the mother largely off milk fats during pregnancy, and also during lactation, which was successfully carried out for nine months.

Relation of Allergy to Metabolism and the Autonomic Nervous System

The above histories, which could easily be multiplied, show that individuals may inherit a metabolism that may become overloaded and insecure, and thus irritate another endowment—a sensitive autonomic nervous system.

The composition of body fluids is dependent upon efficient metabolism. Disturbed metabolism may give deficiencies or cause the presence of irritating bodies; hereditary tendencies may assist in producing such conditions. Hypochlorhydria, deficiencies of liver action,⁸ chronic maldigestion of fat with excess of fatty acids, abnormalities in water absorption and retention, and defects in protein metabolism may all occur. The breaking down of absorbed protein and its rebuilding into the special protein of the individual may be upset in allergic persons. Colloidoclasia occurs, and histamine is liberated, giving rise to allergic reactions, the skin and the mucous membranes being the areas in which histamine is most likely to be set free. The nervous tissues, especially the more sensitive ones, may be undernourished or irritated by abnormal body fluids: we have the examples of calcium deficiency and spasmophilia. Amino-acids and other toxic bodies circulating in tissue fluids can irritate nerve cells—including those of the autonomic nervous system. This system is closely related to the ebb and flow of tissue fluids, to changes of blood pressure, to secretory activity of glands—especially the endocrine—to contraction of tubes as found in asthma and peristalsis, to skin alterations such as flushing, paling, sweating, and oedema, and to expression of the emotions such as laughing, crying, elation, and depression.

I have previously said² that we ought to distinguish allergic disturbances from infections because they are chemical, metabolic, and internal rather than external and fortuitous. If we make this distinction, and if we realize the importance of the part played by the autonomic nervous system, we can understand the reasons for the following happenings, which so often puzzle our infection-educated minds.

Allergic symptoms come and go suddenly. Only an autonomic nervous system disturbance can explain the sudden appearance of a localized collection of fluid, as there is in angioneurotic oedema, or the sudden advent of spasm and distress, as in asthma. The disappearance of symptoms may be equally rapid. The remarkably quick action of some of the remedies used for the treatment of allergic symptoms can be explained by their effect on the autonomic nervous system. Allergic symptoms are interchangeable. Eczema may be relieved by the appearance of asthma, or vice versa, or asthma may be relieved by the appearance of another allergic symptom such as colitis.

Purely allergic symptoms are usually afebrile, in striking contrast to the high temperature reactions of infective illnesses. This comparative absence of temperature reactions indicates metabolic changes of a different nature from those produced in infections, and the greater part played by nervous influences in the production of allergy.

If an acute infection takes place metabolism is disturbed and allergic symptoms usually disappear temporarily; they may also disappear when a depletory condition such as diarrhoea arises. If a child is taken into a hospital or nursing home where physical and mental stress are lessened, and also the likelihood of unsuitable diet, the allergic symptoms tend to disappear because the autonomic nervous system is soothed and is not likely to be irritated by faulty products of metabolism.

When there has been constant repetition of allergic symptoms it is found that very little provocation, sometimes only psychical, is needed to produce the manifestations. This shows that there is a tendency to the development of a system habit, and one which undoubtedly can be referred to the autonomic nervous system and to metabolism.

Autophilic and Autopathic Individuals

These reasonings, showing as they do the internal and autonomic origin of allergic manifestations, have led me to suggest a new name³ for the individuals who inherit a tendency to allergic manifestation. I call them "autophils," because they have an insecure internal metabolism and a sensitive autonomic nervous system; if they have developed allergic symptoms I call them "autopaths." We have parallel words in spasmophil and hydrophil, and in neuropath and psychopath. Such words may not be strictly philological, but they are useful.

The following description of autophils is based on my experience limited to children and incidentally to their parents. Autophils are pallid but not necessarily anaemic; they flush and pale easily, and may have motion sickness. They faint on little provocation, such as the sight of blood. They have intense emotional reactions, and the mental stress so produced reacts on their physical well-being; after periods of stress and strain they show dark circles under the eyes. They are generally of the lean schizoid type, though this may not be evident in infancy. In metabolism they are katabolic rather than anabolic in that they tend to eat largely and to use up what they eat rather than to store it. Their appetites are good at first, but in adverse mental and physical conditions the tendency is to overload metabolism, thus producing furred tongue, loss of appetite, constipation, rough patches on the skin, and intermittent deposits of urates.

It is a striking point that in many of these cases milk, fats, rich vitamin preparations, cod-liver oil, bananas, and citrus fruits may not agree, and, if forced upon them, may help materially to overload the internal metabolism. Bracing climates and east winds may have a similar adverse effect. It is probable also that the overloading of metabolism produces a lowered resistance to infections and a proneness to catarrh and glandular enlargements. A vicious circle is thus caused, because catarrh once established in nasal, bronchial, or intestinal areas may encourage defective metabolism. Further, if sensitization to the special proteins produced by the bacteria has arisen, sensitization phenomena may follow any exacerbation of chronic infection.

Mentally, autophils are emotional, sensitive, excitable, and keenly interested. Mental stress may lead to irritability, moodiness, worrying, meticulousness, or other similar signs of nervous overstrain. They are inclined to be introspective and of the type of person who, in later life, develops neurasthenia.

Autopaths

Sensitization occurs either from the shock of one large dose or from a more prolonged provocation by small doses, and I wish to point out that overloading metabolism has a distinct contributory effect in the production

of sensitization. An autophil who has been overloaded by defective metabolism is likely to develop allergy, but one who has not been so overloaded will probably remain healthy. Once overloaded or sensitized, autophaths are liable to recurring attacks of seborrhoea, erythema, urticaria, angioneurotic oedema, eczema, ulcers in the mouth, milk dyspepsia in infancy, geographical tongue, bilious attacks, cyclical vomiting, colitis, spastic colon, croup in infancy, hay fever, asthma, migraine, convulsions, orthostatic albuminuria, haemoglobinuria, and arthritic signs.

Management of Autophaths

Autophaths to avoid becoming autophaths should always live within their limits of physical and mental endurance, and should avoid sensitization. Overloading of metabolism from faults of assimilation or from waste products may be brought about by faults in diet, injudicious exercise, too much excitement, and chronic sepsis.

Diet is chosen to avoid excess of foods which may irritate metabolism and prepare the way for sensitization allergens. Rich creams and oils when combined with other factors in diet seem to do this, and to cause fatty acids to circulate in the tissue fluids. Milk, and especially creamy milk, eggs, cod-liver oil, milk chocolate, and rich proprietary tonics are examples. If vitamin medication is indicated the concentrated drop preparations may be the best. There is some chemical property in sour fruits, and especially in citrus fruits and bananas, which irritates the metabolism of allergically inclined individuals, especially when in combination with the rich fatty foods. The ripening of fruit is very important, and may be incomplete or only finished after the fruit has been gathered and packed. Proteins and carbohydrates, especially sugar, usually suit, and fresh salads should be eaten if liked. Sensitization is a more particular phenomenon than general irritation and overloading of metabolism. Numerous foods may contain irritant allergens, including whey, egg (white), fish, fowl, and some meats. Removal of the allergens by the elimination diet plan of Rowe* is possible.

Elimination from the skin is also important. Autophaths tend to sweat, and a sweat is a wholesome relief to them. Controlled exercise is therefore good, but exercise taken immoderately or jarringly to the neuro-muscular co-ordination may produce waste products and overloading of metabolism, and irritate the autonomic nervous system. Autophaths are very likely to be driven to excessive or jarring exercise by their keen mental activity. On the other hand, the relief of orderly activity to a sensitive autonomic nervous system is great. One can understand the value of massage and of rhythm and music in exercises, bringing as they do relief of tension and added interest.

Excitement and emotional stress may disturb the metabolism of autophaths and upset an excitable autonomic nervous system. Disorders of blood pressure, pulse rate, and even acidosis may ensue. Erythema in conversation may indicate the strain that emotion puts on the autonomic nervous system of an autophil.

Toxins can interfere with metabolism or have adverse effects in nervous tissues. In autophaths there may be sensitization to bacterial allergens; local irritation may determine the site of the allergic manifestation.

Sensitization is brought about by overdose, sudden and massive, or repeated and fractional, of an irritative allergen. It is difficult to avoid because it usually appears without warning, but when family histories indicate that a child may be an autophil, and perhaps also indicate a likely sensitization allergen, preventive measures can be taken.

Treatment of Autophaths

An ordered control of metabolism and autonomic nervous system may prevent many autophaths from becoming autophaths, but an overloaded metabolism or an irritated autonomic nervous system may result in some of the symptoms of allergy enumerated above. Sensitization may be very decided and the offending allergen obvious and localized. Desensitization may then be successful, and the removal of that one allergen may effect a cure. In most cases, however, the problem is not so simple. An autophath is probably liable to further sensitization to other allergens if the metabolic condition which produced the first persists. Again, sensitizing allergens may not be readily picked out, nor be limited in number. Specific desensitization is consequently not always possible or effective.

Treatment consists, therefore, not only in attempts at desensitization but also in breaking any vicious circle of infection and lowered general health, in raising the general health and well-being, in improving metabolism and elimination from the bowels, kidney, and skin, in avoidance of mental and physical stress, and in careful control of diet.

Medical remedies are divided into four classes: (1) those directed to the relief of allergic symptoms, such as adrenaline, ephedrine, and anaesthesia; (2) those directed to improving metabolism and tone of nervous tissues by alteratives or tonics, change of air, or by removing chronic sepsis; (3) those directed to aiding metabolism by supplying deficiencies in digestive juices or aiding elimination; and (4) surgical measures for relief of spasm, including sympathectomy.

Summary

Allergy is a state of sensitization in which the system shows habit reactions to certain foreign metabolic irritants, usually protein in nature. These reactions are dermal, vascular, haemic, respiratory, digestive, renal, arthritic, cerebral, or cardiac, according to the individual and to the local irritation, whether traumatic or infective or chemical, the last being usually the production of histamine-like bodies. Allergy tends to develop in autophaths who have usually inherited an excitable autonomic nervous system and irritated an unstable metabolism. Autophaths may remain unsensitized, unirritated, and in good health, or may become sensitized and irritated into being autophaths.

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J. C. Saunders (*Irish Journ. Med. Sci.*, September, 1934, p. 520) states that the average decennial mortality from diphtheria in the Irish Free State has increased from 4.7 per 100,000 in 1864-70 to 9.4 per 100,000 in 1921-30, whereas during the same period it has decreased from 78 to 3 per 100,000 in Denmark and from 11.4 to 2.9 per 10,000 at ages under 15 in England and Wales. A steady increase in mortality has taken place in the urban areas of Dublin, Cork, and Limerick, as compared with a corresponding decrease in the urban areas of Belfast, Birmingham, and Ipswich. The causes for the relatively high diphtheria mortality in the Irish Free State appear to be inadequate dosage of antitoxin, delay in its administration, and inadequate arrangements for its distribution to practitioners. It is probable that a vigorous scheme for diphtheria immunization would reduce the mortality as it has done in New York.

DIVERTICULITIS WITH UNUSUAL COMPLICATIONS

REPORT OF TWO CASES

BY

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In most textbooks the subject of diverticulitis is dismissed in a few lines, but practitioners have had experience of difficult cases which have turned out to be diverticulitis, with some complication or another. These two cases illustrate such difficulties.

Case Record No. 1

The first case was that of a man of 54 who gave the following history. His health usually was good, but some years ago he had a duodenal ulcer for which a short-circuit operation had been performed. This operation had been a complete success, and the only symptom which reminded him of his former trouble was occasional "acidity." When this condition arose he had been advised by a consulting physician to take at any such time 60 grains of sodium bicarbonate. He stated that this always gave him immediate relief. It had been his custom for some years to keep a supply of 5-grain tablets, and when he required a dose he would take twelve of these, as he found this the easiest way of measuring 60 grains. These tablets he purchased himself. Although he had a tendency to constipation he never allowed this to get the upper hand, as he was in the habit of taking purges; this point is rather important from the subsequent history.

On the morning of February 26th I was called in to see him owing to his being extremely sleepy, from which condition he could be roused with great difficulty for a few minutes only, during which time he remained drowsy and was never fully awake. The preceding day had been very cold, with a heavy fall of snow, and he had had a good deal of indigestion. He had noticed on former occasions that snow always made him "livery." As he was going out to dinner that evening he took his usual dose of sodium bicarbonate just before leaving home. He then drove himself and his wife about a mile to the dinner party. Before dinner he took a cocktail, but only drank half; normally he was an abstemious man. The house was very hot and the dinner started with some hot soup. After he finished it he pushed his plate away, folded his arms on the table, laid his head on them, and went fast asleep. He was roused with great difficulty, and he walked into another room, where he said he felt very funny. He then managed to make himself vomit, after which he felt better, but very sleepy. He was left in this room, where he slept soundly for about three hours. After having been woken up he was able to drive his car home without much difficulty, but could not drive into his garage. Before going to bed he took another twelve tablets of sodium bicarbonate.

Next morning when I saw him he was, as already stated, in an exceptionally sleepy condition. His pulse rate was 56 and of rather poor character. On the left side of the abdomen, about the middle of the descending colon, there was a lump as large as a big fist which gave the impression of being possibly a faecal mass. Rectal examination was negative; urine normal.

I gave him hypodermically 1 c.cm. of pituitrin and 0.5 c.cm. of 1 in 1,000 adrenaline, and after a short time he seemed to become a little less drowsy. The relatives expected, and demanded, a diagnosis. I therefore told them that I had found a condition of partial intestinal obstruction which must have been going on for a long time, and this allowed a slow absorption of waste products to take place, so producing a condition of poisoning by auto-intoxication. In other words he was suffering from sapraemia.

Later in the day a simple enema was given following an injection of 6 oz. of olive oil, with the result that an

enormous stool was produced, in spite of the regularity of the taking of purges. During the rest of the day he gradually got better and by the evening was almost normal, except for a slightly drowsy state.

On February 27th—that is, two days after the onset of the sleepiness—he had a return of "acidity" and took another 60 grains of sodium bicarbonate about 6 p.m. At 7 p.m. he was extremely drowsy and had to be helped to bed. He slept soundly for about fourteen hours, when he was roused and was able to keep awake. He was given another enema, with a very large result, but still felt sleepy during the day.

On the fourth day he felt quite well again, and was so definite that he felt much better that on the sixth day he went back to his office and spent the usual day. An x-ray examination was carried out following the administration of a barium enema, and this revealed a condition of diverticulitis affecting mainly the descending colon, which also showed a very marked spasm. Thus the diagnosis of diverticulitis was confirmed. On the strength of this he was advised a daily bowel irrigation, and this was carried out.

We were now all congratulating ourselves on a satisfactory diagnosis and felt we were dealing with a more or less straightforward case, but on the same evening—that is, the sixth day—he came home from his office owing to a return of indigestion and took yet another 60 grains of sodium bicarbonate. The following day I was called in to see him and found him just as drowsy as he had been before, and I called in a consulting physician, who could throw very little light on the case. A lumbar puncture was performed. The intraspinal pressure was normal and the fluid itself was found to be normal to every test. We were then not very much further on, except that once again the patient recovered.

About midnight of the ninth day I received an urgent summons and I found the patient definitely cyanosed with Cheyne-Stokes breathing and a feeble pulse of only 48. An injection of pituitrin and adrenaline seemed to improve his condition somewhat. The following morning he was again seen by the consulting physician, who was still baffled by the condition. Ophthalmoscopic examination showed some anaemia of the retinal vessels suggesting cerebral anaemia.

Yet another attack occurred on the fourteenth day: and, talking over the case with his wife, who was naturally terribly anxious, it suddenly struck me that there was a definite connexion between the attacks of drowsiness and the taking of the sodium bicarbonate. I therefore asked her to let me have the bottle of tablets, and on tasting one, it was at once obvious that it was not sodium bicarbonate, but on throwing the remains of the tablet in the fire there was a yellow sodium-flame produced. I immediately took the tablets to be analysed, and the result was reported to me as medinal. This is also known as sodium bibarbiturate.

The remarkable part of this case is that in a space of a fortnight this man had taken six doses of 60 grains of medinal.

Case Record No. 2

The second case was that of a man of 65 who was normally in robust health, a stocky type but inclined to be fat. He was a great worker, being the head of a very large concern in which he took a personal interest. He always suffered from a moderate degree of constipation, but kept his bowels working with a daily dose of salts first thing in the morning. It was also his habit to take Vichy water almost daily. He was inclined to be irregular with his meals, as he felt they were a waste of time and interfered with his work.

I was first called in to see him for this present illness on August 11th because he was not feeling well and had had "difficulty with his bowels and pain in his stomach." Examination of the abdomen revealed a large mass on the left side, reaching downwards for about 6 in. from the lower border of the ribs. The consistency of this mass suggested a collection of faeces. It was fairly tender on light pressure, but quite painful when pressed hard. A consulting physician saw him on this day.

The treatment employed was liquid paraffin by the mouth, non-residue diet, mainly fluid, and enemata. This latter produced soft and watery results, with several hard, stale, dark lumps, very few being any larger than walnuts. His progress appeared to be quite satisfactory, and although the lump was still palpable, it was considerably smaller.

As in the first case, everybody concerned was quite pleased with his condition, and we thought we were out of the wood. On the sixth day, however, I received an urgent call about 10 p.m. owing to a sudden attack of very severe pain, on the left side. He was then partially collapsed, cyanosed, and sweating; his pulse was poor. He stated that he had never endured such "terrible" pain before in his life. The tenderness over the lump was very marked, and he could hardly stand the lightest pressure.

A consulting surgeon was called in the same evening, and he considered that there was a possibility of a bowel perforation. He expressed a wish to have the opinion of another surgeon, and when the latter arrived later in the evening, they both considered that, at any rate, that evening the patient was in too bad a state to have his abdomen opened. Here it should be stated that he was a difficult subject to examine, owing to his build and to the extreme tenderness of the lump. Morphine was given hypodermically, and after a short time the condition became much better. Next morning—that is, the seventh day—he was fit enough to be removed to a nursing home, to be kept under observation.

Owing to the improved general condition it was considered possible to perform a laparotomy, should this be deemed necessary. One surgeon was inclined to take the risk, but the other thought the risk was too great, and, strange as it may seem, the consulting physician was rather in favour of the operation. A third surgeon was consulted, and it was decided to give the patient a barium enema and to take an x-ray by means of a portable apparatus. The x-ray revealed the presence, as in the former case, of several small diverticula, with a marked spasm of the descending colon.

A super-consultation was then held, at which were present three consulting surgeons, a consulting physician, the radiologist, and the G.P.! The result of this was that everybody agreed that if there was a real obstruction, then the only operation possible was one to relieve the obstruction by an opening into the bowel above this area. This would mean a colostomy of the transverse colon, and we came to the unanimous conclusion that this would be exposing the patient to too great a risk. Furthermore, the patient's condition was better, and there was now very little pain or tenderness, though the bowels were failing to function.

At this moment in the consultation a very dramatic interruption occurred. There was a tap at the door and the sister of the nursing home came in with a specimen glass full of a fluid that looked like blood. It actually was almost pure blood, and in fact was haematuria. The case was now more obscure, but one of the experts took a very serious view and expressed the opinion that the haematuria must be of toxic origin and that therefore the outlook was very grave; nevertheless, we still stood by our opinion that no operation was possible. The problem, however, was completely cleared up next day.

When I saw the patient next morning he seemed very much better. He had got rid of the barium and with it he had passed a good deal of faecal matter, but, more than this, he made a very important statement—namely, that when passing water that morning he had heard a little "tinkle." To cut a long story short, he had passed a small stone. Suddenly the case became clear. The severe attack of pain in the left side which occurred on the evening of the sixth day was actually an attack of renal colic due to the passing of a small stone down the ureter. The lifting about of the patient for the taking of the x-rays had been enough most probably to move the stone on over the brim of the pelvis into the bladder. This caused the haemorrhage which the patient got rid of a little later. The passing of the stone per urethram the following day completed the picture.

AURAL VERTIGO*

BY

W. S. THACKER NEVILLE, M.D.DUB., F.R.C.S.ED.

HARROGATE

We recognize our position in space by means of the muscle senses in the soles of the feet, by our eyes, and by our semicircular canals. Labyrinthine vertigo consists in a false sense of movement of the patient or of his surroundings. The movement may be in a linear, rotary, or vertical direction, and is accompanied by nausea, vomiting, pallor, sweating, and sometimes diarrhoea. Sensations of forward and backward movements are not seen, but if present are in favour of a neurasthenic or cerebral vascular condition. Besides this false sense of movement the patient may really fall, or may be flung out of his chair, or have a sensation of being pushed, yet he never loses consciousness. The onset of these sensations is sudden; they last only a short time, and are followed by a feeling of unsteadiness on the legs.

The function of the labyrinth may be interfered with if there is a lesion in the vestibular tracts in the cerebellum or in the vestibular nerve, or if these nerve endings are affected by a toxin, or the blood supply of the semicircular canals is suddenly increased or decreased, or the fluid in those canals is exposed to pressure or toxins.

Lesions in Vestibular Tracts and Vestibular Nerve

The commonest cause of a lesion which affects the vestibular nerve tracts in the cerebellum is thrombosis of the inferior cerebellar artery, in which there is a sudden onset of vertigo and nystagmus to the affected side associated with ocular sympathetic paralysis and paresis of the soft palate and vocal cord and disturbances of sensation. A vascular lesion in the lateral part of the pons may also, according to Brain, produce vertigo, deafness, and tinnitus associated with paralysis of the seventh and eighth nerves and disturbances of sensation.

The vestibular nerve tracts may also be affected, in disseminated sclerosis, in which there is vertigo without loss of hearing. The vertigo is usually accompanied by an intention tremor, absence of abdominal reflexes, and extensor plantar responses with possibly optic atrophy. The nerve tracts may also be disorganized by a head injury. In such cases there is tinnitus and vertigo; the vertigo usually tends to become less, though in some cases it, like the tinnitus, persists for a very long time. Vertigo may be the aura of an onset of *petit mal*, but it can easily be differentiated from aural vertigo, since in the latter there is never loss of consciousness. Vertigo may also occur in neurotic individuals; it consists in a feeling of the legs giving way, and is accompanied by intense anxiety and palpitation which may, according to Russell Brain, be due to a fear of heart disease.

The commonest lesion of the vestibular nerve itself is a tumour of the eighth nerve. The patient complains of vertigo, tinnitus, and deafness, and the striking feature is that there is anaesthesia of the cheek and later fascial nerve paralysis. (Anaesthesia of the cheek may be preceded by anaesthesia of the cornea.) Examination of the labyrinth shows a complete loss of function with, according to Eagleton, a loss of function of the vertical canal on the opposite side.

The Semicircular Canals in Causation of Vertigo

In an aurist's experience the semicircular canals themselves are the commonest cause of vertigo. These canals are surrounded by a network of blood vessels, and contain

* Read before the Yorkshire Branch of the British Medical Association, September, 1934.

fluid and nerve endings. On the peripheral aspect of the canals is the middle ear, which communicates with the canals via the oval and round windows.

Just as we can get changes in the walls of the blood vessels of the eyes, so we believe we can get similar arteriosclerotic changes with or without haemorrhages in the blood vessels of the labyrinth, which would account for the vertigo that occurs in elderly people on stooping or turning their heads. These blood vessels may undergo spasm with loss of hearing, then relaxation followed by tinnitus, giddiness, and return of hearing, and it is a question whether such cases could not be cured by stripping the sympathetic nerves of the internal carotid artery, or by removing the superior sympathetic ganglion. Russell Brain considers that spasm of these arteries also accounts for the vertigo that occurs in sufferers from migraine.

The fluid in the canal can produce vertigo when it is moved, as when one performs the rotation or caloric tests, or is on a ship. It is said that to avoid sea-sickness it is best to lie flat on the back. This fluid may also be affected by toxins; thus in acute otitis media there may be vertigo and nystagmus to the affected ear due to absorption of toxin stimulating the nerve endings, or, if the infection is more severe, destruction of the nerve endings and consequently a nystagmus to the opposite side. In the case of the nystagmus to the same side, suction applied to the Eustachian tube or a paracentesis of the tympanic membrane will allow the toxic fluid to escape, or in severer cases a mastoid operation will be necessary. When there is nystagmus to the opposite side a serous or suppurative labyrinthitis must be diagnosed. As long as any hearing is present we diagnose serous labyrinthitis and do not operate, but when all hearing has gone and the hot caloric test is incapable of affecting the nystagmus we are forced to diagnose the suppurative condition. If the suppurative labyrinthitis is secondary to an otitis media I do not operate unless the signs of labyrinthitis increase instead of decrease, or unless meningitis appears, but if it follows an operation such as the removal of a polypus or a mastoid, I then perform a labyrinthectomy at once.

Besides reaching the semicircular canals directly from the middle ear as just described, toxins may reach the canals via the blood stream, as in the case of those from the intestine or from alcohol, tobacco, or a septic focus; thus one patient drove his car from side to side of the street, but when his tonsils were removed his vertigo disappeared.

Displacement of the Stapes

Another cause of vertigo is displacement of the stapes, which may be due to an oversecretion of fluid in the semicircular canals. This is considered by Mygind and Dederding to be the commonest cause of the kind of aural vertigo which is usually termed Ménière's disease. This water-logging of the labyrinth occurs in those who have faulty water metabolism; such patients are usually easily recognized, as they show a loss of low notes and absence of or decreased bone conduction, deafness which varies from day to day, an increase in weight, and a thickening of the subcutaneous tissues. However, I would not diagnose a patient as water-logged without giving 1,000 c.cm. of fluid, and seeing how much fluid the patient had passed, and how much he or she had increased in weight after an interval of four hours. The increase in weight equals the weight of the retained fluid, and thus, by weighing the patient before the fluid is taken and at the end of four hours, the amount of fluid retained is estimated. Such patients are cured by dehydration with salyrgan, a no-salt diet, and extreme limitation of fluid.

An attack of aural vertigo in which the patient has nystagmus and vomiting may be arrested by an injection of bulbocapnine. This drug, orally administered, is also useful in some cases to ward off attacks.

Another cause of displacement of the stapes is blockage of the Eustachian tube, with consequent absorption of air in the middle ear. This occurs in inflammatory states of the Eustachian tube or in swelling of the mucous membrane due to water-logging. Such patients are cured by reducing the swelling in the Eustachian tube and by catheterization. To reduce the swelling in the Eustachian tube a nasal operation may be necessary.

At times no cause can be discovered to account for the presence of aural vertigo, and in those cases the best treatment is Mollison's—that is, destruction of the nerve endings by injecting alcohol into an opening made in one of the semicircular canals. This I have done on three occasions. Before adopting this treatment I used to destroy the cochlea and semicircular canals by a labyrinthectomy. The injection of alcohol, however, is easier, and exposes the patient to less trauma. Brain specialists such as Dandy, Cairns, and Dott cure this form of vertigo by dividing the seventh nerve, and lately Dandy has been successful in dividing the vestibular branch alone, and so retaining the remnant of hearing that is often present in these patients.

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TONSILLECTOMY WITH LOCAL ANAESTHESIA

A REVIEW BASED ON 500 CASES

BY

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For some reason unknown to me local tonsillectomy has never received very favourable consideration in England; yet the mere fact that this is almost the only method employed in many of the large Continental clinics should be sufficient evidence that it is definitely worthy of greater consideration than it has hitherto received. Having just completed a series of five hundred cases in patients whose ages ranged from 16 to 74, I feel that a short description of the technique may not be out of place, since many advantages are claimed over the more universal dissection under general anaesthesia. The advantages of using a local anaesthetic are that the operation is considerably more speedy without there being any sacrifice of efficiency; that there is a minimum amount of bleeding (often there is literally none at all); that there is no vomiting; and that there is a cleaner dissection. The patient suffers no pain and extremely little discomfort.

Technique

The nurse sprays the patient's throat several times with 10 per cent. cocaine and adrenaline, and then the injection, which is the most important part of the operation, is commenced. It should be stressed that the quantity of novocain solution injected is even more important than its strength. About 30 to 40 c.cm. of a 1/2 per cent. solution is recommended.

With a long needle, the point of which is curved almost to a right angle, the novocain is injected from a 20 c.cm. syringe. Five injections, each of approximately 3 c.cm., are made into each tonsil, the anterior portion of the capsule receiving three and the posterior portion two. The needle is inserted just under the mucous membrane, which is immediately thrown out into a bleb as soon as the novocain reaches the tissues. It should be inserted first near the uvula, with the point turned outwards and downwards, a few millimetres from the free border of the pillar; then midway between the upper and lower pole, with the point directly downwards; and finally into the lower pole near the base of the tongue, with the point directly downwards. The remaining two injections are made behind the posterior pillar in the upper and lower poles respectively. Here, however, the needle point should enter the tissues horizontally, and the shaft of the needle be drawn well over into the opposite angle of the mouth. After the injection the pillars are, of course, very swollen and oedematous, and the patient should be left for ten minutes for absorption to take place. This wait is important, for during this time the capsule becomes so well infiltrated that the actual dissection of both tonsils may be completed with ease in less than three minutes.

The patient is now led into the theatre and placed in an ordinary chair. The surgeon sits facing him, and for convenience the patient is made to place a hand on each of his (the surgeon's) knees. A nurse standing behind the patient's chair holds the head in the required position and wipes away from the mouth any blood-stained saliva, after occasional spitting. No gag is necessary; nor, after the vulsellum has first gripped the tonsil, is a tongue depressor required. Beyond a sharp dissector, to incise the pillars, and a blunt dissector with a serrated edge, to free the tonsil from its now plainly marked capsule, no other instrument is required, except possibly a snare for the lingual prolongation. After the first tonsil has been removed it is a good plan to pack a small, loose piece of gauze into the fossa before proceeding.

If there are two or more patients for tonsillectomy it is a great saving of time to complete all the injections first, since the best effect from the novocain may be obtained if left for a minimum of ten minutes and a maximum of forty minutes. In this way two or three cases may be completed in considerably less than half the time taken by general anaesthesia. As there is little or no bleeding, an assistant is quite unnecessary. A powerful headlight is, of course, an essential.

Conclusion

Invariably the patient volunteers the statement that the operation has not been as painful as a tooth extraction, while all will admit, on being questioned, that "it didn't hurt a bit." It would seem from the patient's point of view that the apprehension is the worst part of the whole operation. This may be considerably allayed by a preliminary injection of morphine, and also during the operation itself by what the Viennese call "vocal anaesthesia." There is no doubt that a patter of conversation, however irrelevant, helps to quiet the patient. After the operation has been completed the patient walks back to his bed, and is able to return home within three or four days.

In this series of cases, which comprises every tonsillectomy that has recently come under my care—that is, unselected—I have had only one case where I was embarrassed by bleeding, and that finally required a general anaesthetic. There were three cases in the series that bled after getting back to bed, requiring the use of the clamp, but these were due to an incomplete dissection. No vessel has had to be tied. From the injection of novocain I have seen no harmful effects.

Clinical Memoranda

NON-TROPICAL SOLITARY ABSCESS OF LIVER

The subject of solitary abscess in the liver is usually associated in the mind with a tropical disease. It is of interest, therefore, to review a case where no possibility of a tropical origin could be admitted. Cabot,¹ discussing liver abscess, states that as a rule the diagnosis is made on the aetiology rather than on physical signs. Where there is no obvious cause such as amoebic dysentery or appendicitis the diagnosis becomes increasingly difficult. However, as Horder² has pointed out, such cases are often due to *Staphylococcus aureus* and are characterized by a latent interval between the original staphylococcal infection and the development of a liver abscess.

CASE RECORD

A. L., 20 years of age and single, had been in good health and following her occupation as a weaver until July, 1933. She then began to complain of slight intermittent pain in the right side of her chest which was at first regarded as pleurodynia. However, the pain became constant, more severe, and localized to the region of the eighth rib interspace in the right mid-axillary line. To digress for a moment, it is to be noted that later the liver was found adhering to the parietes at the place where she located the pain. Slowly her health deteriorated, anorexia, loss of weight, and night sweats being added to her original symptoms. After five weeks she took to bed, and one week later (September 7th) she was admitted to the Blackburn Royal Infirmary.

On admission, she appeared thin and anaemic. Her temperature was raised and there was obvious toxæmia. Her heart and lungs were healthy, and the chest moved normally on respiration. There was, however, a suggestion of bulging of the lower part of the right side of the chest, which must have been due to enlargement of the liver. The lower margin of the liver could not be palpated as there was considerable muscular rigidity in the right hypochondrium. The abdomen was thin and the spleen was not palpable. A search for tenderness was not very satisfactory as the patient could not distinguish between pain and tenderness. The kidneys were not palpably enlarged nor was tenderness elicited during palpation. A provisional diagnosis of perinephritic abscess was made, leading to a thorough investigation of her kidneys. An x-ray photograph of the urinary tract was negative. Her urine on examination revealed no abnormalities. Normal pyelograms were obtained from both sides, so it was decided to look to the liver as the probable cause of her illness. The chest was examined with the x-ray screen but the diaphragm was seen to move normally with respiration and did not present any abnormal bulging or fixation.

On September 8th her blood was examined. The red blood cells were estimated at 4,400,000 per c.mm., haemoglobin 65 per cent. The white blood cells showed a leucocytosis of 20,000 per c.mm. with 80 per cent. of neutrophils in the differential count.

Whilst these investigations were in progress her temperature rose every evening to 102° F. and fell in the morning to 99°, and she was obviously losing ground every day. Liver abscess was suspected, and on September 10th the liver was explored with a Barker's lumbar puncture needle under a general anaesthetic. Introduced in the mid-axillary line and passed upwards and backwards, as is usually recommended, no pus was found, but, on directing the needle downwards and inwards towards the abdomen, thick pus was easily obtained. The abdomen was then opened by an incision just below the right costal margin. The liver was not enlarged downwards, but omentum and bowel were firmly adherent along its lower margin. Working up on the right side between the diaphragm and the lateral surface of the liver, an area of adhesions was encountered about three inches from the lower margin of the liver. On breaking this down the finger slipped easily into a large unilocular abscess cavity in the right lobe of the liver.

¹ Cabot: *Physical Diagnosis*, eighth edition, p. 380.

² Horder: *Medical Notes*, p. 73.

The pus was evacuated and a tube passed into the abscess cavity through the abdominal incision. From that time she progressed in uneventful fashion.

At the time of writing (July 6th, 1934) she is in good health and married. The pus was examined and a pure culture of *Staphylococcus aureus* grown from it. Her history was gone into again and apparently she had had a carbuncle on her right forearm some months prior to the present illness. If this was the portal of infection a well-marked latent period occurred in this case prior to the onset of symptoms of liver abscess.

I am indebted to Dr. J. J. O'Connor of Oswaldtwistle for so kindly supplying me with details of the after-progress of this case.

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RECOVERY OF SIGHT FOLLOWING SEVERE CORROSIVE BURN OF CORNEA

The case recorded below illustrates the value of early and intensive treatment in securing recovery from what may at the first instance appear to be beyond hope.

On January 28th, 1934, a workman had to remove a large cock from a chemical plant because of the tap having seized. He had this object fixed in a vice, and tried to loosen the part by the flame of a blow-lamp. He did this on his own part, and contrary to regulations, and, further, he was not wearing protective goggles.

During operations an explosion occurred, and hot fluid contents splashed all over his face and into both eyes. He at once applied water to his eyes, and was rushed to the adjacent first-aid station. The fluid on the cheeks and in the eyelids was found to be strongly acid. The conjunctivae were intensely swollen, and the cornea completely opaque and white. Immediate treatment to the eyes consisted of inducing a gentle, continuous flow of a 1 per cent. alkaline solution of sodium carbonate at 98° F. for about ninety minutes. As a relief from pain morphine 1/4 grain was given hypodermically. The facial burns were treated by alkali and then covered with a tannic acid jelly, lint, etc., to maintain asepsis and protect from air changes.

The man was fairly free from shock, and was sent by ambulance to Manchester Royal Eye Hospital, where he was at once placed under treatment. The eyes were washed out every half-hour for over twelve hours with a weak alkaline fluid, atropine was instilled, and after this time washing was reduced to once per hour for a further day—after that at longer intervals. For about two weeks no hope was given for even partial recovery of sight, but soon after the corneae began to clear up, and then favourable progress was rapid, the prevention of conjunctival adhesions having been achieved. In about four weeks' time the corneae were almost normal, the man's vision being, of course, unaided by accommodation owing to the daily instillation of atropine. The scars on the face were not very important, but cicatricial contractions formed on and above one upper eyelid. These luckily did not interfere with the action of the eyelid.

The man was discharged from hospital roughly six weeks from the date of the accident, and attended three times a week for another fortnight. Atropine was then discontinued, and some sixteen days later he resumed work, with practically normal vision and no corneal opacities.

It is quite evident from this gratifying result that very persistent washing with suitable fluids is called for in these cases, and, for the man's part, he should be glad the corrosive was not of alkaline type.

I am writing this to mark my appreciation of the very strenuous and successful methods used by our Royal Eye Hospital.

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Reviews

REGIONAL ANATOMY

The *Synopsis of Regional Anatomy*,¹ by Professor T. B. JOHNSTON, is a book which has been written with the object of providing the student with a short summary of the main facts, and is intended to be used by the reader with the bones and dissected preparations before him. It is assumed that the student has already acquired a working knowledge of anatomy, and merely needs a guide for the revision of his previous knowledge, as, for instance, when preparing for the final examinations of the medical curriculum. The author does not attempt to include the finer details of anatomy required for the award of honours or examinations for the higher diplomas, nor does he allude to recently published work on special subjects. The book is a plain, straightforward statement of the essential facts of anatomy written for the benefit of the average student, who has insufficient time to read through larger volumes, which often comprise about 1,500 closely printed pages. The value and interest of the book is very considerably enhanced by short references to the practical application of the facts recorded, and also the employment of italic type to emphasize the more important points.

A special feature of this third edition of the *Synopsis* is the use of the revised terminology which has recently been approved and adopted by the Anatomical Society of Great Britain and Ireland. The reader will readily appreciate the value of this alteration, as he will at once realize that the change is in the direction of simplification. A great deal of time and thought has been expended on this task of revision, which has provided an eminently satisfactory solution of the vexed question of old *versus* new terminology; and Professor Johnston, who has been one of the chief workers appointed to serve on the Revision Committee, is to be congratulated on the well-merited success which has crowned this advance in descriptive nomenclature.

Within the limits of the author's intention the book is admirably suited for the student's requirements, and is remarkably free from errors, any defects being rather those of omission than commission, and we can confidently recommend it as a reliable epitome of an extensive and detailed subject.

QUINSY

A further volume of the Collection of "Médecine et Chirurgie Pratiques," published by the firm of Masson, is *Les Phlegmons de la Loge Amygdalienne*,² by G. CANUYT and P. PAULL. It might be supposed that little fresh could be produced by the study of such a hackneyed subject as quinsy, but Professor Canuyt has raised several points which deserve notice. His anatomical notions on the relation of the tonsil to the muscular wall of the pharynx will not receive general support and are not in accord with recent anatomical observations, but he has gone to much trouble to prove by experiment and by clinical and post-mortem observations that the pus in a quinsy collects between the tonsil and the lateral wall of the pharynx. It has been suggested that the pus may occupy a deeper plane, but it would not have occurred to many that such elaborate proof of a self-evident proposition in pathological anatomy was necessary.

¹ *A Synopsis of Regional Anatomy*. By T. B. Johnston, M.B., Ch.B. Third edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 469; 11 figures. 12s. 6d.)

² *Les Phlegmons de la Loge Amygdalienne*. By Prof. G. Canuyt and Dr. P. Paull. Paris: Masson et Cie. 1934. (Pp. 128; 33 figures. 16 fr.)

Professor Canuyt is a strong advocate of the use of the exploring needle and syringe to prove the presence of pus here, just as it is used in other regions, a suggestion which may certainly be of value. In the treatment of quinsy the classical method described by Chiari of opening it by an incision in the middle of a line uniting the last molar with the base of the uvula is considered inadequate. Of the more radical methods the authors prefer to open the tonsillar fossa behind the anterior pillar and evacuate the pus without removing the tonsil. The cavity between the tonsil and the lateral pharyngeal wall is packed and the removal of the tonsil completed a few days later, but no special reason is given for not completing the operation of tonsillectomy in one stage, as recommended now by many laryngologists. Thus a rather unsatisfying compromise is reached between a primary tonsillectomy giving very free drainage, and the more conventional method of simple incision or drainage through the supratonsillar fossa followed after an interval for healing by tonsillectomy, if the patient is willing to undergo further treatment. Furthermore, the damage inflicted on the anterior faucial pillar by the technique advocated will not receive general approval.

The authors are certainly able to show that the classical method has unsatisfactory features, and the increasing adoption of the method of primary tonsillectomy supports their contentions. They have done service by calling attention to the pathology and treatment of a condition which is frequently and wrongly dismissed as trivial, but unfortunately have spoiled a book well worth reading by an astonishing amount of most tedious repetition.

ESSAYS ON PULMONARY TUBERCULOSIS

Dr. F. M. POTTENGER'S *Tuberculosis in the Child and the Adult*³ is rather a difficult book to label. Although it covers nearly the whole range of pulmonary tuberculosis it is not a textbook on the subject, nor is it a book of reference. It is perhaps best described as a coherent sequence of essays on almost every aspect of the problem, some contemplative and suggestive, others didactic and severely technical. This method of compilation gives the work quite a different balance from that of most books on the disease. Dr. Pottenger has been a well-known publicist for several years on certain phases of pulmonary tuberculosis; he is also the sponsor of some quite original views, and it would seem that he has used this book to collect the essence of his original work and to correlate it with the general principles of the diagnosis and treatment of pulmonary tuberculosis. Those who are familiar with his writings will find, as they expect, that the subject of the visceral neurology of pulmonary tuberculosis and its bearing on symptoms, physical signs, and diagnosis is treated very fully.

It is arresting to find, in these days of the ascendancy of the x ray, such strong advocacy of the value and practice of percussion and palpation. The reader may well quail at the task of acquiring such a delicate tactile sense as the author suggests he should; but since, if he hopes to be a good physician, he can never be too skilful in his methods of examination, he will find in this book fresh instructions on what is rapidly becoming a forgotten art. It must be borne in mind, too, that Dr. Pottenger does not ignore or undervalue the x ray, but his experience teaches him that, even with the help of the film, painstaking attention to minute physical examination is still well worth while. Elsewhere the book expresses broad views, the results of the author's very

wide experience, with an occasional rapid descent to the details of everyday practicalities, and finishes with some interesting specimen case histories illustrated with the usual unconvincing x-ray reproductions. (This unconvincingness is not the fault of author or publisher, but seems to be a vice inherent in all reduced x-ray reproductions.)

In such a work the carping reviewer could find many statements to criticize and opinions with which he strongly disagreed. But the opinions of an experienced man, whether agreeable or not, are always worth attention, and these this book provides, so the reviewer can safely leave the reader to agree or disagree with them for himself, knowing that in either event the reading of them will stimulate thought and be found worth while.

A CYCLOPAEDIA OF MEDICINE

With the eighth, ninth, tenth, and eleventh volumes of the giant undertaking known as *The Cyclopaedia of Medicine*,⁴ and edited by Dr. G. M. PIERSON, the subject-matter is carried a big step further, ranging from "Larynx, disorders of," to "Tartar and Tartrates" (omitting cross references not dealt with in the pages here reviewed). Random sampling of the four latest members of this series has revealed an excellent article on basal metabolism, by Dr. W. M. Boothby of the Mayo Clinic; a very practical account of ophthalmology as an aid to neurological diagnosis, by Edward Hartmann of Paris; and several well-illustrated sections on different aspects of radiology in vol. x. Similar experimentation with the index of vol. ix brought to light a section on acute lobar pneumonia of over seventy pages (double columns), based apparently upon 255 references, and the result is a bewildering collection of facts and observations which seems out of place in a work of this kind. This remark assumes that the whole production is mainly intended for the general practitioner out of touch with a good library, for the specialist is unlikely to require multiple monographs whose contents are often out of date as soon as publication has taken place. There is one more volume to come and an elaborate desk index. The British contributors to vol. xi include Professor John Fraser of Edinburgh, Professor L. S. P. Davidson of Aberdeen, and Dr. Alfred Pincey.

APPLIED CHEMISTRY

The current edition of *Thorpe's Dictionary of Applied Chemistry*, which began thirteen years ago and was completed seven years ago, is now being brought up to date by the publication of a two-volume supplement, of which the first volume is under review.⁵ The editors, Professors J. F. THORPE and M. A. WHITELEY, point out that probably greater progress in chemistry has been made during the last decade than during any corresponding period in the past, and hence an urgent need has arisen for including an account of these important advances in their dictionary. Instead of producing a new edition, it was decided to prepare a supplement dealing with selected subjects in which the greatest and most striking advances had been made. The subjects chosen are dealt with in short monographs by workers who are eminent in the field with which they deal. More than one hundred persons have contributed to this volume, and the list of

⁴ *The Cyclopaedia of Medicine*. Vols. viii, ix, x, and xi. Editor-in-Chief: G. M. Pierson, B.S., M.D. Ample illustrated with cuts and full-page black-and-white and colour plates. Philadelphia: F. A. Davis Co. 1934. (120 dollars.)

⁵ *Thorpe's Dictionary of Applied Chemistry*. Supplement, vol. i, A to M. By Jocelyn Field Thorpe, C.B.E., D.Sc., F.R.S., F.I.C., and M. A. Whiteley, O.B.E., D.Sc., F.I.C. London: Longmans, Green and Co., Ltd. 1934. (Pp. 680; illustrated. 60s. net.)

³ *Tuberculosis in the Child and the Adult*. By Francis Marion Pottenger, A.M., M.D., LL.D., F.A.C.P. London: Henry Kimpton. 1934. (Pp. 611; 88 figures. 36s. net.)

contributors includes most of the names best known in British chemistry. Each monograph gives a short review of important recent work in its subject, and also a few selected references.

The articles are arranged in alphabetical order, and the first volume covers the first half of the alphabet. The dictionary embraces the whole of chemistry, but it is interesting to note that a large proportion of this volume is devoted to subjects of biochemical or pharmacological interest. For example, there are relatively long articles on carbohydrates, enzymes, fermentation, and feeding materials, and on organic arsenicals, cinchona alkaloids, and digitalis. The prominence of such subjects is interesting evidence of the remarkable advances that have been made in organic chemistry and biochemistry during the last decade. This supplement will be found of great value by all who want a means of quick reference to new work in chemistry, and the liberal treatment of biochemical subjects makes it of special interest to those concerned with chemical aspects of medicine and biology.

THE DEVELOPMENT OF MANUAL SKILL

The volume on *Manual Skill, its Organization and Development*,⁶ by Dr. J. W. Cox, is concerned with problems relating to manual operations which involve the manipulation and adjustments of objects to one another. Such operations are performed for many hours every day by hundreds of thousands of our industrial workers, and it is therefore of great practical importance for us to ascertain how skill in these operations is best acquired, and whether skill acquired in respect of one operation is transferable to other manual operations which may be substituted. The investigations described by Dr. Cox are practically confined to the operations involved in the assembly of the eighteen component parts (rings, screws, porcelain base, etc.) of electric-lamp holders. They were tested very thoroughly on a group of seventy adults, and in less detail on about 200 boys and girls. A number of conclusions were arrived at which should, if confirmed, be of very great advantage to industry.

The main conclusion related to the differences induced by practice and by training. It appeared that skill developed by the repetition of one manual operation a large number of times conferred but little advantage in the performance of other operations undertaken subsequently. When, on the other hand, repetition is replaced by instruction consisting of talks, exercises based on the operation in question, and a limited number of repetitions of it, the skill thereby developed at no additional cost in time is transferable to other operations over a fairly wide range of manual activity. Moreover, the limits of proficiency attainable by training may far exceed those attainable by uninstructed repetition. These results indicate the wastage of effort produced by the customary practice of allowing beginners in assembly rooms to pick up their work as best they can, and suggest the advantages of substituting a short course of systematic training.

In other chapters of the book Dr. Cox shows that manual ability is to a small extent dependent on general intelligence, but chiefly upon the factors of mechanical aptitude and manipulative skill, and upon factors specific to the particular operation involved. Finally, he discusses in detail the subjective experiences involved in carrying out the operations of assembling, but he is too analytical in his treatment, and a more synthetic attitude might help in elucidating the theoretical basis of these valuable experimental results.

⁶ *Manual Skill, Its Organization and Development*. By J. W. Cox, D.Sc. London: Cambridge University Press. 1934. (Pp. 247, 53 figures. 16s. net.)

Notes on Books

Dr. ROY M. DORCUS and G. WILSON SHAFFER have written a book entitled *Textbook of Abnormal Psychology*,⁷ the purpose of which is to fill the needs of advanced students of psychology, pre-medical students, and medical students who desire more psychological information. Throughout the authors have attempted to approach the discussion of abnormal phenomena by means of consideration of the normal; for, as they point out, the symptoms and behaviour of abnormal individuals are not seen as new or mysterious ways of reacting, but are recognized as exaggerated manifestations of normal functioning. A vast amount of matter has been collected in this book, and some problems are discussed which have been somewhat neglected by psychopathologists. It is interesting, for example, to find an admirable discussion by the writers of this volume of the psychopathology of handedness in relation to stammering and stuttering. This voluminous work would seem to be rather a heavy meal for pre-medical students to digest.

The little work entitled "Healthier and Longer Life,"⁸ by EMILIO J. PAMPANA, contains excellent advice for the lay public concerning cleanliness, exercise, diet, ventilation, sleep, periodical visits to the doctor and dentist, the most important social diseases, prevention of acute infections, hypertension, rheumatic fever and heart disease, latent infections, especially of dental origin, and accidents.

In his short monograph on *The Atom*⁹ Dr. TUTIN propounds yet another view of atomic structure. However much physicists may differ about precise details, it is generally held that the atom consists of a massive nucleus surrounded by electrons. Dr. Tutin's alternative view reverses this: he regards the main mass as being arranged peripherally and the nucleus as being relatively light. The book is fairly entitled to the praise of being concise and short, but we think it need not seriously disturb those who hold—as most chemists and physicists do—that the main mass of the atom is in the nucleus.

Mr. ARTHUR BRYANT is well known for his researches into the history of the Restoration period in England. He has written *King Charles II*, and is producing an admirable *Life of Mr. Samuel Pepys, the diarist*. The volume on *The England of Charles II*¹⁰ is clearly a paragon or by-product of these studies, for they contain in narrative form the information which he has gathered in his reading. He tells of the sights and sounds which would have struck a foreigner on his arrival in England when the Commonwealth was giving place to Royalty; of the appearance of London and the country and of the habits and pastimes of the people. It is a book easy and pleasant to read, but as one reads it is remarkable to note how little the country life of England has changed in two hundred and fifty years, and how the English character and habits remain as they have always been. Love of travel is predominant in the English. The pilgrimages gave place to visits to Bath, Epsom, Harrogate, and countless smaller spas; these in turn have been displaced by hiking, aimless motor trips, and, more recently, by pleasure cruises. Vestiges of the old village life still remain in many parts of the country. The women work in the fields as they used to do; the saddler mends the harness with his own hands, the wheelwright and the smith work in the open, churchyards are overfull, sanitation is still rudimentary, and the water supply is scanty and bad. All this Mr. Arthur Bryant tells about, and his book gives much room for thought. The more things change in rural England the more they remain the same.

⁷ *Textbook of Abnormal Psychology*. By Roy M. Dorcus and G. Wilson Shaffer. London: G. Allen and Unwin, Ltd. 1934. (Pp. 289, 16s. net.)

⁸ *Vita più sana e più lunga*. Libro d'igiene dedicato alle persone colte. By Emilio J. Pampana. Rome: Edizioni "Annali d'Igiene". 1934. (Pp. 114, 12 lire.)

⁹ *The Atom*. By John Tutin, D.Sc. With an introduction by Professor F. Soddy, F.R.S. London: Longmans, Green and Co. 1934. (Pp. 103, 6s. net; postage 3d.)

¹⁰ *The England of Charles II*. By Arthur Bryant. London: Longmans, Green and Co. 1934. (Pp. 199, 6s. net.)

PUBLIC HEALTH CONGRESS IN LONDON

The fourth biennial Public Health Congress and Exhibition at the Royal Agricultural Hall, Islington, arranged by a council representing the Ministry of Health, the Board of Control, and municipal and county council organizations, was held last week. A very large number of discussions took place, sometimes proceeding simultaneously in three sections, and were attended by public health and sanitary officers and workers in connexion with voluntary associations from all parts of the country. The congress was opened on November 19th with a short address by Sir HILTON YOUNG, Minister of Health, who spoke again of the "drive" against the maternity death rate, and the decision to hold special inquiries in areas where the rate was abnormally high. In a reference to voluntary sterilization on the lines of the Departmental Committee's report, he called for an expression of the national mind and conscience on the subject.

The first session of the congress was occupied with an address by Sir George Buchanan, who described the international arrangements for preventing the spread of epidemic diseases. This is printed in the opening pages of our present issue.

VOLUNTARY STERILIZATION

The largest attendance at any discussion was at one arranged by the Joint Committee on Voluntary Sterilization, to consider the report of the Departmental Committee (the Brock Committee).

Professor JULIAN HUXLEY remarked that this subject was less controversial than formerly. The unanimity of the Brock Committee itself was a testimony to the overwhelming weight of factual evidence presented by sixty witnesses. Many individuals and organizations previously hesitant had been persuaded by the report to come down on the side of action, notably the Central Association of Mental Welfare. The discussion was generally confined to the case of mental defectives, but the Brock report also covered those who suffered from mental disorder and grave hereditary physical defects and probable carriers. Sterilization had nothing to do with castration, and left the sexual impulse untouched, so that it was possible and reasonable for sterilized individuals to marry. Prohibition of marriage as a means of preventing perpetuation of hereditary defect had been strongly advocated by certain people, but the great trouble was illegitimacy. The sterilizing operation was not dangerous, and over 16,000 people had already been sterilized in the United States. No responsible person in this country proposed compulsory sterilization. Voluntary sterilization was not an alternative to institutional treatment, but the complement of it. Institutions had a twofold function: to look after people not completely capable of looking after themselves, and to educate and stabilize the mental life of higher-grade defectives. When this process of stabilization had been brought to a certain point at which the people were able to live in the general community, it was then that they should be sterilized. It was true that mental defect might be due to non-hereditary causes, but half of it was distinctly hereditary, and in a great many other cases bad heredity reacted with bad environment to produce the defect. Prevention of parenthood either by segregation or sterilization was the only method whereby the burden of defect could be reduced. A further point was that mentally defective people made bad parents, and it was in the interests of the children themselves and of social justice that, wherever possible, mental defectives should not be allowed to have children. It seemed to him, as a biologist and as a citizen, that there was an overwhelming case for action. He denied that eugenics had a class bias; in fact, the legalization of voluntary sterilization would give to the poor facilities available at present only to the well-to-do. The mentality of this country would prevent a reproduction here of the developments in connexion with this subject which had taken place in Germany.

Dr. C. P. BLACKER described certain disadvantages of the Nazi method as opposed to the voluntary principle which "saturated" the Brock report. In Germany nine conditions were specified as justifying voluntary or compulsory sterilization. These included schizophrenia and manic-depressive insanity, with the result that German doctors, fearing to subject their patients to the compulsory stigma, had refrained from definite diagnosis and taken refuge in vague terms such as psychasthenia and neurasthenia. People in Germany also hesitated to go into institutions for treatment lest one such diagnosis be made and they be sterilized compulsorily. In America twenty-seven States had sterilization laws, all, except in Vermont, with compulsory clauses, but from 80 to 90 per cent. of the sterilizations in the United States were voluntary. Surgeon Commander JAMES, M.P., discussed the prospects of legislation, which, he said, depended entirely upon the state of public opinion, not upon the initiative of the Ministry of Health. A great change had taken place in public opinion, and now the only organized body in this country opposed to voluntary sterilization was the Roman Catholic Church.

Mr. GEORGE GIBSON, a member of the Trade Union Congress Council, moderately stated the case against sterilization. He urged that a Royal Commission on the subject should be set up with its proper element of lay opinion. Biologists and medical men as eminent as any who had spoken that day had reached different conclusions. The social aspects of this problem had not received adequate consideration, though they were as important as the medical and eugenic with which the Departmental Committee was exclusively concerned. He feared legislation which meant one law for the rich and another for the poor, especially when the law might entail the deprivation of elementary human rights. Public opinion—not expert opinion merely—must be persuaded and convinced that existing methods were ineffective or could not be made effective without resort to these drastic measures; also that this procedure, if sanctioned, would achieve its purpose. It was well known that from the union of normal persons mental defectives sometimes appeared, and that from the union of mental defectives (even both parents) came children sometimes remarkably endowed with intellect or character. The genetic result could not be predicted. The Brock Committee had shrunk from the responsibility of advocating compulsory sterilization because it shrunk from the necessary corollary, the setting up of a body of experts entrusted with the necessary determination. It was said that in voluntary sterilization the consent of the defective himself or of his parents or guardians must be secured. This might technically be so, but the speaker could not believe that this would in practice in a given case outweigh the opinion of the experts. The distinction between compulsory and voluntary sterilization was largely unreal; there would be no real choice. He believed that a much more searching investigation into social problems and ante-natal and post-natal environment was necessary. The environmental factors which were the cause of mental unfitness should be better ascertained before legislation was proposed. He asked whether there was any evidence that the problem was insoluble from the point of view of institutional treatment. Ought not research to be intensified into the transmission of taint? Sterilization in the final analysis was a confession of defeat.

Mr. E. W. CEMLYN JONES, of the County Councils Association, and Councillor LOXLEY, of the Association of Municipal Corporations, spoke in general support of the voluntary policy. Sir FRANCIS FREMANTLE, M.P., said there was a considerable body in Parliament not committed to the proposals of the Departmental Committee. One proposal to which Parliament would certainly not assent was that in the case of the feeble-minded their future should be decided for them by their parents or guardians. That would amount to compulsion. But if that proposal were cut out the most serious cases would go by the board, and voluntary sterilization would mean that only the more enlightened and conscientious among the mental defectives submitted themselves to the pro-

cedure. This being so, it might even prove to be a dysgenic measure.

Professor HUXLEY said in reply to this last point that already the parents or guardians of these people decided their future for them when they were segregated in institutions. The worst cases—imbeciles and so on—were dealt with by segregation now. The trouble was with the high-grade defectives, and they were the people capable of consent. He went on to urge that the process of evolution, which has led up from the lowest forms of life to the human being, could only be continued by man deliberately and consciously taking control of his own destiny. It was only during the last twenty years that control of the size of the family had taken place, and now it was proposed that man should improve the quality of his own stock. Far from being a confession of defeat, as Mr. Gibson had called it, it seemed to him the beginning of control of destiny by man in furtherance of the great stream of evolutionary progress.

BOARDING-OUT OF MENTAL PATIENTS

A less animated but useful session was devoted to the question of the boarding-out of patients from mental hospitals. Dr. W. BROOKS KEITH, medical superintendent, St. Audry's Hospital for Mental Diseases, Suffolk, said that a scheme of boarding out had been in operation there for over a year, during which time twenty-six patients had been placed in the care of suitable guardians. No difficulty had been experienced in finding guardians for women patients, but it was difficult to persuade prospective guardians to accept men. Neither the age of the patient nor the form or duration of the mental disorder was of much help as a guide in selecting cases; the point of importance for consideration was the patient's behaviour, and one had to be prepared for surprising disappointments in patients whose behaviour worsened when they got outside the institution. The ideal type for boarding-out was a case of simple dementia or the medium-grade defective without vicious propensities. This work had been done not under Section 57, of the Lunacy Act, which was the usual section for boarding out, but under Section 55, whereby power was given to visiting committees to grant to patients leave of absence on trial. Under this section the scheme had worked without the slightest hitch or difficulty, and one of the main reasons for this was the ease with which the patient might be removed from, or returned to, the hospital or transferred from one guardian to another. From the point of view of the patients he had nothing but good to say of the scheme, and whether they had been right or wrong in the way they had started it in Suffolk, he was satisfied that they had brought a little happiness into the lives of a few poor souls who were in much need of it.

Dr. A. A. W. PETRIE, medical superintendent, L.C.C. Mental Hospital, Banstead, described an attempt made there to board out a number of quiescent chronic patients either with their relatives or in foster homes. Of eighty-two patients so treated some twenty-two had returned to hospital for various causes. Mental relapse accounted for only 25 per cent. of the latter. In at least another 25 per cent. the patients definitely preferred to be in the mental hospital, having missed the entertainment and general sociability of the institution. Partial relapses were associated with inability to adjust to external conditions, but during a little over a year fifty-six patients from Banstead had been boarded out or placed on prolonged trial.

Dr. KATE FRASER, Deputy Commissioner, General Board of Control, Scotland, said that in Scotland this procedure was long past the experimental stage. There was no part of Scotland where boarded-out patients were not to be found. Indeed, in many parts there was a kind of hereditary guardianship, patients being handed down from generation to generation. One man had been fifty-four years in the guardianship of successive members of the same family. She gave unstinted praise to the guardians; the success of the scheme lay almost entirely in their hands. One great advantage of the scheme was that people in general were coming to regard patients suffering from mental illness as persons not to be shunned or feared.

At the same session Dr. REGINALD WORTH described the work of the Mental After-Care Association, of which he is chairman, and the assistance it gave to local authorities, both in after-care and in fore-care. Mr. L. G. BROCK, Chairman of the Board of Control, who presided, referred to the experience of Holland in this respect. There was an elaborate system of after-care in Rotterdam, and the Dutch superintendent had told him that it was a good investment, because it enabled the institution to discharge patients at a much earlier stage than would otherwise be possible. If the Dutch, who were a practical people, not sentimental, discovered its advantages there must be a great deal in it.

TEAM WORK IN ANTE-NATAL AND POST-NATAL CARE

A discussion on this subject took place under the auspices of the Association of Maternity and Child Welfare Centres. The principal speaker, Professor F. J. BROWN, of University College Hospital, repeated in substance his remarks in a discussion at the Royal Society of Medicine, more fully reported elsewhere in this issue. He declared that the time had come to take midwifery out of the hands of the general practitioner altogether, and to establish a service of specialists thoroughly trained in obstetrics, who, working in co-operation with highly trained nurses or nurse-midwives, would be responsible for the care of the patient both in pregnancy and during delivery. Dr. LETITIA FAIRFIELD, of the Public Health Department, L.C.C., said that they were faced with the unpleasant fact that ante-natal care had not achieved its objects. Some of the lowest maternal mortality rates in the British Isles were still to be found in large areas where ante-natal care was almost nil. It was not always realized that one of the results of ante-natal care was to protect not only the patient but the nurse and the institution by enabling them to select cases that were potentially bad maternal risks and to send them to another establishment. That was why there was so much confusion about the results of ante-natal care as relating to certain services and institutions. There was confusion also as to the connexion between ante-natal care and malnutrition. Here again the facts were all against current fashionable theories. America had one of the highest maternal mortality rates in the world, yet the standard of nutrition there was probably higher and wiser than anywhere else. No one would suggest that proper attention should not be paid to the feeding of the mother, but it would be a mistake to think that the mortality of mothers in childbirth could be reduced by concentrating on nutrition. Ante-natal care should be regarded as a link in the chain of obstetrics, not as a stunt; and the expectant mother as a woman, not as "an ambulant pelvis," as she used to be regarded in the old textbooks. Ante-natal care should consider the mother in her setting as a whole, and concentrate its forces on producing for her a good environment.

FOOD STANDARDS

Other discussions of less immediate medical interest concerned games and athletics and their value to public health, the reconditioning of working-class houses, town and country planning, and hospital equipment. Dr. W. G. SAVAGE, county medical officer for Somerset, opened a discussion on food standards in view of the report of the Departmental Committee on the Composition and Description of Food. Some bodies, he said, like the Society of Public Analysts, envisaged a system of definitions and standards ultimately to embrace all articles of food, but Dr. Savage thought such a complete series of definitions was neither practicable nor desirable. He favoured an extension of definition for many articles and for certain constituents of many foods, such as the amount of fat in cheese, and limitations for carbohydrate in sausages and the like. He considered also that all food-manufacturing premises should be registered and open to inspection and sampling by the appropriate authority; the only reliable way to control purity of manufacture; and that the present position of labelling was unsatisfactory; and that the issue of a false or misleading description should be an offence. In the subsequent discussion Mr.

L. H. LAMPITT, dealing with the chemical aspect of food control, declared the general standard of purity of food in this country to be very high. Control by standards might conveniently be established for a restricted range of products, the verification of such standards to be by accepted methods of scientific examination. But bureaucratic control engendered rules and regulations for their own sake. A representative of the manufacturers of confectionery foods, Mr. J. G. MATHIESON, said that manufacturers generally deprecated very strongly the fixing of standards, positive or negative, which could not be checked with absolute certainty by methods of analysis. Such standards put a premium on dishonesty, and no method of inspection could get over this difficulty. While standardization, so far as it had gone, had done good, he thought the Departmental Committee was wise in deciding against a hard-and-fast system of standardization applicable to every variety of foodstuff, regardless of whether any really important end was to be achieved.

MEDICAL OFFICERS OF HEALTH AT DINNER

THE MINISTER ON HIS OBLIGATION TO THE SERVICE

The annual dinner of the Society of Medical Officers of Health took place at the May Fair Hotel on November 22nd, under the presidency of Dr. R. VEITCH CLARK. The Minister of Health and Lady Hilton Young were the principal guests, and among others were Sir Arthur Robinson, Secretary to the Ministry, and Sir George Newman, Chief Medical Officer, Sir George Buchanan, Master of the Society of Apothecaries, Dr. E. Kaye Le Fleming, Chairman of Council, and Dr. G. C. Anderson, Medical Secretary of the British Medical Association, and representatives of other public services and affiliated organizations.

Sir HILTON YOUNG, in proposing the society's health, spoke of the pleasure with which, in his travels through the country, visiting places where the surroundings and even the language were unfamiliar, he had come upon "the friendly, comfortable face of the medical officer of health." "We meet here," he said, "with a warm sense of co-operation in the tasks we have to discharge." He testified to the number of occasions during his short term of office when the Ministry had sought, and never in vain, the counsel of the society. "The relations between centre and circumference in public health show steady improvement. If the rate of improvement has been accelerated during the last three years I shall be very proud. (Applause.) I thank you for that short round of applause, which I confess I had almost extorted, but this improvement of relations is due, not to any Minister, but to a steady growth in understanding as between the officers of the Ministry and yourselves. Those relations have definitely improved as a result of the Act of 1929, the good effects of which have been witnessed in the recent surveys carried out by the Ministry in co-operation with the local authorities."

Sir Hilton Young went on to speak of the "drive" for a reduction in maternal mortality, repeating some of the observations he had made on this subject at the Council Dinner of the British Medical Association a fortnight previously (*Supplement*, November 10th, p. 237). There was an armoury of services adequate to reduce the rate of mortality, but what was most required was that the standard of the backward areas should be conformed to that of the most progressive. He then passed on to speak of the evil of the slums, and said that it was upon the enthusiasm of medical officers that he relied to bring to an end in five years this intolerable evil. During this, the first year, 15,000 houses had been already completed for the rehousing of slum dwellers, and by the end of the year the construction of another 19,000 houses would be in sight. The rate at which the work had been carried on had steadily increased.

Dr. VEITCH CLARK, after paying a tribute to Sir Hilton Young for his keen interest in the public health service, said that he believed maternal mortality could be enormously reduced by the means already in existence, though there remained certain causal factors which could not be dealt with until research had been carried out to a much larger degree. Nothing that could be done in public health at present, effectively counteracted intoxications, and until more was known about the intoxications of pregnancy that section of the mortality must remain. So far as housing was concerned, in his own Manchester what had been done in replacement during the past year would be multiplied six or seven times during the next twelve months. Dr. Clark addressed himself to the younger members of the society, whom he congratulated on living in the greatest age that public health had ever known.

Sir JOHN ROBERTSON then proposed the health of two veteran workers for the society, both of whom had held every high office in it—Dr. T. W. Naylor Barlow of Wallasey, and Dr. G. F. Buchan of Willesden. He recalled the long fight for the status and remuneration of the medical officer of health—a fight in which the society had been splendidly assisted by the British Medical Association. Dr. NAYLOR BARLOW, in a breezy reply, spoke in his turn of the value of the society, in which he had learnt the experience of other men and been able to add it to his own. He contrasted the present day of recognition with his own early experience as medical officer of health for Bootle, when there were six doctors on the town council, all of whom looked upon the medical officer of health as an interloper and of much inferior status, and when his office was a partitioned-off portion of the common reading room. Dr. G. F. BUCHAN, in his reply, said that in the science of public health there was no such thing as finality. They had to unlearn much that they had been taught, and to undo much of their teaching of others. In these circumstances perhaps it was not surprising that Ministers of Health and health committees did not always attach the same importance to their schemes that they did themselves. He regretted the frequent absence of one type of worker from a health department—namely, the research worker. Science could never be a closed book, and the health department which did not base its methods on experimental medicine and research would not make the progress that it ought.

The toast of "The Guests" was proposed by Dr. T. N. V. Potts. In replying, Dr. J. S. FAIRBAIRN said that in the double capacity of chairman of the Central Midwives Board and president of the British College of Obstetricians and Gynaecologists he saw a good deal of the medical officer of health, and from different standpoints. He had often had to tell medical officers of health that they might know a great deal of preventive medicine, but they had much to learn about preventive obstetrics. On the other hand, he found in the British College that some of his colleagues did not get the right view of the medical officer of health, whom they thought of as representing local bureaucracy. He added that he had worked for a long time for a diploma specially designed for maternity and child welfare workers, but his great difficulty had been to get medical officers of health to make any use of it. In a further reply, Sir GERALD HURST, K.C., the senior member of Parliament for Manchester, bore testimony to the work of Dr. Veitch Clark in that city, which he acclaimed as the pioneer and pathfinder in all social progress.

According to S. D. Collins and M. Gover (*Bull. Off. Internat. d'Hyg. Publique*, October, 1934), who record their observations on influenza in ninety-five towns of the United States during the winter of 1932-3, that the epidemic was one of the least important of the nine which have occurred during the period 1920-33, but was the most considerable of those since the epidemic of 1928-9. The mortality was higher in the Western than in the Eastern States. The West Southern Central States were first affected, and the disease then spread simultaneously to the west, north, and east, New England being the last to be attacked.

British Medical Journal

SATURDAY, DECEMBER 1st, 1934

INTERNATIONAL HEALTH

During the early part of the nineteenth century the intrusions of plague and cholera into Europe led to the adoption by various countries of measures designed to arrest these infections at their port of entry. Of these measures it may be said in general that they were more rigorous than effective, and in 1851 the situation in the Levant had become so serious that a conference was held in Paris between representatives of the States interested in order to arrive at a mutual understanding on some common course of action. So far as England was concerned the official view about this time appears to have been strictly insular. The presence of cholera in the world at large was no doubt unfortunate, but the fear of it had been a strong incentive to the improvement of English water supplies and sanitation, and so the Government of the day, while not exactly welcoming the cholera, took no official action against it, but left it to the seaport towns to exercise locally such powers as they had when an outbreak threatened.

Later, in 1896, a new problem was raised by the seaborne extension of plague from Bombay. In 1897 a conference met at Vienna to concert new efforts, and in 1903 the Sanitary Conference at Paris proposed an international Convention for both plague and cholera. Except, however, the Constantinople Superior Board of Health and the Egyptian Quarantine Board, which had limited fields, there had hitherto been no standing organization to deal with international quarantine. The opinion grew that such an organization had become necessary, since only by continuous expert study and periodical meetings between representatives could the obligations which Governments should jointly assume be fixed with any prospect of success. This opinion, which took formal shape at the Rome conference of 1907, materialized in 1909, when the Office International d'Hygiène Publique began work in Paris. During the four years of war the activities of the Office were in abeyance. With the return of peace they were revived. The question then arose of the relationship of the Office to the new Health Organization, as it was called, of the League of Nations, and after sundry procedure a liaison was devised under which the two bodies would act in co-operation.

The happenings above summarized are recounted in more detail by Sir George Buchanan¹ in his Milroy

Lectures, recently issued in book form. They provide a fitting prelude to his interesting review of what has been attempted and achieved in international hygiene, which he supplements in the address printed in our opening pages this week. Under the auspices of the Health Organization, as he says, the Commission on Biological Standardization has rendered important service to medicine. The Malaria Commission has thrown valuable light on the control of that disease, indicating that the methods employed must be adapted to local conditions. The Cancer Commission has made a comparative study of cancer statistics, and in connexion with radium treatment has suggested a standard nomenclature together with standard methods of case recording and the following up of treated cases. Health missions have been active in Eastern Europe, Latin America, the Pacific Islands and elsewhere, and the Far Eastern Bureau has afforded facilities for the pooling of information regarding the progress of infection in the Orient. The Office International, as a standing supervisory body, perseveres in serving the object for which it was originally brought into being. Regularly at its half-yearly sessions its members review the needs of the world according to the changing incidence of disease and the growth of epidemiological knowledge. The International Sanitary Convention of 1926 extended co-operative action to typhus and small-pox, and in the case of plague established the six-monthly examination of ships at designated ports to ascertain whether they needed "deratization"—that is, riddance of rats. The Sanitary Convention for Aerial Navigation of 1933 is another example of the progressive policy of the Office.

In the note with which he concludes the Milroy Lectures for 1934 Sir George Buchanan refers to the *co-partnership between the Health Organization and the Office*, and touches upon the seeming anomaly that questions which are essentially dependent on the joint action of Governments should be thus dealt with by two committees in two separate capitals. As one familiar with the work and well qualified to speak he expresses the view that there are advantages in the arrangement, and that the duplication, such as it is, gives relatively little trouble. Should, however, any question arise of further readjustment, throwing into relief competing claims by the two bodies, it seems to us that there might be much to say on behalf of the Office. Having weathered first the World War and later the coming into existence of so highly accredited a rival as the Health Organization of the League of Nations, the Office would appear to be possessed of a strong inherent vitality or power to resist administrative shocks. Such a tendency to permanence was one of the aims of those by whom the formation of the Office was first mooted. It is of signal importance to the work which it carries on, and for the purposes of that work it is linked not only with European Governments but also directly with many of their overseas dominions and possessions.

¹ The Milroy Lectures on International Co-operation in Public Health: Its Achievements and Prospects. By Sir George S. Buchanan, C.B., M.D., F.R.C.P. Reprinted from the *Lancet*, April 28th, May 5th and 12th, 1934.

DRILLING IN PHYSICAL SIGNS AND DIAGNOSIS

That it is easier to instruct advanced students, or at least those who have mastered the elements of the science of medicine, than to teach students on the threshold of their long course, is generally recognized. It is often acted upon by the professor taking the introductory course of lectures and deputing his lecturers to undertake those on the more advanced aspects of his subject. In the case of physical diagnosis as a preparation for work in the medical and surgical wards this plan was formerly not adopted; but since their institution after the war the professorial units have in general undertaken this duty, which, though a tribute to their efficiency, has added to their labours, and may have interfered to some extent with activities in research. The teaching of physical signs and diagnosis varies in method and duration. Perhaps the most important aim in these classes is to initiate what should become an almost unconscious process of routine in examination and observation. The meaning and bearing of this faculty may perhaps be illustrated by a comparison made by a junior colleague of two of his seniors: one physician remarkable for flashes of diagnostic genius, the other physician characterized by his rule-of-thumb custom of methodically examining (1) the tongue, (2) the pulse, and thus conscientiously going over the patient, but with the result that he sometimes wiped the eye of his more brilliant colleague. Lest any attempt to identify those concerned in this comparison should thus be stimulated, we may add that they have "passed beyond these voices."

Among the instructor's difficulties in successfully inculcating this mental habit of approach to clinical examination of patients is that of finding out how much his students really do see and actually feel or hear when examining the patients brought for demonstration. Realizing this to the full, Professor Logan Clendening of the University of Kansas has adopted a system whereby the students take notes detailing their observations as they make them, which the instructor then reads, and so obtains the desired insight and the opportunity of giving further help. In his pamphlet, *The Laboratory Notebook Method in Teaching Physical Diagnosis and Clinical History Recording*,¹ he sets out, in addition to a tabular scheme of note-taking, eighteen "exercises" which in some respects constitute examination papers on the cases investigated, especially with regard to the part of the body thought to be affected. Thus questions are asked such as: "Is the disorder organic or inorganic?"; "What do you hear over the second interspace to the left of the sternum?"; "What valve area is this?"; and, "Is the Romberg test positive?" In this connexion reference may be made to a useful brochure by Dr. T. R. Parsons of Sidney Sussex College, Cambridge, entitled, *Lectures,*

Reading and Examinations,² which gives much useful advice, based on experience and sympathetic understanding of the student's problems. Thus in dealing with note-taking at lectures the laborious process of making a fair copy of notes taken down at the time is strongly deprecated as merely a tedious waste of time; and as a substitute the student is directed to leave plenty of space between the lines of the original transcript and the opposite page blank for subsequent expansions and corrections. A system of abbreviations should be invented and employed by the student, who, if possessed of a "photographic" memory, should fill his notebook with diagrams. Reading on the same subject as the lecture should follow, and also be accompanied by note-taking. Finally, as regards examinations the advice given is equally sound, and the importance of early to bed is underlined by the *obiter dictum* of a well-known coach that "every minute after 10 p.m. means a mark lost in the examination next day."

PHRENICECTOMY

Phrenicectomy has during the last few years become a popular operation in this country. Both artificial pneumothorax and phrenicectomy are comparatively minor operations, and therein lies a certain danger that they may be practised indiscriminately, and often without careful selection of cases, on the justification that they can at least do no harm. Any new procedure is bound to go through a probationary period. In the case of phrenicectomy this period is over, and it is time that those who have had considerable experience published their results. More valuable information can be obtained by a consideration of the results in small comparable groups than *en masse*. A very useful contribution along these lines has just been published in France by Emile Sergeant, Launay, Bonniot, *et al.*³ These authors start with a review of the physiology of the phrenic nerve and the effects of its paralysis. It will be news to many that the phrenic nerve carries sensory fibres from the lumbar peritoneum, but this will explain the apparently "hysterical" association between a lesion in the abdomen and a pain in the neck. Both Sergeant and Launay are strongly opposed to the routine practice of paralysing the diaphragm when an artificial pneumothorax has been indicated but has failed. In the treatment of pulmonary tuberculosis these authors are agreed that the effect of a phrenicectomy on a pulmonary cavity does not depend so much on the position of the cavity as on the character of the surrounding parenchyma. When the cavity, either at the apex or at the base of the lung, is surrounded by dense sclerotic lung tissue, paralysis of the diaphragm will not assist its closure; when, however, the cavity is thin-walled and surrounded by a recent infiltration, considerable improvement or closure of the cavity is to be expected from this operation. Bonniot considers

¹ *The Laboratory Notebook Method in Teaching Physical Diagnosis and Clinical History Recording*. By Logan Clendening, M.D. London: H. Kington. (2s. 6d. net.)

² *Lectures, Reading and Examinations, being Hints on taking Notes at Lectures with some Suggestions on Preparing for Examinations*. By T. R. Parsons. Cambridge: W. Heffer and Sons, Ltd. (1s. 6d. net.)

³ *Arch. Med.-Chir. de l'Appareil Respir.*, 1934, Tome IX, Nos. 1 and 2.

that an isolated cavity of the favourable type described above, and which has improved up to a point under sanatorium regime, is best treated by a phrenicectomy as a primary procedure. Undoubtedly artificial pneumothorax is not without risks, and if the same result can be obtained by a phrenicectomy it is surely the method of choice. By crushing a phrenic nerve and removing the accessory fibres a temporary paralysis is obtained, which overcomes the disadvantage of an irrevocable procedure. The authors are also against the routine practice of phrenic avulsion prior to thoracoplasty. Bonniot considers that it should only be employed when the lesion is of the type that will improve under this treatment. Thoracoplasty should then be delayed until the maximum improvement has been obtained. Sergent states that he has never seen phrenicectomy benefit cases of acute pneumonic tuberculosis. To apply it to suppurative conditions of the lung, particularly to bronchiectasis, has always seemed an irrational procedure. H. P. Nelson¹ has already given a warning against collapse therapy in bronchiectasis. The French writers consider that its results for suppurative diseases are inconsistent and unreliable, that it is definitely contraindicated where there is an active inflammatory lesion in the parenchyma, and that in bronchiectasis it provides only a temporary improvement. On the whole, phrenicectomy in pulmonary tuberculosis has given, in the carefully selected cases, very good results; sometimes it fails in its object, but it rarely does harm. The contrary must be said of this operation in suppurative diseases—namely, that it rarely does good, sometimes produces no effect, but usually makes the condition of the patient worse.

A RECEPTION AT APOTHECARIES' HALL

The various gatherings of public health workers in London last week culminated in a largely attended reception given on the evening of November 23rd by the Society of Apothecaries of London, to meet members of the Society of Medical Officers of Health. The guests were received in the fine old hall by the Master, Sir George Buchanan, the Senior Warden, Sir William Wilcox, and the Junior Warden, Dr. J. S. Fairbairn. The early part of the evening was devoted by the visitors to an examination of the many treasures of which the society is the proud possessor. Attention was specially drawn to the licence to use the hall, granted by Charles I under the Great Seal and dated 1634. Another valued exhibit was the laboriously lettered and illuminated scroll conveying the appointment of two apothecaries to the court of Charles II. There was also a costly snuff-box given by the City of London to Edward Jenner. The principal exhibits were the old medical books, some of which had a special interest for health officers. The overcrowded title-page of one, dated from before the Great Fire, described the contents as "Certain necessary directions as well for the cure of the Plague as for preventing the infection, with many easy medicines of small charge very profitable to his Majesty's subjects. Set down by the College of Physicians." "A New Herball," dated London, 1551, in which were included "a booke of the bathes in England, in Germany and Italy," and "A Homelye

Physicke Booke," created much interest, and another, described by the society's curator as one of the rarest medical books, was "An Account of the Medical Uses of the Foxglove." Others were "A Plain Philosophical Demonstration of the nature, faculties and effects of all such things as by way of nourishment make for the preservation of Health, with divers necessary observations; as also of the true use and effects of sleep, exercise, excretions, and perturbations," by T. Venner, Bath, 1638, "whereunto is annexed an accurate treatise concerning Tobacco"; and a volume published in 1596, written by Nicholas Monardus and "Englished by John Frampton, Merchant," entitled "Joyfull Newes out of the New-found World," and describing "things brought from the Occidental Indies which serve for the use of medicine." After the inspection of these exhibits a move was made to the Great Hall, standing unaltered, except for its Adam ceiling, from the days before the Great Fire.

THE FATHERS OF ODONTOLOGY

The Royal Dental Hospital of London has just completed its third quarter of a century, and occasion was taken by the chairman, Mr. J. Thornton Carter, at the annual dinner of the staff and past and present students, on November 24th, to praise its founders. Odontology was gaining recognition as a science more than thirty years before the Royal Dental Hospital came into being—witness the work of Cuvier, Richard Owen, and Thomas Bell. But the institution, said Mr. Carter, started its life at just the right time and in an atmosphere where every breath was stimulating. In the same year that saw the foundation of the hospital—1858—Darwin and Wallace read before the Linnean Society their paper advocating the theory of natural selection, which was to influence the progress and direction of every branch of biological knowledge; Michael Faraday at the Royal Institution demonstrated certain phenomena in solutions of gold—the colloidal state—which led at once to far-reaching results and to-day seemed to be opening boundless horizons; Claude Bernard was publishing his memoirs on the pancreas and the role of pancreatic secretion in digestion; Pasteur was publishing his paper on fermentation; and Mendel was formulating his laws of inheritance. At that time Sharpey was professor of anatomy and physiology at University College, London, and Grant, who inspired much of John Tomes's work, occupied the chair of comparative anatomy. It was a time when every branch of science seemed to be developing broader and grander conceptions. John Tomes was an original member of the staff, and in the second year of the hospital he published the first edition of his *Dental Surgery*. Later Charles Tomes published his *Manual of Dental Anatomy*, where his chapter on the evolution of the forms of teeth remains a masterly contribution on the various factors underlying the progressive changes in dental structure. A fellow student of Charles Tomes at Soho Square was Howard Mummery, whom Mr. Carter considered to be the greatest of dental histologists. These men he named as the founders of odontology, and the staff of the hospital and school had since seen an unbroken succession of distinguished names, often illustrious son

¹ *British Medical Journal*, January 13th, 1934, p. 58.

following illustrious father. Mr. Carter mentioned that during the history of the hospital there had been eleven consulting surgeons on the staff, of whom he had known eight, and there had been six deans, and he had fallen under the jurisdiction of four. That the hospital is continuing to fulfil the ideals of its founders was shown by the multitude of demonstrations and exhibitions at an "At Home" preceding the dinner, when the conservation room, the mechanical laboratory, the x-ray department, the orthodontic and research departments, and the museum were filled with eager exhibitors and students; it was shown also by the speech of the dean, Mr. H. Stobie, in recounting the past year's progress. One development has been the institution of a foundation scholarship at Epsom College, to be awarded to a student working for the D.D.S. degree. The Rev. A. C. Powell, head master of Epsom, acknowledged this practical compliment and hoped that in the future it would be seen that his school could turn out first-rate dentists as it had turned out first-rate doctors.

BRITISH MEDICAL QUALIFICATIONS IN INDIA

The position created by the Indian Medical Council Act, 1933, with regard to the recognition of United Kingdom medical qualifications in India is referred to in the recent report of the Joint Committee on Indian Constitutional Reform.¹ The Act, it will be remembered, set up a medical council for the whole of India with substantially the same functions as those of the General Medical Council, and scheduled the medical diplomas granted by institutions outside British India—including the registrable qualifications of licensing bodies in the United Kingdom—which were to be recognized in India for purposes of the Act. It also provided that this schedule should remain unaltered for four years, but that the Indian Medical Council should be empowered to negotiate with an authority in any country for a scheme of reciprocal recognition of medical qualifications; that the Governor-General should be informed of the decisions of the Council to recognize, or to refuse to recognize, the medical qualifications proposed by other countries; and that the Governor-General should frame a new schedule to become effective four years after the commencement of the Act, which should comprise the medical qualifications thereafter to be recognized. Provision was also made enabling the Governor-General, after the expiration of four years, to amend the schedule and to add further qualifications or to recognize only qualifications granted before or after a specified date. The report comments as follows:

"We appreciate and sympathize with the efforts of the Indian medical profession to put its house in order, and we hope that co-operation between the two Councils will go far to ensure an amicable and agreed solution of the present difficulty. . . . We are of opinion that the Indian Medical Council Act, with only slight modifications, can be made the basis of a permanent and satisfactory arrangement. . . . But we confess that we should find difficulty in agreeing that the Governor-General is an appropriate authority for determining whether any particular qualification should be recognized. . . . We think that the true solution is to be found in an adaptation of the provisions in the United Kingdom [Medical] Act, whereby any refusal by the General Medical Council to

recognize a medical diploma granted abroad may be made the subject of an appeal to the Privy Council; and we suggest that if after the expiration of four years the Indian Medical Council proposes to withhold recognition of any of the United Kingdom qualifications an appeal should lie to the Privy Council, whose decision should be final. The Act of 1886 requires the Privy Council, before giving its decision, to communicate with the General Medical Council, and there should be a corresponding provision that in the converse case there should be communication with the Indian Medical Council; but we are disposed to think that the law should be amended so as to provide that in either case both Councils should be communicated with before the decision of the Privy Council is given. We hope that before the four years have expired, as a result of joint action between the two Councils, the General Medical Council will have seen its way to restore its recognition of Indian diplomas,* and that discussions may proceed between them free from political influence or bias and with the sole object of promoting the interests of medical education in both countries."

Concerning the Indian Medical Service the report states: ". . . the members of the Service ought, by virtue of the commissions which they hold, to be deemed to possess all necessary statutory qualifications entitling them to practise."

THE CASE HISTORY IN OPHTHALMOLOGY

From the opening paragraphs of Mr. Bishop Harman's *Aids to Ophthalmology* more than a few generations of students have become acquainted with the aphorism of the late Sir George Murray Humphry: "In surgery eyes first and most, fingers next and little, tongue last and least." Ophthalmologists, perhaps because they can see so much, do on the whole tend to listen too little, though mature experience inclines them in general to attach more and more importance to the history as given by the patient. Dr. Harald Gjessing,¹ in a paper before the North of England Ophthalmological Society, while not exactly leading a revolt in favour of the tongue as against the eye, has made a convincing plea for the lingual organ—the patient's, not the surgeon's. In stressing the value of the history and of spontaneous statements by the patient, Gjessing has drawn, charitably enough, on the mistakes he himself has made by listening too little. But no ophthalmologist will be deluded into believing that Gjessing's confession of sins does not carry the gentle reproach *de te fabula narratur*. Speaking of pain, he quotes with approval a saying of one of his colleagues, that "pain is the Lord's greatest gift to humanity: this alone makes the patient call on the physician in time." While not blind to the pitfalls awaiting the unwary in being attentive to symptoms to the exclusion of a systematic examination, Gjessing goes rather far in his interpretation of the type of pain associated with different lesions. How many ophthalmologists would subscribe to his dictum that with an ocular pain reminiscent of toothache and becoming worse during the night, especially in the early morning hours, involvement of the ciliary body may safely be diagnosed? He is on less debatable ground in stressing the value of the patient's history of subjective symptoms in glaucoma, for glaucoma still awaits physical means of early diagnosis.

* This recognition was withdrawn by the General Medical Council some four years ago. (See *British Medical Journal*, 1930, i, 508.)
¹ *Arch. of Ophthalmol.*, 1934, xii, 330.

¹ H.M. Stationery Office, 1934. (Is.)

An interesting point he makes is that some patients find that the taking of such stimulants as coffee will produce symptoms suggestive of prodromal attacks of glaucoma (which to Gjessing are really abortive attacks of congestive glaucoma). Of interest, too, are his remarks on asthenopia; but here we feel that he is letting his enthusiasm run away with him when he subscribes to the views made popular by the late Dr. Gould in regarding Huxley, Darwin, George Eliot, Robert Browning, and De Quincey as victims of undiscovered hypermetropia. Another side of the picture is the case in which a too convincing history leads the examiner astray. Cases of cerebral tumour diagnosed as migraine come under this consideration, while a patient's emphatic belief that he has suddenly lost the sight of one of his eyes may be based on nothing more than his being forced to use an eye which he did not know was defective. Few ophthalmologists will fail to recognize their own mistakes in the case histories related in this able paper—not excluding the one in which the patient was boasting that he "had made fun of Dr. Gjessing," though to be sure a wrong diagnosis is no matter for fun, least of all when it involves, as in this case, the overlooking of a cerebral tumour.

THE STRANGWAYS RESEARCH LABORATORY

Twenty-one years have elapsed since the founding in 1912 of the Strangeways Research Laboratory at Cambridge as a small hospital for the treatment and study of the conditions coming under the general definition of chronic arthritis. The annual report of this institution for 1933 appropriately reviews the growth and development of the laboratory since its start. After a determined but relatively unsuccessful effort to advance towards a solution of the problem of this disease along the lines of orthodox pathology, the late Dr. Strangeways converted the wards into laboratories, and collected a small group of investigators to study the processes of normal growth and of the influences determining and affecting them. The laboratory thus became one of the earliest centres in this country to take up the artificial culture of tissues. For many years now the Medical Research Council has made grants for the support of certain members of the staff and sums totalling more than £10,000 to meet general expenses, the Royal Society has endowed a Fellowship, and private donors have given generous aid. Since the opening day in 1912 there have been eighty-four persons accommodated in the laboratory as research workers or students, and eighty papers have been published, twenty of these during the last twelve months. In 1933 there were more workers in the laboratory than in any previous year. Every room in the building is occupied, and there is urgent need for further accommodation. To such an efficient and fruitful organization have the early devoted enthusiasm and self-sacrificing struggles of Dr. Strangeways led. Since its main objective has always been the elucidation of the normal development and differentiation of growing tissues, the laboratory work has become of special interest to cancer workers. Radiation therapy holds out an increasing promise of amelioration, but for its effective and safe application there is needed a much fuller knowledge of the mode of action of different kinds of rays on normal and

malignant cells. Only such a diverse and patient study of the reactions of cells cultivated in artificial isolation as is conducted in the Strangeways Laboratory can promise this. Such work may also reveal the causes of maldevelopments, and the way to their prevention or correction. Much of the current report is devoted to statements of the researches at present in progress. One investigator has shown that the growth, differentiation, and calcification of bone in endosteal cultures which are grown in plasma and liver extract from a bird deficient as regards vitamin D are considerably retarded as compared with similar cultures grown in a medium derived from a normal bird. A high concentration of calciferol has a strongly toxic effect, and almost inhibits growth. By cultivating bone in media derived from birds suffering from D-hypervitaminosis indications have been obtained that, while growth may be accelerated, differentiation is not more rapid than when ordinary media are employed. A report on the mechanism of calcification in cartilage and bone is to be published shortly. Another researcher has shown that when a fragment of the primitive streak is transplanted into the extraembryonic part of the fowl blastoderm it may induce an embryonic rudiment in the host tissue. The correlation of the glycogen and fat content of early embryonic tissues with their growth and development is being studied. It has been found that with compact bone cultures exposed to radium rays filter disks of various substances are more protective when placed 3 to 4 mm. from the explant than when close to the preparation. This effect has not yet been seen with powdered or cancellous bone, and the unexpected result is being investigated more intensively. Gamma rays do not seem to interfere with the rate of progress of mitosis of living dividing fibroblasts. With its fine record of achievements in the past and its present energetic progress, the laboratory, which has already won high commendation at home and abroad, may confidently look forward to an increased measure of support, which will enable it to fill even more adequately its most valuable part in the field of developmental histology.

FOOD-POISONING BY DUCKS' EGGS

W. Fromme¹ reports on nineteen outbreaks of food-poisoning occurring during the past two or three years in the Ruhr district of Germany due apparently to the consumption of ducks' eggs. Ninety-nine persons were affected, and four of them died. *B. aertrycke* was responsible for fifteen and *B. enteritidis* Gaertner for four of the outbreaks. Clinically the picture was usually of the acute gastro-enteritis type, but mild attacks were very common, and sometimes a paratyphoid-like fever developed after an incubation period of a few days. In no fewer than seven of the outbreaks the vehicle of infection was a potato salad with mayonnaise made from ducks' eggs. As a rule the eggs were used raw, but in some outbreaks they had been boiled, fried, or heated lightly. Inquiry showed that imported eggs from Holland were responsible for most of the outbreaks, though some were due to eggs laid locally. Nearly all the infected eggs appeared to have come from one breed of duck—the Khaki-Campbell—though

¹ Arch. f. Hygiene, October, 1934.

Indian runners were definitely incriminated in one outbreak. Infection is apparently very common in duck establishments in Holland, where sometimes as many as 80 per cent. of the young ducks are stated to have died of epidemic disease. The eggs are often contaminated on the outside with faeces containing the causative organism, so that disinfection of the shell may diminish the risk of human infection. But in some eggs the interior is also infected, and even cooking cannot be relied upon to render them safe. One of the most important preventive measures is to institute a proper bacteriological control over duck farms.

DIPHTHERIA IMMUNIZATION IN LENINGRAD

P. F. Sdrowsky¹ has recently reviewed the results of compulsory immunization against diphtheria of 158,246 children aged 1 to 7 years. The anatoxin used was prepared in Leningrad according to the Pasteur Institute methods, and contained on the average eight to twelve antigen units per cubic centimetre. The complete course of immunization consisted of three injections: 0.5 c.cm., followed in twenty days by 1 c.cm., followed in fifteen days by a further 1 c.cm.—giving a total of twenty to thirty antigen units. The serological effectiveness was tested by the Schick reaction in 3,699 immunized children; it was found negative in 90 per cent., doubtful in 4 per cent., and positive in 6 per cent. A control group of 224,568 children was not immunized. In the immunized group 12.8 children per 10,000 subsequently contracted diphtheria, while in the control group the morbidity rate was 119.7 per 10,000, or 9.73 times higher. The mortality rate was 0.28 per 10,000 in the immunized group and 7.88 in the control group. Intensification of the immunization by raising the antigen content of the anatoxin gave still better results as regards both serological effectiveness and the morbidity and mortality rates. On the basis of this mass experiment the author strongly advocates wider adoption of compulsory diphtheria immunization.

GENERAL MEDICAL COUNCIL ELECTION

The result of the voting in the recent election of a direct representative for England upon the General Council of Medical Education and Registration of the United Kingdom was as follows: Sir Henry Britten Brackenbury, 9,317 votes; Dr. Edward Andrew Gregg, 2,665 votes; Dr. Mabel Lida Ramsay, 2,346 votes. Sir Henry Brackenbury has accordingly been elected a member of the General Medical Council representing the registered medical practitioners resident in England, for a period of five years from January 1st, 1935.

The Thomas Vicary Lecture will be given at the Royal College of Surgeons of England by Professor William Wright on Thursday, December 6th, his subject being "Galen and the Eye." The Bradshaw Lecture, on "The Functional Derangement of the Intestine that follows Abdominal Operations," will be given by Mr. Victor Bonney on Thursday, December 13th. Both lectures begin at 5 o'clock.

¹ *Arch. of Biol. Science*, 1934, XXXV, 123.

A LANDMARK IN NEUROLOGY

JUBILEE OF FIRST OPERATION FOR REMOVAL OF CEREBRAL TUMOUR

In celebration of the jubilee of the first operation for the removal of a cerebral tumour (which was performed by Sir Rickman Godlee at the Hospital for Epilepsy and Paralysis, Maida Vale, then in Regent's Park, on November 25th, 1884) a lecture was delivered under the auspices of that hospital by Mr. WILFRED TROTTER in the Barnes Hall of the Royal Society of Medicine on November 27th. Dr. WILFRED HARRIS presided over a distinguished company of neurologists and others.

Mr. Wilfred Trotter began with a comment on the custom of ceremonial commemoration of past events. Such celebrations, he said, were apt to lead to a loss of proportional emphasis unless the attitude of approach were clearly defined. It was desirable to beware of any strong tincture of that antiquarian spirit which delighted in the doings of a past generation just because they were old-world and quaint. The pious laudation of departed greatness was a good exercise in its place, but perhaps it was desirable to recall Samuel Johnson's remark that a man was not on his oath when framing an epitaph. Nevertheless, such commemorations had their value. The immediacy of contemporary events concealed their full quality and outline. It was only past events that could be seen as part of the pattern of things with an approach to substantial reality.

THE GOLDEN DECADE

The lecturer went on to place in its time-setting the event which was being commemorated. Fifty years was well within living memory, yet what a gulf between 1884 and now. The middle 'eighties were the richest period of the Victorian era. The warm, tranquil air of security of that age closed around us. Its stability was embodied in the everlastingness of its central figures—Victoria, Gladstone, Bismarck. The British Empire was soon to gain its voice, which it did at the jubilee of 1887, and by the diamond jubilee ten years later that voice had already become a little strident, and the light was perceptibly that of evening, with the shadows long on the ground. But the golden decade of the 'eighties seemed in memory bathed in the timeless light of a summer afternoon, though there were occasional rumblings on the horizon, and at the very time when this group of doctors were watching their patient with declining hopes, General Gordon in the Sudan was facing a doom as inevitable as the sick man at Regent's Park.

The story of the surgical event had lately been retold by Sir D'Arcy Power. The patient was a man of 25, who for three years had shown symptoms which pointed to tumour of the brain. He had Jacksonian attacks, and three months before admission to the hospital he had had to give up his work owing to the uselessness of his left arm. He suffered from severe pressure symptoms, intense headache, and uncontrollable vomiting. Diagnosis was made of a tumour, probably of minimum size, involving the cortex of the brain, and situated in the middle part of the fissure of Rolando. The patient was intelligent enough to understand and brave enough to accept the course proposed by the doctors. The tumour was removed in an operation in which one cerebral convolution was exposed—the ascending parietal as was afterwards proved—and was found to be a glioma about the size of a walnut.

The immediate effect of the operation was satisfactory. Most of the symptoms were relieved, and intelligence was fully retained. It was thus proved for the first time that without the least external abnormality a lesion of the brain substance could be removed, leaving the general functions of the brain unimpaired. Complete success, however, was denied the surgeons; an infection of the wound occurred, and death followed after four weeks. If these pioneers were unfortunate in their efforts to exclude infection, they were fortunate in having as their first case one in which the neurological and anatomical localization of the lesion could be made so brilliantly exact.

GODLEE, HIS CONTEMPORARIES—AND THE PATIENT

The patient was under the care of Hughes Bennett and Rickman Godlee, and there were also present at the operation Ferrier and Hughlings Jackson. Bennett seemed to have been the thoroughly competent son of a distinguished father, Hughes Bennett of Edinburgh, who incidentally introduced the use of cod-liver oil. Godlee at the time of the operation was in his early prime. He had been on the staff of University College Hospital for seven years, and was to serve it for thirty more with characteristic punctuality, assiduity, and never-failing loyalty. It was the healthy tradition of the students at that hospital to look upon their seniors with an unsentimental and not too indulgent eye, but the greatness of Godlee could not fail to impress itself. They saw him as he was, and he saw them as they were—and did not always conceal the result of his observation. His precise, patient, and extremely lucid teaching was invaluable, not only for its excellence, but for the regularity with which it was dispensed, even in his busiest years. He was never harsh, but his confidence was difficult to win, and he was an exacting chief. The lecturer said that he could speak only for one of his pupils, but it took that one quite a long time to guess at the sensitiveness and personal humility which he concealed from the world by means of a tongue always clever and sometimes a little cruel.

It was scarcely possible to estimate the quality of Godlee without a glance at the men who were his contemporaries—Barker, his senior by one year, and Horsley, his junior by seven. The jubilee year of Queen Victoria—at whose express wish Victor Horsley bore his first name—was marked by notable events, but by no event more notable, though to the general public quite unregarded, than the first removal by Horsley of an accurately localized spinal tumour. Horsley's mind concentrated on special problems, though, when he chose to use it, he had an extraordinary flair for all clinical matters. Godlee, on the other hand, was a single-minded clinician. For him the task of the surgeon was to teach the practice, the established doctrines, the rules of the art. His attitude to surgery was, therefore most certainly, in the best sense, academic and authoritarian.

It was paradoxical that a man such as Rickman Godlee should have been engaged in the daring adventure that attack on a cerebral tumour must then have seemed, and no doubt Godlee approached it with at least all the qualms any conscientious surgeon must have felt. He would be sustained, however, by the knowledge that he possessed two very special qualifications. In the first place, as the nephew of Lister, he would feel able to apply the new antiseptic doctrine in all its purity, might even feel an almost apostolic mission to demonstrate its value in the unknown region of the brain. In the second place, the knowledge that he was a highly competent anatomist must have encouraged him in the difficult task of finding his way through such an operation. "It is pleasant to think with what relief and pride the young, conscientious, and perhaps not very self-confident surgeon must have concluded an operation that so brilliantly justified every expectation and so generously rewarded every effort." No such happy combination of circumstances seemed to have befallen Godlee again. Whatever satisfactions he was to enjoy he was not to experience any more the exultation of leading a forlorn hope.

One other person was present at the operation—indeed, his presence was indispensable at all operations, though he was usually designated by initials—namely, the patient. In this case he was young, intelligent, and courageous, and he was to die. His name was Henderson, a native of Dumfries. "I feel a pious satisfaction," said Mr. Trotter, "in being able to add the name to the exiguous roll of those by whose misfortune or endurance the world has directly gained. It is a strange defect in medical history that so few of the names of these benefactors have been kept. To the high professional spirit the mention of such names may be trivial, even a little ludicrous, but let us not forget that these are the names of those who have borne more substantial witness than philosophers or theologians that all suffering is not in vain."

THE EVOLUTION OF BRAIN SURGERY

It remained only to discuss the special context of the event. This first operative removal of a localized cerebral tumour marked the convergence of two distinct processes—the evolution of operative surgery on the one hand, and of neurology on the other. The first essential fact of an operation was that it should be anatomically and physiologically possible. In that way originated most of the classical operations—amputations and excisions which were in essence anatomical, without primary orientation to any disease. Afterwards it became possible for the operation to be oriented specifically for a given lesion. Hence the full development of operative surgery was strictly dependent on pathology. At one time—by the middle of the nineteenth century—surgical pathology had got far ahead of surgical treatment. It seemed doubtful at that time whether wound infection would not bring surgical progress to a standstill. The Listerian system abolished that anomaly, and there was an immediate harvest of success. But where surgical pathology had made little or no progress, there the antiseptic method could gain little or no immediate result, as, for example, in abdominal surgery until near the end of the nineteenth century, and thoracic surgery until the beginning of the twentieth. It was the good fortune of surgery of the brain that it came at a time when everything converged—when there was no tendency for operative inventiveness to outrun pathological foundations, as happened in other fields occasionally.

The lecturer concluded with a reference to Hughlings Jackson and David Ferrier. He reminded the audience of the classic contributions to neurology which both these men had made in the early 'seventies, and without which the operation commemorated would not have been possible. They it was who were responsible for the vigorous neurological expansion of that period. He could not forego adding that Ferrier's great paper, which gave a great impetus to the whole study and confirmed the clinical work, was published in the *Clinical Report of the West Riding Lunatic Asylum for 1873*—the crudeness of the name of the institution reflected the then backward state of psychiatry. In that paper Ferrier expressed his thanks to the medical director for placing at his disposal the liberal resources of the laboratory in which he had done his work. Sixty-one years later Mr. Trotter found himself in one respect following in Ferrier's footsteps, in expressing thanks for the help accorded him to that same distinguished physician, now Sir James Crichton-Browne. He was informed by Sir James that, although not himself present at Godlee's operation, he was acquainted with the case both before and after it, and was well qualified by his familiarity with the patient's native place to test his memory. Sir James was the author of a letter in the *Times* which pointed out the direct dependence of the operation upon the results of animal experiment, and which led to some controversy.

"We have been engaged," said Mr. Trotter, "in recalling one of the victories of the human spirit over chaos, and as we take leave of the battlefield we may note that, as in other famous victories, the disposition of forces is not exactly what we might have supposed. The operation involved three great principles—the antiseptic system, the precise projection of the cerebral markings on the surface of the skull as a preliminary to operation, and the doctrine of exact localization of cerebral function. Two of these have long been abandoned by the surgeon, and I should be sorry to define the present position of the third. Nevertheless, each has left a substantial legacy in which the invigorating influence of surgical neurology remains perennial. Thus, though we might hesitate to fight a similar battle to-day under the guidance of these champions, we may yet believe that the event we commemorate is a world event, and worthy of our respectful celebration."

A vote of thanks to Mr. Wilfred Trotter was moved by Dr. ROBERT HUTCHINSON, president of the Royal Society of Medicine, who expressed appreciation of an address marked by philosophical insight, humour, and literary charm.

COMMEMORATION DINNER

A company of over one hundred and fifty attended a commemoration dinner, which was held on the same evening at the Dorchester Hotel, Park Lane, under the chairmanship of Lord HORDER. Among the many distinguished people present the outstanding figure was the veteran Sir James Crichton-Browne, whose ninety-fourth birthday occurred this week, and who was the sole survivor of those concerned with the operation which those present had met to celebrate. Each guest was provided with a facsimile of the *Lancet* page on which a description of the operation was printed fifty years ago.

After the toasts of the King, the Queen, the Prince of Wales, and other members of the Royal Family had been proposed by the chairman and duly honoured, Dr. WILFRED HARRIS proposed the toast of "The Memory of Sir Rickman Godlee," which was drunk in silence.

Dr. Harris recalled that Sir Rickman was a nephew of Lord Lister, and had early become imbued by the principles of antiseptic surgery introduced by his uncle. The operation which he performed had demonstrated that the human brain was no pulpy indeterminate mass outside all surgical intervention, but an organ of definite localizable functions and amenable to operation like other parts of the body. Cancer of the brain was a disease previously believed to be hopeless from the start: it was now a very different proposition.

Sir JAMES CRICHTON-BROWNE, whose delivery was exceptionally striking and virile, responded to the toast. He said that Sir Rickman Godlee's operation had opened up new vistas of hopefulness to those hitherto doomed to misery and darkness. He himself had determined at the time that such an epochal event should not be buried in the pages of the medical journals, and it was he who, under the anonymity of "F.R.S.," had written a letter about it to the *Times*. The result had been a tremendous controversy, which had evoked sixty-four letters and two brilliant leading articles in support of the scientific position. This controversy had raged for three months, and he could scarcely recall any non-political discussion in the *Times* which had attracted so much attention. A number of distinguished men had taken part in it, and, despite the bitter attacks of the anti-vivisectionists, the new brain surgery had made its way. The medical profession was quick to realize that many previously obscure brain lesions could be diagnosed with precision, and that under strict aseptic precautions the brain was not inviolable. While on this subject the speaker referred to an operation recently performed by Dandy in America in which the whole of one cerebral hemisphere had been removed. He added, amidst laughter, that such procedures suggested that the brain was a rudimentary and superfluous organ. From an apt quotation from Shakespeare Sir James passed to a consideration of the thousands of lives which were nowadays saved as a result of the removal of cerebral tumours, and the thousands of men and women who were saved from suffering and disability. He understood that the mortality had been reduced from 100 to 12 per cent. Despite the dubious probings of the psychologists, however, we had not advanced towards a solution of the workings of the mind.

Sir CHARLES BALLANCE, who also responded, said that he had been asked to say something of the surgery of sixty years ago. He traced the history of brain surgery, and paid a special tribute to the experiments of Ferrier and Lister, which had made possible the performance of Sir Rickman's original operation.

The toast of "The Hospital for Epilepsy and Paralysis" was proposed by Lord Horder, who gave an interesting and humorous account of the development of neurology and brain surgery.

Dr. ANTHONY FEILING, who replied, described the growth of the hospital and its present needs, and paid a tribute to Hughes Bennett, who diagnosed the tumour for which Sir Rickman Godlee operated.

Mr. H. W. BURLEIGH, the secretary of the hospital, made a popular speech, while Professor LANGDON BROWNE proposed the toast of "The Chairman," to which Lord HORDER briefly replied.

RESEARCH ON ASTHMA

The annual "Report of Progress" of the Asthma Research Council for the current year¹ summarizes the work which has been done in the various hospital clinics up to October 31st, 1934. In a foreword the chairman, Lord Greenway, notes a year of substantial progress, and states that the patients who attend the clinics are receiving treatment which, though it does not often cure them, almost invariably gives a measure of relief. It is announced that subscribers are being presented this year with a pamphlet on physical exercises for asthmatics; also that a summary of the research work done under the auspices of the Council since 1927, and written by Sir Humphry Rolleston, is shortly to be circulated.

At Guy's Hospital an analysis of 500 case histories by Dr. L. J. Witts has emphasized that the most striking difference between the asthmatic and the normal person is the high incidence of protein hypersensitivity and the frequency of upper and lower respiratory lesions in the former. The value of skin tests has been strengthened by the experimental work of Dr. R. S. Bruce Pearson, which has incidentally demonstrated the superiority of the intradermal over the scratch technique. It is interesting to note here that positive reactions are not infrequently found in normal people and that in asthma the results of treatment fail to exert any appreciable effect on the skin tests. Dr. Bray affirms that, judging from skin tests, the majority of asthmatics are sensitive in varying degrees to several proteins which they are constantly breathing. These include house dust, feathers, orris root, pollens, horse and other animal hairs. Courses of inoculation of oily and watery solutions of these substances plus adrenaline have given very favourable results in reactors, especially with the former and in the predominantly nasal cases, while attempts have also been made to desensitize patients by inhalation methods. As regards hay fever, it is in future intended to treat patients against factors other than those connected with pollen. Other subjects studied during the year have included food allergy and the psychological approach to asthma. The latter shows that the level of intelligence in asthmatic children is superior to that in normal children, and, further, that asthma tends to occur among those who are over-protected and fussed by their parents. Finally, the assessment of results from the various treatments is being continued by Drs. E. T. Conybeare and L. J. Witts, and it has emerged that the general tendency of those patients seeking medical advice is towards improvement irrespective of the treatment prescribed. The general impression gained from the work at Guy's seems to be that protein hypersensitiveness and respiratory damage are the stimuli which make manifest a biochemical difference between the asthmatic and the normal, a difference which should be susceptible of simple treatment.

At St. Mary's Hospital increasing use has been made of a vaccine in which the organisms are such as have withstood the bactericidal action of the patient's blood against which they have been tested. In hay fever injection of large doses of grass-pollen extract has continued to give relief in nearly 100 per cent. of cases. Skin-test control is used, the criterion of desensitization being a negative skin reaction.

The Clinic at Leeds General Infirmary records continued satisfactory results in asthma from non-specific desensitization with liver extract. Campolon or hepatex is administered intramuscularly with an initial dose of 0.5 c.cm., increased to a maximal of 5 c.cm.

At King's College, London, Dr. D'Silva has continued his studies on adrenaline, which, as stated in the previous report, has been shown to cause a large increase in the blood potassium of animals. It is thought that this great release of potassium is not without significance in the relief of asthma by adrenaline, though the administration of potassium salts by Dr. Moll of Leeds has apparently failed to produce the clinical results which might have been anticipated.

¹ Copies obtainable gratis from the Secretary, Asthma Research Council, c/o King's College, Strand, W.C.2.

At the Charterhouse Clinic Dr. Gilbert Scott has been investigating "wide-field" x-ray therapy in asthma. Small doses of medium-wave-length x rays irradiating the whole body, but excluding the thorax, are used, and though a number of successful cases have been recorded, lack of a method of controlling the dosage has always been felt. By means of serological examinations before and after treatment it is thought that a selection of the best type of case can more easily be made. At present the non-infective allergic case responds most satisfactorily.

The Asthma Research Council emphasizes its dependence upon voluntary contributions for the continuation of the work so far carried out.

IMPERIAL CANCER RESEARCH FUND

ANNUAL MEETING

A meeting of the general committee of the Imperial Cancer Research Fund was held at 8, Queen Square, Bloomsbury, on November 22nd, under the presidency of the DUKE OF BEDFORD.

Sir HUMPHRY ROLLESTON, chairman of the executive committee, in moving the adoption of the thirty-second annual report of the Fund for the year 1933-4, remarked that the subjects dealt with were highly technical, and ranged over the whole field of cancer research: pathological anatomy and clinical behaviour, cellular structure, carcinogenesis, and radiotherapeutics. The papers summarized by the director in the eleventh scientific report published with the annual report would no doubt receive attention by specialists in due course.

TRIBUTE TO THE DIRECTOR

In the course of an appreciation of the work of the director, Dr. J. A. Murray, F.R.S., who will retire from that post in November, 1935, Sir Humphry Rolleston said that Dr. Murray's connexion with the Imperial Cancer Research Fund dated from 1903, when the laboratory accommodation was very modest. Together with Dr. E. F. Bashford he laid the foundation for the experimental investigation of cancer by proving that cancer was not confined to man, but was a disease to which all vertebrate animals were subject, and that it presented the same essential features in all the different species. The discovery of Professor Jensen of Copenhagen was at once applied to the study of cancer in animals so extensively and so successfully that within a few years research institutes for the experimental investigation of cancer were being organized all over the world.

"The material collected by Dr. Bashford and Dr. Murray in those early years on the natural incidence of cancer in mice has provided investigators with a knowledge of the disease in that species equal to that in man. It enabled Dr. Murray subsequently to demonstrate the hereditary factor in the incidence of the disease. His study of the early stages of the process of transplantation confirmed the findings of Jensen, and established the important fact that the experimental transmission of the disease represented actually a transplantation of living cells, and was not due to an infection of the new host by some agent separable from the cells. Peyton Rous's subsequent discovery of tumours of the fowl which can be transmitted without the intervention of living cells has led to numerous reinvestigations of Dr. Murray's early work, which have served only to confirm it. Of equal importance are his investigations on the phenomenon of immunity, which renders a normal animal resistant against the transmission of the disease by transplantation.

"In 1915 Dr. Murray was appointed director of the Fund, and as soon as the war was over he began an investigation into the claims made by Professor Yamagiwa and his colleagues that cancer of the skin could be produced experimentally by the repeated and prolonged application of tar to the skin. As a result of this work Dr. Murray was the first observer in this country to verify the statement and to study the development of malignancy in all its phases.

"Dr. Murray's extensive knowledge of the biology and morphology of the cancer cell has been of the greatest value in enabling him to criticize the numerous spurious claims which have been made concerning the cause or the cures of the disease, and thus to protect not only the public but also the medical profession. He has always placed not only the animal material of the laboratory, but also his knowledge and shrewd judgement, at the disposal of his medical and scientific colleagues, and his advice has been much sought after by other investigators.

"During his directorship Dr. Murray has maintained the tradition of the Fund for sound, patient, and careful work which this institution has enjoyed since its inception, and which has given it a leading place among the numerous institutions devoted to the study of cancer throughout the world."

The motion was seconded by Professor W. BULLOCH, F.R.S., and was carried unanimously.

WORK OF THE FUND

The PRESIDENT, from the chair, moved that the best thanks of the meeting be given to the chairman and members of the executive committee, the subcommittees, the honorary treasurer, and others. He said that in the early days of its existence the Fund was practically the only institution carrying out cancer research work on experimental lines, but now there were many other bodies, not only doing similar work, but also appealing for money to carry on their work. It was therefore only natural that the financial support of the public should be divided among all of them. He would, however, like to repeat the statement contained in the treasurer's report for the year explaining the difference between this Fund and other institutions: "It was founded as a research centre to be entirely independent of hospitals or medical schools, with its own laboratory and a permanent staff of scientific investigators engaged solely into research into the causes, prevention, and cure of cancer." It was the only institution of its kind in this country. It began in two rooms placed at its disposal by the Royal College of Physicians and the Royal College of Surgeons. Its staff numbered two, with one or two technical assistants. Now the Fund had a permanent staff of seven scientific men, each skilled in his own particular branch of the investigations, and a technical staff of seventeen; the premises had been enlarged to two floors of the Examination Hall, and in addition a farm and laboratory at Mill Hill. Even these premises were no longer adequate for all the work that was being done. The director and his staff were frequently consulted by other investigators, both scientific and clinical, and the Fund had, from the very beginning, been particularly careful to protect the public against misleading claims of alleged cures for cancer by its careful investigation of all the claims submitted to it. Though progress might seem to the lay mind to be excessively slow, much knowledge of importance had been gained of the nature and treatment of the disease. As in other problems of medicine, patient research would ultimately reap its reward in the cancer problem, and the Duke of Bedford expressed the hope that the public would continue to support generously the work being done in the laboratories of the Fund. In conclusion, he endorsed the tribute already paid to the director, Dr. Murray, for the excellent service he had given during the past twenty years as director of the Fund.

Sir John Rose Bradford, Professor W. Bulloch, and Professor A. E. Boycott were re-elected members of the executive committee. Professor E. H. Kettle was elected a member of the general and executive committees, and Professor E. Mellanby, secretary of the Medical Research Council, a member of the executive committee. The meeting closed with a warm vote of thanks to the Duke of Bedford for his presence in the chair and his great interest in the success of the Fund.

Reference to the annual report of the Fund and the director's scientific report for the past year will be made in an early issue.

Scotland

Finlayson Memorial Lecture

The history of the prevention of malaria formed the subject of the Finlayson Memorial Lecture delivered to the Faculty of Physicians and Surgeons in Glasgow on November 19th by Sir Malcolm Watson, director of the Ross Institute in the London School of Hygiene. The lecturer said that work in Malaya had proved that when malaria was removed the number of deaths from other diseases was also reduced; this showed the lowering effect of malaria on the general health of a people in allowing other infections to establish themselves. In 1904 the Malay Government had undertaken anti-malarial work on fifty square miles of intensely malarial swampy land with complete success. On the estates of one company no case of malaria in a European had been contracted since 1912, and during the last five years the admissions for this disease among the labourers had been 0.1 per cent. It had been realized in 1909 that malaria in hill land presented a special problem, since it was due to a mosquito that lived in running water. Success had been obtained by putting streams and springs in underground pipes, and in certain parts of the country by preserving jungle or swamp or growing shade, an opposite method to that which was required to combat malaria on low-lying flat land swamps. During researches on the biology of various forms of mosquito it had been found possible to control species by altering the chemical composition of water, and this had now become a recognized procedure in different parts of the world. By raising or lowering the salinity of water dangerous mosquitos had been eliminated in places as far apart as Java, Albania, and Holland, and malaria had been driven out by these slight chemical changes. Through this discovery great engineering works, such as the Singapore waterworks, the Perak hydro-electric company's dam, the naval base at Singapore, and the great Zambesi bridge had been undertaken, with almost no loss of life from disease, instead of a death rate of 200 per 1,000 with great delay in construction and greatly increased cost. The speaker had calculated that by 1920 Ross's discovery regarding the transmission of malaria had been instrumental in saving about 100,000 lives in Malaya. In Singapore anti-malarial work was begun in 1911, and there was reason to believe that over 100,000 lives had been saved by sanitary methods in that city alone. A great work had been done at Havana and Panama by the American Government; in India research on Malayan lines had been undertaken since 1924, and the Ross Institute had created a great organization to assist the tea and other industries. The health of both Europeans and Africans in Northern Rhodesia had been improved; the death rate among Europeans had fallen from 23 per 1,000 in 1929 to 5 per 1,000 in 1933, and that among African natives from 30.9 in 1930 to 5.2 in 1933. In the work on the Zambesi bridge, just completed, only two Europeans had fallen ill from malaria, and these had contracted the disease away from the site of the bridge; yet this area had been one of the most unhealthy in the world.

Extension of National Health Insurance

The memorandum of evidence submitted by the Scottish Association of Insurance Committees to the Departmental Committee on Scottish Health Services, which has now been published, emphasizes the demand for extension of the national health insurance scheme to dependants of insured persons. It is pointed out that the worker is greatly handicapped by a scheme which entitles him alone to treatment, while illness among his dependants must

be treated either by the public assistance medical officer or must result in bills which he has difficulty in meeting. It is also insisted that in any general scheme the family should for medical purposes be treated as the unit. There are now fifty-four insurance committees, including thirty-one county and twenty-three borough committees, and these deal with about 1,873,000 insured persons. Of the latter about 44 per cent. are resident in Glasgow and the three contiguous counties. Of the total number at the beginning of the present year, 1,757,000 insured persons were members of approved societies, 16,500 were deposit contributors, 3,500 were exempted persons, and 153,000 came within special classes, such as married women and persons over 65. The cost of administering medical benefit amounted to £50,000 per annum, or about 6d. per insured person. Chemists to the number of 1,632 with 1,837 shops were under contract with the Scottish insurance committees, while the number of practitioners under agreement with them was 2,039. In the majority of areas every general practitioner was on the panel list, although in larger towns some were not. The number of insured persons whom a doctor might have on his list was limited to 2,500, but certain committees reduced the figure to 2,000, and in some instances to 1,500. About two-thirds of the doctors in county areas had under 500 persons on their lists, while in the boroughs only one-third of the doctors had fewer than 500. The report expresses the opinion that medical benefit under the Insurance Act has been amply justified. A much-needed extension, however, would be the inclusion for health purposes of young people from the date of leaving school to the age of 16, and expert and specialist medical advice and treatment should be provided as well as laboratory services.

Retirement of Dr. R. B. Campbell

At the last quarterly meeting of the Joint Committee of Stirling District Mental Hospital intimation was received of the resignation of Dr. Robert B. Campbell, F.R.C.P. Ed., from the post of medical superintendent. Dr. Campbell was appointed medical superintendent of the Inverness District Mental Hospital in 1904, after having held posts as assistant superintendent at Montrose Royal Asylum and the Crichton Royal Asylum, Dumfries. He took up his duties at Stirling in 1908. In 1932 he was elected president of the Royal Medico-Psychological Association of Great Britain, and is now chairman of the Scottish Asylum Pathological Scheme. It was decided to defer taking steps to appoint a successor until the beginning of next year.

Diphtheria Immunization

The Public Health Department of Edinburgh is inviting practitioners to co-operate in an attempt to undertake the immunization of all children in the city below the age of 5. It is pointed out that during the last ten years the average annual incidence of diphtheria in Edinburgh was 781 cases, and the average number of deaths forty-seven. An attempt has been made to reduce this incidence by carrying out diphtheria immunization in schools. Each child when it first began school was given a consent form and an informative leaflet to take home to its parents. When consent was granted the children were given three injections of 1 c.cm. of diphtheria toxoid at fortnightly intervals. Further, a certain number of children under school age were brought by their parents for immunization, but there was no doubt that the vast majority of children of the pre-school age group had not yet received the benefit of protective inoculation. Seeing that the disease was most prevalent and most fatal in this pre-school period, it was essential that an effort should be made to immunize as many as possible. It is now

proposed that diphtheria toxoid should be provided free of charge to practitioners willing to immunize in their private practice children over 1 and under 5 years, and that a fee of 7s. 6d. per child should be paid on intimation to the health department that the requisite injections have been completed. Supplies of formol-toxoid are obtainable in 1 c.cm. ampoules from the Public Health Department, Johnston Terrace, Edinburgh.

Appointment to Metropolitan Police College

The authorities at Scotland Yard have decided to institute a scientific laboratory at the Metropolitan Police College at Hendon, and have appointed Dr. James Davidson as its head. Dr. Davidson graduated M.B., Ch.B., at Edinburgh University in 1920. During the war he served in the medical branch of the Royal Navy, and after graduation acted for a period as resident physician in Edinburgh Royal Infirmary, and later was appointed assistant pathologist to the institution. Subsequently he was appointed lecturer in morbid anatomy in the University of Edinburgh, with charge of the post-mortem department in the Royal Infirmary. He has made numerous contributions to problems dealing with the scientific aspects of medicine and pathology:

England and Wales

Classification of Inmates in Public Institutions

The London County Council has been considering the classification of the inmates of its public institutions. At present the public assistance institutions contain a number of public health cases, and vice versa. Differences in terminology and in classification of inmates have been inherited from the boards of guardians; thus persons classified in one union as infirm would in another fall into the category of chronic sick. "Able-bodied" has in some cases meant all who were able to attend the dining hall for meals; in others only those fit for work. It has been decided that inmates or patients to whom the primary approach should be medical (that is, those who should be seen, examined, and supervised by the medical officer without request by the inmate or by an attendant) should be under the control of the Hospitals and Medical Services Committee, and those who were in need of assistance because of destitution, and did not fall within the former category, should be under the control of the Public Assistance Committee.

The following categories of inmates or patients will therefore fall under the control of the Public Assistance Committee: (1) able-bodied (that is, persons physically capable of work); (2) healthy (that is, able to look after themselves, including healthy aged, healthy deformed, healthy feeble-minded, and expectant and nursing mothers); (3) infirm (that is, persons requiring a certain amount of assistance in dressing or moving from room to room, and who may require in bad weather to spend a few days in bed); (4) healthy children of 3 years or over, pending transfer to schools; and (5) healthy infants, except infants separated from their parents. The following categories will be placed under the control of the Hospitals and Medical Services Committee: (1) chronic sick (that is, persons suffering from any specific disease necessitating their confinement wholly or practically wholly to bed, also extremely aged persons confined to bed on account of extreme weakness); (2) mental cases; (3) maternity cases; (4) sick children; and (5) sick infants and healthy infants separated from their parents. The most important consideration is: What are the primary needs of the classes under consideration? The first need of the infirm class is

suitable accommodation, though individuals may need medical care from time to time. On the other hand, for the chronic sick and for persons whose conditions of health may vary considerably in the course of the year, medical care and nursing are the primary requisite, and suitable accommodation an adjunct thereto.

At the end of last winter there were about 4,700 public assistance cases being cared for in public health institutions, and about 1,600 public health cases in public assistance institutions, so that reclassification implies an ultimate net increase of about 3,000 beds in the accommodation under the management of the Public Assistance Committee. As from December 1st, admissions by relieving officers' orders of chronic sick cases will be to public health establishments, and of able-bodied, healthy, and infirm cases to public assistance institutions. Hitherto, cases admitted on such orders have been sent to the institution which formerly belonged to the parish or union in which they reside, without reference to the question whether it is the appropriate institution under the scheme of classification.

Health and Cleanliness

Next year will see the centenary of local government, a fact which lends particular interest to the sixth annual luncheon of the Health and Cleanliness Council, held at the Holborn Restaurant on November 21st, with the president, Dr. G. F. Buchan, in the chair. More than 160 people, representing local health, education, and insurance committees, schools, health societies and other organizations connected with national health, and the Press, were present. In proposing the toast of the Health and Cleanliness Council, Dr. James Fenton, chairman of the Central Council for Health Education, said that one hundred years ago this country was without even the rudiments of a public health service. The nation's wealth and property were protected, but the nation's health was nobody's concern. But in 1834 there were increasing signs of a change in the national consciousness regarding this important subject, which culminated in the Public Health Act of 1875. This Act was an important milestone, and up to 1900 resulted in almost miraculous changes, including adequate provision for proper drainage and scavenging, removal of house refuse, provision of fever hospitals, and a satisfactory water supply. In 1900 Great Britain stood head and shoulders above all nations in the matter of public health services. Still greater progress was made in the first quarter of this century; maternity and child welfare centres were established, and tuberculosis services reduced the death rate from this disease by 50 per cent. But in spite of all these services we were not yet getting the best results. The working classes did not yet fully appreciate the services provided for their benefit. It was still essential to teach the people that what was good enough for their grandparents was not good enough to-day. It was precisely here that the Health and Cleanliness Council could do, and did, its best work. It came into existence primarily to assist the local authorities in this educative work. Dr. Fenton reminded his audience that the council was in close touch with 120 health authorities, seventy-seven education authorities, thirty-nine insurance committees, and thirty other similar organizations. He complimented Miss Norah March, the enthusiastic secretary; Dr. Buchan, the president; and Professor Kennell. In reply Dr. Buchan referred to the lasting truth of the council's slogan—"Cleanliness is the first law of health." He would like to go much further, and advocate universal public baths, public wash-houses, and private baths. There had been a change, he said, in the habits of the people. They desired cleanliness; they desired the open air life and more recreation. Even the housewife, most hard-working of women, was lifting up her voice to demand more leisure. Labour-saving devices, of which

electricity was the most important agent, were coming to her rescue. He himself hoped that we were approaching the time when all labour-saving domestic appliances would be available to all classes and all purses. Houses were now being built with this principle well to the fore. Already there were a greater number of houses where the housewife was considered in so far as they were easier to keep clean than the older type of house.

West Riding Medical Salaries

The report of the Public Assistance Committee of the County Council of the West Riding of Yorkshire for the year ended March 31st, 1934, contains an important reference to the salaries of district medical officers transferred from the former boards of guardians. From the date of its appointment, it is stated, the committee recognized that the pre-transfer rates of salaries were in a large number of instances disproportionate to the duties and responsibilities, and were not founded upon any uniform basis. Careful consideration was given to the matter from time to time; during the year under review recommendations were made to the county council with reference to dealing with such cases, and adjustments in salary and terms of remuneration were made. In addition, the Public Assistance Committee has varied the terms of appointment of district medical officers to provide that the supply of drugs and medicines shall no longer be the responsibility of the medical officers concerned out of the inclusive salaries paid to them for their professional services. An arrangement has been made under which these drugs and medicines prescribed by them for the outdoor poor shall be dispensed by a panel of chemists throughout the West Riding administrative area, and be paid for separately by the county council. Consideration has been similarly given to the question of holidays, since these were found to have lacked uniformity in the past, and a scale has been drawn up. Medical officers, hospital assistant matrons, ward sisters, and charge nurses are now to receive the equivalent of eighteen working days, while probationer nurses receive twelve. Accommodation in some institutions has been certified by the Board of Control, and eighty-six beds are reserved for mental defectives at three such, the West Riding Mental Deficiency Act Committee being responsible for these patients. Relief of a special character was granted in 717 cases, of which ninety-four were in respect of dentures and 150 of surgical appliances. Arrangements have been made for verification of the family circumstances, and for recovery of the expenses when reasonable. Restrictions upon public expenditure have continued to affect the progress which it had been hoped to attain in the development, modernization, and reconstruction of institutional accommodation, but a good deal has been done, nevertheless, by way of improvement and repair in cases of urgency.

The Waking Hour in Hospital

On the question of patients' waking hours King Edward's Hospital Fund reports further progress by the London voluntary hospitals as the result of its recommendation that, unless there was some exceptional and adequate reason to the contrary, the most suitable hour for the waking of patients was 6 o'clock. This recommendation resulted from an inquiry held in 1931.¹ At that time the hour of waking was earlier than 6 o'clock at 53 per cent. of the London hospitals. By 1932 the number had fallen to 31 per cent., and it has now been further reduced to 21 per cent. Calculated as a percentage of the number of patients the results are still more satisfactory, only 15 per cent. of the total number being

awakened at an earlier hour than 6 o'clock. All the hospitals which continue to have an earlier hour than 6 o'clock give some special reason for it; and the visitors of the King's Fund will be asked to report on these reasons at the next annual inspection of these hospitals.

Maudsley Hospital Courses

Lectures and practical courses of instruction for a diploma in psychological medicine will commence at the Maudsley Hospital on January 1st, 1935. Part I of the course will include twelve lectures on the physiology of the nervous system and four lectures and demonstrations on physiological psychology by Dr. F. Golla; four lectures on biochemistry in relation to the nervous system by Dr. S. A. Mann; eight lectures on the anatomy of the nervous system by Professor Le Gros Clark; eight lectures on applied psychology by Dr. Henry Devine; six lectures on mental mechanisms by Dr. E. Mapother; eight lectures on contemporary schools of psychology by Professor F. A. P. Aveling, and two on the practical application of intelligence tests by Dr. F. C. Shrubbsall. Part II of the course will open in March. The fee for the whole course, Parts I and II, is £15 15s.; for Part I or II separately £10 10s.; for single series of lectures in Part I £4 4s. or in Part II £2 2s.; for single series of demonstrations £1 1s. Inquiries should be addressed to Dr. F. Golla, honorary director of the Medical School, Maudsley Hospital, Denmark Hill, S.E.5.

Reports of Societies

ANTE-NATAL CARE AND THE MATERNAL DEATH RATE

The Sections of Epidemiology and of Obstetrics and Gynaecology of the Royal Society of Medicine combined for a discussion, on November 23rd, on "The Results of Ante-natal Care: How they can be Improved." Dr. J. D. ROLLESTON presided, and such interest was taken in the discussion, about twenty speakers participating, that the meeting was prolonged beyond the customary two hours.

Dr. ISABELLA CAMERON, medical officer of the Ministry of Health, said that she had been one of the students of Dr. Ballantyne, the pioneer of ante-natal supervision, who approached it from a study of foetal pathology, but saw in it a neglected branch of midwifery. His teaching was an inspiration in early days to workers interested in infant welfare rather than to his fellow obstetricians, and consequently ante-natal work tended at one time to be a subsidiary activity of the organizations for infant care. The majority of expectant mothers had now some degree of ante-natal supervision, which was inadequately associated with attendance at confinement and during the lying-in period. Ante-natal care was too frequently regarded as an entity apart from the midwifery service. No single part of that service was in complete alignment with any other part, and too little recognition was given to the fact that, biologically, pregnancy, labour, and lying-in were consecutive phases of one process. Much ante-natal visiting lacked direction and precision, and many consultations were conducted in a perfunctory and half-hearted manner. Some of the officers were not only junior in status, but inexperienced in dealing with patients. Ante-natal work became to too great an extent an eager search for the abnormal, and opportunities for the support and encouragement of women passing through a normal pregnancy were lost.

IS THE MATERNAL DEATH RATE REALLY HIGH?

Mr. G. F. GIBBERD (Guy's Hospital) said that it was useless to regard ante-natal care as a separate part of midwifery. An improvement in the practice of ante-natal care would come about as a part of the improvement in the practice of midwifery as a whole. Maternal

¹ *British Medical Journal*, June 6th, 1931, p. 982.

Dr. W. H. F. OXLEY spoke as a general practitioner who had for many years carried out ante-natal, intra-natal, and post-natal work. He was absolutely convinced that there was a great deal of good in ante-natal care, but ante-natal care represented perhaps only 5 per cent. of midwifery practice as a whole. Midwifery had crept from the general practitioner. Thirty years ago, in advertisements of practices in the *British Medical Journal* it was made a selling point that there were "250 midwifery cases a year"; but now it was the other way about—the bait was "no midwifery." Nevertheless, where a general practitioner took an interest in the subject and had working in close touch with him a competent body of midwives and a general hospital, he could get results second to none. As for Professor Browne's scheme, it looked nice on paper, but was quite impracticable.

Dr. LETITIA FAIRFIELD said that ante-natal work had been "over boosted," and there was now a reaction.

The maternal mortality rate, as Mr. Gibberd had said, was really low, and its further reduction was influenced by the law of diminishing returns. Two critical factors in midwifery were the technique in the conduct of the normal case and the employment of a consultant who would be on the spot and watch an abnormal case throughout. Professor Browne's scheme was interesting, but she thought it likely to be so expensive that no ratepayer in the country would be able to afford to have a baby.

Dame LOUISE McILROY said that failure in ante-natal work was due to want of continuity in observation. One of the openers in the discussion had spent his time pointing out the errors of the specialist, which was very easy. That was the bane of the position: that those concerned all became critics of one another. She agreed that the general practitioner knew more about the patient herself than anybody else, and if he could be attracted into the service he would be the one who should undertake the work. She suggested a panel of general practitioners, all of whom would have had post-graduate training in maternity hospitals. Undergraduate teaching in this subject was still open to a good deal of criticism.

ANTE-NATAL CLINICS AT FAULT

Dr. G. W. THEOBALD said that just as it was a tragedy that anaesthesia should have been discovered thirty years before antiseptics, the result being to inflict suffering on thousands of people who would not otherwise have suffered, so it was unfortunate that just when the public conscience was becoming aroused over maternal mortality the cult of the ante-natal clinic should develop. If every ante-natal clinic in this country were swept away the mortality would not be increased; it might be lowered. On analysing the causes of deaths of mothers, a certain number were found to have died from diseases associated with pregnancy; these would not be affected much by ante-natal care, though ante-natal beds might be a different story. As for the toxæmias of pregnancy, there was not the slightest evidence that ante-natal care could affect the death rate. Ante-natal care was not a substitute for good midwifery, and it made an enormous amount of needless midwifery possible. He was convinced that maternal mortality could be reduced by half within the next ten years, and with less expenditure on the maternity service, if there were established about sixty hospitals on the Rotunda principle, each working a certain radius by means of midwives and general practitioners, and all abnormal cases being sent into hospital. As for Dr. Oxley, he declared himself a general practitioner, but he was in reality an obstetric specialist, and the speaker would rather see the hospitals he had suggested staffed with practitioners of Dr. Oxley's type than "with F.R.C.S.'s galore with no experience."

Dr. F. N. REYNOLDS suggested that if Government departments had analyses showing in what branch of the service—midwives, hospitals, general practitioners, specialists—the major mortality occurred, these should be placed before the Section of Obstetrics for discussion so that respective responsibility could be assessed. Mr. L. C. RIVETT declared obstetrics to be a whole-time job, demanding much patience and very irregular hours. A whole-time service was the only solution of the difficulty, and the same obstetrician who conducted the confinement should supervise ante-natal and post-natal care. Dr. W. M. FELDMAN agreed that x-ray examinations were of enormous value. He also agreed with the statement that deaths from septic poisoning were not entirely due to exogenous introduction of toxin, but possibly to endogenous toxic states.

NO GROUND FOR PESSIMISM

Professor JAMES YOUNG was disappointed at the pessimism of the discussion. They were all apt to be discouraged at the slow response to the energy expended on this problem, but the Maternal Mortality Committee laid down some very simple propositions, and he was convinced that if they were put into operation alleviation would come about. It had to be borne in mind that the maternal death rate was a compound of very varying

figures. In some districts it was 2 per 1,000; in some it went up to 10 or 12. Surely in the present state of knowledge 12 should be regarded as an excessive figure, which it should be practicable greatly to reduce. One town in the North of England, by simple measures, had brought down its average from nearly 9 per 1,000 to 1.7.

Mr. ALECK BOURNE referred to the great importance of teaching the technique of normal labour. Patients were lost from errors in handling midwifery and the too early use of forceps. The ante-natal officer was inclined to be too much haunted with the fear of disproportion. If ante-natal work were done by people more experienced in normal labour there would be less interventions and more spontaneous labours, and therefore a lower death rate. Lady BARRETT considered the two most urgent matters to be the education of the medical student and greater access by the general practitioner to practical work and experience by way of refresher courses. Dr. DICK REID said that one of the greatest dangers of obstetrics was the academic mind, and one of the greatest sources of help to proper ante-natal care of women would be the naturalist mind applying the philosophy of development to the study of the natural functions of woman. Sir WELDON DALRYMPLE-CHAMPNEYS mentioned that once it was his duty to organize a reply to a questionnaire from the British Medical Association on the general subject, and at the meeting at which the nature of the reply was debated one general practitioner got up and stated that he always applied forceps unless there was a strong contraindication. Dr. MARY KEENE urged the desirability of the universal provision of milk for pregnant women and nursing mothers.

All the openers briefly replied. Professor BROWNE said that his scheme had received exactly as much support as he had expected, which was none at all. Dr. Oxley had declared it to be impracticable; he would be only too delighted to offer Dr. Oxley the first directorship in his county unit. Dr. Fairfield had said the scheme was too costly. But it would cost only two millions, and the British Medical Association scheme would cost two millions and a quarter. Cheap midwifery would not give the results.

BRITISH ORTHOPAEDIC ASSOCIATION

The annual meeting of the British Orthopaedic Association was held in London on November 2nd and 3rd. Clinical programmes were arranged at St. Bartholomew's Hospital by Mr. R. C. ELMSLIE and his colleagues, and at the Lambeth Hospital by Mr. G. F. STEBBING. The Robert Jones gold medals were presented to Mr. R. W. BUTLER and Mr. H. J. SEDDON, whose essays on the subject of Pott's paraplegia were read in opening the first discussion.

Pott's Paraplegia

Mr. R. W. BUTLER said that in tuberculous disease of the spine three clinical types of paraplegia should be differentiated. The first type, "early onset of temporary paraplegia," was due to toxic and vascular reactions in the cord from the activity of tuberculous disease, and sometimes to compression of the cord by caseous granulation tissue. In the second type, "early onset of permanent paraplegia," the paralysis persisted after recovery of the tuberculous disease owing to avascular atrophy of the cord; it was attributable to prolonged compression of the cord by abscesses, to acute thrombosis of the vessels supplying the cord, to bony compression by pathological dislocation of the spine, or to compression by the displacement of sequestra. In the third type, "late onset of paraplegia," the paralysis might appear many years after apparent quiescence of the disease, and this type included 50 per cent. of the whole series of 193 cases. Late paraplegia was due to atrophy of a previously damaged cord as a result of prolonged or of fresh infection; bony compression was a rare cause, and there was no evidence that chronic tuberculous meningitis was responsible for paraplegia at any stage.

Mr. H. J. SEDDON said that for every four cases of early onset of paraplegia which recovered there was one which failed to recover. Failure was due either to persistence

of cord compression for too long a period or to the sudden complications of vascular thrombosis or bony compression by dislocation. Treatment, therefore, was primarily conservative, and included immobilization and hyperextension. If some voluntary power remained the prognosis was excellent, but if there was complete loss of voluntary power recovery was improbable unless pressure was relieved during the first six months. If there was not spontaneous recovery within six months of onset costotransversectomy and evacuation of the abscess was indicated. When the onset of paraplegia was sudden, and paralysis was complete within a few days, bony compression should be suspected, and relieved by hyperextension of the spine. Laminectomy was only indicated in cases exhibiting the spinal tumour syndrome (the neurological signs preceding the orthopaedic sign), or in cases of posterior spinal disease. Cases of late onset of paraplegia should be treated conservatively, but in severe cases the removal of tuberculous material or of bony ridges, and combined laminectomy and spinal grafting, should be considered. If there was complete motor paralysis for more than six months there was no likelihood of recovery. The subject was covered so fully by the very admirable opening papers that the time available for further discussion was strictly limited. Mr. G. R. GIRDLESTONE (Oxford) pleaded for the relief of pressure by costotransversectomy at an even earlier stage, and Mr. McCRAE AITKEN said that the pressure could be effectively relieved, without actually removing bone, by dissecting between two transverse processes.

Transport of Cases with Back Injuries

Mr. T. P. McMURRAY (Liverpool) said that in fractures of the spine the advantage of face-down transportation was that the postural movement necessary to reduce the fracture was instituted at once, so that the risk of injury to the spinal cord was minimized. The disadvantages were such that patients suffered from shock and that lying on the face might embarrass respiration; there might be fractures of several ribs with danger of visceral injury. The speaker did not advocate any change in the existing teaching; first-aid workers could not be expected to diagnose fractures of the spine, and the act of turning patients over was dangerous.

Mr. McMurray's recommendation was supported by Mr. P. B. ROTH. It was opposed by Mr. Watson Jones, Mr. McKenzie Crooks, Professor Houghton, Mr. Clarke, Mr. Davidson, and Mr. Hope Carlton.

Mr. R. WATSON JONES (Liverpool) said that St. John Ambulance men were already taught to turn these patients over, but they were instructed to turn them on to their backs and to lift them by a method which inevitably produced hyperflexion. If a patient with a fracture-dislocation was carried in this manner severance of the cord was inevitable. The association of rib and spinal fractures was so rare as to be negligible, and in any event the ribs were no more likely to be fractured in front than behind. Professor HOUGHTON (Dublin) said that the diagnosis should not give rise to difficulty. If, after a severe injury, a conscious patient complained of pain in the back and inability to move one or both legs he should be lifted and carried face downwards. Mr. MCKENZIE CROOKS (Nottingham) reported a series of fifty cases of spinal injury; there was only one case with injuries to the ribs, and that patient was more comfortable on the face than on the back. Mr. H. O. CLARKE (Manchester) said there could be no doubt that ordinary face-up lifting was capable of producing paraplegia which did not previously exist. The speaker had personally witnessed a throw from a horse which caused fracture of the spine without paraplegia; the patient was turned and lifted by ambulance men and was paraplegic by the time hospital was reached. Death resulted from bladder infection.

Congenital Club-foot

Miss FORRESTER-BROWN (Bath) advocated repeated manipulation, splints, and plaster as the routine treatment for congenital club-foot, but said that many cases relapsed despite every care and attention. Open division of the tight structures on the inner side and at the back

of the heel was often necessary, and in old cases an astragalectomy was sometimes performed. A rotation osteotomy of the tibia was a valuable procedure for persistent in-toeing.

Mr. B. L. McFARLAND (Liverpool) said that open operations on the inner side of the foot were followed by scar tissue contracture, and sometimes the deformity relapsed. Tenotomy of the tendo Achillis was rarely indicated, and was a dangerous procedure. Mr. C. LAMBRINUDI advocated early tenotomy of the tibialis anticus and posticus, but these procedures were condemned by Mr. NAUGHTON DUNN (Birmingham), who said that division of the anterior tibial tendon caused claw-foot, and division of the posterior tibial tendon caused flat-foot. Mr. E. P. BROCKMAN considered astragalectomy to be a very bad operation, and said that all cases so treated relapsed sooner or later. The speaker recommended open division of the tight structures on the inner side of the foot.

Fractures of the Neck of the Femur and Intra-articular Arthrodesis of the Hip

Mr. WATSON JONES said that after high fracture of the neck of the femur there was often radiographic evidence of impairment of blood supply in the proximal fragment, and this accounted for the slow union of these fractures. Nevertheless, the neck distal to the fracture had a normal blood supply, and its decalcification and absorption was due to the traumatic hyperaemia of continued movement of the fragments on each other; it was not observed when the fracture was perfectly immobilized. The prolonged and complete immobilization necessary could be secured by the Smith-Petersen nail, but the operation was most difficult. The speaker had devised a canalized nail and guide to facilitate accurate central insertion by open operation. A similar principle had been independently used by West in Australia and Sven Johansen in Sweden, but these workers had developed a subcutaneous technique with Kirschner wire and radiographic control which was more difficult and less certain. The treatment was relatively safe even in very old people, because no splints or plaster were used; no weight-bearing was permitted until the fracture was united. The operation was contra-indicated in old fractures with avascularity of the head of the femur. Non-union after arthrodesis of the osteoarthritic hip was analogous to non-union after fracture of the neck of the femur and could be prevented in the same way by driving a Smith-Petersen nail into the pelvis. With this addition to the technique of simple intra-articular arthrodesis consolidation was certain and rapid.

Mr. E. W. HEY GROVES (Bristol) had seen the Sven Johansen technique on the Continent; two or three hours of tedious work had been involved, and the speaker believed that the open operation which had been described would prove more satisfactory. Mr. NAUGHTON DUNN (Birmingham) said that the operation was one of great difficulty, even in the hands of Smith-Petersen himself, but the high percentage of successful results reported commended the method. Mr. V. H. ELLIS advocated earlier weight-bearing in a walking calliper splint, but the opener replied that the Thomas splint or calliper was dangerous in such high fractures, and was not to be recommended at any stage of treatment; the splint extended up to but not beyond the fracture, and directly transmitted every movement of the limb to the level of injury.

Movement of the Lumbar Spine and Pregnancy

Mr. LAMBRINUDI reported clinical observations which disproved current obstetrical teaching that lumbar lordosis was normal in pregnancy. Normally there was extension of the lumbar spine and flattening of the sacrum, but this movement was only possible if the muscular tone was good, and the sacro-iliac and lumbo-sacral joints were mobile. Failure in this mechanism, with the development of abnormal lumbar lordosis, accounted for backache during and after pregnancy. Mr. N. CAPENER showed comparative series of radiographs of the lumbar spine with patient lying, standing, and stooping. The intervertebral foramina were enlarged in flexion of the spine and narrowed in hyperextension. The bearing of this observation on scoliosis was discussed.

Adolescent Coxa Vara

Mr. V. H. ELLIS, reported nine cases of slipped upper femoral epiphysis, and advocated gradual correction of the deformity by skeletal traction in a Thomas splint. Forcible correction by manipulation under anaesthesia usually caused degeneration of the epiphysis and osteoarthritis of the hip. Mr. E. N. WARDLE (Liverpool) advocated traction in the neutral or even the adducted position by means of a Thomas frame, with the groin strap on the affected side.

OPERATION MASKS

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Academy of Medicine in Ireland, held on November 9th, with Dr. BETHEL SOLOMONS in the chair, Professor R. E. TOTTENHAM showed operation masks, designed by himself, which he considered more efficacious in a tropical climate than the masks used at home. They were smaller and made of lighter material, so the operator, when wearing them, did not get too hot.

Dr. SOLOMONS said that the small celluloid mouth mask seemed to be a practical proposition. For some time he had been using, in gynaecological surgery, a mask with a piece of cellophane between the layers of gauze. It had been proved to be unnecessary to cover the nose unless the operator had a cold. It would be worth while conducting the experiment of talking over agar plates with the celluloid mask on to ascertain if it were effective.

Dr. J. F. CUNNINGHAM thought that the operation masks shown by Professor Tottenham were a great improvement on those in current use. He referred to a Viennese mask, which he had recently seen, and which fitted a little bit lower on the face than those shown by Professor Tottenham, and did not obstruct vision at all. A mask which did not come over the nose must be very much cooler than one which did. In America they had made several efforts to invent a perforated mask constructed from an impervious material.

Cervical Myoma

Dr. D. J. CANNON showed specimens from a patient with associated cervical and broad ligament fibroids.

Dr. SOLOMONS said that while he did not agree that the treatment of cervical myoma could be absolutely standardized certain rules could be laid down: (1) In most cases the ureter should be defined in its pelvic course. (2) While myomectomy was often possible, in case of any doubt about haemostasis hysterectomy should be done. He suggested that the technique of finding the settling time of the blood was so simple that it should be done in all cases of possible infection. Broad ligament myoma was not the correct term to apply to the cervical tumour.

Dr. CUNNINGHAM said that these types of fibroids were rather uncommon, and generally gave rise to a great deal of difficulty in removal. When he removed them he always preferred to carry out extracapsular removal. He thought that if this was done it was easier to control the haemorrhage. The most troublesome bleeding occurred from veins. He mentioned a case in which he had removed a fibroid and got a certain amount of haemorrhage from the side of the uterus. He tied the vessels on that side, and the patient did very well; eighteen months later she was delivered of a healthy baby. The main difficulty in these cases was to control the blood supply, and, if it was possible to get to the base of the uterus, it was not very difficult to do this. He was of opinion that it was always easier to control the haemorrhage from these tumours if they were taken out of their capsules. He thought it was practically impossible to standardize treatment in such cases.

Dr. F. S. BOURKE asked if the specimens were really broad ligament fibroids. He thought that they were not; he regarded them as uterine myomata which had grown into the broad ligament. Cervical fibroids were often adenomyomatous, and not just ordinary fibroids such as were found in the uterus.

CORRESPONDENCE

Elections to G.M.C.

SIR,—I should be much obliged if you will allow me through your columns to thank those registered medical practitioners of England and Wales who, in the recent election to the General Medical Council, expressed by their votes a renewal of their confidence in me as their Direct Representative.—I am, etc.,

London, N.W.11, Nov. 26th. HENRY B. BRACKENBURY.

Radiological Practice

SIR,—The time has surely come when steps should be taken to prevent the use of x-ray apparatus by those whose capabilities are inadequate. The present legal position is that anyone may purchase and use equipment which is, as is well known, a potential source of danger both to patient and to operator. Thus it is possible for any individual to employ x rays for diagnostic and therapeutic purposes without having the necessary anatomical, pathological, and medical knowledge. Can it be right that a radiographer (however skilled he may be as a technical worker), a chemist, or an engineer should be legally empowered to express an opinion as to the evidence of a pathological process or to expose a patient to a beam of x rays for purpose of treatment. It is, of course, recognized that members of the Society of Radiographers undertake that they will not interpret radiographs, and that they will not carry out radiation therapy except under the strict supervision of a qualified medical practitioner; but there are many quasi-radiographers who are not members of this society, and who, therefore, are *not* bound by such an undertaking.

Radiographic interpretation and the determination of x-ray dosage call for very skilled judgement, but it is suggested that such is not among the attributes of many who succumb to incautiously phrased advertisements, which infer that efficient radiological practice requires nothing more than the acquisition and operation of a piece of apparatus.

The remedy appears to lie in the hands of the general members of the medical profession. The assistance afforded to them by radiology may be immense, but only when they will recognize that the whole subject is one requiring endless study, subsequent to a thorough training in general medicine, with especial reference to pathology and physics.—We are, etc.,

G. SHEARER,
President, British Institute of
Radiology.

J. DUNCAN WHITE,
Chairman, Medical Committee, British
Institute of Radiology.
32, Welbeck Street, W.1,
Nov. 22nd.

Short-wave Diathermy

SIR,—May I sound a note of warning with regard to the so-called short-wave diathermy therapy—ultra-high-frequency—or by whatever other name this treatment is called.

The time is not yet ripe to discuss in a general medical journal the differences between treatment by this method and treatment by ordinary diathermy. Also clinical experience is still limited, and opinions must necessarily be tentative. The point, however, that I do wish to make is that in this newish technique we have a treatment capable of sometimes altering a patient's symptoms rapidly, even occasionally dramatically, and therefore

it is to be regretted that there is a tendency to write it up as a new panacea. It is nothing of the kind.

The dangers in this position are threefold: first, that it may go through a false boom like ultra-violet light; secondly (again like light) serious harm may be done to a few; and thirdly, the genuine group of cases for which it would be the treatment of choice will be lost sight of. The discussion at the Royal Society of Medicine on November 16th on this subject, opened by Dr. Turrell, was interesting in disclosing widely divergent views. The only way in which sound clinical judgement can be formed is by the gradual accumulation of a mass of clinical results, both in hospital and in private practice, by medical practitioners familiar with the scope and reaction of its better-known cousin—diathermy. Do not let us ruin a new, and possibly valuable, therapeutic measure by exaggerated claims.—I am, etc.,

London, W.1, Nov. 26th.

C. B. HEALD.

Influence of Heat and Light on the Nasal Mucosa

SIR,—In regard to the annotation on this subject in the *Journal* of November 24th (p. 951) I would point out that Winslow, Greenburg, and Herrington, just as Dufton and Bedford, did not carry out my experimental method, but one so arranged that it could not yield the results obtained by me. They left one nostril open for breathing, while connecting the other by a well-fitting tube to a recording instrument.

Now if a glass tube, one inch long, be chosen large enough to fit comfortably the open nostril, the lower opening of this tube can be greatly narrowed (even till its area is only one-sixth of that of the upper opening) without significantly affecting the quiet breathing of a resting subject. This method is, then, much too insensitive.

The spirometer method used by Winslow and his co-workers was arranged so that results due to nasal congestion produced by the source of heat were recorded. But no precaution was taken to see if this source was of such a strength that the "nose-opening" rays had a chance of showing their effect. There is, as I have pointed out, a balance between the actions of the rays, and this must be found by experiment. My critics do not appear to have paid any attention to this important point. "Nose-opening" rays can easily be shown by the following method.

An electric heating coil, about 4 by 1½ inches, is set up in a stand, and beside it is placed a small solid tungsten rod arc. The coil, heated to a dull red, gives off about fourteen times more energy than the arc. The subject sits about two feet from, and facing, these two sources, which are, at the start, screened from him. A screw nose-clip (obtainable from Messrs. Siebe Gorman, Ltd.) is adjusted to the subject's nose, and tightened until the respiration becomes slightly difficult; the right adjustment of the nose-clip is most important. A corrugated rubber tube (such as is used for breathing apparatus) is fastened round the body of the subject; one end of this is closed, and the other connected to a recording tambour, which is set to write on a slow-moving drum.

The subject keeps the eyes shut, or is blindfolded. A record of breathing is now obtained; then the screen is removed, and the two sources allowed to irradiate the subject's face. The breathing continues unchanged. The arc is next screened; the breathing in most subjects then becomes laboured, or quick and shallow; in many the mouth has to be opened, as nasal breathing becomes ineffectual. On unscreening the arc the breathing returns to what it was before. For subjects who have a considerable constriction of the nasal airway the use of the nose-clip may not be necessary.

My critics have tested one or two such subjects, but they apparently paid no attention to the need of using a source of heat of such strength that the "nose-opening" rays from the bright source had a chance of exerting their effect.

When the method described above is carried out some subjects will be found insensitive to the action of "nose-closing," and therefore of "nose-opening" rays. In the case of most of the sensitive subjects a glass screen converts the sun, or an arc, used alone, into a nose-closing source.

I have taken records from many members of the staff and patients of the St. John Clinic and Institute of Physical Medicine; some of these will shortly be published.—I am, etc.,

London, S.W., Nov. 25th.

LEONARD HILL.

X-Ray Examination of Empyema Cavities

SIR,—Observation of over one hundred cases of chronic empyema at the Brompton Hospital during the past two years suggests to me that the views expressed in Dr. A. Duff's letter in the *Journal* of November 17th (p. 921) are most dangerous.

The only reliable indication for discontinuing drainage of an empyema cavity is that there should be no longer a cavity to drain. The evil results of removing the tube before the cavity is obliterated are often not immediately apparent. The sinus usually heals, and the surgeon congratulates himself on an "impressively quick cure." I do not deny that in many cases he may be right. But the most careful clinical and radiological examination will not inform him of the probable future behaviour of an unobliterated pleural pocket. If this is left, it fills with discharge and its walls thicken and temporarily protect the patient from toxic absorption. Then, months or years later, this pocket may burst either externally or into a bronchus. Such recrudescence has been seen here as long as fourteen years after the original empyema. If it points externally a chronic persistent or recurrent discharging sinus results. If a pleuro-bronchial fistula forms, the resulting syndrome resembles that of *letid* bronchiectasis, and we occasionally have such cases sent here with this diagnosis. The chronic empyema cavity, the obliteration of which is necessary for cure, is by this time lined with grossly thickened and leathery pleura. I need not stress the great difficulty of dealing with such a condition: a series of severe and extensive operations is often required, involving disability for many months.

By maintaining adequate and proper drainage of acute empyemata until it is clearly established, if necessary by x-ray examination after introduction of lipiodol, that the cavity is obliterated, the incidence of chronic empyemata after uncomplicated acute empyemata can be reduced to zero.—I am, etc.,

J. G. SCADDING, M.D., M.R.C.P.

Resident Medical Officer,
Brompton Hospital.

London, S.W.3, Nov. 19th.

Plea for Abolition of the Pelvimeter

SIR,—In his letter on this subject Mr. Aleck Bourne is, presumably, being deliberately provocative, and has for that reason not hesitated to strain his argument. Experiences differ, and it is certainly not my experience that Caesarean sections or inductions of premature labour are performed on the basis of external pelvimetry alone. Mr. Bourne will not deny that if the external measurements (even allowing for the possible inaccuracies of which it makes the very most) are definitely below normal they suggest that the true pelvis is also smaller than normal.

and that if the average difference between the interspinous and intercrural diameters is markedly altered it suggests that the shape of the true pelvis is also altered. Such suggestions of abnormality in regard to the true pelvis are surely all that is derived from external pelvimetry by anyone with any knowledge of midwifery. If that is so, then, I submit, their value is considerable, because they determine a particularly careful estimation of the size and shape of the true pelvis, as well as of the relative size of the pelvic brim and the head.

Performed by an experienced obstetrician, digital examination of the pelvis, as preferred by Mr. Bourne, may be most helpful; but when he relies upon the "knuckle test" of the inter-tuberischial diameter he seems to me to fall into the very error he condemns. To "measure" by an instrument of variable size—that is to say, by a variable standard of measurement—cannot be put forward as an accurate method.

Mr. Bourne's questions are as difficult to answer as the much-discussed "peace questionnaire." The only one to which I could give an unqualified "Yes" is the last, and it is not really germane to Mr. Bourne's main point.

As another of your correspondents states, we seem to be on the verge of another "drive" in connexion with maternal mortality and morbidity. The last one induced a condition bordering on national hysteria and panic, and led to hasty administrative measures whose results have been disappointing. In the opinion of many this misfortune was the result of following extreme opinions. Mr. Bourne's advice seems to me to be an "extreme" measure of over-correction of a fault that is less common in my experience than in his. I put it to him that what he really wants is not that we should discard our pelvimeters, but merely that we should not exaggerate the significance to be placed on external pelvimetry. In that view I am sure that he will have the support of all obstetric teachers.—I am, etc.,

Edinburgh, Nov. 26th.

R. W. JOHNSTONE.

SIR,—Mr. Aleck Bourne's letter pleading for the abolition of the pelvimeter, in view of the increasing death rate, in spite of our ante-natal methods, is deserving of support. Both external and internal pelvimetry are unreliable and harmful; accurate measurements cannot be made, and the patient is subjected unnecessarily to injury and sepsis. The same objection can be made to internal pelvic examination with the finger; besides, the employment of this method in a young woman necessitates an anaesthetic if discomfort or actual pain to the patient is to be avoided.

The most accurate method, as I pointed out in 1923 (Portsmouth meeting), of diagnosing the capacity of the pelvis and measuring the size of the inlet and outlet is by the x rays. Roentgenographic pelvimetry, besides demonstrating pelvic deformities, the effect of old fractures, or diseased joints, makes it possible not only to see the existence and extent of the pelvic contraction, both at the inlet and outlet, but also to compare the abnormal with the normal pelvis and measure the degree of contraction.

Every woman should have her pelvis measured by the x ray to see if she is fitted for child-bearing, and towards the end of her pregnancy, according to the degree of her contraction, if any abnormality is noted, another photograph should be taken to ascertain the presentation of the child and its size relative to that of the pelvis, thereby giving a definite diagnosis, and enabling the case to be treated by a suitable method.

If every woman on her first visit to the ante-natal clinic had her pelvis x-rayed it could be compared and measured with the "standard" photograph, and once

and for all that woman would have a certificate of her pelvic capacity, which she could keep for future reference. No matter to what part of the world or to what doctor she went, she could, if the necessity arose, give accurate measurements of her pelvis, and save unnecessary examination, with its accompanying risks to sepsis.—I am, etc.,

Belfast, Nov. 26th.

W. R. MACKENZIE.

SIR,—I venture to express my delight at seeing Mr. Aleck Bourne's reference, in the *British Medical Journal* of November 24th (p. 963), to the uselessness of external pelvimetry. By openly stating his belief Mr. Bourne has had the courage to express an obstetrical reality of considerable importance. Unfortunately he proceeds to state an unreality when he mentions the frequency with which induction of labour is followed by inertia. The subject is one to which I have devoted considerable time and attention with very ample material.

Uterine inertia (a very real clinical entity) has never yet harmed an infant, nor has it ever been responsible for maternal damage or morbidity if correctly treated. Surely the condition to which Mr. Bourne refers is in reality incoordinate uterine action, spastic in character, and capable of passing into a condition of uterine "panic" if oxytocics are given or instrumentation applied.

If Mr. Bourne doubts me, let him ask the sister in charge of his wards the next time one of these cases to which he refers comes under his care. I venture to prophesy that in answer to his query as to whether Mrs. X is having any pains, he will get the reply, "Not real pains, Mr. Bourne." This answer is the sister's only means of conveying the reality of incoordinate uterine action, in the present state of textbook teaching.—I am, etc.,

WENTWORTH TAYLOR.

Dudley Road Hospital, Birmingham,
Nov. 24th.

Anaesthesia in Maternity Cases

SIR,—This subject has so constantly been written about that I think the experience of an old country practitioner may be of use.

During over forty years' general practice I, in the later periods, almost invariably administered an anaesthetic. Sometimes the patient would use the apparatus herself, but more frequently the nurse, or it would be given by myself. The apparatus I used was one made by Krohne and Sesemann of London. It consists of a graduated bottle, to be hung from the practitioner's or nurse's clothes, and two tubes, one conveying the chloroform to the mask, and the other terminating in a rubber pump. The bottle was filled to the two-drachm mark and the first inhalations were given very weak. I often utilized this by giving the patient the pump to use herself; when she became more or less unconscious the flow of the anaesthetic naturally failed. The secret of success consists in the very small amount given at first, and, indeed, the design of this apparatus is to prevent the possibility of administering much at a time: I have kept a lady under the anaesthetic for four hours, giving great relief from pain for most of the period, and at the end pumping a little faster, and so entirely relieving all pain. In one case the husband, who desired to be present, gave the anaesthetic himself all the time (four hours).

I have used this apparatus in many operations. In one I remember a Doubting Thomas saw the bottle filled to the two-drachm mark, and when the femoral hernia operation was completed he again examined the reservoir, and found I had only used 30 minims of chloroform, while the patient neither moved nor experienced any pain during the operation. In alcoholic subjects it is notorious that larger

quantities of the drug must be used, but in all cases I began with the treatment I have stated; it is safe and satisfactory.

The danger in administering chloroform is in giving strong doses at first. One should begin with two or three minims in the first minute, *very gradually* increasing each minute. There should be no choking or coughing nor any distress whatever, and a couple of drachms of the drug would relieve over a considerable period if given *intermittently*—a few whiffs when the pain shows evidence of coming on, and perhaps a remission during the interval. Given in this way the patient can converse and yet receive great relief from pain.

I would like to add, in view of the apparent increase in the number of fatal confinements, that in a matter of 2,000 cases I had but two deaths. Neither of them had I attended at the birth; one I was called to about half an hour before she died. There was no uterine trouble to account for it, but I learnt that she had had hardly any sleep for a fortnight previous to delivery and during the day was doing cheese-making and caring for a number of children; she simply died of exhaustion. The other death was due to an embolism carried to the heart during an attack of white leg, when the patient sat up in bed contrary to orders.

For years I used copiously a thymol ointment, and very seldom found any feverish conditions following the birth; I consider thymol one of the most valuable antiseptics.—I am, etc.,

Peatchaven, Nov. 19th.

ARTHUR CAMPBELL.

Dilating the Cervix in Placenta Praevia

SIR,—Whatever Dr. Bethel Solomons writes is of course worthy of the utmost respect. All the same, I venture to think myself not quite so "horribly" heterodox as might appear. I do regard over a score of cases as constituting a considerable experience, especially so since all save two of them were dealt with single-handed, and all in country cottage homes.

From the sixteenth century onwards dilatation and version were taught by Paré, Guillemeau, Mauriceau, Smellie, and others. Smellie says: "In all these cases let the parts be dilated slowly, and by intervals, to prevent laceration." On this Robert Lee says (1842), "These are the most clear, concise, and accurate rules which have been laid down by any author." Herman says (1897 ed., p. 311): "Dilatation of the cervix has formed a part of almost every plan of treatment that has been proposed. It is usually necessary, because dilatation of the cervix must precede delivery." And Comyns Berkeley (1925 ed., p. 502): "In all cases in which the os is half or more dilated, it will be quite easy to dilate it further so as to allow the performance of internal version." I sin in excellent company. There were brave men before Agamemnon, and I like the old dictum that fingers were made before forks—to wit, dilating bags.—I am, etc.,

Harston, Cambridge, Nov. 24th

W. J. YOUNG.

Spontaneous Regression of Cancer

SIR,—Unlike Cervantes's hero, our modern Don Quixotes no doubt have an eye to news value when tilting at windmills. Your editorial comment on Dr. A. T. Todd's letter makes it so clear that he has deliberately chosen to misinterpret my remarks that he is not entitled to any reply from me. In case, however, there should be any shadow of doubt as to the calculated nature of his preposterous attack, I will quote from my letter to him dated November 9th, 1933 (a copy of which I enclose):

"I think you misunderstood what I said in reference to the spontaneous cure of cancer. My words were: 'It is only fair to state, too, that there are records—some highly circumstantial—of nearly 400 cases of complete spontaneous cure of cancer.'"

"My implication was, therefore, that if there are so many cases which are claimed as being spontaneous cures it suggests that in such cases a long period may elapse during which the patient appears to be cured. I do not believe for one moment that they are in fact cured, and I suggested elsewhere: 'So far as I am concerned I have never known a single case of idiopathic regression or apparent arrest of tumour growth in which eventual recurrence did not manifest itself.'"

"My whole attitude, however, is that one must be extremely cautious in respect to the view that any particular method of treating cancer is efficacious unless one bears in mind the natural variations in the course of the disease and waits a great many years before arriving at definite conclusions."

If Dr. Todd wishes to be taken seriously he will cease to imply that even 400 *fully authenticated* cases of spontaneous cure can affect materially the gravity of the cancer problem. Bashford calculated that spontaneous regression occurs in one case among 100,000. Does such a percentage destroy the necessity for cancer hospitals or cancer research, as Dr. Todd with flippant hyperbole suggests?

It should also be known to Dr. Todd that, largely at my instigation, his methods of treating malignant disease are to be given an exhaustive and thorough trial at the Cancer Hospital. This scarcely argues the prejudice which his egregious letter would imply.—I am, etc.,

London, W.1, Nov. 26th.

Cecil A. Jell.

Female "Bleeders"

SIR,—I was interested in the reports and comments on female bleeders, by M. A. Foulis and J. W. Crawford (*British Medical Journal*, September 29th, 1934), W. N. Leak (*ibid.*, October 13th), and Robert Platt, Hugh G. Garland, and L. Ivan M. Castleden (*ibid.*, October 20th). Before one may accept the reported instances of female "bleeders" as examples of true hereditary haemophilia, other haemorrhagic dyscrasias must be considered in the differential diagnosis (H. I. Goldstein, *Medical Review of Reviews*, New York, 1934, xi, 471; *Archives of Dermatology and Syphilology*, 1932, xxvi, 282; *International Clinics*, 1934, ii, Series 44, p. 43).

We must particularly consider thrombocytopenic and athrombopenic purpura, and *apurpura* thrombocytopenic and thrombasthenic conditions, heredo-familial angiotaxis with recurring haemorrhages (Rendu-Osler-Weber's disease), Willebrand and Jürgens's *Die Konstitutionelle Thrombopathie*, and Hess and Glanzmann's thrombasthenia, as well as "haemorrhagiparous haemotrypsin" (Emile-Weil, Chevallier, Clerc and Levy), and Opitz and Frei's "pseudohaemophilia ex afibrinogenia" (1921). Bramwell (1907) reported, erroneously, as "haemophilia" instances of severe epistaxis in a family in which the disease was transmitted, chiefly through the male line.

A fairly large number (about 120 families and about 850 affected individuals) of cases of heredo-familial epistaxis, with and without angiotaxis (Goldstein), have been reported in the literature during the past forty years. This condition has nothing whatever to do with true hereditary haemophilia, familial purpura haemorrhagica, or (Riverius, Lusitanus) *Werthof's purpura haemorrhagica*. This condition was first separated from true haemophilia by Rendu (1896) of Paris, who considered it "pseudo-haemophilia."

A number of instances of female haemophilia are on record in the literature. Bullrich and Fildes (1911) mention

¹ Long Fox Lecture, 1933.

a number of such cases, collected by them in an exhaustive study of the literature. True cases of haemophilia in females (supposedly) have been reported by Tamme Beth (1829), Lafargue (1835), Kuhl (1836), Quadrat (1841), and were so considered by Grandidier (1855). Lange (1849) also speaks of female haemophiliacs, and found the ratio of female to male bleeders was 1:7; Grandidier considered the ratio to be 1:14. Among others who discussed the subject of female "bleeders" were: F. A. Kehler (1876), E. Börner (1878), Immermann (1876, 1879), R. Kolster (1895), Wright, Böhm (1909), Rieken (1829), Mende (1839), Wachsmuth (1849), J. Tamele (Prague, 1869), Cantani (1872), Börner (1878), Eve and Bidwell (1839), Gocht. (1899), Beebe (1891), M. Fischer (1889), H. Fischer, Burger, Wright, Gustavo Pittaluga (Madrid, 1902), P. Stanley Blaker (1901), and others reported instances of female haemophilia, but Bulloch and Fildes, after their exhaustive studies, do not believe these instances to be examples of true haemophilia. Wm. Bulloch published his article on "Female Haemophiliacs and De Novo Cases of Haemophilia" (*Lancet*, i, 1900) in 1910.

Cases of familial epistaxis have been reported by many authors: Sir W. Fordyce (1784), P. J. Schneider (Offenburg, 1839), H. Jameson (1831), F. Steiner (1842), Wilhelm von Bippen (1842), Richard (1830), Georges, Boye (*Thèse de Paris*, 1910), William Osler (*Lancet*, 1910, i, 1226), Ed. Stainer (1910), Smith (1867), Lohmeyer (1832), P. St. Using (1833), E. Gintrac (1853) (doubtful instances of familial epistaxis in two brothers, one died at 24, "of cerebral congestion"), J. W. Legg (1871), Lepeyre, C. L. (*Thèse de Paris*, 1875), H. Hertzka (1881), S. Keneagy (1884), Beebe (1891), Macnamara (1884), P. Albertoni (1893), Masters (1900), Villemain (1900), D. McKenzie (1901), J. Dommartin (1903), P. Ste. Marie (1904), Godfrey (1905), Goodall (1905), B. Bramwell (1907), R. B. Davidson (1907), A. J. Swanton (1907), H. Althoff (1909), L. Frankel and L. Böhm (1909), A. Lombardi (1909), G. Cohen (1890), and numerous others. Some of these instances of "familial epistaxis" may, of course, be considered of doubtful haemophilic origin, and others may be instances of Rendu-Osler-Weber's disease (with or without evident telangiectases), thrombasthenia, or constitutional thrombopathy.

—I am, etc.,

HYMAN I. GOLDSTEIN, M.D.

Camden, New Jersey, U.S.A., Nov. 1st.

Septum Cauterization in Asthma

SIR,—Dr. George W. Bray, in the second edition of his book, *Recent Advances in Allergy*, says: "Cauterization of the nasal septum has been advised by Francis during the past thirty years. The idea of the cauterization is to dull the receptive area in the nose, where irritative stimuli may lead to the naso-pulmonary reflex already described" (that is, bronchospasm).

I should not ask you to allow me to correct this misconception if Dr. Bray's book was not such an authoritative and standard work, and if I did not feel that the misconception was likely to retard the investigation of the successful treatment of asthma. For thirty-two years I have been doing my utmost in published papers and books to emphasize the fact that ordinary cauterization is likely to do more harm than good to the asthmatic condition. It is unfortunate that I have to use a caution point to produce the effect I seek upon the vasomotor system.

In 1910 I stated (*Journal*, November 26th): "The merest touch which causes no local irritation or reaction is the one which produces the best result. I feel that I ought to sound a note of warning against indiscriminate nasal cauterization. When one sees the profound and diverse effects a touch with the cautery can produce upon the vasomotor system, it is necessary to proceed with caution and with some knowledge of what the effect is likely to be." In 1933 I stated (*Asthma and its Treatment*): "I cannot emphasize too strongly the fact that my method of treatment is not simply a matter of nasal cauterization. For the last thirty years I have been

constantly asked why I attempt to treat a healthy nose. It seems impossible to make it understood that I am not treating the nose. . . . In cases where there is hypersensitiveness of the nasal mucous membrane the prognosis is not so good."

Earlier in his book Dr. Bray says (p. 105): "In Francis's view asthma is merely a symptom of vasomotor instability. . . . He has tried to show how the touching of certain points on the nasal septum was in some way connected with the stabilization of the vasomotor system." If practitioners could only realize that nasal treatment does not rely upon removing asthmogenic spots from the nose, but upon producing a stabilizing effect upon the vasomotor system, much progress would be made in giving relief to the asthmatic condition, and damage from indiscriminate cauterization avoided.—I am, etc.,

London, W.1, Nov. 15th.

ALEXANDER FRANCIS.

Swallowing of Open Safety-pins

SIR,—I was very much interested in Mr. Courtenay Yorke's suggestions (*Journal*, November 3rd, p. 811) for the treatment of cases in which open safety-pins had been swallowed. I must confess that I believe it to be the safer course to remove the pin from the stomach before it has passed into the intestine than to risk the danger of perforation. The following case is probably unique.

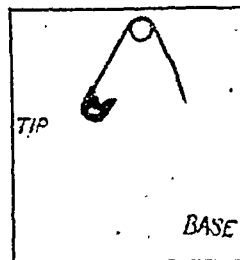
On the evening of August 26th, 1934, a male child, aged 8 months, swallowed an open safety-pin. An oesophagoscopy was carried out soon afterwards by Mr. R. J. Martin, but he found that the pin had passed into the stomach—this was confirmed by x rays. The child came under my care some hours later at the Birkenhead and Wirral Children's Hospital, and it was decided to remove the pin the following morning from the stomach. An x-ray was taken, but it was seen that the pin had moved on into the duodenum.

In view of its inaccessibility in this region it was thought wise to defer operation. During the next few days the pin slowly moved down to the right iliac fossa, where it stuck. Laparotomy was therefore undertaken. After a search of the lower reaches of the ileum, the ileo-caecal valve, and the caecum, the appendix was carefully palpated, and to my surprise the pin was found lodged in the tip with no sign of perforation. The appendix was removed, and the child made an uneventful recovery.

Subsequently an x-ray was taken of the appendix with the pin *in situ* (see figure).—I am, etc.,

Liverpool, Nov. 14th.

PHILIP HAWE.



Local Treatment of Coryza

SIR,—Mr. W. C. Spackman, in the *Journal* of November 3rd (p. 835), raises the issue of local treatment of coryza in connexion with the theory "that a general infection is less dangerous if its local reaction is severe." These are not his exact words, but I understand this to be his meaning.

The two propositions are not quite identical, because the coryza is not a general infection, say, like septicaemia, but a local one, which, when it is truly inflammatory in character, will produce systemic and general symptoms, the latter being the manifestations of invasion by what may be regarded as an intranasal inoculation. His letter has provoked some very interesting contributions. Dr. Douglas Webster (November 10th, p. 882) gives a list of

remedies which he has found effective, and the merits of many of which I believe to be based upon sound principles. Dr. R. R. Woods (November 17th, p. 920) goes, in my opinion, to the root of the question when he emphasizes the importance of the changes occurring in the nose as inflammatory phenomena, due to microbic invasion, and (in the sense which I interpret him) asks what are the biological defences of the body aiming at, so far as we understand them to-day. In health we are familiar with purposeful vaso-dilatory swings when certain functions of the body demand more blood, as, for instance, the splanchnic contrasted with the cutaneous areas during the process of digestion.

In disease of an inflammatory character there is a pronounced vaso-dilatory swing (with other additional factors, too long to detail here), and when this disturbing cause is severe many of the physiological demands on vaso-dilatation pass for the time being into abeyance—for example, loss of appetite. In a true coryza, together with the local pain, heat, redness, and swelling, we have the general symptoms of toxic invasion, such as pyrexia, malaise, headache, tachycardia, chilliness (vaso-constriction), constipation (vaso-constriction), etc.

Now while the process of immunity is being developed by *vis medicatrix naturae* the rational line of treatment, as I see it, is to adopt every measure possible to get rid of the toxins, and this is best done by encouraging vaso-dilatation of all the excretory organs of the body—the skin, bowels, kidneys. The time-honoured treatment for the relief of the local symptoms of inflammation is counter-irritation, producing hyperaemia at a distance. This is only vaso-dilatation, and that is why I consider Dr. Douglas Webster's treatment of gargling with hot water, drinking the same, hands and feet in hot water (or our old friend the mustard foot or body bath), hyperaemia by ultra-violet light or diathermy, are all sound in principle and will cut short a mild attack. But if it is severe I would carry this vaso-dilatation a stage further by putting the patient to bed, make him perspire, and give aperients and diuretics; this, together with eliminating his toxins, would lead to the rapid subsidence of his nasal and general symptoms.

I am averse to using any local liquid treatment in the nose in the active stage of acute inflammation, and have stated this view in published articles, because I am convinced that the patient's own protective defences against infection have already mobilized better forces to the spot than any which I can add, with our present knowledge. Inhalations of steam are soothing, and, if thought fit, may be medicated with tinct. benzoin co.; but wearing a light gauze mask, for the greater part of the day and night, will be most comforting, practically stop sneezing and coughing, protect him from further local infection, and protect others, in some measure, from him. In an inflammatory process of the type of coryza which I visualize here many of the epithelial cells are cast off and take some weeks to regenerate, so with this knowledge it is difficult to conceive that any method of treatment can limit its activities to a few hours. There is, however, a common form of non-pyrexial disturbance of ventilation of the nasal passages, accompanied by vaso-dilatation and diagnosed as a cold or coryza because the symptoms of obstruction, sneezing, and discharge occur in sequence; but this is not inflammatory (pyrexia being the test), and the local use of vaso-constrictors, aided by any form of general hyperaemia, will give rapid relief.

That the nose is frequently attacked when the lower respiratory tract escapes is common knowledge, for which we should be truly thankful, because in its role of a respiration outpost and defensive mechanism, for the preparation and purification of air before it goes to the lungs

for the vital process of oxygenation, it is not to be wondered at that it must often succumb to air-borne infection in the conditions of modern life, so long as the human mucous membrane reacts to microbic invasions. Dr. Potter's alkaline treatment (November 17th, p. 921) diminishes this susceptibility, but control of the alkaline reserve for a long period is too complicated, and has its pitfalls.—I am, etc.,

London, W.1, Nov. 19th. JOHN F. O'MALLEY, F.R.C.S.

London University and its Medical Schools

SIR,—Sir Ernest Graham-Little has no doubt done well to draw attention to the lamentably small proportion of medical students who, having embarked upon the London M.B., B.S. course, actually obtain the degree. But I trust that no one will be so unwise as to comment upon Sir Ernest's proposal, outlined in his letter published by you on November 24th, without having something more definite in the way of an explanation of this fact than the vague remark, "the majority of students entering for the London course . . . are unable to stay the course for the third examination."

One would like to know: (1) What is the exact proportion of such students who do pass the whole of the Second M.B.? (2) What proportion of these sit once for the Third M.B.? (3) What proportion of these fail at the first attempt and in what parts? (4) What proportion of those who fail once attempt the examination a second time?

Doubtless these data are known to the Senate of the University. Whether they should be divulged in your columns I leave to the judgement of Sir Ernest. But without them any discussion of the subject, or a possible remedy, appears to me foolish.—I am, etc.,

London, W.1, Nov. 26th.

ERIC PEARCE GOULD.

SIR,—Sir Ernest Graham-Little's letter, in your issue of November 24th, about degrees in London University comes at a time when revision of the medical curriculum is being widely discussed.

The first difficulty in London University arises with the First M.B. examination. I have never been able to understand why this examination is not interchangeable with that for the Intermediate Science. The length of time allotted to both courses is the same, and yet the First M.B. is definitely considered to be of a lower standard.

The First M.B. ought to be the chemistry, physics, zoology, and botany of the Intermediate Science examination. The student who changes his mind would then be able to go on with a Science degree and not have to start again at the beginning as at present.

The Second M.B. is another problem. The minimum course of study for a first degree in London University takes three years. The normal time for the Second M.B. is two and a half years. If this examination was a degree examination the course of study would have to be lengthened by three to six months. Most medical students in this University are poor men, and cannot afford the time. A few are able to spend another year and take the B.Sc. in physiology, chemistry, or human anatomy, but this number is very small.

A degree in Medical Sciences on the lines of the Tripos at Cambridge would undoubtedly encourage students to spend an extra three or six months, and would add to the popularity of the University of London. I have no doubt that the difficulties in arranging this on the lines suggested by Sir Ernest can be overcome.—I am, etc.,

Teddington, Nov. 26th.

E. E. D. GRAY, M.D.

SIR,—May I, as a looker-on, be permitted to make a suggestion in support of Sir E. Graham-Little's kindly proposal for removing a hardship which many London students seriously feel? The injustice is that students who have given proof of being worthy of definite university recognition are shut out from the hope of it, often from financial reasons. An adjustment of standards, so that the affected examinations would both serve their present purpose and also worthily qualify for a degree, would solve the problem, but what name should the degree have? If care be not taken the public, already puzzled over titles, will be more bewildered than ever.

Could not the work for the proposed degree suitably become an optional course for the present B.Sc.? The prestige of the M.B., B.S., following a Science degree, would be thus enhanced. Two universities, Oxford and Dublin, only allow medical graduation to those already B.A., and surely a preliminary B.Sc. would be even more appropriate.—I am, etc.,

Liverpool, Nov. 26th.

GLYNN WHITTLE.

The Toll of War

SIR,—In proposing the toast of "The Common Health" at the Council Dinner, Professor R. J. A. Berry reminded the gathering of the triumphs of preventive medicine. He pointed out (*Supplement*, November 10th, p. 258) that "a century or two ago" every second person present, if he had survived, would probably have been heavily pitted with small-pox. He went on to speak of the diminishing mortality from disease in war. In the American Civil War 1 per cent. of the men died of typhoid, in the American-Spanish War thirty years later the death rate from typhoid had contracted to 0.1 per cent. In the European war it had shrunk to 5 per 100,000 men—0.005 per cent. Professor Berry justly concluded that medical men had every right to be proud of these achievements. Perhaps in the next war not a single soldier will die of typhoid fever!

But, Sir, there is another side to the picture. I do not refer to the fact that, if only five in 100,000 died of typhoid, 99,995 would survive to swell the casualty lists of which Mr. Lloyd George has recently reminded us. There is little difference between being a gas or shell casualty and a case of typhoid.

In the chapter "Demographic Effects of Modern Warfare" of a work published by Victor Gollancz, Ltd. (1933) and based on official statistics of the countries concerned, there are some statements that must deeply interest the medical profession. From the demographic point of view victors and vanquished are on the same plane, and results depend on general conditions and the normal demographic character of the country. There is in all wars profound disturbance of the natural movement of the population and increased civilian mortality from epidemics. While in the world war typhoid was less fatal, typhus invaded Serbia, Russia, Poland, and Austro-Hungary, and influenza overran the world. Influenza was imported into Europe and India by warships and transports, thus reaching the military depots, land armies, and civil population. Great Britain had 200,000 deaths, Germany 400,000, Italy 430,000, and Spain and Portugal 200,000. In a few months in India, according to a Ministry of Health Report,² 8½ millions died.

¹ *What Would Be the Character of a New War?* Pp. 275 et seq. An inquiry organized by the Inter-Parliamentary Union, Geneva.

² Ministry of Health Report on the Pandemic of Influenza 1918-19, London, 1920 (p. 286). "The military censorship forbade the publication of news concerning the progress of the epidemic in the belligerent countries during the war. It was only after the epidemic had invaded the neutral countries, Spain in particular, that the Press was able to speak of it freely. That is probably why it has been given the name of Spanish influenza."

The statistics of typhus, typhoid, cholera, small-pox, dysentery, malaria, plague, and pulmonary tuberculosis show that war is the affair, not of the belligerents alone, but of human beings all the world over, the surplus of deaths in neutral countries in Europe alone in 1914-18 being close on 600,000. Napoleon cynically boasted that one night in Paris would repair the losses of a battle, but nowadays the birth rate is steadily and rapidly falling, while war also so disturbs the balance of the sexes that, just after the war, in France there was a 20 per cent. excess of women between 25 and 30—25 per cent. in Germany.

The volume published by the Inter-Parliamentary Union concludes that the total deaths in the world war caused directly (military) and indirectly (civilian) are 41,435,000—a still incomplete balance sheet, for it does not include the millions of deaths from famine in Russia following the war. To that total the European contribution is 25,000,000, or more than the combined populations of Sweden, Norway, Denmark, Holland, and Switzerland.

Well, as our profession has a special responsibility in the lives of people and their deaths from bullets or from bacteria, there is surely no matter here for congratulation or complacency. I am well aware, Sir, that, as J. B. Priestley says, "it is an old worn topic: the choicer spirits begin to yawn at the sight of it; those of us who are left of that generation are, it seems, rapidly becoming mumbling old bores"; but, I sometimes wonder, is there any more important subject for us to dwell on and come to some conclusion about, or must we stand aside and leave it to others—to Parliament, to the Press, to the "City," to the "Services," to the Church?

"And, Robert Browning, you writer of plays, here's a subject made to your hand," might surely be applied to the medical profession all the world over.—I am, etc.,

Cannes, Nov. 11th.

A. A. WARDEN.

Whither General Practice?

SIR,—There has recently been in the columns of the *Journal* an interesting but rather depressing correspondence on the subject "Whither General Practice?" Unless more constructive efforts than I have observed during the last quarter of a century are made by that large section of the medical profession known as general practitioners, the answer to the question may also be given in three words: "It will wither."

At the present time efforts seem to be concentrated on giving the general practitioner opportunities of following up and attending his patients in hospital. In spite of the considerable difficulties to be overcome before arrangements enabling the general practitioner to do this can be made, this might be the starting-point of considerable medical progress. However, it has always seemed to me regrettable that the British Medical Association, while ready to honour the man and itself by electing him president in its centenary year, has paid such scant attention to the scheme which Lord Dawson first outlined in the Cavendish Lecture which he delivered to the West London Medico-Chirurgical Society soon after the war. In this scheme the primary centre, the centre of first interest to the general practitioner, formed a most important part.

Not having at his disposal all the resources—electro-therapeutic, radiological, pathological—such a centre would provide, the general practitioner is apt to persuade himself he can do very well without them—an impossible assumption at the present time—and is disappointed at finding his patients leaving him to attend the well-equipped hospitals. Something might be done to over-

come these deficiencies of equipment by amalgamations of practitioners in urban districts such as are now so frequent in rural areas, but external help, voluntary or State, would seem to be necessary before a satisfactory system of primary centres could be founded. Such centres would, by ensuring the more satisfactory treatment of disease in its early stage, save the expenditure of much money on buildings necessary for the treatment of disease in its later stages.

Can it be that the interest in the early manifestations of disease aroused by the late Sir James Mackenzie has already died down?—I am, etc.,

London, W.8, Nov. 19th.

HAROLD H. SANGUINETTI.

Ronald Ross and the Panama Canal

SIR,—In the *British Medical Journal* of November 17th (p. 917), Lord Leverhulme is reported as having stated with reference to the Liverpool School of Tropical Medicine: "In the past the School rendered it possible for 40,000 persons to live and work in the region of the Panama Canal, where once 90,000 had perished." Lord Leverhulme has been misinformed. The French abandoned the attempt at constructing the Panama Canal after suffering terrific mortality from both malaria and yellow fever. Subsequently the U.S.A. Government, through Surgeon-General Walter Wyman, head of the American Public Health Department, invited Sir Ronald—then Major—Ross to join the Isthmian Canal Commission. The recommendations proposed by Sir Ronald Ross having been carried out, white men were enabled to live in the region and complete the construction of the canal. Hence it was not due to any medical school but through the genius of one man that the Panama Canal reached completion.

America freely acknowledged her debt of gratitude to Sir Ronald Ross at the time. Most people in Great Britain to this day are ignorant of his achievement. It is at least incumbent on those who (like the writer) had the great privilege of knowing, and studying under, the late Sir Ronald Ross, to salute and honour "the mighty dead." I desire to add that my memory of the Liverpool School of Tropical Medicine is very grateful and very dear.—I am, etc.,

Canterbury, Nov. 21st. J. CHAS. RYAN, D.T.M.Liverp.

Tests for Colour-blindness

SIR,—The Medical Research Council has issued a report on colour-blindness in which it is stated that the apertures of two lanterns bearing my name differ. They were made by different makers, and I can find no evidence that the defective lantern was ever examined by me. It was made by makers whom I gave up, as they sold lanterns without submitting them to me. Obviously I cannot be responsible for a lantern I have not examined and certified as accurate. I sometimes have to reject a whole batch: There are lanterns bearing my name which are grossly inaccurate.—I am, etc.,

Board of Trade, London,
S.W.1, Nov 23rd.

F. W. EDRIDGE-GREEN.

X-Ray Cinematography

SIR,—You have been kind enough to mention my recent work on x-ray cinematography in the *Journal* several times this year. I should like to record the fact that I am now able to make a cinematograph record of the electrocardiograph tracing and of the heart shadow simultaneously on the same film.—I am, etc.,

London, W.1, Nov. 24th.

RUSSELL J. REYNOLDS.

Obituary

J. STRICKLAND-GOODALL, M.B.,

F.R.C.S.Ed., M.R.C.P.

Physician, National Hospital for Diseases of the Heart

The death of Dr. Joseph Strickland Goodall at the comparatively early age of 60 has come as a great shock to his many friends both inside and outside the medical profession.

Dr. Goodall came from a long line of medical men extending back for six generations, one of whom was President of the Royal College of Physicians. His father was senior surgeon in the Queensland Government Service. He was born in 1874 in Queensland, and spent part of his boyhood in Thursday Island. He was educated at Harrow School and at the Middlesex Hospital, whence he graduated M.B. in 1900. He entered Middlesex Hospital as senior scholar in 1895, and became demonstrator of biology and senior demonstrator of physiology in 1898. He was appointed lecturer on biology to the City of London School and professor of biology and physiology at the City of London College in 1899, lecturer on biology at the Middlesex Hospital in 1900, and lecturer on physiology and pathological chemistry in 1903.

For many years he ran, in conjunction with Professor Earle of Shanghai, an extremely successful and popular course in physiology for the Primary F.R.C.S., which attracted students from all parts of the Empire, and there must be many well-known surgeons at the present time who owe to Dr. Goodall their success in this early and important branch of surgery. In July, 1908, he was appointed subdean of the Medical School of the Middlesex Hospital and member of the School Council. He obtained his F.R.C.S.Ed. in 1910, and the same year was elected F.R.S.Ed. In 1914 he was elected to the staff of the National Hospital for Diseases of the Heart as assistant physician, and became full physician in December, 1923. He obtained his M.R.C.P. in 1915. For many years he was examiner in physiology and biology at the Society of Apothecaries.

During the war Dr. Goodall was consulting cardiologist to the War Office and to the Australian hospitals, retiring after the armistice with the rank of major. During these years he examined and reported on the cardiovascular system of ten thousand recruits. In 1925 he founded a cardiological clinic in connexion with the South Metropolitan Gas Company, and this he still actively supervised up to his death. It was the first clinic of industrial cardiology to be established in this country. He was the first physician in London to restrict his practice to pure cardiology. An extremely hard worker with an enormous consulting practice, he yet always seemed to find time to give helpful advice to his old students, and, indeed, unflinching kindness to all was an integral part of his character.

Dr. Goodall possessed a brilliant brain, full of original ideas, which he was not afraid to employ in the treatment of his patients. The fact that many of these have taken their place as the accepted treatment among large numbers of the profession goes to prove the exactitude of his reasoning. He was to some extent unorthodox in his views, and had no use for the accepted shibboleths unless he could prove their value from personal experience. He was an extremely good teacher, both of physiology and of cardiology, and had to the full the facility of explaining difficult problems in simple language. He kept up his interest in physiology throughout his life, and was Vice-president of that Section of the British Medical Association in 1914. His physiological training enabled him early

to realize the value of the electrocardiograph in the accurate diagnosis of heart disorders. He worked with the late Professor Augustus Waller on the capillary electrometer in the investigation of heart currents, and had installed in the Middlesex Hospital a string-galvanometer as early as 1910. He was thus one of the earliest physicians to use the electrocardiograph in the routine examination of cardiac patients, and many of the electrocardiographic phenomena were first noted by him. In later years his interest from the electrocardiographic standpoint was chiefly towards the elucidation of diseases of the myocardium, and he has contributed many papers and lectures on toxic myocarditis.

He was early interested in the heart in Graves's disease, and his researches in this branch of cardiology have formed the basis of most of the recent work on the thyrotoxic heart. He published many papers, both in this country and in the United States, on various cardiological subjects, and his reputation as a cardiologist was world-wide. For several years Dr. Strickland Goodall was responsible for the cardiovascular section of Savill's *Textbook of Medicine*.

He was a man of very strong personality, beloved by his many patients, rich and poor alike, to whom he never failed to give not only the utmost of his skill but also his unflinching sympathy and understanding. Those of us who knew him intimately felt there was no problem or trouble taken to him which would not receive his most careful and balanced counsel. His death leaves an irreplaceable gap, and many of us will feel lonely indeed when we pass by his familiar door. He was a keen yachtsman, a Liveryman of the Society of Apothecaries, and a Governor of the City of London College. He leaves a widow and one son, to whom the sympathy of the profession is extended.

T. J. H.

Mr. LAMBERT ROGERS writes from the Surgical Unit, Welsh National School of Medicine:

To his many friends the death of Dr. Strickland Goodall will mean a sense of profound loss, for his was an outstanding personality. It is difficult for one who was a student of his, a friend of many years' standing, and on several occasions a patient under his care, to pay adequate tribute to his great ability as a teacher, his kindness, consideration, and helpfulness as a friend, and the supreme confidence and encouragement which he inspired as a doctor. The originality of his thoughts, the clarity of the language in which they were clothed, the calm dignity of his bearing, and the singular directness and simplicity of his manner made a deep impression. If intuition is an instinctive summing-up of memories and other evidences collected by the special senses and correlated by consciousness, one felt that he had it in high concentration; and with him also the study, the teaching, and the practice of medicine were an absorbing passion. One instinctively felt that Dr. Goodall had the Nelsonic attributes of self-reliance, power of initiative, fearlessness of responsibility, and extreme fertility of resource, and his mere presence left his patient with more hopefulness and vitality. When as a young man Sir Richard Douglas Powell asked him what he intended to do and he replied that he intended to concentrate upon and practise cardiology exclusively, Sir Richard said: "You will never make a living from cardiology only." His reply was: "I intend to try, Sir." There was something of John Hunter in his make-up as well—this willingness to try. His students loved him, and looked on him as a tower of strength, and while many of us who were his friends will always be grateful for having known him, at present we cannot but feel a deep sense of loss and sadness, for we may not look upon his like again.

By the death of Dr. ROBERT MONTGOMERY RENDALL, on November 8th, in a nursing home at Bournemouth, following an operation, Nottingham has lost a well-known and much respected citizen, who has not only left behind him a long record of honorable professional work but has also made his mark in the municipal affairs of the city. A Dorsetshire man, a son and grandson of doctors, Dr. Rendall received his training at Guy's Hospital, qualifying M.R.C.S., L.R.C.P. in 1906, and after a period as house-surgeon at Barnstaple and Kidderminster he went to Nottingham in 1910. During the war he served with the R.A.M.C. in East Africa, but on being demobilized in 1919 he resumed his practice in Nottingham. Dr. Rendall took a keen interest in the affairs of the city of his adoption, and became a member of the city council in October, 1922, until this present November, when he did not seek re-election. His principal work on the council was done as chairman of the Mental Hospital and Mental Deficiency Committees. He also was much interested in medical politics, being honorary secretary from 1914 to 1927 and chairman from 1928 to 1931 of the Local Medical and Panel Committee. He was also chairman of the Medical Benefit Subcommittee of the Insurance Committee in 1931-2. At the Nottingham meeting of the British Medical Association in 1926 he was honorary secretary of the Section of Medical Sociology. Mr. A. M. WENNER, F.R.C.S., writes: As one who has known Rendall since we were students together at Guy's, I can say that he was fearless in his determination to right a wrong, especially when the wrong concerned one of his patients. He was devoted to his practice, and was beloved by his patients. He spent as much time and interest on his panel patients as on his private ones. During his long illness he always showed great courage in facing his troubles, and was cheery and optimistic to the end. He leaves a widow, to whom our heart-felt sympathy goes out.

The following well-known foreign medical men have recently died: Dr. BERNHARD PANZER, an eminent laryngologist of Vienna; Dr. HANS BOIT, extraordinary professor of surgery and senior surgeon to the municipal hospital at Königsberg, aged 58; Professor Dr. VIKTOR MATAGA, the first Austrian minister for social welfare, aged 77; Dr. PAUL REYHER, extraordinary professor of children's diseases and director of the Kaiser and Kaiserin Friedrich Children's Hospital at Berlin, aged 58; Dr. CARL ARTHUR HEDBLÖM, professor of surgery at the University of Illinois, Chicago, of coronary thrombosis, aged 55; and Professor TENNI, director of the National Institute of Serotherapy at Naples, aged 70.

The Services

DEATHS IN THE SERVICES

Surgeon Rear-Admiral Alexander Gascoigne Wildey, C.B., R.N. (ret.), died at Churt, Surrey, on November 20th, aged 74. He was born in 1860, the son of William Wallace Wildey, M.D., R.N., was educated at Felsted School and Guy's Hospital, and took the M.R.C.S. and L.S.A. in 1882. Entering the Navy in 1884, he became fleet surgeon in 1900, deputy surgeon general in 1912, and surgeon rear-admiral in 1918, retiring in 1920. As staff surgeon he served in H.M.S. *Cruiser*, a training ship; as fleet surgeon in the battleships *Revenge* and *Illustrious*, and when the war began was at Haslar Hospital. He subsequently served as senior operating surgeon in the naval hospitals at Chatham and Plymouth. In January, 1916, he was appointed to the charge of Gibraltar Hospital; and in 1918, on promotion to surgeon rear-admiral, to the charge of Haslar Hospital, where he remained till his retirement in 1920. He was created C.B. in 1919, and also was an Officer of the Legion of Honour, a Commander of the Order of the Crown of Italy, and received the American Naval Cross. He held also the Gilbert Blane medal, and edited the surgical section of the official naval medical history of the war. In 1889 he married Ruth Amy, daughter of the late paymaster-in-chief, William Horniman, R.N., and had one son and one daughter. At the Annual Meeting of the British Medical Association held at Cambridge in 1920 Admiral Wildey was a vice-president of the Naval and Military Section.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons this week completed its discussion on the Address in reply to the King's Speech, and had a second reading debate on the Electricity Supply Bill. The business of the House of Lords was light.

An Educational Endowments (Scotland) Bill, extending by a further period of two years the powers of the commissioners appointed by the Educational Endowment (Scotland) Act, 1928, was presented in the House of Commons on November 21st by Sir Godfrey Collins.

On November 26th Mr. Oliver Stanley presented the Depressed Areas (Development and Improvement) Bill, to provide for the initiation, organization, prosecution, and assistance of measures designed to facilitate the economic development and social improvement of the depressed areas, and for the appointment of Commissioners for those purposes. The Bill was read a first time.

Infant and Maternal Mortality Figures

Mr. SHAKESPEARE informed Mr. Thorne, on November 26th, that during 1933 there were in Preston 88 deaths of infants under 1 year for each 1,000 births. In Oldham the figure was 72 per 1,000; in Accrington 47 per 1,000; in the metropolitan borough of Wandsworth 51 per 1,000; in West Ham 64 per 1,000; and in the metropolitan borough of Poplar 54 per 1,000. Mr. Shakespeare, replying to Mr. Thorne, circulated, on November 27th, a lengthy tabular statement giving the maternal mortality per 1,000 (live and still) births in a large number of towns and in the Welsh counties in 1933. The statement showed the rate to be as follows:

Dewsbury	6.15	Cardiganshire	9.60
Rochdale	2.71	Carmarthenshire	6.61
Huddersfield	6.81	Denbighshire	7.12
Blackburn	2.63	Flintshire	4.66
Poplar	1.70	Glamorganshire	6.45
Wandsworth	5.27	Merionethshire	4.80
Shoreditch	3.87	Monmouthshire	6.78
West Ham	1.75	Montgomeryshire	6.64
Anglesey	6.85	Pembrokeshire	4.99
Brecknockshire	2.30	Radnorshire	3.10
Carmarthenshire	5.14		

National Health Insurance

Replying to Mr. Llewellyn-Jones, on November 22nd, Sir HILTON YOUNG stated that the approximate number of persons who were notified by approved societies as ceasing to be entitled to medical benefit on December 31st, 1933, by reason of prolonged unemployment, and were not subsequently notified as having resumed employment, was 89,000 in England and 17,000 in Wales. The figures included a substantial number of persons (estimated at about 10 per cent.) who failed to prove that they had continued, up to the end of 1933, to be available for, and unable to obtain, employment. These would not have remained entitled to medical benefit if the Prolongation of Insurance Acts had continued in force. The ordinary medical services would be open to them thereafter. Corresponding figures to June 30th, 1934, were not available.

Sir HILTON YOUNG told Mr. Llewellyn-Jones, on November 22nd, that since 1924 a limited sum of money had been available from national health insurance funds for the improvement of telephone facilities in connexion with the provision of medical benefit in remote rural areas. During the last three years £837 had been expended for this purpose in response to applications from insurance committees in England and Wales.

Mr. SKELTON told Mr. Rhys Davies that the position of manual labour contractors under the National Health Insurance Acts was being watched to ascertain whether any alteration of the law was needed. Certain killers in Glasgow slaughterhouses, who entered insurance in 1929 as manual

labour contractors, were not now regarded as compulsorily insurable, but had been advised that they might continue as voluntary contributors.

Death from Post-vaccinal Encephalomyelitis.—Sir HILTON YOUNG told Mr. Groves, on November 22nd, that he was aware of the death of a nurse, aged 20, at the Queen's Hospital, Birmingham, on October 16th, from post-vaccinal encephalomyelitis, and that Professor Haswell Wilson, a pathologist at Birmingham University, had stated that the condition was due to a reaction of the vaccine, and that the girl would probably not have died if she had not been vaccinated. The lymph used in this case, he understood, was supplied by an establishment licensed under the Therapeutic Substances Act. He was not aware of any enactment under which compensation could be paid in such a case.

Vaccination.—Replying to Mr. Groves, on November 22nd, Sir JOHN GILMOUR stated that during the years from 1924 to 1933 the number of persons proceeded against in England and Wales for offences against the Vaccination Acts, 1867 to 1907, the number of such persons fined, and the number of orders directing vaccination made under Section 31 of the Act of 1867 were as follows:

Year	Persons Proceeded Against	Number Fined	Number of Orders to Vaccinate
1924	246	155	255
1925	221	143	192
1926	176	118	138
1927	148	114	136
1928	182	131	185
1929	129	100	82
1930	119	85	73
1931	73	52	65
1932	87	65	76
1933	118	100	43

Town and Country Planning.—In reply to Sir Francis Fremantle, on November 22nd, Sir HILTON YOUNG said that, at his request, the Advisory Committee on Town and Country Planning had considered draft model clauses, designed to assist local authorities in the preparation of planning schemes, and had made recommendations, which were receiving his consideration. The committee's activities would be recorded in the annual reports of the Ministry of Health. Sir Hilton further informed Sir Francis Fremantle that the report of Lord Marley's committee, on satellite towns, would be presented in time to be considered in relation to the Overcrowding Bill.

Farnborough Institution Hospital.—Mr. Thorne, on November 26th, asked the Minister of Health if he could give any information on the alleged dissatisfaction at the Farnborough Institution Hospital, but Mr. SHAKESPEARE replied that the Minister of Health had no information beyond what had appeared in the Press. The Minister had received no representations with regard to the matter, but was communicating with the Kent County Council, which administered the hospital.

Gas Detection in Mines.—On November 27th Mr. ERNEST BROWS informed Mrs. Ward that last week discussions took place with the Mineworkers' Federation on the draft regulations dealing with the provision of means for detection of gas in mines by workmen underground. Although these regulations were based very largely on the recommendations of the Miners' Lamps Committee of 1922, they were not acceptable to the Mineworkers' Federation. He was considering the objections made by that body.

Increase in Number of Suicides.—On November 27th Mr. SHAKESPEARE informed Sir Arnold Wilson that the attention of the Minister of Health had been called to Table 25 of the Registrar-General's Statistical Review showing that cases of suicide had increased from 3,759 in 1921 to 5,743 in 1932, with an increase of nearly 60 per cent. in age groups 15 and under, and that cases of attempted suicide had increased since 1920 to 1924 from 41.8 per million to 62.1 per million in 1932. The subject had been dealt with from time to time in past reports of the Chief Medical Officer of the Ministry, and would not be lost sight of in future.

Universities and Colleges

UNIVERSITY OF OXFORD

Rolleston Memorial Prize, 1936

The Rolleston Memorial Prize, which is now of the value of about £100, is awarded every two years for original research in any subject in animal and vegetable morphology, physiology and pathology, and anthropology.

No candidate will be eligible (1) who has not either passed the examinations for the B.A. or B.M. degrees at Oxford, or for the B.A. or M.B. degrees at Cambridge, or been admitted as an advanced student, or as a student, for the degree of B.Litt. or B.Sc. at Oxford or as a research student for the degree of M.Litt. or M.Sc. or Ph.D. at Cambridge; (2) who has exceeded a period of six years from attaining one or other of these qualifications, or from his attaining the first of such qualifications, if he has attained more than one; (3) who has exceeded ten years from his matriculation. The next award will be made in Trinity Term, 1936. Candidates wishing to compete must forward their memoir, together with a statement of their present status, where the work was done, and the supervision, if any, which they had, to the Registrar of the University of Oxford before March 30th, 1936. The memoirs may be printed, typewritten, or in manuscript; should be inscribed "Rolleston Memorial Essay"; and should bear the name and address of the author. Memoirs already published are admitted to the competition. For the qualifications of candidates see the *University Calendar* for 1934 (p. 152). No account will be taken of any research which has not been prosecuted by the candidate subsequent to his matriculation.

Radcliffe Travelling Fellowship

An examination for a Radcliffe Travelling Fellowship of the annual value of £300, and tenable for two years, will be held at the University Museum commencing on February 19th, 1935, at 10 a.m.

Candidates must have passed all the examinations required by the University for the B.A. and B.M. degrees. They must not have exceeded four years from the time of passing the last examination required for the B.M. The successful candidate must before election declare that he intends to devote himself during the period of his tenure of the Fellowship to the study of medical science, and to travel abroad with a view to that study. The Fellowship will be vacated 1936 by a Fellow who spends more than twelve months in the whole within the United Kingdom. The examination will occupy four days. Papers will be set in physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Any candidate desiring to offer in addition a special branch of either medicine or surgery must send notice of this to the Regius Professor of Medicine by February 14th. Intending candidates should send their names, addresses, qualifications, etc., to the Regius Professor of Medicine, University Museum, by February 14th.

At a congregation held on November 24th the following medical degrees were conferred:

D.M.—H. W. Allen.

B.M.—A. G. Palin, R. Kempthorne.

UNIVERSITY OF CAMBRIDGE

Alan Nigel Drury, M.A., M.D., of Gonville and Caius College, Huddersfield Lecturer in Special Pathology, has been elected into a Supernumerary Fellowship at Trinity College.

The Raymond Horton-Smith Prize has been awarded to Herman Taylor, M.D., M.Chir., St. John's College, for his M.D. thesis, "Osteitis Fibrosa, and Experimental Study." Honourably mentioned: W. G. Oakley, M.D., B.Chir., Gonville and Caius—subject, "The Erythrocyte Sedimentation Rate in Nephritis"; and H. B. Stallard, M.D., B.Chir., Gonville and Caius—subject, "Radium as a Therapeutic and a Pathogenic Agent in Certain Ophthalmic Disorders."

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—L. Banzsky, J. E. Darlow, C. McK. Johnston, L. A. Lewis, B. S. Menden, J. P. L. Walley, G. Williams, W. C. Winterbottom.

MEDICINE.—J. E. Darlow, D. S. G. Genge, M. T. Hirst, H. M. R. Waddell, G. Williams, J. E. G. Wright.

FORENSIC MEDICINE.—J. A. Amor, E. St. M. Brett, J. E. Darlow, F. M. Kerry, W. E. Whaite, G. Williams, W. C. Winterbottom.

MIDWIFERY.—C. J. Dandekar, J. E. Darlow, F. A. Frank, H. G. Howitt.

The diploma of the Society has been granted to L. Banzsky, J. E. Darlow, F. A. Frank, H. G. Howitt, C. McK. Johnston, F. M. Kerry, and L. A. Lewis.

UNIVERSITY OF LONDON

A meeting of the Senate was held on November 21st, with the Vice-Chancellor in the chair.

The title of Reader in Industrial Physiology was conferred on G. P. Crowden, M.Sc., M.R.C.S., in respect of the post held by him at the London School of Hygiene and Tropical Medicine.

Medical News

H.R.H. the Duke of York will preside at the Industrial Welfare Society's dinner at the May Fair Hotel on December 11th. Other speakers will include Viscountess Snowden, Mr. B. Seebohm Rowntree, Dr. W. J. O'Donovan, M.P., and Mr. Robert R. Hyde. Further particulars may be obtained from the secretary of the society, 14, Hobart Place, S.W.1.

H.R.H. The Princess Royal will attend a meeting at the Mansion House, on Tuesday, December 11th, at 2.45 p.m., on behalf of the reconstruction appeal for the Hospital for Sick Children, Great Ormond Street. The Lord Mayor will preside, and the Archbishop of Canterbury will be the chief speaker.

The new and reconstructed buildings of the Infants Hospital, Vincent Square, Westminster, S.W., will be opened by the Princess Royal on Tuesday, December 11th, at 3.45 p.m.

The annual dinner of the Medico-Legal Society will be held at the Holborn Restaurant, London, on Friday, December 14th, at 7.15 p.m., with the president, Sir Bernard Spilsbury, in the chair.

The annual dinner of the Old Epsomian Club will be held on Thursday, December 13th, at the Hotel Great Central, Marylebone Road, N.W., at 7 for 7.30 p.m. The principal guest of the evening will be Lord Leverhulme, the new president of Epsom Club.

A symposium on "Technical Aspects of Emulsions" will be held at the Royal Society of Arts, John Street, Adelphi, W.C.2, on Friday, December 7th, from 10 a.m. to 6 p.m., under the auspices of the British Section of the International Society of Leather Trades Chemists. Professor F. G. Donnan, F.R.S., will preside.

The next series of lectures and demonstrations on tropical hygiene, intended for men and women outside the medical profession proceeding to the Tropics, will be given by Lieut.-Colonel G. E. F. Stammers and Sir Malcolm Watson from December 10th to 14th (from 3.30 to 5 p.m. each day). Particulars can be obtained from the organizing secretary, Ross Institute of Tropical Hygiene, Keppel Street, W.C.1.

A series of lectures on cancer will be given in the lecture theatre of the Cancer Hospital (Free), Fulham Road, S.W., on Thursdays at 4 p.m. from January 3rd to April 11th, 1935, inclusive. No charge is made for attendance at the course, which is open only to medical practitioners. The individual lectures will be announced week by week in the diary column of the *Supplement*.

Dr. F. R. Seymour will give a public lecture under the Chadwick Trust on "Men and Masses: Phases of Man's Relation to Disease" in the lecture theatre of the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on Monday, December 10th, at 5.30 p.m.

The Deutsche Gesellschaft für Wissenschaftliche Filme of Berlin is giving a private demonstration of German medical and surgical films in the Academy Cinema, 156, Oxford Street, London, W., on Sunday, December 16th, at 11 a.m. Members of the medical profession are invited to attend. Admission is free on presentation of a visiting card. The following films will be shown: fertilization and first segmentation of the rabbit ovum; version and extraction in transverse lie; normal and malignant cells *in vitro*; tumours of the brain, technique of operation after Olivecrona; action of the heart; and cholecystectomy in empyema of the gall-bladder.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on December 4th and 11th, at 2.30 p.m.; also lectures on Wednesdays at 8.30 p.m., on diet and dietetics. On December 8th, at 3 p.m., at the National Temperance Hospital, Dr. B. T. Parsons-Smith will demonstrate heart cases. There will be a special M.R.C.P. course in chest diseases at the Brompton Hospital on Wednesdays and Fridays, at 5 p.m., from December 12th to January 11th (excluding Christmas week). Courses for the New Year are being arranged as follows: cardiology, at the National Hospital for Diseases of the Heart, January 14th to 25th; urology, at St. Peter's, January 21st to February 2nd; diseases of the heart and lungs, at the Royal Chest Hospital, January 19th and 20th; manipulative surgery, January 29th to February 1st; a series of surgical tutorial classes on Tuesday and Thursday evenings, at the National Temperance Hospital; and a series of demonstrations at the Wellcome Museum of Medical Science, on Thursday afternoons. Full details of all these courses (which, with the exception of the cardiology course, are open only to members and associates of the Fellowship) will be available shortly.

Sir Henry Wellcome, founder of the Wellcome Research Institution, London, was received at the Elysée in Paris, on November 23rd, by President Lebrun, who decorated him with the cross of the Legion of Honour.

The Treasury, on the recommendation of the Import Duties Advisory Committee, has made an Order adding to the free list as from November 26th, 1934, catalogues not being trade catalogues; and advertising material, not being trade advertising material. Some time ago the Treasury, on the recommendation of the committee, removed from the free list and imposed additional duties on catalogues and advertising material other than such as are imported by post in a packet not exceeding 8 oz. in gross weight. In making its recommendation at that time the committee had in mind bulk importations of such catalogues and advertising material as are issued by way of trade or business; but the effect has been to subject to duty, when imported in bulk, certain literature, particularly learned publications, which it was not the committee's intention should be so charged. The purpose of the latest recommendation and Order is to exempt this literature from duty.

The American Association for the Study of Goiter again offers the Van Meter prize award of 300 dollars and two honorable mentions for essays provided they meet the standards of the award committee. The essays should be based on original research work on the subject of goitre, preferably its basic cause. The prize essay or its abridgement is to be presented at the annual meeting of the Association to be held in Salt Lake City, Utah, in June, 1935. Competing manuscripts should be in the hands of the corresponding secretary, W. Blair Mosser, M.D., Kane, Pa., not later than April 1st, 1935. The first prize of 300 dollars for the 1934 meeting was awarded to M. A. B. Brazier, Ph.D., B.Sc., London, England, for her essay "The Impedance Angle Test for Thyrotoxicosis." First honourable mention was awarded Professor Ugo Cerletti, Genoa, Italy, for his essay "Three Years of Experimental Research in the Etiology of Endemic Goitre." Second honourable mention was awarded Dr. Roy McCullagh, M.D., Cleveland Clinic, Cleveland, Ohio, for his essay "Studies in Blood Iodine, using a New Chemical Method."

New methods in the diagnosis and treatment of rheumatic diseases will be discussed at a medical meeting of the Charterhouse Rheumatism Clinic (15, Portland Place, W.) on Thursday, December 13th, at 5 p.m. Medical practitioners are invited to attend, but should inform the secretary, as the accommodation is limited.

An International Therapeutic Union has recently been founded in Paris, on the initiative of the Société Française de Thérapeutique, under the presidency of Professor Loeper of Paris. The new society will meet once a year, and will hold a congress every three years. The first of the kind will take place in 1936 at Berné, under the presidency of Professor Burgi.

The Société de Neurologie of Paris has awarded the Déjerine prize to Dr. Laruelle, head of the neurological centre in Brussels, for his work on the microscopical anatomy of the spinal cord in segmental longitudinal sections.

Mr. Frederick Priestman, a former mayor of the City of Bradford, left £137,336. His bequests included £10,000 to Bradford Royal Infirmary, less any sums paid in his lifetime, towards the fund for building a new infirmary.

After allowing for certain bequests amounting to some £7,200, the residue of the estate of Mr. J. A. Atkin of Highgate, who left £39,341, goes to King Edward's Hospital Fund.

The King has appointed Dr. G. L. Milburn to be an official member of the Executive Council of the Presidency of Saint Christopher and Nevis.

The academic council of the University of London has passed a resolution recognizing the Institute of Medical Psychology as an approved clinic in connexion with the post-graduate diploma in psychology.

According to official statistics there are at present fifty-one lepers in Norway, thirty-six of whom are in two hospitals at Bergen and two in a hospital at Oslo, while thirteen are mild cases isolated in their own homes.

Professor Sacquépée has been elected to the Académie de Médecine, in the place of the late Dr. Calmette.

An Italian Society of Anaesthesia and Analgesia is being founded in Rome on the initiative of Professors Alessandri, Tusini, Uffreduzzi, and Dogliotti.

A historical surgical museum has been founded in the Institute of Experimental Surgery at Buenos Aires under the presidency of Professor G. B. Arana.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the British Medical Journal alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the British Medical Journal must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the Journal, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the British Medical Journal is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:
EDITOR OF THE BRITISH MEDICAL JOURNAL, Adelcy Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), Articulate Westcent, London.
MEDICAL SECRETARY, Medisecura Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: Buellins, Dublin); telephone: 62550 (Dublin), and of the Scottish Office, 7, Drummond Gardens, Edinburgh (telegrams: Associate, Edinburgh; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Chronic Enlargement of the Lip

Dr. H. L. PEARSON writes: I should be glad if any of our readers could give me a hint regarding the treatment of the macrocheilia. The patient is a middle-aged woman, and the duration of the trouble under a year; it affects only the lower lip. She had a deep, septic fissure in the middle of the lower lip, and some carious teeth; all the teeth were taken out some months ago; and the mouth is clean and the fissure healed. The Wassermann reaction is negative. Potassium iodide, 30 grains, t.i.d., has been and is still being given. A consultant has suggested excising of a V-shaped piece of the lower lip. Can anyone offer an alternative?

Quinoldine

Dr. D. PATERSON LEIFER (Glasgow) writes: I shall be much obliged if any of your readers can inform me as to the method adopted by Bence-Jones in the extraction of "quinoidine" from the skin, and the chemical tests used for the detection of this substance.

Priapism After Circumcision

Dr. J. BARCROFT ANDERSON (Hampstead, N.W.3) writes: The condition "D. R." refers to in his query (November 24th, p. 975) is probably due to the subcutaneous fibrous ring which surrounds the base of the penis being too small. It should be as easy to dilate it as to dilate the prepuce in the manner recommended by the late Dr. Whittla of Belfast. I have noticed that in some South African natives this ring seems to be almost absent.

European Children in the Tropics

Dr. JAMES GARDNER writes from Gourock: I have been asked the following question, and as I cannot answer it I pass it on to the *Journal*. Why is it that English people cannot live in the coast towns of Java the whole year round, but have to go up to the hills part of the year, and have to send their children home to England for their health, whilst Dutch couples will go out to Java, live in the coast towns all the year round, and rear and educate their children there, and maintain their health without sending them home to Holland? The question arises from the general statement that the children of English parents, born in the hot countries of the East, have to be sent home to England before they are seven years old, otherwise they will die or become ill both bodily and mentally. Naturally, I am writing on the assumption that the statement about the Dutch children is true, and I am assured that it is, and I am also under the impression, from what I have read, that the Dutch do settle, live, and thrive in the hot climate of Java, and make it their home in a way the English have never done in India.

Income Tax

Resident Patient—Expenses

"J. B. D." has had a resident patient since August 7th; he is liable to pay 10 per cent. of the first year's fees to the bureau through which the arrangement was made. Is this deductible?

* Yes. It is a reasonable expense, analogous to fees payable to a house agent for a furnished letting. In addition, of course, "J. B. D." can deduct a reasonable proportion of the general household expenses, according to the quality of the dietary and accommodation afforded.

Purchase of Practice—Basis of Accounts

"O. P. G." has bought a practice, and the accounts for his first year have just been completed. The local inspector objects to the cash basis, and wants an account on "a credit basis." "O. P. G." states that "the return will then run on the amount earned for five, not four, quarters."

* The inspector is correct in his objection to the cash basis for the first year or two, unless the outstanding debts have been purchased and are being brought into the account. The point is that income is taxable when earned, not when received. Where an account is prepared on a basis of total bookings the debts outstanding should be valued as at the commencement and end of the period, and the increase or decrease in the anticipated loss brought into the account. The simplest method is to start from the cash takings and add (or deduct) the increase (or decrease) in the net value of the outstanding debts. It is admittedly particularly difficult to value medical debts, but this is usually appreciated by inspectors. We do not follow the contention that five quarters' income will be brought in if, as is understood, the account "for a year only."

Foreign Dividends: Blocked Account

"J. P." refers to a previous reply—in the *Journal* of November 25th, 1933—and forwards his local bankers' credit note showing that his "pesos" account has been credited with a dividend less United Kingdom income tax.

* It would seem that the paying agents here of the Chilean company have been put in possession of credits, and to that extent remittance to this country has been made and tax properly, therefore, deducted, but that so

long as the account remains "blocked" "J. P." cannot draw on it. Such arrangements, however, may differ in point of detail—possibly the bank manager can give further particulars of the precise nature of the "blocking" scheme. It may be added that presumably the same restriction applies to the amount deducted as tax—that is, the Revenue Department is as unable to get the tax into its coffers as "J. P." is to get the net dividend into his pocket.

Dominion Income Tax on Colonial Pension

"X Z" has a Colonial pension on which Dominion income tax has been paid at 7½d. in the £—that is, the "appropriate rate." The English department claims that he cannot be repaid the whole of this Dominion tax.

* The department is apparently correct. The amount of the "relief" due here is determined by applying the "appropriate rate" to that part of the income on which United Kingdom tax is paid or payable. As he is entitled to "relief from earned income," there is a fraction—1/5 of the gross amount—at present on which he does not pay United Kingdom tax. As a result he is left in the position of having to bear a part of the Dominion tax.

LETTERS, NOTES, ETC.

Evipan Paralysis?

Dr. F. B. MALLINSON (Anaesthetist to St. John's Hospital, London, S.E.) writes: I notice that whenever a new drug or method is introduced, and in due course weighed in the balance and found not wanting, a certain number of medical men who experience trouble during its use at once write and demonstrate that the trouble must be laid to the door of the particular agent. I read in your issue of November 24th (p. 940) an account of a case of severe peripheral neuritis following evipan anaesthesia for a widespread and grave condition of sepsis. This was at once put down to the evipan (backed, I admit, by the opinion of one of the greatest opponents of the barbiturate group of drugs), and the account labelled "A Case of Evipan Paralysis." Why? Surely a more obvious and rational explanation would be that of a toxic peripheral neuritis due to the intense toxæmia the patient must have suffered. Also it would be an explanation less prejudicial to one of the safest and most important additions to the anaesthetist's armamentarium. I have used evipan in a large number of cases of varying degrees of toxæmia without encountering a similar phenomenon, but at the same time a good many cases have been reported from time to time of severe peripheral neuritis, the result of grave toxæmia.

Dr. G. H. MORRISON (Medical Adviser, Bayer Products Ltd.) writes: In the account of the case of paralysis reported from Singapore which followed the administration of "evipan" sodium anaesthesia, as published in the *Journal* of November 24th (p. 940), there occurs a statement which is obviously made in error. The statement is: "The patient in our case was admittedly very ill and emaciated before operation, but it is in just such cases that the manufacturers [of "evipan" sodium] recommend full doses." If you will refer to the leaflet issued by the manufacturers (a copy of which I enclose) you will find the following: "... it is of course obvious that seriously ill, old, and cachectic patients, and those with circulatory and respiratory disturbances, must be treated with individualized care. . . ."

Maternal Morbidity: Prophylaxis

Dr. WM. HARVEY BENNETT (Bolton) writes: From the evidence put forward at the meeting at the Friends House, Euston Road, on November 6th, it appears that no remedy has yet been found for the deplorable state of affairs pointed out by the late Dr. Ballantyne of Edinburgh twenty years ago. In spite of much ante-natal work the mortality and morbidity of child-bearing women has not been reduced. During the past eight years it has been my practice to invite all women who engage me to attend them during confinement to visit my surgery for radiation by ultra-violet rays at least once a week. The results have been most gratifying, as there have been no complications in any of the cases—about thirty in all. The general condition of the mother has been obviously improved during both pregnancy and puerperium. Calcium and phosphorus metabolism appears to be stimulated—a very important fact for both mother and foetus. There has been no rise of tem-

perature in any case. Those who were previously unable to feed the baby naturally have been enabled to do so. There has not been the slightest evidence of rickets in any of the babies or of osteomalacia in a mother. The dosage of vitamin D has not been considered, but has evidently been sufficient. My investigations have been very incomplete, as my cases are few, and x rays are not available to study the bone changes, as Dr. Rollier has studied them at Leysin in his clinics for heliotherapy. The cost of this treatment, excepting for the time spent in administering the light, is negligible, and the cases are under the closest observation from an early date in pregnancy.

Psychology and Religion

Dr. RICHARD KAY (Hartland, N. Devon) writes: In his exceedingly interesting address on psychology and religion, reported in the *Journal* of November 24th (p. 958), Dr. David Forsyth says "the reason for the almost universal belief in immortality needed accounting for." May I suggest that it is due to the rationalization by primitive man of the instinctive avoidance of danger, common to most slow-breeding animals, into the fear of pain and death. To fear death is to wish to live for ever, which is contrary to experience. But the idea has been born, and the instinct, still active, gives us a strong bias in favour of any argument or experience which suggests that death is not the end of the individual.

Prevention of "Steaming" Glass

Dr. F. A. E. SILCOCK (Leicester) writes: With reference to the letter on prevention of "steaming" glass, by Dr. J. Roland Murdoch, in your issue of November 24th (p. 976), I desire to state that for very many years now I have used a method that is at once simple, inexpensive, and readily obtainable anywhere for my eyeglasses, surgical mirrors, and so forth. Rub some moist soap over the glass surface and polish it off with a piece of rag again. Ordinary hard-household or toilet soap, when it is "tacky"—for example, after one has recently washed one's hands with it—will do. The effect lasts for several hours. I think the soap acts by lowering the surface tension. Other substances will do the same, but soap has obvious advantages.

Dr. J. PERCIVAL BROWN (Bacup) writes: A very old tip used by me for all mirrors, glasses, etc., is to rub on a bit of ordinary hard, dry soap and then polish off. Any mirror is thus also easily prepared for a patient to get close to it to remove blackheads in acne cases. It is useful in a bathroom to prevent steaming of a mirror, etc.

Inquiry into Contraception

The Acting Secretary of the National Birth Control Association, of which Lord Horder is president, writes: This association has appointed a medical subcommittee consisting of practitioners actively engaged in the teaching of contraception. The object of this committee is to collect, co-ordinate, and from time to time draw up for publication authoritative information on all aspects of contraception for the use of the medical profession. The committee is in consultation with research workers, manufacturers, birth control clinics (both voluntary and under the public health authorities), and doctors engaged in teaching contraceptive methods throughout the country. Although much valuable experience exists, the results of which are at the disposal of the N.B.C.A., the whole subject is still at the research and experimental stage, and it is necessary to be constantly reviewing and reassessing the methods in current use. This committee would therefore be glad to hear from any doctor, clinic, or manufacturer interested in birth control, in order that it may have the fullest sources of information possible. All communications should be addressed to the secretary, National Birth Control Association, 26, Eccleston Street, S.W.1.

Motor Backache and Neuralgia

Dr. TOM A. WILLIAMS (Bordighera) writes: Pain in the back from motoring is surely due to prolonged stretching of extensor ligaments and muscular attachments, aggravated by the sudden further drag when the body is jolted backwards, forwards, or sideways by bumpings of the car. There are two factors at work. The "close-ribbed" person sags less; hence ligamental and muscular attachments are scarcely stretched. Further, he fits better the usual seat. The long-backed person is farther stretched, and rarely is fitted, especially in a small car. My own remedy is to place a cushion in the small of the back about one foot square and three inches thick, firm enough to support the

shoulders and maintain the lumbo-dorsal extensor curve into which it fits, and soft enough to accommodate itself to the space made by the mis-shape of the back of the seat. In my case this has prevented ache and strain in many a thousand-mile trip over rough roads during the past twenty years. The same device used in bed cures many a back pain reputed to be "neurasthenic" or "imaginary" or "psychological"—so often lightly dismissed by the loosely thinking. Just so, motor backache can be cured only by rest and massage, but can be prevented, even when the seat is ill constructed, by a cushion properly made.

Varicella and Herpes

Dr. D. JUSTIN DAVIES (Leicester) writes: The close relation between the virus of varicella and herpes zoster is now an accepted fact. An address—I believe by Dr. James Collier—was published some years ago in the *British Medical Journal*, concerning the possible connexion between the viruses of acute infections of the central nervous system and those of varicella and herpes. The following cases are therefore, I think, of some interest. A girl, 10 years of age, suffered five years ago from acute anterior poliomyelitis. The result of this illness seems to be confined to the left lower limb, which is now much smaller and shorter than its fellow. She recently developed varicella. A profuse eruption appeared on the trunk and scalp with numerous spots on the face and limbs (with the exception of the affected limb, which was completely free of spots). Some time ago I attended a boy suffering from encephalitis lethargica, whose mother and father both subsequently developed herpes zoster.

Medical Register: Office Edition

The Registrar of the General Medical Council writes: Any orders for the Office Edition of the *Medical Register, 1935*, published by the Council at the special price of 10s. a copy, post free, must be received, with a remittance, at the office of the Council, 44, Hallam Street, Portland Place, W.1, not later than December 31st, 1934. The Office Edition differs from the ordinary edition of the *Register* to the extent that it does not contain reprints of the Medical and Dentists Acts and other preliminary matter, and is printed on more inexpensive paper and bound in boards. It includes, however, the same entries relating to registered medical practitioners as are included in the ordinary edition, and is therefore equally serviceable to public authorities and others who find it necessary to ascertain whether particular persons are registered medical practitioners or not. I take the opportunity of stating that the Council also prepares monthly lists of names added to, and removed from, the *Register*, and that particulars of the terms and conditions upon which copies of these lists may be made available can be obtained on application to the office of the Council.

Corrigenda

Dr. E. HARVEY (Dublin) wishes to make a correction in the report of the meeting of the Royal Academy of Medicine in Ireland on November 2nd, which was supplied to us for publication by the secretary (*Journal*, November 17th, p. 919). Dr. Harvey writes: "Monkeys and pigeons were the experimental animals used by Sir R. McCarrison—not rabbits, as I am made to say. It was in the monkeys, put on a diet of autoclaved rice and fresh butter, that conditions were produced which bear a close correspondence to those found in coeliac disease (or Gee's disease)."

Another apology is due to the shade of Horace. The quotation amended last week (p. 976) should read "... *animus lento-temperet risu*."

An exhibition of microscopes, conducted by Messrs W. Watson and Sons, Ltd., will be held in the Conference Hall of the Central Hall, Westminster, S.W., from December 10th to 15th inclusive, and will be open from 2.30 p.m. each day.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals will be found at pages 54, 55, 56, 57, 60, and 61 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 58 and 59.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 250.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, DECEMBER 8th, 1934

THE OPERATIVE TREATMENT OF FACIAL PALSY*

BY

ARTHUR BALDWIN DUEL, M.D., F.A.C.S.

SURGEON-DIRECTOR, MANHATTAN EYE, EAR, AND THROAT HOSPITAL, NEW YORK, U.S.A.

(With Special Plate)

LECTURE I

I am especially pleased to accept the invitation to address you since it offers me the opportunity, here in his own circle of conferees, to pay tribute to the genius of my dear friend and colleague Sir Charles Ballance in this work. But for him I should never have undertaken it. Whatever of interest I may be able to present to you results from the inspiration of having worked so long with a man of such unequalled skill, such indomitable energy, and such amazing industry.

Historical

Nearly six years ago Sir Charles and I began working together on animal experimentation at my country place in the Berkshire Hills, seventy miles from New York. A laboratory quite adequate for our purpose was built and maintained, at first through the generosity of a few personal friends, and later by subsidies from four foundations.† Our first effort was to verify certain conclusions which Sir Charles had arrived at in a series of experiments on rhesus monkeys in England. After the performance of experimental operations on monkeys, in which the peripheral end of the divided facial nerve was united to the central end of another divided nerve of the neck, no test had been made to determine whether the divided ends of the facial nerve had reunited. If they had done so, the result of the experimental sutures would have been vitiated. Hence we repeated these experiments, and in each of them the central segment of the facial nerve was removed from the aqueduct. Some months later the brain was removed and the nerves in the posterior fossa stimulated with the faradic current. The facial nerve at the internal auditory meatus on the side of operation was stimulated, but no response in the muscles of the face occurred. If the facial nerve had been sutured to another nerve—for example, the glossopharyngeal—stimulation of the glossopharyngeal nerve in the posterior fossa resulted in contraction of the muscles of the face. We then sought some method by which the associated movements, accompanying cure of facial palsy by suture of the facial nerve to various motor nerves in the neck, might be eliminated.

Direct Line Repair

The idea occurred to us to attempt a direct repair of the facial nerve by introducing a piece of freshly excised graft from another nerve into the gap made by the removal of a piece of the facial nerve in the aqueduct.

* Two special lectures delivered at the Royal College of Surgeons of England on October 10th and 11th, 1934.

† The Carnegie Corporation; The Milbank Foundation; The Lillian Babbitt Hyde Foundation; The New York Foundation.

Accordingly, on August 27th, 1930—on a mandrill baboon—the facial nerve was divided in two places in the aqueduct 5 mm. apart, and reversed. On September 19th, in a hamadryad baboon, a segment of the facial nerve 6 mm. in length was removed and replaced by 6 mm. of fresh graft removed from an intercostal nerve. Both subjects recovered the use of their facial muscles. They were the first animals on which a direct line repair had been attempted. Subsequently we did a large series of experiments with grafts.

At the end of a year we had demonstrated that facial movements could be restored by introduction into the gap of a divided facial nerve, from which sections had been removed, of freshly excised autoplasmic grafts of any desired length, either from motor or sensory nerves, either reversed or unreversed. These restored nerves conveyed both voluntary and emotional impulses. The muscles moved synchronously on both sides of the face, and there were no grotesque movements such as occurred after recovery following suture of the facial nerve with other motor nerves in the neck.

No one had inspected the facial nerve at the seat of injury in the various nerve-anastomosis operations in human cases, and consequently there were no statistics to guide us as to the extent of the gap in the divided nerve. We had supposed that it might be 5 mm. but not more than 10 mm. Subsequent work showed us that this was a gross underestimate. We felt that a gap of about this amount could be repaired by a graft taken from the external respiratory nerve of Bell (long thoracic nerve), without placing too much traction on the ends of this nerve when it was reconstituted. However, when gaps of 40 mm., and in one case 200 mm., had been bridged it was obvious that another nerve had to be used in which restoration of continuity was not essential. For this reason a sensory nerve was eventually selected, after experiments with intercostal nerves had been made. The anterior femoral cutaneous nerve provided lengths more than sufficient for any of our cases, and was our final choice.

Clinical Cases

The first human case in which a fresh graft was used, taken from the exterior respiratory nerve of Bell, was in an infant 18 months of age.

There had been an acute infection by the *Streptococcus haemolyticus* of the middle ear and mastoid air cells, with a post-auricular subperiosteal abscess. The young operator had proceeded as if he were dealing with an adult mastoid. As a result we found the facial nerve absent from a level just below the horizontal semicircular canal to the posterior border of the parotid gland. The exploration was made twenty-four days after the injury. It was possible to identify the facial nerve by faradic stimulation of the stump protruding

from the parotid gland, otherwise a much more extensive dissection would have been necessary. (Faradic response in the distal segment of a divided facial nerve remains for from forty-eight to seventy-two hours. I have verified this in over fifty monkeys, and several times in man. Hence the importance of early investigation of cases of traumatic origin.) Twenty-seven millimetres of graft were employed in this case. The proximal end was laid up against the proximal end of the divided facial nerve; the distal end was sutured to the distal stump by one strand of "000000" silk. The patient eventually recovered the use of her face (see Figs. 1 and 2 on Special Plate).

The second case presents a striking contrast of conditions.

The patient, a female aged 34, suffered from a chronic purulent otitis, for which a radical operation had been done. Immediate facial palsy had ensued. She was first seen by me eleven months later, when, after removal of 37 mm. of injured facial nerve from the tympanum to a point several millimetres distal to the foramen of the Fallopian aqueduct, the facial nerve was reconstituted by a freshly excised graft from the nerve of Bell. The wound was infected. She eventually recovered, with a straight face in repose, and good, though not perfect, synchronous movements, both voluntary and emotional (see Figs. 3 and 4 on Special Plate).

We learned much from these cases. First, we proved that suppuration was not a bar to successful transplantation of grafts. In the last four years, in a series of sixty-nine operations on facial palsy, a large majority have been done in the presence of infected wounds. Necrosis of a graft on account of infection has occurred only once. In that case a second effort was successful. Secondly, we discovered that injuries involved a larger extent of the facial nerve than we had supposed. Of the sixty-nine operated cases in my series forty have required grafts in the Fallopian canal. These forty cases have had gaps on an average over 20 mm. in length. The shortest was 7 mm., the longest 40 mm. This does not include a series of five cases in which operations on tumours of the parotid gland resulted in gaps in the facial nerve more than 40 mm. in length. In one case 200 mm. in four strands, from the proximal stump at the stylo-mastoid foramen to the divided distal branches in the face, were required. In the course of a year I operated on thirteen cases of facial palsy: eight of them necessitated grafts varying from 8 mm. to 36 mm. in length. Successful transplantation of fresh grafts was effected in all but one, and that succeeded on a second trial. Varying degrees of recovery took place, and I had an opportunity of studying the results.

Mechanism of Repair Process

The one phenomenon that gave me constant cause for speculation was the fact that in every case there was a period of waiting, followed by a response to faradic stimulation, and then spontaneous movements of muscles. In the case of a slight injury to the sheath of the facial nerve, with infection and inflammatory compression, a successful result had been obtained by decompression and slitting of the sheath of the nerve in the aqueduct. Faradic response (followed by spontaneous movement in the muscle) occurred in a period measured by weeks. In the chronic cases, in which a graft had been necessary, the interval between the time of repair and the first evidence of faradic response in the muscles was very much longer—measured by months instead of weeks.

In either case, once a faradic response appeared the subsequent improvement in the muscles was about the same. Now we all know that when a nerve is injured (to a degree that destroys its power to convey faradic stimuli), from the point of injury down to the last end-plate the nerve cells are rendered ineffective. The restoration of function in the distal segment must follow degeneration and removal from the conveying tubes of

all the now useless neural fibres, followed by a growing-in, from the proximal segment, of new axons to take their place.

Now this degeneration and emptying process occurs rapidly after any serious injury of the facial nerve. The axons distal to the injury are rapidly disintegrated. The products of this disintegration are removed by the circulation, leaving the conveyors—the empty tubes—ready to receive the axons, which are pushed on through the proximal segment, from the central nuclei. This can all happen in the course of a few weeks, and we consequently see—in acute cases, where the conveyance of neurons has been facilitated by decompression of the nerve—recovery taking place in a relatively short period of time. Why, then, the long delay in the case of grafts? The distal segment has long been empty, Wallerian degeneration being complete. Speculating over this it seemed probable that the obstruction was offered in the graft, which as soon as it was transplanted became part of the distal segment. The fresh graft was full of non-degenerated axons; they must be degenerated and removed before it can be utilized as a conveyor. This is a slow process with the meagre circulatory apparatus with which the graft is provided in its transplanted bed. It is enough to ask it to live for a long period in its new environment without it having to deal with the complex problem of getting rid of thousands of degenerating axons.

But if this graft were like the rest of the distal segment—that is, if its tubes had been cleared by Wallerian degeneration—it could live in its new environment in exactly the same way, and yet, being clear of these obstructing, useless neural elements, might be ready immediately to act as a conveyor. Why not, then, cut the nerve, which one proposed to utilize eventually for graft material, and allow it to remain *in situ*, undisturbed as to circulation, until Wallerian degeneration had advanced sufficiently, so that when a portion of it was used as a graft the emptied tubules would no longer offer an obstruction to the advancing neurons from the proximal segment of the facial nerve?

The plan was tried on a series of rhesus monkeys. The anterior femoral cutaneous nerve was severed and allowed to remain in its bed for varying periods from eight to thirty-five days—so that Wallerian degeneration could readily take place. The facial nerve was severed at the same time—so that Wallerian degeneration might take place, *pari passu*, in it as well.

When portions of the nerves treated in this manner were used as grafts facial response was restored in one-quarter to one-half the time formerly required by fresh grafts. I obtained faradic response in from sixteen to twenty-six days through 10 mm. of prepared graft—that is, graft already degenerated after the grafting operation.

Having proved its efficacy on monkeys, I began two years ago to employ the method in man. I have now used it in thirty cases. Faradic response has come through much earlier in all cases. In a number of cases this was as early as thirty days after transplantation. It has not been unusual, when I have employed prepared grafts, to observe a state of progress in six or eight weeks, only reached in six or eight months in the earlier cases where fresh grafts had been used. The degeneration in the nerve to be used as a graft requires two to three weeks. The additional time in hospital is well expended, since it saves so many months in the final recovery.

Details of Operative Technique

May I digress at this point to say how important I consider practice on cadavers and monkeys to be for any surgeon who is to attempt this work, no matter how skilled he may be in the usual operations on the temporal bone. On any particular case it seems to me essential

for the best good of the patient that the operator should have in mind definitely what he proposes to do. This should be acquired by previous practice. Trial and success, or trial and failure, may definitely fix the operator's mind as to what he may or may not do. For example, I had worked up a technique on the cadaver, with a motor-driven burr, which I hoped would materially shorten the time of exposure of the nerve in the aqueduct. On my fourth effort, when I fancied I was becoming quite proficient, a catastrophe occurred which made me abandon the motor-driven burr for all time, in favour of a slower but surer method. No one can tell you how you are to do your own ivory carving. You must do it your own way, with your instruments, according to a plan you have learnt; you should not practise on your case in hand, but carry out your previously determined method. You may on your second, or fourth, or fifth case change your plan of operation for your third, fifth, or sixth. Practise the change of idea on the cadaver before attempting it on the living case. You may change your mind after trying it, as I have done on two or three occasions, for the good of the patient.

Instruments.—A word regarding the details of operation and after-care. As I have said before, each operator must practise with his own instruments, in his own way, the method of removal of the bony wall of the aqueduct. I personally have discarded the use of a motor-driven burr, or a chisel, or a gouge. While these may be faster, I feel that I am by this method sacrificing speed to accuracy. I prefer small rongeur forceps, hand gouges, and straight curettes with non-flexible shanks. All of these should be very sharp. I also devised a number of hand burrs and files, which I have now discarded. Practice on the cadaver with favourite models has helped me more than newly devised instruments.

Exposure.—I always uncover the nerve by removal of the outer wall of the aqueduct, working from the stylo-mastoid foramen upward. In every instance the outer wall of the canal up to the site of injury and for a few millimetres beyond should be removed. I find that the exposure of the nerve is greatly facilitated by removal of several millimetres of the floor and posterior bony wall of the external auditory meatus. This is particularly useful as one approaches the narrow and deep portion of the aqueduct lying between the horizontal semicircular canal and the oval window. This truly represents the Scylla and Charybdis of the operation. Fortunately, in many of the cases it is unnecessary to remove this part of the aqueduct. It is never necessary to do so in decompression for Bell's palsy. Injuries to the nerve above the level of the horizontal semicircular canal occur rarely, except in radical mastoid excavations. When it is necessary to uncover this portion of the nerve the only safe approach is from before backward, through the posterior bony canal wall and hypotympanum. Cracking through the horizontal semicircular canal above and dislocation of the stapes below are the two great dangers. The removal of the bony covering from this point up to the geniculate ganglion is very easy, as it has only the thickness of stiff tissue paper.

Neurectomy and Insertion of Graft.—The nerve having been uncovered from 5 mm. above the site of injury to the stylo-mastoid foramen, the sheath should be slit open with the sharpest of Graefe knives over all this area. The sheath must not be torn apart; it must be gently incised. When the tube is laid open the bundle of nerve fibres appears. Inspection in every instance will show the site of injury where scar tissue may be expected to form during healing, or where scar tissue is already present. The distal segment—that is, the nerve beyond

the injured or scarred zone—should be cut well beyond the lowest point of scarring, and the injured segment of nerve removed. The neuroma of the proximal segment should be cut off cleanly and squarely. This must be done gently to avoid crushing of the axons. Crushing instead of cutting with the keenest of blades either of the proximal or distal ends of the facial nerve or of the graft will immeasurably delay the time of recovery. The length of the gap does not matter. The distance can then be measured, the graft taken from the "prepared" anterior femoral cutaneous nerve, and laid in. The graft should be long enough so that it may be tucked in rather than stretched between the freshly excised ends of the facial nerve.

Haemorrhage.—This formerly gave me much concern, and I have spent hours in stopping it with hot saline solution before inveigling the graft into position. The use of adrenaline, peroxide, and other haemostatics is most inadvisable. What I have now learnt is that if the ooze of blood from the bone and soft tissues is temporarily stopped, so that the ends of the graft can be opposed to the sectioned facial stumps, they almost immediately become glued together sufficiently to prevent the entrance of blood. The subsequent ooze about the graft provides a fibrinous bed which fixes it in position. There is no doubt that a blood clot between the divided ends will delay the advance of the axons very considerably.

Embedding.—The slit sheath is gently laid up against the graft, and the incision covered with a strip of dentist's gold leaf. The wound is left wide open, and packed loosely with short wicks of sterile gauze, wrung out of sterile normal salt solution. The gold simply prevents the gauze from sticking to the graft and disturbing it in subsequent dressings. The dressing superficial to the gold leaf should be changed daily, until the whole graft is embedded in healthy granulations. The gold may or may not be removed in two or three weeks. It has often been left in, and has proved quite innocuous. At the end of a month, if the wound is quite healthy, it may be closed by a plastic operation. I have found it a great advantage to postpone the plastic operation for a month. The anaesthesia for this operation makes it possible at such a time to try a faradic current of sufficient strength to demonstrate a response, which will be comforting to both surgeon and patient. Beginning faradic response is the invariable harbinger of returning voluntary and emotional response in the muscles.

The Graft.—For the nerve graft any motor or sensory nerve will do. I have found the anterior femoral cutaneous nerve most satisfactory. It can always be found even through a deep layer of fat. A long transverse incision is made four or five inches below the fold of the groin, down to the fascia lata over the sartorius muscle. The internal saphenous vein comes into view: from a half-inch to one and a half inches external to this, two branches of the anterior femoral cutaneous nerve pierce the fascia lata over the sartorius and run down the thigh. Either branch will furnish any desired length of graft. I have used as much as 200 mm. from one branch. The selected branch is rendered easy of later identification by a suture of heavy black silk, the ends of which are laid in the subcutaneous tissues perpendicular to the skin wound. The nerve is cut and further identified for subsequent dissection by a narrow strip of dental gold wound around the cut end of the distal segment. It is essential that the nerve should not be disturbed in its bed, otherwise Wallerian degeneration may not be complete. I often reject the first 10 or 15 mm. below the cut end for this reason. At the second operation, when the degenerated

nerve is removed for graft material, it is well to take two or three times the measured distance of the gap. You may make a mistake with the first piece or you may decide to employ two or three strands. The nerve once cut is very difficult to find again. Having all you may want may save you much time in an operation which at best is very long.

The graft should be handled with the utmost gentleness by fine mouse-toothed forceps grasping only the sheath. Squeezing with blunt forceps or other instruments crushes the delicate empty tubes.

Homoplastic Grafts

Owing to an influx of cases there were at the Manhattan Eye, Ear, and Throat Hospital at the same time twelve cases together in my clinic. With the thought of economizing time I determined to see if homoplastic grafts might not be successfully employed. Dr. Eggston, the hospital pathologist, advised that grafts from persons having the same blood group only be attempted, on the principle that homoplastic skin grafts taken from individuals of the same blood group are more successful.

Accordingly, all patients were "grouped." One patient in whom the nerve had undergone preliminary incision and degeneration was found to be of the same group as two others. Grafts from the nerve of this individual were used for all three. The grafts were successful in all of the three cases. Figs. 5 and 6 show recovery following the use of a graft taken from an elderly woman and implanted into a man of the same blood grouping. I have since successfully employed homoplastic grafts in three other cases.

The necessity for the use of homoplastic grafts in repair of the facial nerve may be a rare occurrence. The demonstration of the fact that long grafts caused to degenerate *in situ* rapidly restored function to muscles may be of some importance in peripheral neural surgery, particularly if there comes another cataclysm like the recent Great War.

Conclusion

Tello, in Cajal's work, *Degeneration and Regeneration in the Nervous System*, has shown by physiological experiment the value of degenerated nerve grafts. I hope I have demonstrated their practical application to peripheral nerve surgery. I wish finally to urge upon you the great advantage of immediate investigation of the site of accidental injury in a case of facial palsy. In many instances the removal of a spicule of bone, the lifting of a fractured plate of bone, the decompression and cleansing of ten or more millimetres of nerve with a slitting of the sheath to relieve inflammatory pressure, will ensure an almost perfect recovery, where neglect would be followed by only partial recovery, with grotesque disfigurement for life (see Figs. 7 and 8 on Special Plate).

Moreover, when such an investigation reveals the fact that there is an actual section of the nerve or extensive damage, one can immediately do the preliminary incision of the femoral cutaneous nerve, and, two or three weeks later, transplant a graft from this to replace the gap. In such a case, for forty-eight to seventy-two hours after the initial injury one will have the advantage of being able to pick up the distal segment and verify it by faradic stimulation, and will know something of the problem to be faced in making the transplant later on. No matter what the length of graft necessary in such cases, one may rest assured of recovery if the graft is transplanted successfully, and to do this is a matter of technique (see Figs. 9 and 10 on Special Plate).

The question always arises: "When are we justified in operating on cases of long standing?" I would say: "Operate on any case in which there is galvanic response in the muscles sufficient to show that the muscles have not

undergone too much fibrous atrophy. The nerve can always be repaired. If there is sufficient muscle fibre left the case will be greatly improved. I am sure the quality of the result will always depend on the condition of the muscle: the time element enters largely into this.

LECTURE II—BELL'S PALSY

In my opinion Bell's palsy presents a condition analogous to the palsy of a facial nerve following injury during operation or following local necrosis and infection. In Bell's palsy toxic products are carried by the blood stream to the sheath of a nerve, confined in a narrow bony tube: a swelling ensues locally. Pressure on the axons produces a palsy of the facial muscles. It may produce pain, herpes oticus, or loss of taste, depending on the position of the inflammatory swelling. Now in the purulent cases from local infection, as well as in the injury cases, where the sheath is directly injured or compressed, the resulting palsy of the face is not due to the presence of pus *per se*, but rather to the inflammatory swelling and consequent mechanical pressure on the confined axons.

If the compression is severe enough, and lasts sufficiently long, the axons will be choked out of existence, and Wallerian degeneration will take place in the nerve distal to that point. If the compression is slight the axons may undergo only a paresis (just as one's arm or leg may "go to sleep" from a cramped position). In this case, although there may be a temporary loss of function, recovery will take place without any degeneration of the nerve cells or fibres. The electrical reaction of degeneration will not occur: faradic response will not be lost. Now if the opportunity were presented of carefully following every case of restoration of function in toxic palsy of the face, I am convinced that these varying degrees of compression would invariably be manifest in the electrical reactions. The idea that every case of Bell's palsy passes through the typical electrical reactions of Wallerian degeneration, either rapidly or slowly, is, I believe, erroneous. On the contrary, I feel certain there are many cases in which Wallerian degeneration does not occur. The axons in the nerve fibres become functionally sluggish or inactive, just as they might from a local anaesthetic, and recover without being degenerated, removed, and replaced. Just what percentage of all cases this type represents has never been determined. A more careful observation of all cases, at their inception, is most essential. It seems evident that early complete loss of faradic response is rare.

In a general way, without accurate statistics, one might infer from reports that of all cases perhaps 80 or 85 per cent. fully recover. I venture the conjecture that a majority of these milder cases never undergo Wallerian degeneration.

The remaining 15 or 20 per cent., I fancy, undergo a violent toxic infection with a severe inflammatory reaction (a compression within the Fallopian aqueduct), which renders the axons useless: in a day or two faradic response disappears. In such cases the regeneration is never complete. The facial movements may be entirely lost for all time, or may make some degree of recovery. The amount of recovery always bears a definite relation to the severity of the initial invasion. The relation of cause and effect in Bell's palsy is quite analogous to that in the accidental cases.

Incision of the Nerve Sheath

I attempted in the first lecture to point out that early intervention, no matter how violent the infection, is likely to lead to a nearly perfect recovery. Why not, then, apply this principle to the violent cases of Bell's palsy? Theoretically, leaving them alone is sure to be

followed by an incomplete recovery, with a grotesque appearance for life. Early operation might ensure almost complete return of function even in the cases of most violent invasion. It requires only some accurate means of knowing which cases will recover, and which will not recover, without surgical intervention. I believe that more careful study of the electrical reactions in all cases will eventually enable us to say, at a much earlier stage, that in such-and-such a case, left alone, the recovery will never be complete, whereas if operated on it might probably make a complete recovery. The earlier this determination can be made the better the chance of perfect movements of the face following intervention.

While I was discussing this with Sir Charles Ballance during the earlier years in which we were carrying out the animal experimentations, he repeatedly said: "The cases of Bell's palsy which make a partial recovery and then go on without any further improvement for weeks or months ought to have the nerve in the Fallopian aqueduct uncovered early and be decompressed by incision of the sheath, to relieve the pressure, at that stage. Such cases (unless they are appropriately treated) in all probability will go through life with a grotesque deformity." In principle I thoroughly agreed with this opinion. I realized, however, that there is great difficulty in convincing those who first come in contact with these cases that this is sound judgement. The trouble is that those who first see and treat cases of Bell's palsy are very loath to subject them to such a radical procedure as that of uncovering the nerve and incising the sheath, in the hope that the recovery will be sufficiently good to warrant it. The thought of subjecting a nerve to a trauma similar to that which is actually the cause of so many palsies of the face, at a stage when partial recovery has already taken place, is too appalling. Hoping that I might correct what I thought to be an erroneous belief, I tried a series of experiments on rhesus monkeys, in which I uncovered the nerve and incised the sheath.

Ten monkeys on which I incised the sheath of the nerve over an area of 10 to 15 mm. were examined daily afterwards over a long period. Nine of the ten suffered no facial paralysis, no Wallerian degeneration, no loss of faradic response. One of them gradually lost faradic response so that there was evidence of complete Wallerian degeneration at the end of nine days. Seventeen days later, however, faradic response began again, and in six weeks the face had apparently recovered. This case, undoubtedly, had suffered an injury to the axons, or had undergone a slight infection. However, he recovered quite as rapidly as any complete case of Bell's palsy. The other nine seem to prove that the actual trauma caused by incising the sheath, when carefully done, does not cause facial palsy.

I then induced facial palsy on a series of monkeys by exposing and freezing the nerve with ethyl chloride. One case was left without incising the sheath. On all the other cases the nerve sheath was incised over the frozen area, and a few millimetres distal and proximal to that area. The cases on which the nerve sheath was incised recovered facial movements in one-half the time required for recovery in the other cases.

The same experiment was made on a series of monkeys in whom facial palsy had been induced by the injection of 90 per cent. alcohol into the nerve sheath. The cases in which the nerve sheath was incised over the area of toxic involvement recovered twice as rapidly as those in which the sheath was not incised.

Clinical Results

Fortified by this experience I was sufficiently encouraged to incise the sheath of the nerves of several cases of Bell's palsy in which the recovery was very incomplete, and had remained unchanged for many years. In every instance, despite this long period of inactivity, the relief of the pressure by incising the sheath of the nerve has

resulted in a very marked improvement. May I give some examples from recent experience?

Case 1.—Miss M., a graduate nurse, appeared at my surgery. She had retired the previous night feeling quite well. She awakened with a complete right facial palsy. Under the pretext of electrical treatments she was seen daily. She never lost her faradic response in the facial muscles, although there were no spontaneous movements for more than a fortnight. At the end of a month she was apparently entirely well. Here is a case with no electrical reaction of Wallerian degeneration of the nerve, despite the fact that there was complete loss of facial movements for a time. This is a perfect example of the type where recovery is complete. I fancy that a very large percentage of Bell's palsy cases are of this type.

Case 2.—Miss D., two years ago, suffered an attack of Bell's palsy, recovering completely in four weeks in practically the same manner as the case I have just recorded. While I did not see her, I fancy she was like the first—a mild attack without Wallerian degeneration. She now appears with a complete palsy on the same side, which has lasted six weeks without any apparent improvement. The electrical reactions of Wallerian degeneration are present. On the ninth week from the onset, conditions remaining the same, at her insistence that something be done, I uncovered the nerve, by the removal of the external wall of the Fallopian canal from the stylo-mastoid foramen to the level of the horizontal semicircular canal, and gently incised the sheath over this area with the sharpest of Graefe knives. In one week faradic response had returned in all facial muscles. The second picture, two months later, shows an apparently complete recovery. Had she gone on for months before operation I believe she would have made only a partial recovery with marked disfigurement for life, as happens in most of these severe cases (see Figs. 11 and 12 on Special Plate).

Case 3.—Mrs. C. Bell's palsy two years ago. After several months some motion began in the face. She now has a return of function roughly estimated at 50 per cent., accompanied by a spasmodic tic in the lower part of the face. The aqueduct was opened, from the stylo-mastoid foramen to the level of the horizontal semicircular canal. The sheath was gently incised over this area. It was thickened with scar tissue. A small strand of nerve fibres traversed the area. They were not disturbed. A strand of degenerated anterior femoral cutaneous nerve was laid on this, extending from the proximal segment above to the distal segment peripheral to this area. In one month she declared that she felt much more power in her face, and the mouth was straighter in repose.

Case 4.—Miss S. Right Bell's palsy ten years ago, followed in a few months by partial recovery. Left Bell's palsy six months ago, followed by partial recovery. Recurrent attack on right side, causing complete palsy of the already partially paralysed side. At operation a double decompression by removal of the outer wall of the aqueduct from the stylo-mastoid foramen to the level of the horizontal semicircular canal was carried out. The nerve sheaths were incised over this area. Recovery of equal synchronous movements of both sides of the face, voluntary and emotional control, took place. The result is not perfect by any means, yet the girl has been rescued from social ostracism. This case was figured in my paper in the *Archives of Otolaryngology* (1932, xvi, 773).

I have also two cases of decompression of more than twenty years' standing, both of which, despite the long period, show a distinct improvement of facial movements.

Conclusion

May I say, in conclusion, that the principles of operative treatment of facial palsy, by direct repair of the injured nerve, have been well verified by clinical experience. I believe that, although operative treatment of the severe cases of Bell's palsy is not yet a fixed principle, with continued study of indications for early intervention it will eventually become so. If this should happen, many of the 15 or 20 per cent. of severe cases which are now doomed to go through life with a grotesque disfigurement will be cured by early operation.

THE STOMACH AND DUODENUM AFTER OPERATION*

43

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(With Special Plate)

X-ray examination of the stomach or duodenum which has been the seat of surgical intervention often presents a problem of great difficulty. In the case of the intact stomach the examination is made easy because of the possibility of filling it out to its normal contour. As a rule, however, with the stomach after operation this is not possible, and a wide variety of appearances may present themselves in the absence of any pathological condition. It is the difficulty of disentangling these normal variations from the pathological which constitutes the problem.

Because of the above consideration the radiographic technique must be modified in some respects. Screen examination is even more important than in the intact stomach, and the demonstration of the mucosal relief pattern is of greater value. The technique must be varied according to the precise operation performed, and it is most desirable to have this information before commencing the examination.

A Radiographic Classification

From a radiographic point of view these cases fall into broad classes—those in which sphincteric control of gastric evacuation has been abolished, and those in which it has been retained. Some operations fall between these two groups, as follows:

1. Sphincteric Control Retained.

- Simple excision or cauterization of a gastric ulcer.
- Wedge resection.
- Sleeve resection.
- Gastro-gastrostomy.
- Duodeno-jejunostomy.

2. Sphincteric Control Partly Retained.

Pyloroplasty.
Schoemaker's operation.
Billroth I.

Although in all these the muscular pyloric sphincter is either cut or removed, yet enough control of efflux is exhibited by the stomach to warrant the above term in classification.

3. Sphincteric Control Abolished.

Gastro-jejunostomy. (Only when abnormal contracture of the stoma has taken place does there occur any degree of control.)

Billroth II.
Polya and its modifications.
Finney's pyloroplasty.

In the first group, with retention of sphincteric control, the technique should be the same as for the intact stomach. Special attention should, however, be paid to the relief pattern, both under the screen and in serial radiograms. The erect, supine, and prone positions are all of value, and the most suitable for taking radiograms will be determined by the fluoroscopic appearances.

In the second group, where partial control has been established, again the normal technique may suffice, but means should be at hand to control the gastric efflux should this prove to be too rapid to allow satisfactory and complete filling of the stomach. Such means are indicated in the succeeding paragraphs.

* Read in opening a discussion in the Section of Radiology and Electrotherapeutics at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

It is in the third group, with abolition of sphincteric control, that most difficulty occurs. A wide communication exists between the lower part of the stomach and the small intestine, and the gastric contents are rapidly poured out into the jejunum. It is impossible to distend the stomach, or stump of the stomach in gastrectomy, unless the efferent jejunal loop be occluded by pressure. This can be done by hand temporarily under the screen, but this immobilizes the palpating hand, and cannot be kept up indefinitely. Some form of mechanical compressor or truss is much to be preferred.

Mechanical Compressors

A well-known type is the Chaoul compressor. In this a metal ring, 5 inches in diameter, supports a rubber bag, which can be inflated to a hemisphere. It is strapped to the patient's abdomen by an attached broad webbing band and buckle. Pressure on the required area is induced and maintained by the inward bulge of the bag. The objections to it are the difficulty of precise adjustment and the shadow of the metal ring.

Overend has devised an ingenious pressure cone and serial radiographic apparatus for attachment to the screen-holder of an upright stand. Designed primarily to study the relief mucosal pattern of stomach and duodenum, it will serve to control the stoma of a gastro-jejunostomy. Its disadvantage for the latter is the small aperture it possesses, limiting the fluoroscopic and radiographic field.

I have designed an adjustable truss which answers the latter purpose—control of the efferent loop—satisfactorily. It consists of two portions—a leather-covered spring band, similar to that of an ordinary hernia truss, and an adjustable compression pad. Three or more spring bands are necessary, to fit varying sizes of patients. The adjustable pad comprises a base slotted for the reception of one end of the appropriate spring band, an arm hinged on this base giving,

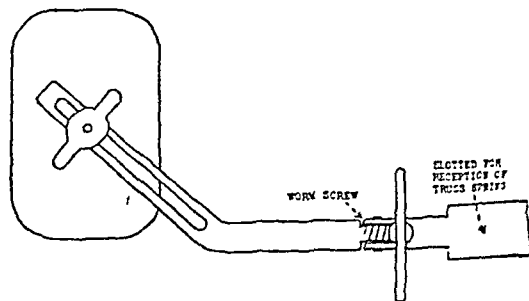


FIG 1.—Truss compressor.

by means of a small thumbscrew and worm-gear, an anterior and posterior angulation, and a leather-padded aluminium pad. The arm is slotted throughout its length, and the pad can be adjusted along its length by a butterfly-nut. The hinged arm has an upward bend, so that the compression pad is above the level of the spring band when fitted to the patient. This avoids obscuration of the field under examination by the shadow of the spring. Reference to the diagram will indicate the details of the truss. (Fig. 1.)

Examination of Group 3 Cases

The technique for each individual case will vary according to circumstances, but that which I use as a basis is as follows:

The examination is commenced in the erect position, and under fluoroscopic control the patient drinks one mouthful of the opaque cream. This gives a preliminary screen survey of the relief pattern of the stomach, the stomach, and the efficient loop. The truss is then fitted with the spring band just below the iliac crests and the pad over the efficient loop. The patient drinks a few more mouthfuls, and the pressure of the pad is increased by turning the worm-gear. The obstruction of the loop is obtained. Sufficient of the fluid is then drunk to distend the stomach.

Antero-posterior, serial, and left lateral radiograms are now taken and the compressor removed. Removal of the latter is a matter of a few seconds. The rate of emptying of the stomach is then noted fluoroscopically, attention being paid to any tender points over the stomach, duodenum, and stoma. The degree of jejunal overloading, if any, should be noted.

In a minute or two the stomach will, as a rule, have largely emptied itself, and enough of the cream will remain therein to permit a further observance of the mucosal relief pattern in the prone and supine positions. Radiograms may be taken in these positions if necessary.

The patient should again be screened, half or one hour later, to determine the amount of residue in the stomach.

Such is the average technique required in these Group 3 cases, but the study of each case should be individual, and no cast-iron routine should be adopted.

Before considering the normal and pathological appearances after operation it is desirable to outline the nature of each. Some of the operations mentioned above are but rarely performed, and still less frequently seen in an x-ray department. For reasons of space these infrequent operations, which have now little more than a historic interest, will not be considered further. Others, such as posterior gastro-jejunostomy and partial gastrectomy, are *très à la mode*, and such patients are frequently referred for x-ray investigation.

The group with abolished sphincteric control comprises the majority of operation cases referred for x-ray examination, including as it does gastro-jejunostomy and the popular varieties of gastrectomy. Incidentally, it is the most difficult group to examine radiographically.

Gastro-jejunostomy Cases

Posterior No-loop Method.—This is the operation of choice for simple pyloric obstruction and duodenal ulcer, and is probably performed more often than all the other gastric operations together. The essence of it is to form a wide anastomotic opening between the jejunum, as close to the duodeno-jejunal flexure as possible, and the posterior wall of the stomach. The anastomosis must of necessity be made through the posterior layer of the lesser sac. The pylorus is sometimes occluded; this occlusion is often designed to be temporary; by suitable choice of sutures the pylorus will become patent again in six months after the operation. The objects of the operation are to provide free drainage of the stomach, to allow alkaline regurgitation from the jejunum, and to prevent the passage of acid gastric contents over the pyloric or duodenal ulcer.



FIG. 2.—Posterior gastro-jejunostomy.

(Fig. 2.)

Normal Radiographic Appearances

In the erect position the prominent feature is the immediate passage of the opaque medium into the jejunum. This occurs as soon as the patient swallows a mouthful or so. No more should be given in the first instance, as the initial study of the relief pattern of the stomach, stoma, and jejunum is important. If the patient then takes the remainder of a 12 to 14 oz. barium meal some fleeting filling of the stomach may take place, but more commonly an irregular partial filling only is achieved, the barium pouring into the efferent loop of the jejunum in a steady stream. The greater curve above the stoma is markedly indented by the mucosal folds. The latter results from the muscular contractility of the stomach. During this stage the stoma itself is hidden in the antero-posterior view.

The pyloric antrum, distal to the stoma, rarely fills to any extent, even if the pylorus has not been occluded

in a case of duodenal ulcer. As a rule, a few irregular streaks of barium are all that are seen in this portion. Exceptionally, it is better filled, and some of the barium cream passes through the pylorus and duodenum, but even then the pyloric antrum is conical, and lacks its normal rounded contours. If the pylorus has been occluded the filling of the pyloric antrum is very poor indeed. The stoma may be seen in profile in a lateral view, but for technical reasons it is generally difficult to obtain a sharp skiagram of it in this position.

The efferent jejunal loop and the coils of jejunum are usually somewhat distended with barium, and a mild permanent dilatation of the upper jejunum is normal. It may be considerable. The feathery appearance resulting from the valvulae conniventes persists, but to a less extent than in the normal, as a result of this dilatation.

As a rule none of the meal passes into the afferent loop via the stoma with the patient in the erect position. Any barium present in it and in the duodenum will have found its way through the pylorus.

The rate of emptying is remarkably rapid, in my experience. Various authorities have given the time for complete emptying as from one to two hours, and even more. These figures may be true if by "emptying" is meant the complete evacuation of every trace of barium from the stomach, but not if the main mass of barium is referred to. The main bulk of the opaque meal may have passed out into the jejunum in from ten to fifteen minutes, and yet traces of barium remain entangled in the mucosal folds for an hour or two (especially in the folds of the pyloric antrum). Disregarding these entangled residues, the stomach is empty in from seven to thirty minutes if the stoma be of average size. With a large stoma these limits are shortened, and with a small one they are increased.

The rate of emptying of the stomach is modified by posture. In the supine position a pool in the fundus may remain for a time, being there below the level of the stoma. No lengthy stasis occurs, however, as the contractile tonus of the stomach gradually empties it. As the stomach empties its contents, the mucosal pattern of and around the stoma again makes its appearance, and may again be studied fluoroscopically. Tenderness on pressure over the stoma and elsewhere is an important diagnostic feature, and careful search for such tender points should always be made.

If the stomach before the operation was grossly dilated and atonic, and its muscle coats too atrophied to be restored to the normal, the radiographic picture after gastro-jejunostomy will be somewhat modified. Some dilatation will remain, the indentations of the greater curve will be less, and there will be a tendency to pool formation in the pyloric antrum below the stoma. The main mass of the barium cream will, however, pass rapidly into the jejunum.

Pressure Control of the Efferent Loop

It is obvious from the normal appearances without control that the demonstration of recurrent duodenal, pyloric, or lesser curve ulcer may be difficult on account of incomplete filling of the stomach. Efficient obstruction of this loop enables the contrast medium to be dammed back in the stomach and a study of these portions to be made.

Using an apparatus such as is described above, the lesser curve can be examined in its entirety. The prepyloric region is sometimes filled to its normal contours, but more frequently remains to some degree contracted and conical. If the pyloric canal be not obstructed or occluded the meal can be forced through it into the duodenal bulb. It is of importance here to know beforehand whether the pylorus was occluded at the operation

or whether it was already stenosed. The duodenal bulb does not usually fill out to normal contours, partly because it is difficult to force a sufficiently large amount of barium through the pylorus at a time, and partly because some scarring of the bulb may persist after the healing of a duodenal ulcer.

Complications after Posterior Gastro-jejunostomy

Ryle has grouped the complications after gastro-jejunostomy and partial gastrectomy as follows, in ascending order of gravity:

1. Dumping stoma.
2. Vicious cycle.
3. Perianastomotic gastritis and its ulcerative complications.
4. Achylic anaemia.

Groups 2 and 3 tend to be intermingled in actual practice, vicious cycle often being the result of an ulceration and cicatrization falling into Group 3. Again, Ryle's grouping does not include recurrent ulceration of the lesser curve or duodenum, or gastric carcinoma. With the exception of achylic anaemia, these complications can usually be demonstrated radiographically.

Jejunal Dumping (overloading of the jejunal loop).—If the stoma be very large the flooding of the jejunum is exaggerated, and the stomach may empty into it in from two to three minutes. The patient experiences a dragging fullness and discomfort immediately after food, and the jejunum is seen to be distended and overloaded temporarily. Dietetic indiscretions, either of quality or of quantity, increase the patient's discomfort. It is reasonable to explain the symptom-complex on these mechanical grounds. To what extent jejunal overloading contributes to the development of jejunal ulcer is a moot point, and one difficult to put to the test. Possibly if much gastric hyperacidity be present it may have some effect.

Recurrent Ulceration.—This may be gastric, pyloric, duodenal, gastro-jejunal, or jejunal in site.

1. **Recurrent lesser curve ulcer** is, as a rule, easily demonstrated if the stomach be reasonably well filled by controlling the efferent loop. A niche will be visible, and on the greater curve a localized exaggeration of the notching which is usually present.

2. **Recurrent duodenal ulcer** presents a more difficult problem—even more difficult than in the case of a duodenal ulcer which has recurred after medical treatment. In the latter only the deformity due to scarring has to be discounted. After jejunostomy, however, the further disturbing factor of incomplete filling of the cap must be taken into account. In some cases the actual ulcer crater may be seen, but more frequently only some general deformity of the duodenal bulb is present. If the jejunum has been satisfactorily occluded by a truss, and food is passing freely through the pylorus, the second disturbing factor can be excluded, and the problem becomes that already described under the section of duodenal ulcer.

3. **Gastro-jejunal Ulcer.**—As the stoma on the posterior wall is hidden in the antero-posterior view an ulcer will show only in a relief pattern radiogram. If it be large it may be visible in profile in a lateral view. Owing to the normal irregularity in the contours in a healthy stoma care must be used in diagnosing an ulcer crater from a projection above. Further confirmatory signs may help. The most important of these is pain on pressure, localized over the stoma. In the present state of our technique persistent tenderness on pressure is probably the most reliable sign of a stomal or jejunal ulcer. Another sign of value is a persistent residue in the ulcer crater. Such a residue must, however, be differentiated from flecks

entangled in the mucosal folds in this region. An ulcer situated in the region of the stoma may, by spasm plus scarring, cause stenosis of the stoma itself, with gastric stasis; stenosis of the opening of the proximal loop, with the development of duodenal ileus if the pylorus is patent; or stenosis of the distal loop, again causing duodenal ileus, if the proximal be patent.

4. **Jejunal Ulcer.**—If this be close to the stoma the above remarks will apply. If it occurs below the level of the greater curve there is more chance of the ulcer crater being outlined at some stage of the examination. Again care must be taken not to mistake a fleck of barium entangled in the mucosa for a barium-filled crater. The larger, the denser, and the more persistent a residue, the more likely it is to be an ulcer crater. Localized tenderness to pressure of one finger over the residue is an important confirmatory sign. The valvulae conniventes seen in relief pattern converge to, and are interrupted by, the crater, an appearance best seen if the latter is on the anterior or posterior wall, and so viewed *en face*. Some spastic contraction of the circular fibres in the ulcerated segment may occur and be visible.

Jejunitis.—Occasionally the valvulae conniventes of the efferent loop are thickened and their feathery character lost—an indication of a jejunitis.

Narrowing of the Stoma.—The usual surgical practice nowadays is to make a wide stoma to allow for gradual contraction. If this contraction is greater than usual the rate of gastric evacuation is slowed. To what extent this narrowing and consequent slowing is disadvantageous is a matter of doubt. The wide stoma, while it achieves its results so far as drainage is concerned, alters the normal physiological processes profoundly, and frequently causes jejunal overloading. Narrowing of the stoma sufficient to slow the rate of emptying of the stomach to between one and one and a half hours is probably not undesirable, but retention in the stomach up to two, three, or more hours should be regarded as a sequela likely to defeat the objects of the operation. In such cases the stenosis of the stoma cannot be demonstrated directly. Its presence can be deduced only by the slow rate of emptying.

Malposition of the Stoma.—If the stoma be made too high, stasis of gastric secretion may occur in the part pyloric, in the erect position, and be a factor in the recurrence or persistence of a peptic ulcer. The position of the stoma can be accurately demonstrated in a lateral view or a relief antero-posterior one.

Duodenal Ileus.—This, too, may result in a minor degree from a high stoma, especially if a visceroptosis of some degree be present. In such case, if the duodenum and duodeno-jejunal flexure be poised below the level of the stoma, the stomach may empty itself partly into the efferent jejunal loop, and so into the duodenum. This sequence of events is visible fluoroscopically. On the patient swallowing a mouthful of barium some is seen to pass into each loop of the jejunum, that going into the afferent collecting in a pool in the dependent part of the dilated duodenum. This is seen only in the erect position. The supine or prone position removes the static factor which is the essence of the abnormality. Duodeno-jejunostomy is the appropriate treatment.

Anterior Gastro-jejunostomy

In this a long loop of jejunum is brought up in front of the transverse colon and anastomosed to the anterior gastric wall. It is performed, *faute de mieux*, when a gastro-enterostomy is essential and it is technically impossible to adopt the posterior method. The stoma is made as near as possible to the pylorus and greater curve, and its axis should run from above downward and to the

right. Because of the serious risk of stasis in the long afferent loop, about eighteen inches in length as a rule, an additional jejunostomy is frequently made between the two loops. (Fig. 3.)

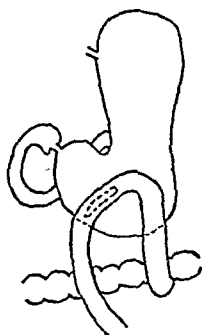


FIG. 3.—Anterior gastro-jejunostomy.

The x-ray appearances in anterior gastro-jejunostomy are substantially the same as those in the posterior operation, except that in the lateral view the stoma and jejunal loop are visible anterior to the stomach, and two jejunal limbs, afferent and efferent, are often outlined below the stomach. If the operation be successful, only the efferent loop should fill, but frequently food also passes into the afferent. When this occurs to excess a vicious circle is established, and the dilated, overloaded proximal loop is at once apparent radiographically. Jejunostomy completely relieves the condition.

The other untoward sequelae of anterior gastro-jejunostomy are similar to those in the posterior method.

Billroth II Partial Gastrectomy

In the past a popular operation for carcinoma of the stomach, or large chronic ulcers in the region of the lesser curve, this is to some extent being superseded by the Polya types of gastrectomy. It consists of segmental resection of the stomach, including the pyloric canal, closure of both ends, and posterior gastro-jejunostomy. (Fig. 4.)

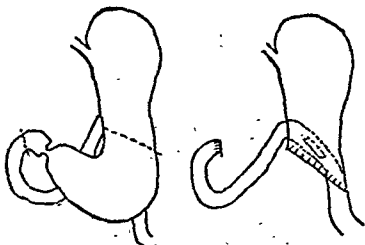


FIG. 4.—Billroth II.

Radiographically the stomach behaves similarly to the jejunostomized stomach, save that the pyloric antrum is absent. At first the gastric stump is small, but later it enlarges somewhat. This dilatation is not marked unless contracture of the stoma takes place. The right blind extremity of the stomach assumes a rounded, slightly puckered contour. The stump can best be seen if the efferent jejunal loop be obstructed by a truss. Only then can the stump be properly filled and its contours studied.

Normally there is no reflux from the stomach into the afferent loop and duodenum. But efficient obstruction, by a truss, of the efferent loop will cause such reflux, an appearance which must not be mistaken for a vicious circle. It disappears on removal of the truss.

After-results

Recurrent gastric, stomal, or jejunal ulcer is less common than in gastro-jejunostomy, as a considerable proportion of the acid-producing mucosa is removed by the operation. The more complete the gastrectomy the less chance of recurrent peptic ulcer. As, however, this operation does not allow of a very wide resection, recurrent ulceration does occasionally occur, and its radiographic demonstration and appearances are similar to those in gastro-jejunostomy.

In cases of carcinoma ventriculi local recurrence of the growth is not uncommonly met with. Depending on the precise site of the recurrence, there may result:

1. Obstruction of the whole stoma.—This causes dilatation of the fundus and oesophagus, and, clinically, vomiting and rapid starvation. The nature of the condition is clearly visible on fluoroscopy, and the details of the gastric filling defect in serial radiograms. Discounting the distortion, due to the suture line, a recurrence causing the above interference with the stoma usually presents a constant filling defect, which is fairly characteristic.

2. Obstruction of the efferent loop alone.—The stomach will present similar appearances, but in addition the duodenum will be in a state of ileus, and be outlined by the barium cream passing from the afferent limb into it.

3. Obstruction of the afferent loop alone.—Again a duodenal ileus results, but as no barium can pass into it, it will be demonstrable radiographically only if it contains gas.

The Polya Operation

Polya-Moynihan.—This modification of the original Polya operation is probably more frequently adopted in this country than any other form of partial gastrectomy. It consists of a segmental resection of the lesion-bearing portion of the stomach, including the pylorus, as in the Billroth II, with end-to-side anastomosis of the gastric stump to a loop of jejunum. In the original Polya the jejunum was brought up through a fenestra in the transverse mesocolon. This has the disadvantage, in cases of carcinoma, that a recurrence, apt to take place near the fenestra, may cause obstruction of the jejunum. This is avoided by the Moynihan modification, in which a loop of jejunum is carried up in front of the transverse colon. The diagram indicates the direction of the jejunal current (from left

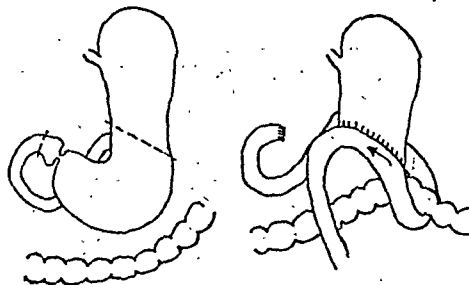


FIG. 5.—Polya-Moynihan.

to right). The loop is chosen as near to the duodeno-jejunal flexure as possible, allowing enough length in the afferent limb to prevent any possibility of tension on it when the patient assumes the erect position. (Fig. 5.)

Polya-Balfour Operation.—In Balfour's modification the long jejunal loop is used, and the jejunal current is in the

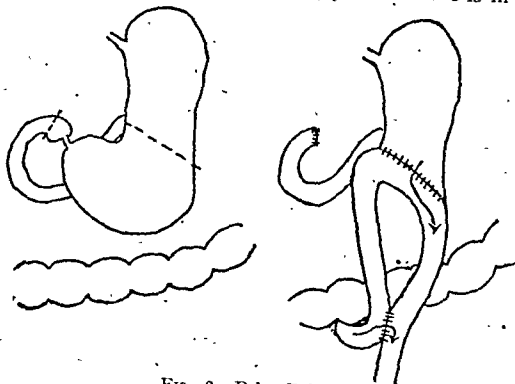


FIG. 6.—Polya-Balfour.

reverse direction to that in the Polya-Moynihan operation. In order to prevent stasis in the proximal limb a lateral anastomosis is made between the two limbs of the loop. (Fig. 6.)

Modified Polya, with entero-anastomosis en Y.—In this modification a segmental resection is made as before. A jejunal loop is brought up as in the Polya-Balfour, but is divided across. The cut end of the distal limb is closed

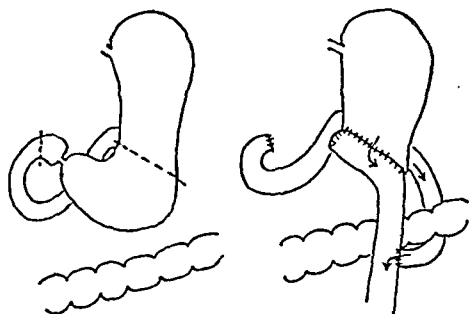


FIG. 7.—Modified Polya: anastomosis en Y.

and that limb anastomosed side-to-end with the gastric stump. The proximal jejunal limb is then anastomosed end-to-side with the distal limb an inch or two below the gastric anastomosis. (Fig. 7.)

Polya: Lake's Modification.—This modification, judging by the radiographic appearance, controls the efflux of the gastric contents better than any other of the Polya type. In addition to preventing "dumping" into the jejunum, it renders reflux into the afferent loop very improbable. In it a short jejunal loop is brought up through the

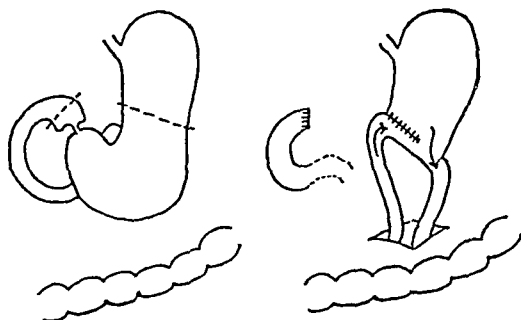


FIG. 8.—Polya: Lake's modification.

transverse mesocolon, the jejunal current flowing from right to left. Although the jejunal loop is sutured along the whole length of the cut gastric stump, only a small stoma, about $1\frac{1}{2}$ inches in length, is made at the lower end. (Fig. 8.)

X-Ray Appearances in Polya-Moynihan Type of Partial Gastrectomy

With the Polya-Moynihan the gastric stump is, as a rule, smaller than in the Billroth II operation, and the anastomosis is seen to be terminal. To study the full contours of the stump control of the efferent loop will be necessary, but this should be preceded by observation of the normal emptying (that is, without control). Under the screen careful note should be made of the efflux into the jejunum. The barium should be seen to pass chiefly into the efferent limb, at the right of the stump. Some will pass into the left, or afferent limb, but this should not be excessive.

With control of the efferent limb the fundus of the stomach should fill out to a normal contour, and there may be some oesophageal reflux. The afferent jejunal limb will fill more definitely, and active peristalsis will be seen as this loop endeavours to empty itself. The contours in the region of the anastomosis vary considerably, depending on the precise position of the sutures. A certain amount of puckering is to be expected.

The stomach, after this operation, empties very rapidly: by the time the patient has finished drinking a 12-oz. meal most of it will be in the jejunum, and mild jejunal overloading is a common effect of rapid ingestion. Occasionally it may be marked, causing a sensation of fullness and dragging in the abdomen. It is therefore important that a patient should masticate thoroughly, and eat and drink slowly, after having been subjected to this type of operation.

Abnormal After-results

Recurrent Peptic Ulcer.—This, an uncommon sequela, may be gastric, stomal, or jejunal in site. The more complete the gastrectomy the rarer is such a complication. Recurrent gastric ulcer may be on the lesser curve, when it will show as a niche, or on the posterior wall. In the latter case a relief picture is the best means of demonstrating it. Stomal ulcer is more easily demonstrable after the Polya type of operation, as the stoma is terminal relative to the stomach. As with other forms of stoma, residues entangled in puckered mucosa must be differentiated from a barium-filled ulcer crater. The latter are more constant in a series of pictures, and, if the ulcer be deep, denser from sedimentation therein. Tenderness on localized pressure over the suspected shadow is an important confirmatory sign. Jejunal ulcer is more readily visible than in cases of gastro-enterostomy, as the gastric shadow is not superimposed on the juxtastomal portion.

Overloading of the Proximal Limb.—This rarely occurs in the Polya-Moynihan operation if the afferent jejunal limb be short and the axis of the stoma properly planned, but with a vertically disposed stoma and an unduly long limb some stasis and ileus may be seen. It does, however, occur in:

Recurrent carcinoma, if the efferent limb be obstructed by the recurrence. Clinically, such cases present characteristic features—inability to eat or drink any but small amounts, persistent vomiting, epigastric pain, and wasting. Radiographically, a gastric filling defect near the efferent stoma may be present. Oesophageal reflux and dilatation may occur, and the meal is seen to distend the afferent limb. The rate of gastric evacuation is slow, unless by vomiting. Recurrent carcinoma of the gastric stump itself is apt to cause stenosis at or just above the stoma. Clinically the symptoms are as above described, and radiographically a considerable filling defect of the stump will be apparent. Scarring from recurrent simple ulceration may also cause obstruction of either stoma—efferent or afferent—with similar appearances to those in the carcinomatous variety, save there will not be present a gross filling defect of the stump itself.

X-Ray Appearances in Polya-Balfour, Polya-en-Y, and Polya-Lake Operations

The appearances will vary from those above described chiefly in the site of the efferent jejunal limb, which is situated at the left angle of the stump. In the Balfour modification some barium may pass into the afferent loop, but this can cause no trouble, because of the jejuno-jejunostomy below. In the en-Y type, again, no overloading of the afferent limb can occur. With these exceptions the abnormal after-effects are similar to those described in the case of the Polya-Moynihan.

In the Polya-Lake operation the gastric stump fills reasonably well in the erect position, and the stoma is clearly seen at the lower pole. The right border of the stump is formed by the remaining portion of the lesser curve and the sutured end of the stump above the stoma. This largely loses its initial angularity, and becomes more or less straightened out. At the junction of the two there is apt to remain a dimple, which must not be mistaken for a recurrent lesser curve ulcer.

Complete Gastrectomy

Complete gastrectomy (Moynihan) is a difficult operation technically, and attended by an appreciable immediate mortality. It is indicated in some cases of gross scirrhus carcinoma of the leather-bottle type. It consists of resection of the whole stomach, and end-in-side, or side-to-side, anastomosis of the lower end of the oesophagus with a high loop of jejunum. The latter is brought up through a fenestra in the transverse mesocolon. The two limbs of the jejunum may be anastomosed lower down to short-circuit the bile and pancreatic secretions.

X-Ray Appearances after Complete Gastrectomy

If examined a few weeks after operation the meal will be seen to pass rapidly down through the stoma into the coils of jejunum. Even at this stage there may be evident some dilatation of the jejunal loop close to the stoma.

Butler¹ has described the appearances in a case six months after complete gastrectomy. The feature in it was a considerable dilatation of the jejunum close to the oesophageal stoma. The dilated portion was ballooned into the left dome of the diaphragm, contained a gas bubble, and simulated the fundus of a normal stomach. Doubtless the constant upward pressure of gas in this loop contributed to this effect. Barium remained in this dilated pseudo-fundus for more than five minutes. At the end of an hour all the barium had accumulated in the pelvic coils of the ileum. Transit is therefore rapid, as in the partial gastrectomy cases.

REFERENCE

¹ *Brit. Journ. Surg.*, 1927, xv, 38, 316.

THE RELATIVE ADVANTAGES OF BRITISH AND FOREIGN HEALTH RESORTS*

BY

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The British Health Resorts Association broadly classifies health resorts into: (1) spas, (2) resorts at the seaside, and (3) resorts inland. In all cases climate must be considered important from the point of view of health, using the word climate in a wide sense to include not only the air with its temperature, moisture, and movement, but sunlight and more intangible influences which may arise from running water, vegetation, and animal life, and which affect our spirits as well as our bodies.† While inland health resorts rely entirely on these factors, those at the seaside and spas have the sea and natural waters as additional agents for the promotion of health.

In a comparison of British and foreign health resorts it is wise to consider the people who go to them. By far the largest number of visitors are the holiday makers,

who have no thought of health, but who look for a pleasant place with a "change of air" and plenty to do. With these people we are not concerned at all. A second group consists of those who, in the main, are out for a holiday, but who wish to take some medical treatment as well. For instance, the man who overeats all through the year takes a cure during his holiday in order to go through the round once again. These people have money to spare, and may prefer a foreign spa, since the change in their surroundings will be the greater. Nor can there be any objection, since this country receives numerous visitors from America, and America must receive an equivalent in imports and services from the Continent. It was quite different in 1932 when the British Health Resorts Association was founded; that was a time of temporary danger, and English people were asked to stay in their own country. A third group consists of those who visit a health resort purely for the sake of their health.

Health resorts, so far as they contain up-to-date installations, can provide all those general physical methods of treatment that can be obtained in London or in other large centres—for example, douches, steam and paraffin-wax baths, diathermy, etc. All the larger spas, British and foreign, are alike in this respect. In fact, until quite recently, these general methods of treatment were administered more effectively at a spa than in London, although there is no reason why this should have been the case, since all towns nowadays have water and an electricity supply.

Climate

Climate is generally described as "tonic" or "bracing," and on the other hand as "relaxing," or, if this word has unpleasant associations, as "sedative." From the point of view of clear thinking the use of these words might well be discontinued. A "bracing" climate can only mean a climate of marked cooling power. Leonard Hill's observations with his kata-thermometer show that cooling power depends on three factors: temperature, humidity, and the movement of air. Hence a bracing climate must mean one possessing a cool, dry, breezy atmosphere, while a relaxing atmosphere will be hot, moist, and still. British spas, with the possible exception of Bath, belong to the former category, and this is an advantage, because at the end of the cure the patient can go straight back to his ordinary occupation. The same is not the case with a relaxing climate. For instance, a patient of mine described a previous visit of hers to Salsomaggiore as extremely tiring, and she had to go to the mountains in Switzerland before returning to England; this is the "Nach-kur" of the Germans.

British seaside resorts have a wonderful variety of climate. In the South-West they approximate to the French and Italian Riviera, but as there are usually more clouds in the sky the fall in temperature at night is less marked; the days are not so hot and the nights are not so cold. The resorts in the East and North-West are cool, while those in the South-East may be regarded as intermediate. Full details are given in the handbook of the British Health Resorts Association.

Physiological Effects of Mountain Climate

England possesses no mountain climate, and if such is required patients must go to Switzerland, or further afield to the High Tatra in the Carpathians. It is claimed that clinically the moorland climate in the North is equivalent to a mountain climate. A valuable summary of the physiological effects of a mountain climate (not applicable to any English resort) was communicated by Professor A. Loewy to the International Society of Medical Hydrology at its annual meeting this year in Switzerland. The action of such a climate is due to the reduced

* Read in opening a discussion in the Section of Balneology and Climatology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

† It is advisable not to be too sceptical in these matters. I need only allude to the recent correspondence in *The Times* on water divining and on the important experiments carried out last year by Dr. Lintott in the Physiological Department of Guy's Hospital. He found that water running beneath the subject produced an increase of tone in the muscles with corresponding rise in the twig or other apparatus used; and that this effect was not abolished by electrical insulation of the body, but that it was necessary for the subject to throw the muscles of the arms and legs voluntarily into tension. Thus the results were not obtained when the subject walked on a smooth surface such as glass, since there was no purchase for the legs. May not these obscure influences have some medical bearing in the future? We read that water divining continued through the afternoon produced a headache!

pressure of oxygen, which appears to stimulate the production of adrenaline, causing a rise of blood sugar, an increase in the formed elements of the blood which are at first pressed out of the spleen; there is an increase of glutathione, the ferment first prepared *in vitro* by Sir Gowland Hopkins; and certain substances appear in the serum, known as haemopoietins, which have the property of hastening the regeneration of blood after haemorrhage. A point of some interest is the rise of serum calcium, which means that the sympathetic becomes less excitable and the thyroid less active. This fact was discovered empirically a number of years ago when an exophthalmic goitre patient, sent from Vienna to the High Tatras, did remarkably well; the mountain climate is now recognized to be of value in this disease, and insured patients are sent to the Tatras. No patient with cardiac insufficiency should be sent to the mountains; but it has long been known that patients with phthisis and surgical tuberculosis do well there. The deficiency of oxygen must clearly be a responsible factor, since among other things this stimulates the production of red cells and counteracts the anaemia.

What is meant by "fresh air" in the treatment of phthisis in this country? "Fresh air" does not mean air with an unusually large amount of oxygen in it, because the percentage of oxygen is much the same in the country as in the town. When animals are placed in oxygen the haemoglobin content of the blood diminishes, and oxygen in no way stops the tuberculous process when the animals have been infected with the disease. The Swiss climate is beneficial because the pressure of oxygen is below normal. "Fresh air" treatment of phthisis in this country must mean treatment by cold, since this has been found to increase the metabolism of the resting subject, and patients who live out of doors all the time have better appetites and eat more food to provide fuel for their increased metabolism. The three general factors in treatment that can be supplied by the tuberculosis sanatoria of this country are fresh air with its increased cooling power, rest, and good food. A fourth factor—diminished oxygen supply—is only present in the mountains. Sunlight is a fifth factor suitable for surgical tuberculosis, but this is not given in phthisis, since it causes haemoptysis from congestion of the lungs—at least, that is the Swiss experience.

Sea Bathing

Michelet, writing in 1861, said that the English doctor Richard Russell (1700-71) had "invented the sea." Russell noticed that the fisherfolk were free from scrofulosis; that the women had white teeth and hard gums, and were free from all putrid coughs and fluxions; and that children who came to the sea weak, wan, and too warmly wrapped up, were sent back to their parents after sea bathing "bare-necked, their hair shaved, and tumours of the neck cured and the countenance healthy." He remarked that the sea had great and varied excellencies, but it might be misapplied by unskilful persons. This pioneer work of Russell's was followed by that of Lettsom, the Quaker physician, who was responsible for the building at Margate of the Royal Sea Bathing Infirmary for the relief of the scrofulous poor of London and all England. The *Gentleman's Magazine* states that "the patients have medical assistance, and a bathing machine has been built for their sole use." The foundation stone was laid by Lettsom in 1792, in the presence of many rejoicing spectators. This early work has now spread round the world.

The most complete study of the effect of sea bathing on children has been made by Haeblerlin, and he himself addressed this Section a year or so ago. He, with Krauel,

studied the reaction of the rectal and skin temperatures to sea bathing and air baths. They found that the chest measurements and vital capacity increased much more quickly during the summer while at Wyk than during the rest of the year at home. There was an increase in the haemoglobin content of the blood, which fell during the rest of the year, and in the case of one boy observations were carried out through six successive years. There was a marked increase of weight, which took six weeks before it became constant. This work is an impressive performance, and it has only been possible to quote a few of the most striking results. On the face of it, it would seem that the seaside might vie with the mountains as a blood-regenerating agent. It would be most desirable that some enthusiastic observer should repeat similar measurements at an inland station, so that the merits of these two types of health resorts could be compared. A boy scout or girl guide camp would provide healthy subjects for study, especially if the camp went alternate years to the seaside and inland.

Our seaside health resorts are not charitable institutions, nor are they health stations conducted by the Ministry of Health with the taxpayers' money. They are largely run for the benefit of the ratepayers and the hotel proprietors, and the medical aspects of sea bathing often have to take second place to popular baths, sun bathing, sports, and carnivals, which will attract visitors in their thousands. But medical baths have been instituted recently at Hastings, and are available at other places. It is important that any municipality which intends to introduce such baths should put the plans before a medical advisory committee, and that the baths when instituted should be under some kind of medical supervision, and not left to the sole control of a bath master who has had a little technical training.

Spa Waters

Successful attempts have been made to demonstrate the specific biological action of certain natural waters and baths. Reference may be made to the late Professor Billard's observations on Vichy water, which have been described by Monod and Ferreyrolles, and to Baudisch's work on the ageing of waters carried out at the Saratoga Springs. Harpuder at Wiesbaden has recently shown that mineral-water baths containing 0.6 per cent. sodium chloride taken at an indifferent temperature produce biological effects that were not observed in controls, or when baths of tap-water were taken at the same temperature.

Natural Waters in England

In this country reference may be made to the well-known experiments of David Brown and Woodmansey on the Harrogate sulphur water, and those of Bain on a patient with a biliary fistula. Buxton water has been shown to produce a diuresis. The daily output of urine from a number of subjects was measured first of all on a controlled diet, then with the addition of a pint of tap-water, and finally the tap-water was replaced by Buxton water. I should feel happier in my own mind if these experiments could be repeated in a different order, with the Buxton water period before the tap-water, to make quite certain that the diuresis attributed to the Buxton water was not the result of the previous water-logging of the individuals.

Our lamented colleague Michael Foster published shortly before his death an excellent handbook on British and foreign spas.

It may be taken for granted that the use of natural waters will be promoted in proportion as research work of value is carried out in the locality; in fact, it is only necessary to attend the meetings of the International

Society of Medical Hydrology in order to realize that advance is being made over a wide front, and that in research this country is by no means behind. But this applies chiefly to the larger and more important spas. One of the difficulties is that in the smaller ones it is often not generally realized that the waters have valuable properties. For instance, it has been pointed out that the Pittville Spring in Cheltenham has practically the same composition as some of the Vichy springs. It would be expected that in a country like England, where all but a few geological formations are well represented, a great variety of waters would be encountered. There are, no doubt, more in existence than are used; but it must be admitted that this country is rather poorly supplied with thermal waters, Bath and Buxton being brilliant exceptions, and there is no water containing carbon dioxide.

Turning to the subject of muds, or peloids, as they are called in the new classification, there is plenty of peat and alluvial mud available, but there is no hot volcanic mud such as is found on the Continent. Another difficulty that the British spas have to contend with is that they are mostly residential towns, and the interests of the residents and of the medical men and hotel proprietors tend to be opposed. To have an up-to-date hydrological institution with medical baths it is necessary to spend money and so to increase the rates. This appeals to one section, but is not unnaturally opposed by the other.

Post-Graduate Teaching in Hydrology

Perhaps the main difficulty in the more widespread use of our natural resources at the seaside and inland lies in the lack of knowledge on the part of the average medical man in the locality as to what is possible with these newer methods of treatment and how to apply them. It should be the object of the Section in future years to remedy this deficiency. It would clearly be wrong to try and insert any teaching or examination on the special subject of medical hydrology into the undergraduate's medical curriculum. Already the latter is too full, and with the advance of general medical knowledge it is likely to become still more so. The best way would be to institute post-graduate teaching in this subject with a diploma at the end of the course. Many of the more specialized branches of medicine—for example, radiology—are served in this manner. Now would be a suitable time to introduce such a scheme, since the University of London, with the assistance of the Government and the London County Council, is about to open a new post-graduate college. These authorities should be urged to add a voluntary course of instruction in climatology and medical hydrology to the curriculum.

The Year Book of the Royal Society of Tropical Medicine and Hygiene contains the twenty-seventh annual report of the council, in which it is mentioned that the forthcoming volume of the *Transactions* will be seventy pages larger than its predecessor. An affiliation has been arranged with the Fellowship of Medicine whereby Fellows of the society are enabled to claim a useful reduction of fees for any of the Fellowship's post-graduate lectures and demonstrations. It is expected that this will prove useful to any Fellows of the society who are home from abroad on leave, and to any others who are visitors to London and desirous of bringing up to date their knowledge of some branch of medicine or surgery. The debt on Manson House is being decreased slowly. The Year Book also contains lists of Fellows alphabetically and geographically arranged, the accounts for the year, lists of papers and short communications published in the *Transactions*, and a directory of officers of the society, including local secretaries throughout the world.

MEDIASTINAL AND APICAL EMPYEMA

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(With Special Plate)

The combination of two encysted purulent effusions within one pleural sac is sufficiently rare to be worthy of record. In the case now to be reported two loculated empyemata occurred in the right chest, one in the right posterior sub-apical region, the other between the right side of the pericardium and the pericardial aspect of the right lung. The condition gave rise to considerable difficulty in diagnosis, even after an x-ray examination of the chest. The course of the case, which was stormy, is detailed below, but the patient eventually made a complete recovery. A series of antero-posterior radiograms illustrates the progress of the condition.

Case Report

H. D., male, aged 45. The patient had been vaguely unwell for some two or three weeks, but able to continue work. His present illness commenced suddenly, and appeared to be a typical right-sided lobar pneumonia with physical signs in the right chest; the temperature fell by lysis on the seventh and eighth days. Further elevations of temperature were then observed by his doctor, and he was first seen by one of us (S. J. H.) on the eighth day. The patient was ill and toxic. He had a temperature of 102° F. and a pulse rate of 120; there was dullness under the right scapula extending upwards towards the apex, while anteriorly dullness extended from the sternum outwards to the right for some 3½ inches. The chest was explored posteriorly, and green pneumococcal pus was removed. A radiogram (Fig. 1 on Plate) showed two shadows in the right chest: the first, a subapical shadow, was considered to be a loculated empyema, but there was some doubt as to the nature of a second semicircular shadow extending outwards from the right mediastinum. The density of the second shadow was slightly greater than that of the apical collection; the three facts, that there was no cardiac displacement, that the shadow was not in contact with the diaphragm, and that there was no corresponding convexity of the left side of the pericardium, suggested that the shadow was that of a mediastinal collection of pus.

The subapical empyema was drained by the open method at the lowest point by resecting two inches of the fifth rib at the inner border of the scapula (L. N. P.). Only about 3 oz. of pus were evacuated, but a further quantity drained in the succeeding twenty-four hours. A tube was inserted. It was decided not to operate upon the mediastinal empyema at this stage, but to await events: the condition of the patient did not at once warrant a further operation, especially as the procedure might not prove to be very simple.

The patient continued with a leucocytosis of 18,000 to 20,000, and a temperature above 100°. On the seventh day after operation his temperature was 101°, and he was very restless. Quite suddenly the cough became more productive and purulent; during the next night the patient expectorated at least 3¼ pint of non-fetid yellow pus, and during the following day a rather smaller quantity, about 1¼ pint being expectorated in a sudden paroxysm. A second radiogram was now taken (Fig. 2). The apical collection was shown to be draining satisfactorily, and the semicircular mediastinal shadow was considerably smaller and less dense. The zone of aerated lung between the two loculi was broader. These appearances confirmed us in our opinion that the mediastinal shadow was pus and not growth.

For the next five days the temperature ranged from 99° to 101°, but on the fifth day it fell to normal. On each of these days an occasional paroxysm of coughing occurred, with the production of profuse yellowish sputum. The general condition of the patient improved, and his mentality became clearer. During these five days he was given breathing exercises and inhalations of oxygen containing 5 per cent. carbon dioxide, while postural assistance was attempted at the onset of each paroxysm. Pus continued to drain in small quantities through the tube. At the end of this period the leucocytosis was reduced to 16,000, the patient was much better, and his nights were less disturbed. He continued to have, approximately every other day, a paroxysm of coughing, which on three occasions resulted in the production of about a third of a pint of pus; after this the sputum became much less, and the leucocytosis on the twenty-second day after operation was 9,800. A third radiogram was taken on the twenty-eighth day (Fig. 3), and it showed that the apical loculus was almost completely drained and that the mediastinal shadow had shrunk to a narrow, almost invisible, strip.

Discussion

In the general textbooks the possibility of multiple loculi of pus in one pleural cavity is rarely mentioned, and even in textbooks devoted to thoracic diseases it receives scant notice. Simultaneous empyema on both sides of the chest is, of course, within the experience of most practising surgeons and physicians. We have not attempted a thorough search of the literature, but we may mention two recorded cases. Mackey (1925) reported an instance of a patient who had a large empyema in the left chest and two smaller empyemata in the right chest, one being on the anterior surface and one at the base; recovery followed drainage of the left and the right basal empyema and aspiration of the anterior right empyema. Van Allen (1929) published a case in which there were three loculi in the right chest—namely, at the apex, in the axillary region, and at the base, together with an *empyema necessitatis* pointing between the vertebral column and the vertebral border of the right scapula; the three separate cavities and the subcutaneous collection were all drained through separate incisions and the patient recovered.

In the case now reported the bacteriological examination of the pus removed by aspiration showed a pneumococcal infection, and according to the clinical course and physical signs it was of lobar type. The left lung never appeared to be affected by any pneumonic process. It may therefore be assumed that the two empyema foci originated independently from separate extensions of the pneumonia to the convex subapical pleural surface and to the inner mediastinal pleural surface, the walling off of the two loculi being accomplished by the fibrinous pneumonic reaction. The alternative pathology—that the empyema developed in relation to two peripheral lung abscesses—appears unlikely. The rarity of mediastinal empyema is largely due to the fixed state of the mediastinal surfaces of the lungs resulting from the entry of the various structures composing their roots. The absence of cardiac displacement is interesting in view of the different theories held as to the cause of cardiac displacement in pulmonary diseases. Although no lateral x-ray of the chest was taken it is probable that in this case the collection lay in the anterior mediastinum between the cardiac impression and the right surface of the pericardium, and therefore related only to the upper and middle lobes of the right lung.

The shadow of the mediastinal empyema had a sharp crescentic outline, and although its density was greater than that of the apical collection, yet it was possible to see the outline of the ribs through it, especially at its most peripheral part. The possibility that the shadow

represented a pericardial collection of fluid was definitely eliminated by the absence of general pericardial enlargement and by the existence of a zone of clear lung tissue between the inferior margin of the crescentic shadow and the right dome of the diaphragm. The question of mediastinal growth and of latent massive growth of the lung was considered. The regular sharp outline of the mediastinal shadow and its semi-translucent outer half were the points against growth, but until the second radiogram showed a diminution of the shadow we felt we could not definitely eliminate growth on purely radiological grounds. For clinical reasons we felt more certain, as the presence of typical lobar pneumonia led us to believe that the shadow must be that of pus and not of growth. Other possible diagnoses which were considered for the mediastinal shadow were dermoid cyst and the uncommon aneurysm of the descending thoracic aorta.

The treatment of the mediastinal collection gave rise to much anxiety. The patient was too ill for drainage of both collections of pus to be attempted at the same time. The decision to wait several days before contemplating a second operation was based upon two considerations.

First, the mediastinal abscess might increase in extent towards the anterior or posterior ends of the ribs, and in this position an operation for drainage would be easier. Secondly, the abscess might rupture into a bronchus and be followed by spontaneous recovery. The latter alternative was quite possible in view of the fairly close relation of the larger bronchi to the mediastinal surface of the lung. There was a definite risk of rupture of the abscess into the pericardium, with a sudden fatal catastrophe, but it was hoped that the successful open drainage of the subapical collection would relieve acute tension within the thorax and prevent such a rupture.

Summary

A case of double pneumococcal empyema, right subapical and mediastinal, is reported, with serial antero-posterior radiograms showing the progress of the case to recovery.

We desire to acknowledge our indebtedness to Dr. L. A. Rowden for the radiograms in this case.

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The following international post-graduate courses have been arranged for 1935 by the Berlin Academy for Medical Post-Graduate Training: internal medicine, with special regard to gastro-intestinal ailments, March 4th to 9th—fee, RM. 40; disturbances of metabolism and of the glands of internal secretion, March 11th to 16th—fee, RM. 40, or, if taken with the earlier course, RM. 60; practical progress of x-ray diagnosis and therapy, particularly for internal ailments, March 18th to 24th—fee, RM. 70; special course in urology, March 25th to 30th—fee, RM. 70; occupation and sickness, with special consideration of expert opinion, April 1st to 8th—fee, RM. 40; special course for surgeons, April 29th to May 4th—fee, RM. 70; special courses in all branches of medicine, with bedside and laboratory practice, are held every month—fee, RM. 50 to 80 for eight lessons of two hours each. Programmes and further particulars are obtainable from the Academy, Berlin, N.W.7, Robert-Koch-Platz 7 (Kaiserin Friedrich-Haus). Foreign doctors receive a 25 per cent. reduction of fare on the German railways (Reichsbahn). By using "registered marks" they can reduce the cost of sojourn, but for this purpose their home bank should be consulted before departing for the trip.

UVEO-PAROTID TUBERCULOSIS

A REPORT OF THREE CASES

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(With Special Plate)

Uveo-parotid tuberculosis is the name which has been suggested recently by Garland and Thomson¹ for that clinical syndrome—originally described by Heerfordt² in 1909—which is characterized by inflammation of the uveal tract, enlargement of the parotid glands, and, in some cases, paralysis of cranial nerves, usually the facial. They published a review of forty-seven cases from the literature, including the clinical and post-mortem appearances of one of their own. The conclusions they came to were that: (1) the condition was caused by "tuberculosis of a particularly fibrosing and non-caseating type"; (2) it ran a chronic course with a well-marked tendency to spontaneous recovery; and (3) when death occurred, which was rare, it was due to miliary tuberculosis.

The same aetiological factor had been suspected previously by Continental writers, and by Souter³ and Dorrell⁴ in this country. In the past, the condition had been referred to as "febris uveo-parotidea subchronica" (Heerfordt) or "uveo-parotitic paralysis" (MacBride),⁵ the latter because some cases presented symptoms of a polyneuritis. Most of the reports have appeared in Continental journals; only a few in those of this country. As they have appeared mainly in ophthalmological journals Garland and Thomson suggested that the condition has not received widespread recognition. This is probably true. Since reading their paper we have ourselves recognized and had under observation three examples of it.

Case 1

The patient, a married woman aged 35, was seen for the first time on March 25th, 1933, in the ophthalmological outpatient department, complaining that both eyes ached and that the vision of the right eye was blurred. These symptoms had come on gradually during the previous three weeks. The right eye showed a mild attack of iridocyclitis, some fine keratitis punctata being present. The fundus was normal. Three days later she developed a similar attack of iridocyclitis in the left eye, and, in addition, swelling of the left parotid gland and a paresis of the left facial nerve. Her condition remained unchanged until May 2nd, when optic neuritis was found in both eyes, more marked in the left. About this time also the patient complained of difficulty in swallowing, dryness of the mouth and throat, and that when she swallowed liquids some returned through her nose. She was admitted to hospital on May 15th for further investigation.

Apart from one child who had suffered from tuberculous peritonitis, there was no history of tuberculosis in her family. She had never had any previous trouble with her eyes, or any affection of the ear, nose, or throat, and she had not lately been in contact with mumps. On going more closely into her history it appeared that she had been losing weight and sweating profusely at night for about twelve months. The patient was an intelligent woman, of good colour, weighing 7 st. 8 lb. At the time of admission the iridocyclitis in both eyes showed signs of improving, but there was considerable swelling of both optic disks. No haemorrhage, exudates, or tuberculous nodules were seen. There was weakness of the muscles of the left side of the face, with some slight impairment in the movements of the soft palate. There was no affection of any other cranial nerves, neither was there

any tremor or ataxia, nor any change in sensations or in the reflexes. There were no signs of disease in the lungs or cardiovascular system. The left parotid gland was uniformly enlarged, but painless. Her teeth were in good condition, with no evidence of disease on x-ray examination, and there were no abnormalities in the nose, throat, or ear. There were no palpable lymphatic glands, and the spleen was not felt. The temperature during three weeks under observation remained normal; the urine was also normal.

Special Investigation.—Blood count: red cells, 5,116,000 per c.mm., haemoglobin, '92 per cent.; colour index, 0.9; average diameter, 7.4 μ ; leucocytes, 4,375 per c.mm.; polymorphs, 51 per cent.; lymphocytes, 31 per cent.; mononuclears, 15 per cent.; eosinophils, 2 per cent.; basophils, 1 per cent. Wassermann reaction of blood, negative. Cerebro-spinal fluid: pressure 140 mm. of water, clear; no coagulum on standing; cells, 1 per c.mm.; protein, 0.04 per cent.; chlorides, 0.7 per cent. Lange test, negative; Wassermann reaction, negative; cultures, sterile. X-ray examination of skull revealed no abnormalities; sinuses clear. The skiagram of the chest showed opacities in mediastinum, which were suggestive of enlarged lymphatic glands; the lung fields were clear. Electrocardiogram revealed no abnormalities. There was no evidence of salivary calculus on x-ray examination. Mantoux test, negative.

Progress.—The facial paresis improved and disappeared in about four weeks. The parotitis also subsided in about the same period. The optic neuritis, however, persisted for five months. The patient was seen in April, 1934—that is, one year after the onset of her illness. Her general condition had improved, her weight had increased by two stone, and she had no night sweats. A little nodular thickening behind the angle of the jaw was the only evidence that there had been any affection of the parotid gland. There was no facial weakness present. The condition of the eyes was satisfactory, there being no sign of any active iridocyclitis and no evidence of optic neuritis or atrophy. Her vision, fields, etc., were normal. The x-ray examination of the chest revealed the remarkable fact that the mediastinal opacities previously noted had almost completely disappeared.

Case 2

A married woman, aged 54, was admitted to a surgical ward on July 7th, 1931, under the care of Mr. R. S. Lawson, with a history of swelling of both sides of the face, of eight weeks' duration on the right, and seven weeks' on the left; of weakness of the left side of the face for five weeks; and inflammation of the left eye for three days. The facial paresis, which had come on suddenly and had tended to improve, involved the whole of the left side, including the eyelids. Both parotid glands were found to be uniformly enlarged and painless, and both eyes showed signs of iritis, the fundi being normal. There was nothing of note in her family history, and apart from a chronic cough, of which she had complained for some years, she had not suffered from any illness. She had not been in contact with mumps or any other infectious disease. There were no abnormal signs in the cardiovascular system. The skiagram of the chest revealed markedly exaggerated root shadows on both sides, with much undue mottling in the upper and middle zones, especially on the right side. Portions of each parotid gland were removed for microscopical section, and in both were demonstrated areas of chronic inflammation with numerous endothelial cells and giant cells—the whole picture typical of a tuberculous lesion. Tubercle bacilli were demonstrated. The patient remained in hospital for three weeks. During that time there was a gradual improvement in the condition of the face, and the parotitis subsided to a considerable degree. There was no pyrexia.

Following her discharge from hospital, she was not seen again until September, 1933, when she was readmitted for further examination. There were no visible swellings of the parotid glands, and all that could be felt was a nodular thickening behind the angle of each jaw. Her general condition, however, had deteriorated, her cough had become more troublesome, and she had lost weight. There were signs of old iritis, with posterior synechiae, and deposits on the anterior surface of the lenses in both eyes. In addition, there were

numerous opacities in the vitreous of each eye, but the fundi appeared normal. A little weakness of the left side of the face was still present; this was the only abnormality in the central nervous system. There was a slight impairment of the percussion note over the right apex with harsh breath sounds; a few rhonchi were scattered throughout both lungs. The skiagram of the chest showed very little change from the previous one. The cardiovascular system was normal, and there were no changes in the electrocardiogram. The urine was normal. The blood count gave the following figures: red cells, 5,249,000 per c.mm.; haemoglobin, 95 per cent.; large mononuclears, 4 per cent.; eosinophils, 3 per cent. The blood Wassermann reaction was negative, and the Mantoux test positive. There were no abnormalities in the ear, nose, or throat, and the teeth were in good condition.

The patient has been seen at regular intervals until the present time. Slight ciliary injection of both eyes has occasionally been noted, but there has been no return of the acute iritis. Her general condition has not been satisfactory, her cough still remaining troublesome and the radiological appearances in the chest having become more marked, particularly in the right lung. There is no doubt that she is suffering from chronic pulmonary tuberculosis of the fibroid type.

Case 3

A married woman, aged 41, was seen originally on August 27th, 1927, when she complained of a "mist over both eyes" for three weeks. Iridocyclitis, with posterior synechiae and keratitis punctata, was present in both eyes, the right being the more affected. Four weeks later a swelling of the left parotid gland appeared, and was followed in a few days by facial paralysis on the same side. There were no other signs of disease of the nervous system. The parotitis subsided in a few weeks, but the facial paralysis persisted. The iridocyclitis progressed, particularly in the left eye, where the pupillary area gradually filled up with exudate, and in the course of the following year became opaque. The right eye at this time showed extensive posterior synechiae. The blood Wassermann reaction was negative. There were no physical signs in the chest, but the radiological examination revealed evidence of chronic pleurisy on the right side. Her cardiovascular system was normal. There were no abnormalities in the ear, nose, or throat, and her teeth were in good condition. The only noteworthy fact in her family history was that her mother had died from pulmonary tuberculosis. The patient has remained under observation until the present time. Her general health has been good, and there has been no alteration in the condition of her eyes.

Discussion

Manifestations of uveitis, preceded or followed by signs of parotitis in a short space of time, occurred in these three, as in all the reported cases of uveo-parotid tuberculosis. Each group of symptoms developed rapidly at the onset, but whereas the eye changes tended to persist, the parotitis subsided quickly and did not recur. The facial paresis, of a lower motor neurone type, was probably a consequence of the inflammation in the parotid gland. This was strongly suggested by the fact that it appeared soon after the parotitis in each case, and in the two cases in which the latter was unilateral the paresis was on the same side.

The optic neuritis, dysphagia, and regurgitation of fluids through the nose which were seen in Case 1 were symptoms of a different causation. They have been noted in previous reports; optic neuritis and dysphagia were present in Heerfordt's original cases. We regard them as evidence of a toxic neuritis. Dysphagia has been said to be the result of dryness of the mouth and throat from lack of salivary secretion. That the latter might be a factor in its causation cannot be denied, but when it coexists with regurgitation of fluids through the nose, paresis of the pharyngeal muscles is probably a more potent cause. Widespread affection of the nervous system

in association with the syndrome has been reported by MacBride,⁶ in a woman of 43, with double parotitis, iridocyclitis, paresis of the face, legs, and arms, dysphagia, and some deafness. Feiling and Viner⁷ also reported a case in which there was an absence of knee- and ankle-jerks, and paraesthesia. Pyrexia, which is said to occur in about half the cases in the early stages of the syndrome, was absent during the period ours were under observation.

Garland and Thomson put forward strong evidence to show that tuberculosis was the main aetiological factor in this syndrome of uveitis and parotitis. As far as our cases are concerned, Case 2 was the only one in which a tuberculous infection was definitely proved.

In Case 1 the aetiology was not so clear. After a period of twelve months of indifferent health, with night sweats and loss of weight, the syndrome appeared, and at the same time radiological evidence of mediastinal adenitis was found. It is important to determine whether the adenitis was present before, and was, in fact, the focus of infection giving rise to the syndrome, or whether it developed with, and as part of, the condition. Its disappearance was coincident with the general improvement in the patient. The prodromal symptoms, for which no other cause was discovered, can be explained by its presence. Further, we have not found in the literature a single report in which adenitis developed concurrently with uveitis and parotitis. We are therefore of the opinion that it was the responsible agent in the case. The question then arises as to its pathology. Was it tuberculous? Here again it is impossible to give a categorical answer. There were no signs of disease in the lungs, and the tuberculin test was negative. Too much reliance, however, cannot be placed on the latter test, because, as d'Arcy Hart⁸ has pointed out, a negative finding cannot be relied upon to exclude a tuberculous infection. The character of the early symptoms and the subsequent course of the illness are very suggestive of a tuberculous adenitis.

In Case 3 the evidence was admittedly meagre, but the family history and the x-ray examination of the chest point to a tuberculous origin.

As we have already stated, when death occurs it is due to miliary tuberculosis. This statement is based on the only three necropsies recorded. An interesting feature of two of these, Souter's and Garland and Thomson's, was the presence of tuberculosis of the cardiac musculature. We were unable to demonstrate by clinical or electrocardiographic investigation any such involvement in our patients.

Summary

Three cases of uveo-parotid tuberculosis are recorded. In the first, uveitis and unilateral parotitis were accompanied by facial paresis, optic neuritis, dysphagia, and palatal paresis. Mediastinal adenitis, probably tuberculous in nature, was demonstrated. In Case 2 uveitis and bilateral parotitis, and left-sided facial paresis occurred. A biopsy of the parotid gland gave definite evidence of tuberculosis, and there was also evidence of the same infection in the lungs. The third case showed extensive uveitis in both eyes, leading to blindness in one, unilateral parotitis, and facial paresis; there was a family history of tuberculosis and radiographical evidence of chronic pleurisy.

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CLINICAL DIAGNOSIS OF WHOOPING-COUGH WITHOUT THE WHOOP

BY

P. R. EVANS, B.Sc., M.B., CH.B.

Whooping-cough is a socially important disease, killing more children in this country than scarlet fever and diphtheria together.¹ Its diagnosis, like that of pregnancy, is difficult in the early stages, and obvious to the household in the late. It is made obvious by the onset of whooping. Earlier diagnosis is important, affecting as it does the treatment of the child, the prevention of yet further spread of the infection, and the reputation of the practitioner.

Two laboratory methods may be of great help in early diagnosis: (1) an absolute and relative lymphocytosis is usually present (Kolmer,² Crombie³), and (2) the bacillus of Bordet and Gengou may be isolated in the catarrhal stage of the malady. The former takes too much time in a busy hospital out-patient or general practice; the latter, the efficiency of which has been shown by Madsen in Denmark, and Gardner and Leslie⁴ in this country, should be of considerable value, but facilities for its performance are few and far between. Agglutinins are fugitive and inconstant in the blood; complement fixation develops too late; skin tests are controversial; while the discovery of specific radiological changes is a skilled and expensive procedure.⁵ So one is, in the end, generally driven back to clinical methods.

Of 156 cases in which there was finally no doubt of the diagnosis, personally seen at the Hospital for Sick Children, Great Ormond Street, from May to the middle of October, 1934, fifty-six had not whooped at their first appearance. The account of the symptoms given here results from the study of these latter cases. For the sake of convenience the number of children having any symptom is expressed as a percentage of those in whom the particular feature was investigated, despite the false impression of precision it gives in a small series. The average duration of the cough in the cases considered was just under two and a half weeks; all except one were in the paroxysmal stage.

Symptomatology

Whooping-cough may appear at any season of the year, but is probably commonest in the spring and autumn. It starts like a common cold, with catarrh of the nose and eyes, and slight fever; at this stage it cannot be diagnosed clinically. But a common cold dies away, the catarrh of pertussis persists a while, and a short, dry cough appears. If there has been contact with a case one's suspicions are aroused, as one finds the cough becoming increasingly severe, and, to a more or less extent, paroxysmal.

Age and History of Contact.—The age of the child is significant. In Luttinger's 10,000 cases 80 per cent. were less than 6 years old. The malady may appear at any age, but is definitely uncommon below 3 months or over 7 years. In this series the ages were:

Under 1 year	15 per cent.	5-6 years	18 per cent.
1-2 years	9 "	6-7 "	4 "
2-3 "	17 "	7-8 "	4 "
3-4 "	15 "	8-9 "	4 "
4-5 "	13 "	9-10 "	2 "

The large proportion of cases less than 1 year old is to be expected, for many babies do not whoop throughout the whole of the attack. The slight difference in incidence between the sexes is of no value in any one case. A history of contact with another case is often helpful, for its frequency naturally varies in different groups of cases. In this group it reached the high figure of 74 per cent.

The Cough.—This is paroxysmal, increasing crescendo to the great distress of the child and the mother, who notices that the face is red and puffy (81 per cent.), particularly under the eyes. Before whooping actually occurs the child may be said to "catch its breath" after the paroxysm. The cough is hard, and those who witness the attack say that the child "cannot bring anything up." Nevertheless, careful inquiry usually elicits the fact that some sputum is coughed up and ejected by the child, with or without the aid of the mother's finger (70 per cent.). This is a valuable sign—a young child who coughs and spits has whooping-cough or frank bronchiectasis. It is of more frequent occurrence in older children than younger; the average age of those who produced sputum was 4.3 years, compared with 3.4 years for the whole series. It does, nevertheless, occur in babies as young as 3 months. The sputum is whitish in the early stages; in later cases with bronchitis it may be yellow. A classical feature of pertussis is that the violence of the cough excites vomiting. This is commoner in later cases, but often occurs before whooping (56 per cent.). It occurs at any age, the youngest in this series being 3 months and the oldest 9 years. It is an important cause of the wasting which is obvious in severe cases, but this is not of early diagnostic significance. Typically, the cough is worse at night (77 per cent.), and is a common temporary cause of insomnia in children and their parents. In a few cases (19 per cent.) it is equally bad in the day and in the night; in fewer still (4 per cent.) it is most troublesome in the daytime.

Other Symptoms.—**Appetite.** This is usually (69 per cent.) retained at first (though the onset of most acute illnesses in children is accompanied by anorexia), but it may be lost as the disease progresses. **Haemorrhage.** This is a feature of few cases (under 20 per cent.). Occasionally there may be a visible subconjunctival haemorrhage, but the two common types are epistaxis and haemoptysis. The latter is rather more common. About a third of these cases have frenal ulceration, and the blood probably comes from the ulcer. Others have not, but there seems no reason to assume that the lung is the source; the small necrotic lesion in the larynx is probably responsible. On examination of the child one may be struck at once by the well-marked puffiness of the face (7 per cent.) even between paroxysms. But most cases do not present this till later.

The Frenal Ulcer.—The search for this (18 per cent.) should never be omitted. It is simple, and may clinch a doubtful diagnosis. It occurs in no other acute illness, and is thus practically pathognomonic. It is small, between 1 and 3 mm. long, oval, with its long axis in the line of the frenum; grey-white in colour; painful at first, later painless; it occurs at any age, and not only, as is usually stated, in young children whose incisor teeth are particularly sharp. I have seen it in a baby of 10 weeks and in a girl 9 years old. It is presumably caused by the fretting of the frenum on the lower central incisor teeth when the tongue is protruded in a paroxysm; occasionally there is no ulcer, but a small, oval, grey-white area of raised epithelium.

Throat and Lungs.—Examination of the throat is of itself not helpful. Some faucial congestion is common, and many town children have inflamed tonsils. But it is useful in a doubtful case, for when the history is indefinite one may often elicit an unmistakable paroxysm by touching a tonsil with the spatula (17 per cent.). Absence of pulmonary signs which might explain the cough is a frequent (74 per cent.) and useful finding in these early cases. Signs of bronchitis are usually limited to an occasional rhonchus, but the presence of many rhonchi and rales does not invalidate the diagnosis.

Summary

To recapitulate. The diagnosis may be made on the history, in a child probably less than 7 years old who has not previously had whooping-cough, of a common cold that did not clear up but progressed steadily with the development of a dry cough, becoming paroxysmal; and at least one of the following points: a history of contact with a definite case; absence of any obvious cause of cough in the throat and lungs; a cough worse during the night than the day; sputum coughed up and not all swallowed; cough followed by vomiting; frenal ulceration; an unmistakable paroxysm during examination. Confirmatory points are: a red and puffy face; haemoptysis, epistaxis, or subconjunctival haemorrhage; absence of anorexia.

Skill is not required to elicit these points, and the difficulty lies in correct summing up of the relative importance of their presence or absence. It is hoped that the figures and the rather disjointed remarks in this paper will help in the diagnosis of pertussis before the onset of whooping betrays the condition to all who have ears to hear.

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Clinical Memoranda

HEREDITARY SYNDACTYLISM AND POLY-
DACTYLISM DESCRIPTIVE OF RECENT
ADDITIONS TO PEDIGREE

(With Special Plate)

In 1915 I published in the *Journal of Genetics* a pedigree and description of a family showing syndactylism and polydactylism transmitted through five generations. This article, with a description of further additions to the family up to August, 1926, was republished in *Observations on Human Heredity* in 1928.

Altogether sixty-four descendants of the original affected parent, who was born about the beginning of the nineteenth century, were shown on the pedigree chart, and of these twenty-seven were affected, thirty-three unaffected, and four doubtful. During the past eight years—that is, since August, 1926—thirteen additions from five families have been made to the Warrington branch of the original family. Eight of these have come from two families of unaffected parents, five from three families with one affected parent. As the condition does not appear in families with unaffected parents, the eight do not require consideration here; but of the five an only child, a male, is normal—the offspring of affected IV 6 (male), and one female is normal, the offspring of affected IV 8 (female), now dead.

In the pedigree chart published it will be seen that IV 8 had three other unaffected children, so that she had altogether four unaffected offspring, although she herself had both syndactyly and polydactyly in the right hand and both feet. These families of IV 6 and IV 8 are small, and it is likely that had they been more numerous, affected offspring would have appeared. Their mother—affected III 2—had seventeen children, of whom eight were affected.

But the most interesting are the three offspring of IV 16 (female), who are all markedly affected in the hands, and to a slighter degree in the feet. It is remarkable that this should be so, because the mother herself, IV 16, had the slightest abnormality of all the affected members of the family. In her case the abnormality was limited to webbing of the third and fourth digits of the right hand without any bony abnormality whatever. Her husband is free from any abnormality of hands and feet. The children are J. (female),

aged 4½; W. (male), aged 2½; and B. (female), aged 1½. Skiagrams show the following conditions.

J.—Right hand: webbing of third and fourth digits; duplication of terminal phalanx of third digit, which is fused with the terminal phalanx of fourth digit. Left hand: six digits, third, fourth, and fifth webbed; fusion of ends of the proximal phalanges of third and fourth digits. Left foot: fifth digit is broad, with broad nail, and is partially webbed to fourth digit. Right foot: normal.

W.—Right hand: six digits—third, fourth, and fifth webbed; fusion of third and fourth metacarpal bones. Left hand: similar condition to right hand. Left foot: fifth digit is broad, with double nail. Right foot: normal.

B.—Right hand: six digits—third, fourth, and fifth webbed; fusion of proximal phalanges of third and fourth digits. Left hand: six digits—third, fourth, and fifth webbed; fusion of third and fourth metacarpal bones. Feet normal.

DISCUSSION

Apart from the main feature—the persistence of the abnormality through five generations—there is the specially interesting point that, while the mother is but slightly affected, her children have abnormalities of the digits in an augmented form. Evidently somatic manifestation does not indicate the intensity of the hereditary factor present in the germ cells.

As to the nature of the hereditary factor, it might be inferred from the extent and variability of the abnormality that this was related to Spemann's embryonic regulators of organic growth. The hand, and to a lesser degree the foot, are among the most complex anatomical structures in the body, and it would seem that in this family a gene carrying a hyperactive "organizer" was transmitted through the generations, producing a dominant character of either a complete or partial extra digit in the hands and feet, with correlated changes in the skin and soft tissues.

The variable dominance shown in this family waxing and waning through the generations is a feature which is hardly likely to be confined to it, or to abnormalities of the hands and feet, and its presence in other hereditary or supposed hereditary conditions should be borne in mind.

I am greatly indebted to Dr. Edward Fox of Warrington for the x-ray photographs.

Warrington.

J. S. MANSON, M.D.

RODENT ULCER IN THE YOUNG

Rodent ulcer is generally regarded as a disease of old age. Most textbooks on diseases of the skin so describe it, and rather ignore the possibility of its occurrence in the young. So far as I am aware the only book in which the occurrence in young people is stressed is Sir Norman Walker's *Introduction to Dermatology*, where a table is given showing the occurrence of rodent ulcer at different ages, many being in young people.

The following cases came under my notice at the Royal Infirmary, Edinburgh.

W. S., aged 15, first attended in January, 1933, with a rodent ulcer about the size of a threepenny-piece on the tip of his nose. The condition had been present for more than a year. The appearance of the rodent ulcer was typical, with the rolled edge and depressed centre. A piece was excised for microscopical examination and the diagnosis confirmed.

G. H., aged 25, was first seen in May, 1934, with a rodent ulcer on the left ala nasi. It was about the size of a sixpence, and had been present for several years. The patient was quite definite that he had had the lesion when he was 17, the size then being about half what it was when he first attended the Royal Infirmary. As the condition must have been present for more than a year before that, it brings the age of onset to about 15, and approximates it to that of the preceding case. Biopsy confirmed the diagnosis in this case also.

These cases are of interest as showing how, in young people, rodent ulcers may occur. If slavish attention were paid to the dictum that rodent ulcer is a disease of the middle-aged or elderly, such cases would be overlooked till so much destruction of tissue occurred that disfigurement would be great, even though the malignant process were cured. In the second case there is a definite depressed scar, though the condition is clinically cured. The first patient, having sought advice early, has given a better cosmetic result, it being hardly possible to detect the position of the original disease.

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PARALYSIS FOLLOWING MERCUROCHROME INJECTIONS

Intravenous mercurochrome injections may be followed by severe or mild reactions. These latter are for the most part due to the mercury content of the drug; their severity depends on the state of the patient, and the dosage, strength, and brand of mercurochrome used. There is a lack of uniformity in the various makes of commercial mercurochrome. The commoner reactions observed are similar to those seen in acute mercurial poisoning—namely, a metallic taste in the mouth, abdominal pain, vomiting, tenesmus, and copious diarrhoea with pink ejections. If the administration is continued over a longer period the signs of chronic mercurial poisoning appear: salivation, swelling of the mouth and gums, and albuminuria are not uncommon. Puerperal septicaemia is perhaps the disease for which these injections are most commonly used. I record below two cases of this condition treated by mercurochrome injections, and followed by drop-foot and wrist-drop, which were, in my opinion, a direct result of this treatment.

Case 1.—A primipara was admitted to hospital on August 6th, 1933, and confined the following day; it was a low forceps delivery. The patient had a rigor on the 9th, and on the 10th blood taken for culture showed the presence of a haemolytic streptococcus. Twenty c.cm. of 0.4 per cent. mercurochrome was injected intravenously on August 9th, and repeated on the 12th, 14th, and 18th—a total of 80 c.cm. mercurochrome. Other treatment given consisted of the intravenous injection of polyvalent antistreptococcus serum, low vaginal douches, and the administration of stimulants. On August 20th she complained of numbness and pains in the right ankle; two days later the ankle was anaesthetic, the leg showed severe muscle wasting, and the foot was dropped. Stomatitis and diarrhoea were also present. The ankle was massaged, and radiant heat and a splint applied. There was no improvement, and the limb was put at rest by applying a plaster-of-Paris cast to the right leg and ankle on November 16th. The patient was discharged from hospital with the limb in plaster on January 1st, 1934. Two months later the plaster was removed, and electrical treatment and massage given. At the present time the patient is able to move her ankle, and she can walk fairly well.

Case 2.—The patient, aged 30, was admitted on April 10th, 1934. She had had a three months miscarriage at home on March 31st. She was very ill, with a temperature of 105° F. She had a left phlegmasia alba dolens, but blood culture was negative. On April 12th she had a rigor, and the following day was given 20 c.cm. of 0.4 per cent. mercurochrome intravenously; no reaction was observed at the time of injection. Other treatment given consisted of the intramuscular injection of scarlet fever streptococcus antitoxin. On April 14th there was complete left wrist-drop, which never recovered, as the patient died next day.

It is unlikely that the paralysis could be explained by the action of serum, by the septicaemia itself, or, in the first case, by the forceps delivery. Peripheral neuritis,

due to the mercurochrome, would be a more probable explanation. The solutions used were freshly prepared from mercurochrome scales. The action of mercurochrome is cumulative,¹ and repeated injections lead to a concentration of mercury toxic to the nervous system. This would be an explanation in the first case. A similar explanation does not hold in the second case, where only one injection was given before the paralysis developed. It has been shown that mercurochrome has an extremely toxic effect on the nervous system.² The onset of the paralysis so soon after the injection suggests that the paralysis was due to the toxicity of the drug itself: solutions intended for intravenous injection should be made up from mercurochrome which has been shown suitable for intravenous therapy. Several manufacturers now insist that it should be chemically correct in respect of total percentage of mercury, bromine, and dye,³ and that toxicity tests on mice should be done to ensure a product with the minimum variation in toxicity.⁴

Stockport.

WILLIAM MORE, M.D.ED.

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CASTOR OIL VAPOUR AS A PURGATIVE

The statement that "castor oil will purge even when rubbed into the skin" occurs in Sir William Hale-White's *Materia Medica*. It is one of those sentences which may well remain impressed on the memory of the student, although he may never see an example of its practical application. Among the methods of administering purgatives described in the various textbooks inhalation is not mentioned, so far as I have seen. Yet that this mode of administering castor oil proves effective is indicated by two examples.

A pilot during the Great War suffered from mild chronic constipation which necessitated periodic laxative treatment. He was flying "pusher" planes, in which the engine was behind the pilot and observer. Later, he changed to aeroplanes with rotary engines. These engines were at the front of the machine, and used pure castor oil as a lubricant. The smell of castor oil was prominent in the fumes which he performed had to inhale. He noticed that during the period when he flew these latter machines he never required to take any laxative medicine, but, when he gave up flying, his old constipation returned. Apart from this case, it was quite generally known among observant flying officers that the fumes from rotary engines kept the bowels open.

A striking case came to my notice recently. A mountaineer treated two pairs of climbing boots with castor oil in the bedroom of his hotel. On retiring for the night he again lavishly spread over the boots a layer of oil, the odour of which filled the room. Next morning the slightly nauseating odour was still noticeable in the room, and the owner of the boots found the purgative effect so marked that his bowels were opened three times in the course of the morning; he noticed, moreover, that there was no gripping effect.

It seems justifiable from these examples to conclude that the prolonged inhalation of the vapour of castor oil produces a purgative effect; although Cushny states that "only volatile drugs can be used thus for their general action," Sollmann writes that "this method is used only for gaseous medicines, such as anaesthetics or oxygen," and other authorities generally concur regarding inhalation.

Liverpool.

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Reviews

RADIUM AND CANCER

All who are interested in the scientific development of radium therapy in this country owe a debt of gratitude to Mr. H. S. SOUTTAR for his admirably written monograph on *Radium and Cancer*.¹ In one way, certainly, it is a remarkable book, since, though written by one who is professionally a clinician, it devotes no fewer than 143 out of its 340 pages (excluding appendices) to a comprehensive account of the physical principles involved. The neglect of a due appreciation of the paramount importance of physics in this connexion has often been a reproach to radium surgery in England. Mr. Souttar shows in his book what at any rate in his opinion forms the fundamental basis of this very important subject. It is not given to every surgeon to be at once a mathematician and a physicist; but it is incumbent on all who practise or intend to practise radiotherapy that they should have a clear idea of the fundamental principles of the subject. In this book the amount of physical knowledge which its author displays is perhaps a little in excess of that which most can hope to attain; it represents, however, an ideal which has long been recognized in certain Continental and American schools. An account of α rays was necessary, in order to make the physics of radium understandable: its inclusion here, in considerable detail, may serve to emphasize the absolute necessity for the intimate association of α rays and radium in therapy. It is now universally admitted that an up-to-date high-voltage x -ray department is an indispensable part of any department for the practice of efficient radium therapy. Incidentally, a glance at the first chapters of this book will show the importance of having a trained physicist—medically qualified or otherwise—as a colleague upon the staff of a hospital practising these methods of treatment. The physical side is treated in such great detail that it would have been interesting had we been given some account of the most modern theories of the structure of the atomic nucleus, and of the nature of the neutron as well as of some more speculative nuclear elements. But perhaps the author is wise in not venturing upon an attempt to keep pace with these rapidly moving and changing hypotheses.

The section on the biological action of radiations is disappointing, especially when compared with the physical section. A vast amount of work has been done upon the chemical action of the rays, and also upon the various structural elements which go to make up an ordinary animal cell. Not only the cell nucleus, but the cytoplasm, cytoplasmic inclusions, and the cell membranes and nuclear membranes are profoundly influenced by exposure to radiation. In one passage, where reference is made to the work of Cramer upon the subject of the production of immunity in malignant disease, the author seems to have lost sight of the fact that Cramer's work cannot be considered as in any way conclusive upon the therapeutic aspects of the subject, since his experiments were carried out by subjecting tumours to intensive β radiation, whereas in the radiotherapeutic treatment of new growths highly screened γ rays and x rays of short wave-length are employed.

We have dwelt at length upon the more purely scientific aspects of this work, since it is almost, if not quite, alone among books written by clinicians in this country in which scientific principles receive anything like the prominence to which they are indubitably entitled. Of the clinical section there is comparatively little that calls

for remark: to a greater or less extent the methods of radium therapy in different sites are becoming more or less settled along the lines suited to the special requirements of each case or group of cases. One or two points, however, seem to need comment. On page 234 we read, with reference to rodent ulcers: "The best results are obtained with relatively light screenage, the cauterizing action of the beta rays being apparently in this case an advantage." A good many workers will, we think, be inclined not to endorse this view. Light screenage certainly has the advantage of allowing a short time for the application; but it is by no means a matter of agreement that the results are as permanent in the long run as those obtained with prolonged exposures to more highly screened radiation. On page 322 the figures illustrating the Stockholm and Institut Curie (Nos. II and IV) methods of treatment of carcinoma of the cervix surely do not represent accurately the methods specified.

As we have already said, it is an excellent sign that one who is primarily interested in clinical work should stress so emphatically the need for an adequate groundwork of physical knowledge and of scientific collaboration. We cannot all be mathematicians or physicists; but each of us can further the best interests of his or her patients and the cause of truly scientific work by recommending patients only to those institutions where there is an efficient high-voltage x -ray department working in collaboration with the radium department and also the closest collaboration between the purely scientific and the therapeutic departments. Mr. Souttar has rendered invaluable service to the subject of which he is so distinguished and so clear an exponent.

THE NEUROTIC AND HIS FRIENDS

It has been said, "Happy is the home which does not harbour a neurotic." Nowadays—and this is one of the most serious problems of modern life—an increasing number of homes harbour one or more neurotics. For most people everyday life is largely composed of dealing with other people in various states of neurosis. The problem may not be altogether a new one, but it has only lately come to the fore, and there is as yet very little mechanism for helping the ordinary lay person or general practitioner to understand what attitude he should adopt towards a neurotic and how he should behave. Of the making of books on psychotherapy there is no end, but comparatively few of these are at all intelligible to anyone but a specialist. Various attempts have been made in recent years to explain neurosis to the ordinary person, but hardly any of them have been successful. For the layman a book on neurosis must be short, it must be written in plain language, and, most important of all, it must be expressed from the standpoint of the ordinary man and not from that of a psychotherapist, or even of a doctor. It is very difficult for a physician or general practitioner, and still more perhaps for a psychotherapist, to look on a medical subject with the eyes of a layman.

Dr. R. G. GORDON, in attempting this task,² has attained a notable success. He starts by inquiring, "What is a neurotic?" and shows the essence of the breed to be a person whose mental and physical processes do not function in a harmonious way. He takes the optimistic view that, even if the patient is so bad that he cannot possibly be cured, at any rate proper treatment will improve him and make him much less of a pest to his friends and relations. Pointing out that the way to go to work is to understand, and to get the patient to understand, how and when he began to adopt a wrong

¹ *Radium and Cancer*. A Monograph. By H. S. Souttar, D.M., M.Ch., F.R.C.S. London: W. Heinemann Ltd. 1934. (Pp. 387; illustrated 21s net.)

² *The Neurotic and His Friends*. By R. G. Gordon, M.D., D.Sc., F.R.C.P.E. London: Methuen and Co. Ltd. 1934. (Pp. 57; 2s. 6d. net.)

attitude towards life, he examines the various crises of life, from birth to the menopause, and shows how and why the neurotic may fail at each of them. After a study of types of neurotic reaction he deals very acutely and fairly with the misconceptions of the public, most of which are fairly familiar, but few of which have ever been adequately answered. His last chapter, entitled "Help for the Sufferer," distinguishes his book from almost any other of the kind that has appeared.

The chief feature of psychotherapeutic literature, both for the medical profession and for the laity, is its unfortunate absence of constructive suggestion. Dr. Gordon is revolutionary enough to tell his readers what and what not to do. He bids the neurotic's friends remember that gratuitous advice is neither appreciated nor helpful. They should, he says, let the neurotic talk and pour out his troubles and not interfere until he has finished. The next rule—a hard one—is to preserve the strictest confidence in anything learnt from a neurotic. The friend, moreover, must never criticize implicitly or explicitly during the narrative; in all circumstances he must maintain the neurotic's self-respect, and never assume an attitude of superiority, or indeed allow himself to feel superior. He must avoid variations in his own emotional attitude towards the neurotic, and lastly he must never tell the sufferer to pull himself together unless he has some definite idea how this should be done. These valuable suggestions postulate a friend with very exceptional qualities of sympathy and sanity. Perhaps the severest criticism that could be levelled against Dr. Gordon's book is to suggest that the neurotic from his very nature rarely has friends who are capable of following Dr. Gordon's wise advice. If he has, he is lucky.

CLINICAL ELECTROCARDIOGRAPHY

Facility and reliability in the interpretation of electrocardiograms can only be acquired by the regular analysis of records. The *Students' Handbook of Clinical Electrocardiography*¹ has been planned by Dr. WILLIAM EVANS as an aid to those who require a working knowledge without excess of detail. A very brief account of the broad principles of the method and nomenclature is followed by a plan of analysis which is to be applied in the reading of all records. The body of the manual consists of a number of very good reproductions of electrocardiograms, each analysed according to the method advised. Appended are twelve test tracings with a key. Dr. Evans has aimed at providing not only for the needs of general practitioners, but also for those of students working for examinations and house officers in smaller hospitals. This modest claim might appropriately be extended to house officers at any hospital and students at any stage, from the earliest clinical work onward.

Dr. CHAUNCEY MAHER's manual on *Electrocardiography*² has been compiled with an object similar to that of Dr. Evans. It has admirably fulfilled this purpose by the adoption of an explanatory device in which for each arrhythmia the heart is schematically presented with its conducting system and the direction of impulse propagation, together with the corresponding electrocardiogram and an explanatory legend. This is perhaps the clearest system yet devised for the demonstration of the significance of electrocardiograms. While Dr. Maher has achieved his aim, he has somewhat exceeded it. The 250 pages of this volume embrace among the usual

topics a consideration of the theory of the electrocardiogram and axis deviation, the effect of drugs and acute infective disease, and a chapter on the clinical concepts of heart disease and the arrhythmias. This book has been well thought out and carefully compiled; it merits the attention of those to whom it is addressed, and, furthermore, deserves to find a place among the standard books on clinical electrocardiography.

RECENT ADVANCES IN ALLERGY

Only three years have gone by since the first edition of this work by Dr. GEORGE BRAY was published and it is some tribute to the popularity of the subject that a second edition³ has been called for so soon. During the interval it has been necessary to augment it by 700 additional references, and many of the facts set out in the first edition have consequently required condensation to enable the more important of the recent papers to be summarized at some length. The association of allergic with other diseases, nasal catarrh, and other systemic manifestations, such as cardiovascular conditions and dysmenorrhoea, form the subjects of new chapters, while fresh references include work on pyrogenic therapy, erythema nodosum, ulcers, and the Shwartzman phenomenon. Notable events since the publication of the first edition have been the first International Congress on Asthma at Mont Dore, in June, 1932; the third International Paediatric Conference, held in London in July, 1933, in which the role of allergy in children's diseases was one of the two major subjects for discussion; and finally, the death a few weeks later of that outstanding figure in the study of allergic problems, Professor Storm van Leeuwen.

In his preface to the second edition Dr. Bray writes: "The study of allergy is making great strides, and practitioners and patients are anxious to avail themselves of modern methods of treatment, for nowadays most allergic manifestations at all ages are amenable to cure." A tribute is paid to the financial assistance given by the Asthma Research Council to numerous investigators and clinics, and to the Halley Stewart Trustees for further endowments for research into these problems.

PRACTICAL BIOCHEMISTRY

Koch's *Practical Methods in Biochemistry*⁴ is a new publication, but it is intimately associated with one of the best-known textbooks on physiology, being written as a companion volume to A. P. Matthew's treatise. It is admirably arranged in its three sections devoted to cell constituents, digestive juices, and blood and urine respectively. The exercises are set down with great clarity, and a commendable feature is the manner in which the qualitative reactions are treated in terms of the concentrations of the reacting substances, thereby serving to develop in the beginner a true quantitative sense. In general, the student is introduced to selected methods of practical importance, and is not overburdened or confused by being offered too great an assortment of methods. One would like to have seen included a few representative preparatory exercises on the amino-acids, and also some tables recording the normal composition of the body fluids which come under consideration. These omissions, however, do not constitute any serious defect, and the book compares very favourably with other works on the same subject. In subsequent editions the author might

¹ *A Students' Handbook of Clinical Electrocardiography*. By William Evans, M.D., M.R.C.P. London: H. K. Lewis and Co. Ltd. 1934. (Pp. x + 50; 64 figures. 5s. net.)

² *Electrocardiography*. By Chauncey C. Maher, B.S., M.D. London: Baillière, Tindall and Cox; Baltimore: Williams and Wilkins Company. 1934. (Pp. xiv + 250; 85 figures. 15s.)

³ *Recent Advances in Allergy*. By G. W. Bray, M.B., Ch.M. Second edition. London: J. and A. Churchill, Ltd. 1934. (Pp. xv + 503; 106 figures, including 4 coloured plates. 15s.)

⁴ *Practical Methods in Biochemistry*. By Frederick C. Koch. London: Baillière, Tindall and Cox. 1934. (Pp. viii + 280; 17 figures. 10s.)

with advantage assume that the student knows what is meant by a percentage solution, and thereby much reduce a somewhat lengthy appendix.

FOLIN'S *Laboratory Manual of Biological Chemistry*¹ derives its special importance from the fact that the author has for so long occupied a leading position among those who have set themselves the task of devising and improving methods of biochemical analysis. Since the last edition appeared in 1925 many notable advances have been made in the analytical field as well as in other branches of biochemistry, and the new edition (the fifth) describes the very latest developments of the author's technique. New methods appear for blood sugar, non-protein nitrogen, uric acid, and creatinine, and more attention is given to micro-methods. The additions have meant a further increase in the size of the supplement, which now occupies about half the book. This fact, however, is not to be regretted, since it is the supplement rather than the laboratory course proper which holds the greater interest for the majority of biochemists.

Notes on Books

Dr. D. T. HARRIS'S *Practical Histology for Medical Students*,² now in its third edition, is planned on original lines, and cannot fail to be of great use to students of normal histology. Its merit is that it gives the student full directions as to how he is to proceed, at every step in the course. It describes the apparatus required by the student in his private work, the stains he needs, the type and management of his microscope, and under each and every tissue in turn are given directions for fixation, staining, mounting, and study. Brief accounts are also given of special details to be recognized in the preparations, and blank pages are inserted to enable the student to make sketches of the specimens as permanent records. In addition to the descriptions of the mode of making fresh and permanent preparations, many matters are included which will be of clinical value to the student subsequently, such as blood counts, haemolysis, and transfusion tests. The book can be thoroughly recommended to those who are commencing their course.

Professor RICHARD CABOT'S well-known *Physical Diagnosis*,³ now in its twenty-ninth year, shows the same independent expression of experience which has made it so attractive. Thus he considers that the diagnostic value of the state of the pupils has been much overestimated, for except in tabes and general paralysis of the insane they seldom provide much help; the stress laid in textbooks on their condition in coma is regarded as misleading or useless as a diagnostic guide. This edition has been revised and reset throughout, and a number of additions made. The excellent illustrations, more than one to every two pages of the text, form a useful picture gallery for facial diagnosis.

The eighth edition of *The Diabetic Life*⁴ appears rather less than two years after its immediate predecessor. Although it shows no fundamental change, it contains fresh material culled from practical experience, including some additions to the list of recipes. The line-ration scheme has been modified to provide high carbohydrate lower fat diets where they seem indicated, and an important section has been added on the minimal care necessary for insulin cases. Emphasis is laid on the vital importance of always giving a regular fixed amount of carbohydrate

to balance the correct dose of insulin, for without this precaution the patient's condition will always be varying between uncontrolled diabetes with hyperglycaemia and unpleasant hypoglycaemia. The new edition has received careful revision, and its comprehensiveness is very apparent. The author refers in his preface to the foundation of the Diabetic Association, and advises his readers to become members. The book is written for patients as much as for medical practitioners, and serves an undoubtedly useful purpose in that it can be employed by the latter to tighten the necessary control over the lives of diabetic persons, and so ensure the success of treatment.

Injection Treatment in General Practice,⁵ by Dr. M. L. GUJRAL, adds little to what has already been written on this subject. The author has evidently been at some pains to make his compilation as exhaustive as the limit of some 200 pages will allow, but the value of his book is largely discounted by a complete lack of reference to his sources of information. It is impossible to recognize which statements, if any, Dr. Gujral makes on his own responsibility and which are copied from the works of other authors, nor does he indicate the origin of some of his figures. The book contains some curious misprints and spelling errors.

¹ *Injection Treatment in General Practice*. By M. L. Gujral. M.B., M.R.C.P. Delhi: Practical Medicine. 1934. (Pp. 209; 14 figures. 6 rupees.)

Preparations and Appliances

AN ELECTRICAL MAINS ADAPTOR FOR DIAGNOSTIC SETS

A new mains adaptor for ophthalmic and other diagnostic instruments has lately been placed on the market by Gowllands, Ltd., of Croydon. This firm, whose principal business is the manufacture of optical instruments (which are distributed to the wholesale trade only) makes a speciality of medical diagnostic sets comprising a number of interchangeable observation instruments operated from a common battery handle holding a dry cell. It has now designed a transformer which is fitted into the battery handle so that any suitable instrument, instead of relying on a battery, can be run from the mains. A single wire through a hole in the cap of the handle, which is provided with a special spring to protect the cable against damage and to hold the transformer securely, can be connected up to the nearest wall or light point, and a resistance in the handle can be used to control the intensity of the illumination. Thus the unit may be employed in exactly the same way as a dry battery, but, of course, without exhaustion. The temperature rise of the instrument on continuous use is stated not to exceed a few degrees. It is double wound and tested at 1,800 volts between the windings for insulation, and is guaranteed for one year against breakdown or electrical failure. The transformer is wound for 200 to 250 volts alternating current only, and now that the greater part of the country is fed from the grid system the adaptor can be used almost anywhere—as, for example, by the general practitioner in the homes of most of his patients. The output is 2½ volts, and sufficient power is supplied to operate the small ophthalmoscope or auriscope or other lamp. The unit weighs only a few ounces more than with the dry cell, and is very convenient and portable, offering a means of converting battery-operated instruments into mains-operated ones with the minimum of trouble.

LEMON BARLEY WATER

"L.B.W." is a concentrated extract of pearl barley flavoured with fresh lemons, with the addition of 0.05 per cent. benzoic acid as a preservative. It is a palatable and refreshing beverage for the sick-room, and does away with the need for daily preparation of barley water in a busy household. The manufacturers are L.B.W. Ltd. (Newcastle-on-Tyne), and bottles, price 1s. 9d., may be obtained through the usual retailers.

SURGONS' HAND SOAP

"Allenburys" have brought out a new preparation called "surgeons' hand soap (sample received)" which is described as "a neutral liquid soap, antiseptic and superflatted." It has an antiseptic coefficient equal to 1-20 carbolic. This is recommended as an ideal detergent for doctors, dentists, and nurses, and for general hospital use. It can be used for cleansing hands, instruments, and dressings, etc. In practice it lathers reasonably well, and is not irritant to the skin. The 4-oz. bottle costs 1s. 6d., the 10-oz. size being sold at 2s. 6d.

¹ *Laboratory Manual of Biological Chemistry*. By Professor Otto Folin. Fifth edition. London and New York: D. Appleton-Century Co. 1934. (Pp. 767, 12 plates.)

² *Practical Histology for Medical Students*. By D. T. Harris, M.D., D.Sc. Third edition, revised. London: H. K. Lewis and Co. Ltd. 1934. (Pp. 56; 2 plates, 1 coloured. 7s. 6d. net.)

³ *Physical Diagnosis*. By Richard C. Cabot, M.D. Fifth edition. London: Baillière, Tindall and Cox. 1934. (Pp. xxiv + 540; 569 figures. 25s. 6d.)

⁴ *The Diabetic Life: Its Control*. By Diet and Insulin. By R. D. Lawrence, M.A., M.D., F.R.C.P. Eighth edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 224; 12 figures. 8s. 6d.)

RESEARCH IN MENTAL HOSPITALS

Part II of the Board of Control's Report for the year 1933* (Part I of which was noticed in the *Journal* on October 6th) opens, as usual, with a supplement descriptive of the scientific research work carried out in mental hospitals and mental deficiency colonies during the year. This supplement, indeed, forms the bulk of Part II, occupying 135 of its 176 pages.

The supplement is followed by five appendices: lists of institutions in England and Wales (a) for persons suffering from mental disorder; (b) for voluntary patients only, provided by a local authority; (c) hospitals for voluntary and temporary patients; (d) nursing homes approved for voluntary and temporary patients; and (e) institutions for the mentally defective.

At one time Part II of the report was a bulky tome, but, no doubt in the interests of economy, it has shrunk in recent years to a third of its former size, partly by the deletion of the statistical tables, some of which (for example, tables of forms of mental disorder; tables of assigned causes of insanity, etc.) were of doubtful scientific value, and partly by the cessation of publication of copies of the entries made by the Commissioners at their visits to mental hospitals, some of which contained matter of considerable public interest. Doubtless the introduction of new tables required by the operation of the Mental Treatment Act introduced complications from the statistical point of view which might make the perpetuation of such statistical analyses undesirable: but a certain lack of statistical background to Part I of the report is perceptible.

The seventy-two reports embodied in the supplement certainly afford evidence of the considerable amount of research work now being carried out in the mental hospitals of the country; and also, even though many institutions merely furnish tabulations of pathological and biochemical investigations made during the year in connexion with their great task of clinical treatment, furnish ample proof of activity in this direction on a scale only faintly realized by the public. It may be said without fear that first admissions to mental hospitals are investigated from the physical point of view with a completeness which is not, and need not be, attempted in any other class of hospital. In both of these directions Part II is of value as giving a comprehensive view of the work of the mental hospitals of the country. Of particular interest a few may be mentioned. The Joint Board of Research for Mental Diseases (City and University of Birmingham) continues, *inter alia*, the results of investigations into the prevalence and effects of septic foci in teeth, tonsils, and sinuses, a point also covered by the report of the Cardiff City Mental Hospital, where Dr. J. H. Quastel and others have been for long pursuing researches into narcosis and oxidations of the brain and Professor Cummins into tuberculin tests. The reports from several hospitals summarize their results from malarial therapy, that from Horton (L.C.C.) Mental Hospital containing a very valuable paper by Dr. W. D. Nicol on the relation of syphilis to mental disorder and the treatment of general paralysis by malaria, while Colonel James of the Ministry of Health furnishes a brief account of anti-malarial chemotherapeutic tests carried out at the Devon Mental Hospital, Exminster, with the collaboration of Dr. R. Eager.

From St. Andrew's Hospital a report of much interest by Dr. Ruby Stern gives the results of an investigation into the intestinal flora in physical and mental disease, the case material having been supplied by the Mental Hospital itself on the one hand and from Charing Cross Hospital and Northampton General Hospital on the other.

The scientific work carried out in institutions for the mentally defective is growing steadily in importance, of special interest at the moment being the report of the research department at the Royal Eastern Counties Institution, Colchester, where a five-year plan of research, including a complete clinical, physical, and mental examination of the 1,500 defectives in that institution, is in progress, by Dr. L. S. Penrose and two assistants.

* The Twentieth Annual Report of the Board of Control for the Year 1933. Part II. London: H.M. Stationery Office, 1934. (2s. net.)

BRITISH HEALTH RESORTS ASSOCIATION

The second annual general meeting of the British Health Resorts Association was held at the Institute of Hygiene, Portland Place, on November 22nd.

Lieut.-Colonel ELLIOT, who was in the chair, said that the report showed a year of good work, but that while the association was now paying its way and was no longer disheartened by a heavy load of debt, it was still handicapped for lack of means. There had been a considerable increase of medical subscribers during the year. He expressed his thanks to those resorts which had supported the association, and particularly to the British Spas Federation, with which there had been happy and effective co-operation. He did not understand why many of the seaside resorts which were usually so energetic in promoting their own interests did not follow the example of those that had supported the association. If the association's propaganda was successful it must mean the extension of the length of the seasons of many health resorts and the creation of new seasons for some of them. During the past year the association had met in conference for the first time on the East Coast at Cromer, and he hoped that in the coming year some enterprising resort on the West Coast would follow suit. The association was endeavouring to interest one or more of the medical educational bodies in the provision of post-graduate education in climatology and hydrology, to be followed by an examination and diploma. It was also hoped to get the Ministry of Health to follow the example of Continental Governments and give, not financial support, but formal recognition to the fact that the health resorts of this country were a national asset in the prevention and cure of disease.

Lord Meston, president of the association, supporting the adoption of the report, said that British people took a long time to absorb a new idea, and the notion that they could get at least as good, if not better, help, attendance, and medical care in their own country was to many a completely new one. He believed that a number of seaside places, which were at present concentrating on the pleasure side of their propaganda, would come to realize their potentialities as health resorts, to the great benefit not only of themselves but of the public.

Lieut.-Colonel W. BYAM, chairman of the Medical Advisory Committee, reviewed the work and the programme of that committee, and emphasized the fact that the association, in endeavouring to interest the public in the value and claims of our health resorts, found its special line of approach through the medical profession. There was much to be done in the way of research before the health resorts could be so differentiated as to put their claims on a proper scientific basis, and he believed that a body like the British Health Resorts Association, with its strong medical advisory committee, could do this if it were properly supported. Dr. C. W. BUCKLEY said that sea-bathing to-day was regarded merely as a form of pleasure, but that its therapeutic advantages—and even disadvantages in certain cases—should be closely studied. Doctors had to treat many cases of severe rheumatism and kindred complaints due to unwise sea-bathing. He announced that Buxton was inviting the association to hold a conference there in the spring. Dr. MATTHEW RAY alluded to the active propaganda which was being carried out in this country on behalf of the muds of a Continental resort which had a deservedly high reputation in the treatment of the rheumatic diseases. Many experiments, he said, had been made in this country by experienced observers which showed it was not the locality from which the mud was derived that mattered, but the latter's capacity for retaining heat, and also the methods used and the after-treatment. He was convinced that there were products in this country, including peats, muds, and china clay, which were quite as effective as any Continental product.

Lord Meston was re-elected president of the association, and Lord Horder and Lord Riddell vice-presidents. The names of Professor W. Langdon Brown, Sir Stanley Woodwork, and Mr. R. C. Vaughan were added to the list of vice-presidents.

ONE HUNDRED AND THIRD ANNUAL MEETING
of the
British Medical Association
MELBOURNE, 1935

THE British Medical Association will hold its 103rd Annual Meeting in Melbourne, Australia, during the week beginning September 9th, 1935, under the presidency of Sir Richard Stawell, K.B.E., M.D., consulting physician to the Melbourne Hospital. The Sectional sessions for scientific and clinical work will be held on Wednesday, Thursday, and Friday, September 11th, 12th, and 13th. The Annual Representative Meeting for the transaction of medico-political business will take place in London at the Association's House on Friday, July 19th, and following days.

Members travelling to Australia through the United States will sail for New York from Southampton on July 27th; if travelling by the Canadian route to San Francisco, they will sail for Montreal from Liverpool on July 26th, or from Glasgow on July 27th. Particulars of the two routes were given in our *Supplement* of March 10th. All arrangements for the journey are in the hands of the Financial Secretary and Business Manager, B.M.A. House, Tavistock Square, London, W.C.1, to whom early application should be made for reservation of places on steamers and trains and at hotels. Members who cannot afford to be away for the whole time of the "round-the-world" tour may leave London on August 8th, travelling overland to Toulon and embarking there on a P. & O. liner which arrives at Fremantle on September 3rd. The journey on to Melbourne takes three days by rail, so that those who follow this route will reach their destination three days before the meeting opens.

The honorary local general secretary for next year's Annual Meeting is Dr. J. P. Major, Medical Society Hall, East Melbourne, Victoria. The names of the officers of the fourteen Scientific Sections are given in the *Supplement* this week; and further information, with provisional programmes, etc., will appear in subsequent issues. We publish below the second of a series of descriptive and historical articles, on the city of Melbourne and its medical institutions; the first appeared on October 20th (p. 730).

THE STORY OF THE MELBOURNE MEDICAL SCHOOL

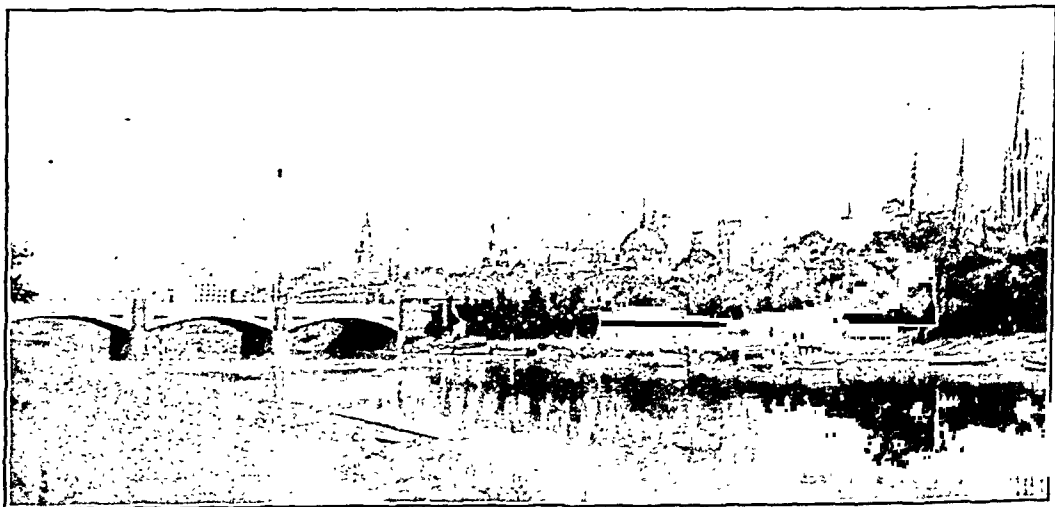
BY

PROFESSOR W. A. OSBORNE

DEAN OF THE FACULTY OF MEDICINE

The formal inauguration of the University of Melbourne took place on April 13th, 1855, three years and nine months after the Port Phillip district, a portion of New South Wales, had become the State of Victoria. In this

University, Sir Redmond Barry, was just as eager to start a school of law. Brownless, who may be regarded as the real founder of the school, never flagged in his efforts, and at last, by a reduction of his request for



View of Melbourne from across the Yarra River.

same year Dr. (afterwards Sir) Anthony Colling Brownless, a Bart's man, who had come to Australia in the gold rush of 1852, was elected a member of the governing body or council, and immediately started an agitation for the creation of a medical school. He was ably supported by his colleagues in medical practice, but the difficulties at first seemed insuperable: the colony was small, the Treasury exiguous, while the Chancellor of the

£26,000 to a more modest £12,000, and by the generous action of the lecturers in law and engineering in relinquishing part of their salaries, the project was adopted in 1861, and the first lectures in chemistry were given in a private laboratory by Dr. John Macadam, an M.D. of Glasgow.

The curriculum adopted at the start of the school, the first in the Antipodes, showed some remarkable features. Dr. (afterwards Sir James) Paget of London, who had

been consulted, recommended a three years' or, at most, a four years' course of study, but Dr. Brownless realized that in the Old Country there was a belief that all matters, particularly educational, were make-shift and below home standard in the colonies. With great courage the council, on Dr. Brownless's recommendation, insisted that after matriculation—and this involved the passing of a fairly stiff examination—there should be five years of medical study with five exacting examinations. This severity of standard was something new in the Empire, and thirty years had to elapse before the General Medical Council in London could regard it as practical in the United Kingdom. Here may it be stated that from this early date until the present time the university degrees of M.B., B.S. have constituted the one and only local portal to the medical profession. There have never been any back entrances or short cuts, and the status of the profession to-day testifies to the wisdom of the founders.



Department of Pathology, Melbourne University.

Halford : The School's First Professor

It was realized from the start that a professor was wanted who could take on the burden of organization and administration and establish the school on sound lines. Dr. Paget and Professor (afterwards Sir Richard) Owen, acting as a London committee, selected Dr. George Britton Halford, a Sussex man practising in London, as professor of anatomy, physiology, and pathology. He arrived in Melbourne on December 22nd, 1862, and soon was busy with Dr. Brownless drawing up plans of buildings, which with fine optimism were devised much in excess of the needs of the time. Professor Halford gave his inaugural lecture on May 1st, 1863. He had already done brilliant research work on the heart in London, most of which was embodied in the book *The Action and Sounds of the Heart*, published by Churchill in 1860, a volume that might well be reprinted to-day, for the experiments on which it was based took on the exactness of a research on natural philosophy.

Halford demonstrated among other things the fixity of the apex, the action of the pericardium, the valvular contribution to the first sound, and, prettiest of all, the action of eddies in approximating valve flaps so that the valves are really closed before systole begins, and regurgitation or clack is avoided. Halford may also be regarded as a pioneer in comparative physiology, or "Zoological analogies" as the *Lancet* called it (March 17th, 1860): "a mode of inquiry which Dr. Halford appears to have been the first to institute" (*ibid.*). Evidence of his enthusiasm and of his racy style is given in his account of how he listened to the heart sounds of

the apteryx, which bird, Dr. Owen had declared, had "mammalian affinities" in its heart.

"As stealthily as thieves to their business, or as Tarquin to Lucrece, did the keeper and I approach the apteryx by night, he leading the way. Having secured her in his arms she became easily pacified and, unseen by her, I placed my stethoscope to her chest, broad, without a keel, and listened for some time. Never was there a prettier result. The sounds were not like those of the eagle, for the first sound had resumed its mammalian length and lub duc was once more heard."

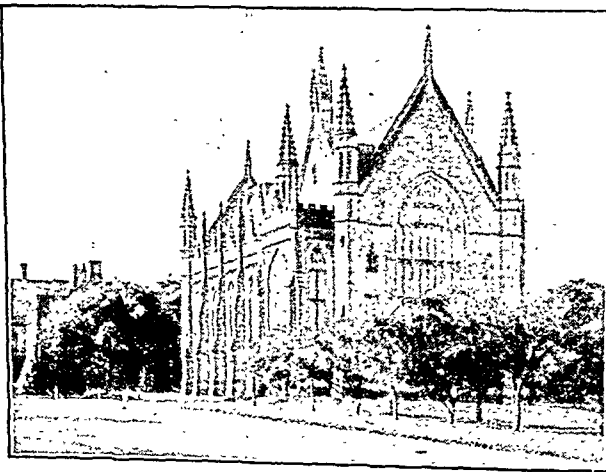
Halford's somewhat unconventional manner was not pleasing in the eyes of the Chancellor, Sir Redmond Barry, a pompous lawyer. In 1864 Halford argued that a man called Harrison, condemned to death for murder, was probably insane. His pleadings, disregarded by the authorities, aroused the gratitude of the condemned man, who, without legal power of course, bequeathed his body to the professor. Halford got access to the body after execution, severed

the head, and made off with it to his dissecting room. To continue the story in the words of *The Times*:

"The gaol surgeons were in consternation and appealed to the Sheriff. Law and justice were at the moment at fault. At length it was determined that the Sheriff, accompanied by a justice of the peace and by a policeman, should forthwith proceed to the university and demand the brains. On arrival of the formidable Sheriff, six foot four inches in height, at Professor Halford's rooms, the professor was found surrounded by medical men and the brain before him, the dissecting then proceeding. The Sheriff demanded the public property. Professor Halford asserted that the brains were his by bequest of their former owner. The Sheriff contended, with much

force, that the brains were "the Government's brains," and that a convict on the scaffold had no property even in his own brains. Finally, the gaol surgeons being present, it was arranged that the dissection should proceed, and at the end the brain was pronounced perfectly healthy."

Sir Redmond Barry was furious, and addressed a stern rebuke to the over-zealous anatomist. Six years later Halford was anxious to give a public lecture on protoplasm, but the council, led by Barry, forbade it. No doubt they considered the awful word redolent of Huxley, Tyndall, and Herbert Spencer, and yet Halford was an



Wilson Hall, Melbourne University.

anti-Darwinian, and orthodox in his faith.

Growth of the School in the 'Eighties

Halford's first class in 1863 consisted of three second-year students who met for dissection and instruction in a shed; but in May, 1865, a substantial medical school was completed, which now, after some structural alterations, is divided between chemistry and physiology. Steady

growth in numbers necessitated new buildings in 1881. So far one professor with a team of lecturers, most of them in medical practice, was regarded as sufficient for purposes of medical instruction, but in 1882 the chair was divided, Halford retaining physiology and histology, whilst his pupil, Dr. H. B. Allen (afterwards Sir Harry Allen), was given the chair of anatomy and pathology. In 1886 Allen took on the deanship, and from then until his retirement in 1923 dominated the medical school. He was in many respects a remarkable man with exceptional administrative gifts; he was also an enthusiastic morbid anatomist. His reading in English and French medical literature was wide and his memory tenacious. Like most self-trained teachers he was not *au fait* with the methods of research, and did not encourage a research spirit in his pupils. On the other hand, he came to conclusions concerning the syphilitic causation of many post-mortem appearances which later work justified.

In the middle 'eighties the scientific preliminaries for medical study were greatly strengthened by the appointment to the chairs of chemistry and physics of Professor (afterwards Sir David) Orme Masson and Professor (afterwards Sir Thomas) Lyle—both of whom are happily still with us though emeritus—and Professor (afterwards Sir Baldwin) Spencer, great as an anthropologist as well as a biologist. The advent of these distinguished men of science was soon followed by the erection of suitable laboratories.

Reciprocity of Medical Registration with Great Britain

In 1890, through the representations made by Professor Allen, reciprocity with Great Britain in the matter of medical registration, was granted, and Allen himself became the first person to be registered in the United Kingdom in respect of a qualification wholly derived from a British Colony. The curriculum from this time on has conformed to the regulations laid down by the General Medical Council.

The year 1896 marked the retirement of Professor Halford and the arrival of Dr. (now Sir Charles) Martin, who supplied the missing research enthusiasm which was soon to inspire Dr. E. H. Embley, a busy practitioner, to embark on a laborious and important investigation on the causation of death under chloroform. Professor Martin resigned in 1903, and was succeeded by the writer. The opening of the century saw a building reserved for bacteriology. In 1906 a chair of anatomy was founded, the first occupant being Professor R. J. A. Berry, and a department of biochemistry under a lecturer, Dr. A. C. H. Rothera, who was succeeded in 1919 by the present holder, Associate Professor W. J. Young.

Clinical Schools

The Melbourne Hospital was the original general hospital for clinical instruction, but in 1909 the Alfred Hospital and St. Vincent's were recognized as teaching clinical schools. By this time also the Women's Hospital, the Eye and Ear Hospital, the Children's Hospital, and the Asylum were used for instruction in their respective specialties.

The new and spacious anatomy department was formally opened in 1923 by Sir William Macewen. In 1925 Professor Peter McCallum, the present holder, was appointed to the chair of pathology; in 1929 Professor Berry was succeeded by Professor Wood-Jones, whilst in 1930 a new chair of obstetrics was created, and Professor Marshall Allan was appointed. There are at present, therefore, four professorial positions in the medical school: anatomy including histology, obstetrics, pathology, and physiology; a fifth, bacteriology, is likely to be added in the near future. Teaching in medicine and surgery is relegated in each case to a team of experts under the chairmanship of a lecturer; this method has proved valuable for teaching purposes, but it is not conducive to research work. Fortunately the Hall Institute at the Melbourne Hospital and the Baker Institute at the Alfred Hospital are devoted to medical research, and have large and competent staffs.

The student body began, as stated, in 1863 with three members, who were, of course, males, and who displayed their masculinity with abundant whiskers; women were not admitted until 1887. In 1880 a medical students' society was founded, and two of the first members now occupy prominent places in Melbourne life—Sir James Barrett and Dr. Felix Meyer.

The numbers of students have shown fluctuations very similar to those experienced elsewhere. In 1914 there were 402 students and the next year 370. Then came the post-war peak in 1921 of 795, falling to the 1914 level in 1925 and 1928. At present the indications are those of continued growth, the figure for the current year being 581.

ATMOSPHERIC POLLUTION

Thirty-two representatives of local authorities and other organizations co-operating with the Department of Scientific and Industrial Research in the investigation of atmospheric pollution met on November 26th in the half-yearly conference at the offices of the Department. The gathering included representatives from London, Manchester, Glasgow, Liverpool, Southampton, Leicester, Newcastle, Hull, Scarborough, Halifax, Lancaster, Leamington, and Wolverhampton.

The Conference, over which Councillor W. Brownhill-Smith of Glasgow presided, received a report from Dr. G. M. B. Dobson, F.R.S., on the progress of the researches carried out under the Atmospheric Pollution Research Committee. Dr. Dobson stated that the new method which had been developed at the Building Research Station for estimating sulphur in the atmosphere was now being used at twenty-seven stations. It was hoped that it would be adopted still more widely by local authorities, as it gave, with little expense, information of great value concerning one of the most destructive of atmospheric impurities. He also referred to trials which were being made of a photo-electric method for recording daylight. If successful, this method will provide a virtually automatic means for measuring the amount of the sun's ultra-violet light cut off by smoke haze.

Mr. Beaumont of Halifax suggested that there was much more that local authorities could do to provide information about the effects of atmospheric pollution. He instanced that in Halifax, side by side with the deposit gauges recording the highest and lowest deposits, apparatus was employed in order to give information with regard to the sunlight received at those points. A large amount of useful information had been gained in that way, showing that, as compared with the less polluted station, the other lost about 25 per cent. of sunlight during the year, the percentage loss being greater in winter than in summer.

The members of the conference were agreed that the subject of atmospheric pollution needed much greater public attention, and that the scientific investigation of it should receive the support of all local authorities.

A. Patot, Warembourg, and Bédine (*Paris Méd.*, September 29th, 1934, p. 229) state that thoracic cancer is usually secondary to that of the alimentary canal and genital organs, particularly of the uterus; hence females are mostly affected. These neoplasms cause a symptomatic syndrome (Ménérié's) of oedemas, peritoneal and pleural effusions, supraclavicular adenitis, and thrombophlebitis of the jugulo-subclavian confluence. The oedemas commence in the lower extremities and gradually extend to the abdominal wall, in certain cases the left thoracic wall and left arm become infiltrated. The pleural and peritoneal effusions, evidenced by the usual signs of hydrothorax and ascites, may be serous, haemorrhagic, or chyliform, but rarely chylous. Left supraclavicular adenitis is frequently the only sign of thoracic cancerous invasion. Trossier's ganglions are those affected, and the adenitis may be mono-ganglionic or pluri-ganglionic. The diagnosis of thoracic cancer is of merely prognostic value; it is only evidence of a generalization of the cancerous condition, and death usually occurs shortly after its appearance. A typical case is fully described.

British Medical Journal

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VITAMIN A AND NERVE LESIONS

The relation between dietary factors and the nervous system has occupied many workers for a long time, and there is no doubt that the experimental evidence tends more and more to substantiate such a relation. The importance of this work is at once obvious, and gives rise to hope that the problems of the obscure causes of the commoner degenerations in the nervous system will soon receive some measure of solution. The investigations carried out up to the present are of a somewhat drastic nature. The demonstration of distinct nervous lesions in animals fed for long periods on vitamin-deficient diets must be regarded as the necessary link in the chain of knowledge which will lead to the clarification of many problems of human neurology. Parallel with these studies of dietary factors (which are, after all, chemical factors) it is necessary to keep in mind the contributions of the pharmacologists and physiologists to the chemical or humoral theory of nervous transmission. The action of the vagus is no longer a mysterious inhibitory influence of a nerve ending on a special cardiac tissue, but a liberation of a chemical mediator which exerts effects indistinguishable from those of parasympathetic action. Similar conceptions have arisen in the matter of sympathetic action, and the theory of humoral transmission seems to have come to stay, for some time at least. It appears, then, that the proper transmission of nervous impulses requires the presence of chemical mediators between the nerve and the effector organ. The specificity of the chemical mediator is perhaps its most striking character.

In the matter of vitamins and hormones we are already so accustomed to the idea that minute quantities of specific substances are necessary for the normal processes of growth and metabolism, that the essentially remarkable nature of the phenomena is often overlooked. How do vitamins bring about their effects? What is the nature of the interaction of the relevant tissue and the vitamin? Indeed, we are not clear as to where the vitamin molecule acts. In the case of the xerophthalmia which results from vitamin A deficiency, for example, are we to suppose that the cure of the condition by administration of the vitamin is due to a direct action of the latter on the cornea? Some recent work by Professor Edward Mellanby¹ is of interest in this connexion. He starts from the two established sequels of diets deficient in vitamin A and carotene—namely, hyperplasia and metaplasia of epithelium and mucous surfaces with frequent secondary infection and the degeneration of medullated nerves both in the

central and in the peripheral nervous systems. It is interesting to note that as long ago as 1926 Mellanby showed that puppies fed on a diet deficient in fat-soluble vitamins developed severe nervous symptoms with incoordination as the most marked symptom. At that time he attributed the condition to hypothetical "toxamins" present in wheat-germ which he had added to the deficient diet. The effects were annulled by addition of butter or cod-liver oil to the diet; this was, of course, due to the vitamin A thus administered. In the present work Mellanby argued that it should be possible to correlate the epithelial changes with the nerve changes which arise from vitamin A deficiency. He therefore studied the histological changes to be found in the ophthalmic division of the trigeminal nerve and in the Gasserian ganglion when xerophthalmia had been established in rabbits fed on a vitamin A deficient diet. Careful examination revealed that when the corneal changes appeared there were in the corresponding nerve degenerative changes in the myelin sheaths. In early slight xerophthalmia cure could be effected by vitamin therapy in a relatively short time, with removal of the pathological changes in both the cornea and the nerve. The type of degeneration in the nerve in these mild cases was interesting, in that it was mainly a breakdown of the medullary sheath without invasion of the axis cylinder by the myelin droplets, and there was only a slight degree of swelling in the fibres. When, however, the corneal changes were very severe the degeneration of the nerve was of the typical Wallerian type, and cure was not nearly so successful as in the milder cases. In order to prove conclusively that the corneal changes are due to neurotrophic dysfunction it would be necessary to demonstrate that they always followed the degenerative changes in the nerve. This is a rather difficult matter, but it appears that when only one eye is affected by xerophthalmia the nerve of the other cornea rarely contains any degenerating fibres. Further, the author found definite evidence of pathological changes in the cells of the Gasserian ganglion, and he tends, on the whole, to the view that the sequence of events in this syndrome is degeneration of the ganglion cells, consequent demyelination of the afferent nerve fibres and later destruction of the axis cylinders, and, finally, the corneal changes resulting from the removal of neurotrophic supply. Arguing on analogy from these observations Mellanby considers the probability that many of the extensive changes in the respiratory, genito-urinary, and alimentary tracts, and the involvement of the optic, cochlear, and vestibular nerves, as well as of the posterior roots, may all have similar bases—namely, neurotrophic disturbances from afferent nerve degenerations.

The extensive nature of the lesions which may result from vitamin A deficiency is well illustrated in a recent communication by S. B. D. Aberle.² This author found that rats fed on vitamin A deficient diets frequently had foci of infection in the kidneys, cystitis,

¹ *Journ. Path. and Bact.*, May, 1934, p. 391.

² *Journ. of Nutrition*, April, 1934, p. 445.

pulmonary infection, and infection of the glands at the base of the tongue. In addition, lesions were present in the spinal cord, consisting of degeneration of the medullary sheaths of the sensory tracts at the periphery; in some this degeneration was found in posterior columns and in others in the posterior roots. These lesions were associated with a marked weakness or paralysis of the extremities. It is interesting that these symptoms only appeared in those animals which had been on the deficient diet long enough to cease growing or to develop xerophthalmia. Clinical cure could be effected by feeding cod-liver oil, but lesions were still demonstrable in the nervous tissue, which might have been expected to produce marked symptoms. It is suggested that the axis cylinder may function before the demyelination of the nerve is complete, which is supported by the findings of certain workers that stimulation of the motor cortex may elicit motor response before the cortico-spinal tracts are myelinated.

From the purely clinical point of view we have to consider how far these findings may secure application in the treatment or arrest of nervous disease. The necessity of certain minute quantities of specific chemical substances for the proper nutrition of nerve cells, nerve fibres, and the proper maintenance of trophic control, is what has now to be appreciated by the clinician. Hormones, vitamins, chemical mediators: these are the terms in which the future clinician will discuss the problems of neurology.

APPLIED HUMAN BIOLOGY

Professor J. B. S. Haldane is frequently provocative. His utterances always call forth thought, and sometimes dissent. This characteristic is no less evident than usual in his Norman Lockyer Lecture on "Human Biology and Politics," delivered last week under the auspices of the British Science Guild, and published in pamphlet form.¹ The subject itself, quite apart from the manner of its presentation, tends to produce reactions of prejudice and personal feeling not conducive to scientific calm, from which the corresponding applications of physics to industry or of general biology to agriculture and stock-breeding are relatively free. In order that "biology should not be harnessed to the car of any political party," Professor Haldane claims to have suppressed many of his own views and to have "tried rather to stress those opinions which enjoy a sufficiently general support"; but this will certainly not prevent controversy in connexion both with his main theme and with his preliminary observations about the medical profession.

This important parenthesis, which occupies some two pages of the sixteen to which the whole lecture extends, appears to be based upon an insufficiently intimate acquaintance with medical practice; to necessitate certain axioms, or at least postulates, which

cannot be accepted or granted; and to involve inferences which the premisses do not justify. To say that "though we do not go to an individual artisan for our car, we still go to an individual doctor for our healing," is to draw a parallel where none exists, and to give a very imperfect picture of the relation between doctor and patient. To state that "the application of science to other branches of life has led to increase in organization"—with the implication that to this the medical profession is an exception—is to ignore the very extensive organization both of the community and of the profession for purposes of individual and public health which has been so marked a feature of recent years. The assumptions that in the great majority of illnesses an individual patient is better treated by "a team of competent specialists" than by a general practitioner, or that such cases cannot be as well treated in the patient's own home as in a hospital, are entirely unwarranted. The reliance upon "adequate apparatus and laboratory facilities" does not require the removal of the patient from his ordinary surroundings, except in relatively few cases, and is at present being altogether unduly emphasized to the detriment of clinical medicine. The assertions that "the preventive and prophylactic side of medicine is represented by the medical officers of health, the school medical officers, and a few voluntary institutions," and that "under a system of individual medical attendance adequate disease prevention is almost impossible" are not in accordance with actual fact; and the reason given for the latter, that "it is far harder to detect latent disease in an apparently healthy person than to determine the nature of a disease already existing," would surely lead more correctly to an exactly opposite conclusion—namely, that individual medical attendance is essential. In spite of these misconceptions of the purpose and relations of medical practice the profession will, it is to be hoped, agree with Professor Haldane when he goes on to say that when "in the near future there would be an enormous demands for experts," largely for the purpose of killing or mutilating fellow creatures whose existence is deemed to be undesirable, or for "the enforcement of standards of reproduction," these officers should not be required to be members of the medical profession. Certainly such a requirement would revolutionize the relation between doctor and patient.

Professor Haldane's main theme in this lecture is that some form of family allowance offers the best safeguard against an undue diminution in the numbers and quality of the race. This thesis is developed in an extremely interesting way, though the conclusion is not unchallengeably established. The lecturer admits that he has said little that is novel, but the importance of his authoritative emphasis on three major propositions can scarcely be exaggerated at the present moment. These are as follows. In the near future there will be a marked reduction in the population of those countries (except, perhaps, Russia and Japan) which are collectively described as "Western civilization," and unless the present fertility rate greatly alters this

¹ The Norman Lockyer Lecture, 1934 "Human Biology and Politics," by Professor J. B. S. Haldane, M.A., F.R.S. The British Science Guild, 6, John Street, Adelphi, W.C.2. (1s.)

diminution will rapidly become catastrophic. Sterilization of defectives, whether physical or mental, will have only a very small eugenic effect, and would carry with it other consequences which cannot be viewed without alarm. There is no evidence that the children of the poorer classes are innately inferior to those of the richer classes. The facts and illustrations with which the lecturer supports these propositions, though necessarily briefly stated, are of much value, and are in some instances presented in a novel form. Probably most people will accept Professor Haldane's minor conclusion that "our population is ill distributed rather than too large"; though the evidence offered that once when climbing Snowdon he met no one on the way is not, of itself, adequate. As a matter of fact, on a fine day in certain months there are quite considerable numbers who ascend that mountain, and in other circumstances the reward for the exertion does not offer that exhilarating outlook which is associated rather with Mount Pisgah or a peak in Darien.

THE GENERAL MEDICAL COUNCIL

An unusually light session was disposed of by the General Medical Council in four days. Of the thirteen disciplinary cases, seven had been postponed from previous sessions; the facts had been proved, but an opportunity was given to the practitioner to submit testimony of his good conduct in the interval. Sometimes a practitioner upon whom judgement had been postponed appears to suppose that if no further complaints are made against him in the interval his case is automatically discharged. The Council insists, however, upon proper testimonials as to conduct, and one practitioner this session who had neglected to obtain testimonials from medical men with whom he had been in close association had his case referred forward for another six months, when he will have to appear again. In another case, however, a practitioner who at a previous session had been found to have canvassed the patients of other practitioners, now appeared with a sheaf of letters from medical men in his locality testifying not only to his unexceptionable conduct but to his willing co-operation in professional affairs.

As a result of the disciplinary inquiries only two practitioners were struck off the *Register*, one (who did not appear) for adultery with a patient, and the other for repeated convictions for drunkenness. The case which occupied the longest hearing was rather an obscure one from Singapore, where a practitioner had had his name erased from the Register kept by the Medical Council of the Straits Settlements for alleged wrongful certification. There was a sharp conflict of testimony, but all the evidence, except that of the practitioner himself, was by way of depositions and other documents. Eventually the charge was dismissed by the Council, so that the practitioner's name remains on the Colonial List of the *Medical Register*, while presumably it remains expunged from the local Register at Singapore. One case which appeared to raise a fresh point in professional practice so far as the Council is concerned was that of a practitioner who was brought up, on the complaint of a patient, for undue charging

for appliances supplied. It was alleged by the complainant that in the course of professional treatment the practitioner offered to get his spectacles repaired, and also, later, to procure him a new pair, representing that he had an interest in the optical company. The practitioner charged him two guineas for the new glasses, which had actually cost him only 7s. 10d., and half a guinea for the repairs, which had actually cost him not much more than a quarter of that amount. The practitioner claimed that included in the first transaction was the service of testing the lenses, taking the measurement of the frames, sending the prescription to the optical company, and checking the spectacles on delivery. In the course of the hearing it was established that the practitioner had no interest in the optical company. The solicitor defending him made the point that he did not stand alone among the members of his profession in obtaining appliances or material at a wholesale price or discount and retailing them to the patient at a higher price. This was a practice, he said, on which the Council might at some time desire to make a pronouncement, but he protested that in the absence of any warning notice it would be unfair to make an "example" of this practitioner. In the result, having in view the fact that the practitioner had no interest in the optical company, and that the patient in the county court had already secured an abatement of these charges, the Council took no action.

HEREDITY AND TUBERCULOSIS

The conception of the inheritance of tuberculosis, unquestioned from the days of Hippocrates to the middle of the nineteenth century, seemed the logical conclusion from the clinical observation—the sole available then—of the frequency of the disease in children of consumptive parents. Villemin's demonstration that tuberculosis could be transmitted to rabbits and Koch's discovery of the bacillus were responsible, not unreasonably, for a complete swing of the pendulum afterwards. In more recent times, however, increasing support is found for the view that post-natal factors alone will not entirely account for the varied course which tuberculosis takes in the human race, and that the "soil" (or *terrain*), in the form of an inherited predisposition, may play a part. The importance of this consideration is obvious, particularly at present, when eugenics and sterilization are widely discussed topics. A serious contribution to the subject, like that represented by the work of Diehl and v. Verschuer,¹ therefore deserves attention. Their well-produced and beautifully illustrated book gives full details of an intensive study of 127 pairs of twins, in 106 of whom at least one of the pair showed some active or healed tuberculous manifestation. It is of interest to indicate how their material was obtained, as further work on similar lines might profitably be carried out by others. Several hospitals and tuberculosis institutions in Berlin and elsewhere undertook to ask every patient if he was a twin. In addition, the "visitors" of tuberculosis welfare organizations agreed to make constant inquiries for twins on their rounds. A few pairs were obtained through interested laymen or colleagues. In every case

¹ *Zwillings-tuberculose* (Zwillingsforschung und erbliche Tuberkulosedisposition). Von Karl Diehl und Otmar Frhr. v. Verschuer. Jena: Gustav Fischer. (M.30.)

the information was forwarded to the authors, who then tried themselves to examine the patient and his twin—if living—either in hospital or at home. The examination was not only carried out to determine accurately the nature of the tuberculous lesion, but also included full anthropometric investigations. The twins could thus be classified as uni- or bi-vitelline and be grouped into constitutional "types." When information obtained second hand was unreliable or inadequate the twins were excluded from the series. Those finally collected consisted of forty-five univitelline (nineteen male and twenty-six female), fifty-three bivitelline of the same sex (twenty-five male and twenty-eight female), and twenty-nine bivitelline of opposite sex. All ages were represented in each of the three groups, the average being roughly 21 years. Concordance or discordance with regard to tuberculosis was determined by considering whether both twins had a tuberculous lesion; its activity, extent, pathological type, and duration; the organ involved; and the situation if in the lung. Correlation on similar lines was worked out with environment and family history. While identical tuberculosis findings in twins need clearly not have been influenced by a hereditary factor, but may be due entirely to the similar environment in which the pair have lived, especially in early life, this argument applies equally to uni- and bi-vitelline individuals. Diehl and v. Verschuer, after detailed analysis of their material, found, however, that when the environment and conditions of contact of a pair were such that the disease was expected in both twins, and yet only one was tuberculous, by far the largest proportion of the cases were bivitelline. Moreover, they show that, while 70 per cent. of the thirty-seven univitelline twins had "tuberculosis concordance," this was present in only 25 per cent. of the sixty-nine bivitelline. They conclude that heredity plays an important part in the origin and course of tuberculosis, and that this influence becomes more evident with increasing age. Finally, they discuss whether this hereditary predisposition is specific (involving morphological, immunological characters, etc.); non-specific—that is, associated with a constitutional "type"; or a combination of both. Examination of their material leads them to reject the last two hypotheses. A chapter on eugenics closes a most original and stimulating account. In a book² published a little more recently F. Ickert and H. Benze carefully analyse the genealogical trees of eighty-eight families in which cases of tuberculosis had occurred. They reach conclusions similar to those of Diehl and v. Verschuer, and suggest that the specific hereditary disposition is transmitted as a recessive factor. They admit, however, that their work is necessarily subject to greater "experimental" error. Finally, it must be added that Redeker³ has strongly criticized the work on twins, asserting that the identical findings in the univitelline pairs are accounted for by the similar "endogenous basis" (*gleiche endogene Grundlage*); and that both pairs of authors admit the part played by environmental factors (*Modifikationsfaktoren, Hilfsfaktoren*).

FORMATION OF THE CORPUS LUTEUM

The endocrine influences associated with the events of the ovarian cycle are now well known in general outline. The paramount importance of the anterior pituitary cannot be doubted. Implantation of minute fragments of the anterior pituitary in infantile or senile animals produces either premature function in the former or restored function in the latter, with ripening of the Graaffian follicle and the formation of a corpus luteum. The follicle is, from the endocrine point of view, concerned with the production of folliculin (oestrin), and the corpus luteum is said to form a hormone (progesterin) which stimulates the uterine mucosa to undergo the necessary proliferation for satisfactory nidation of the fertilized ovum. Whilst the view of Zondek on the formation of the corpus luteum and progesterin is that the anterior pituitary is the motivating influence, certain other workers have put forward the hypothesis that the maturing ovum produces a hormone specially concerned with this part of the cycle. In some recently published work Zondek has described experiments on the bat which he interprets as showing that the ovum is not concerned with the formation of the corpus luteum. The ovaries of a bat during hibernation are functionally inactive, but one or two of the follicles are enlarged. When, in the spring, these follicles rupture, the liberated ova are at once fertilized, because spermatozoa are present in the uterus and have remained there throughout the period of hibernation, following copulation which took place before the winter sleep. If during this quiescent period anterior pituitary hormone (prolan) is injected pregnancy can be brought about, since the follicle is thus made to rupture. If, however, large doses of prolan are injected many more follicles may reach the luteal stage than ever occur physiologically. Further, with such doses the ovum may not be extruded at all, but be pressed to one side by the proliferating luteal cells; no maturation of the ovum will occur, and it may be destroyed. In spite of this a functional corpus luteum is formed. Although this is suggestive evidence against the hypothesis that the ovum is responsible for corpus luteum formation, it is not conclusive, since it might be argued that the ovum had already produced its hormone before its destruction. Zondek, therefore, in his most recent paper,¹ pursues the matter in a more direct way. It has already been demonstrated by the English workers Fee and Parker that if the pituitary of the rabbit is removed within one hour of copulation there will be no discharge of an ovum and hence no corpus luteum, but if the pituitary is removed more than an hour after copulation then a corpus luteum will follow in the ordinary way. (In the rabbit ovulation occurs only after copulation.) It seems clear, therefore, that copulation leads to a liberation of anterior pituitary hormone which in something over an hour is present in sufficient quantities to lead to ovulation and corpus formation. Zondek, however, goes further. He used mature female rabbits, and, choosing a good mature follicle, aspirated the follicular fluid and ovum out of the cavity and cut away the cupola of the follicle, leaving a readily recognizable field. In such ovum-less follicles luteinization could be produced by intravenous

² *Stammbäume mit Tuberkulosen*. Von Franz Ickert und Hans Benze. Leipzig: Verlag von Johann Ambrosius Barth (Tuberkulose-Bibliothek, No. 55)

³ Quoted by Ickert and Benze.

¹ *Journ. Physiol.*, 1934, **lxvii**, 472.

injection of anterior pituitary hormone from pregnancy urine. Further, in order to exclude any possible influence of neighbouring ova, Zondek chose a mature follicle and resected all the surrounding ovarian tissue, taking care to leave the blood supply intact. The other ovary was extirpated and the isolated follicle was freed from its fluid and ovum by aspiration. Again, a corpus luteum could be produced by injection of anterior pituitary hormone (prolan). It thus appears clear that the anterior pituitary is responsible not only for maturation of the follicle and ovulation, but also for the formation of the corpus luteum and hence the nidation hormone progesterin. But we have still to consider what is responsible for the persistence of the corpus luteum after fertilization, and its continued production of progesterin. Indeed, the life and development of the fertilized ovum depend upon this persistence. It is here that the ovum seems to exert its hormone-like influence, for it appears to make the anterior pituitary increase its prolactin production and hence motivate the persistence of the corpus luteum. This is probably the rationale of the Aschheim-Zondek test for pregnancy.

AETIOLOGY OF ARTERIAL HYPERTENSION

Of those who have investigated the causes and treatment of high blood pressure few will disagree with Dr. S. Weiss¹ that the present state of our knowledge of these problems must cause embarrassment and humility. For although it is true that hypertension has been produced experimentally in animals, and that we know of many lesions in man with which it may be associated, neither throws much light on the vast majority of clinical cases of the symptom. Circulating pressor substances, abnormal nervous impulses, and local mechanical causes are perhaps the chief groups into which suggested causes may be classified. Weiss considers the evidence for the first—in which are included guanidine, cholesterol, pituitrin, adrenaline, thyroid secretion, and lead—as inadequate. The rare paragangliomata of the suprarenal medulla, known to be associated with high blood pressure, would seem to be significant, yet it is held that a direct connexion is still undetermined; and a similar conclusion is reached in regard to the basophil adenoma of the pituitary, while experiments to test the hypothesis that pituitrin is concerned in the high blood pressure of pregnancy toxæmia have given conflicting results. Abnormal secretion by the thyroid is held to play no part in arterial hypertension, yet evidence is accumulating which strongly suggests that it does in fact play such a part. Some German workers claim that pressor substances can be shown to exist in the blood of patients with "pale hypertension"—that is, associated with glomerulonephritis, malignant hypertension, and eclampsia—by the injection of concentrated extracts of such blood into animals; but other workers, including Weiss and his collaborators, have found that pressor substances can be isolated from hypertensive patients and normal subjects alike, and Weiss found that the most potent extract was obtained from the urine of the normals. Alcohol and tobacco, as few would deny, are exonerated from blame in the causation of high pressure. It is admitted, however, that lead is occa-

sionally responsible. Among the hypotheses implicating a disturbance of the nervous regulation of the circulation there is the suggestion that there may be depressed activity of the carotid sinus, as experimental destruction of the nervous connexions of the sinus has led to hypertension in animals. The response to mechanical stimulation of the sinus in hypertensives is found, however, to be exaggerated rather than diminished, while studies of the structural changes in the sinus show no correlation between these and the height of the blood pressure. Patients with hypertension are often stated to have a distinctive type of personality, to be emotional, and to have a highly strung, driving personality. While this may be true, the exceptions are numerous, and there is also the problem as to how far such characteristics may be secondary to the hypertension. Thirdly, there are the views based on primary mechanical changes in vessels increasing circulatory resistance, such as excessive sclerosis as an exaggerated senescent change, occurring in congenitally hypoplastic arterial systems; vascular sclerosis in chronically inflamed kidneys; local vascular changes in the vasomotor centre leading to ischaemia and hyperactivity of the centre; and loss of elasticity in a degenerated aorta. A review of our knowledge—or better, perhaps, of our lack of knowledge—on the subject of hypertension appears to show, at least, that not only are there multiple factors tending to produce this symptom, but that several may be involved in any given case. One of the few positive things known is that it tends to be a familial condition, and the primary constitutional characteristics of the patients probably play a most important part. Given this primary disposition, a number of secondary exciting factors are capable of producing hypertension, and at present the only rational treatment is the prevention or elimination of these factors.

THE GALACTOSE TOLERANCE TEST

The liver occupies a unique position among the major viscera in that its disorders are betrayed by few characteristic signs, and none which in themselves give a trustworthy indication of the degree of damage sustained or of the prognosis. A dependable test of liver function affording such evidence would therefore be of great value, and several procedures based on various metabolic functions of the liver have been proposed for this purpose. The majority of these appear to fail because the functions studied can be carried on adequately by only a fraction of the normal liver tissue; damage has therefore to be very extensive to afford conclusive indications by such means. Of the test substances administered galactose has most to recommend it, since it is metabolized only in the liver, and there with difficulty, while the kidney excretes it irrespective of its concentration in the blood. The work of Shay and others² showed that the normal liver can convert about 40 grams of galactose into glycogen, only traces—and in any case not more than 3 grams—appearing in the urine; whereas in liver disease this amount may be considerably exceeded. These observations are confirmed by K. A. Owen,² who emphasizes the value of the test in distinguishing between

¹ *Ann. Int. Med.*, September, 1934, viii, 286.

² *Arch. Int. Med.*, 1931, xlvii, 650.

³ *Journ. Lab. and Clin. Med.*, 1934, xix, 1311.

obstructive jaundice and jaundice due to hepatitis or hepatic degeneration: the average amounts of galactose excreted by patients in these respective groups after a 40-gram dose were 0.87 gram and 5.22 grams. An analysis of his results also suggests that the test is a useful guide to prognosis. It appears, therefore, that the oldest of liver function tests (for it was first suggested by Bauer in 1906) is still perhaps the most useful. One of its features is puzzling: if the amount of galactose with which the liver can deal is so exactly limited, why does not this amount vary with the body weight? In both Shay's and Owen's somewhat limited series of tests in normal subjects such variation is not discernible.

HEALTH AND THE ARCHITECT

The catalogue of the present international exhibition at the Royal Institute of British Architects reminds us that what some acclaim as the loveliest piece of architecture of the seventeenth century, the colonnade of the Louvre, was designed by a doctor. This was Claude Perrault, who achieved success as a physician and anatomist, and became a martyr to anatomy, contracting a fatal infection at the dissecting table. The writer might have added that his great contemporary, Christopher Wren, was an anatomist before he was an architect. Since those times, however, architecture has become a distinctive profession, and the doctor's part in planning to-day is chiefly in collaboration with the professional architect over hospital drawings and the most workable disposition of equipment and services. The exhibition in Portland Place is designed to show the importance of the architect in an ordered civilization. One section is devoted to planning for health, and includes photographs and models of outstanding hospitals built during the last ten years. In hospital architecture the same note is struck as in modern architecture with other purposes. In American hospitals, such as the new Cornell Medical Centre in New York City, vertical treatment seems to be usually followed, as contrasted with a horizontal treatment in England. But whatever the external impression the prevailing principle in hospital design everywhere is that the ward is taken as the unit, and all other sections are disposed as the wards dictate. This is only to say that in all worthy hospital architecture everything is subordinated to the healing and comfort of the patient. A number of experiments in ward design are exemplified, such as the placing of beds parallel with the walls, which has the advantages that the patients do not face the light, that the radiators are at the foot of the bed, and that greater privacy is possible by means of curtains, as contrasted with the more usual arrangement with the beds at right angles, the chief feature of which is ease of supervision. Careful thought is given to the patient, again, in such an arrangement as that at the Royal Hospital, Wolverhampton, where out-patients, after treatment in any of the rooms, leave the building without re-entering the waiting hall. One interesting exhibit shown in section is a complete unit for the Birmingham Hospital Centre, including two sixteen-bed wards, four four-bed wards, and six two-bed wards. Again, in the views of the Kent and Sussex Hospital at Tunbridge Wells one is struck by the singularly clean and charming effect in the children's wards, or in

those of the Royal Masonic Hospital at Ravenscourt Park by the admirable disposition of the operating theatres and sterilizing rooms so as to afford maximum ease in administration. Schools also, particularly from the point of view of open-air planning, form an interesting section of the exhibition, and it is extraordinary what ingenuity is expended by architects on gymnasiums and swimming baths. The exhibition is open free until January 3rd, and visitors should take the opportunity of seeing something of the new building of the Royal Institute, itself an expression of the best architecture of the present renaissance.

ARTICLES FOR THE GENERAL PRACTITIONER

We publish to-day at page 1059 the first article—on the treatment of influenza, by Lord Horder—of a series on the management of major medical disorders met with in general practice. The writers of these articles are men who devote much of their time to the teaching of clinical medicine, and our object in inviting their co-operation has been to present to readers of the *British Medical Journal* accurate and detailed information on current therapeutics. This information should be of value both to the young medical man setting up in practice for the first time and to the older practitioner who wishes to revise his knowledge. It is plain that the whole field of medicine cannot be covered in such a series, but an attempt has been made to include the common conditions and those which, though less frequent, nevertheless constitute medical emergencies. The best means for meeting a need that is felt by a very large and important section of the members of the British Medical Association has been under consideration during the past year or two. It was recognized that much of what is new in medicine nowadays finds its way into print in the numerous specialist journals that have sprung up during recent years, and that a proportion of what is printed in the *B.M.J.* and the *Lancet* must necessarily make its chief appeal to specialists. The practitioner who reads his journal each week from cover to cover—and we are well aware that some do so—would no doubt be fully acquainted with what is new and keep himself reminded of what is old. But art is long and the life of patients short, and the spare time of the busy doctor shorter still. While, therefore, the scientific standard of the *Journal* must be maintained in fulfilment of one of the primary objects of the British Medical Association, it is proposed in this and later series of articles to adopt a more pragmatic attitude towards medical knowledge, and to try in a practical manner to keep supple the backbone of the medical profession—the G.P.

We are asked to state that the third informal Conference of Cancer Research Workers, organized by the British Empire Cancer Campaign, will take place on Wednesday and Thursday, December 12th and 13th, at the rooms of the Medical Society of London, Chandos Street, W. An informal dinner will be held at the Langham Hotel on the evening of Wednesday, December 12th. Further information may be obtained on application to Mr. Cecil Rowntree or Dr. R. G. Canti, joint honorary secretaries of the organizing committee, at 12, Grosvenor Crescent, S.W.1.

ARTHUR BALDWIN DUEL: OPERATIVE TREATMENT OF FACIAL PALSY



FIG. 1



FIG. 2



FIG. 3



FIG. 4



FIG. 5

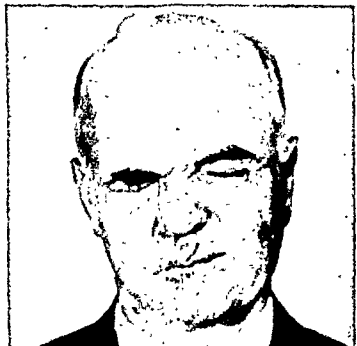


FIG. 6



FIG. 7

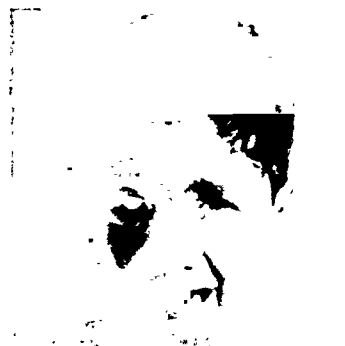


FIG. 8



FIG. 9



FIG. 10



FIG. 11



FIG. 12

S. COCHRANE SHANKS: THE STOMACH AND DUODENUM AFTER OPERATION

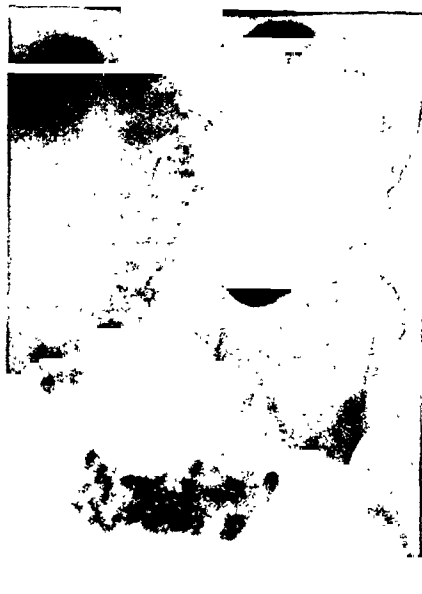


FIG. I.—Male (60), 21/9/33. Normal x-ray appearance after Polya-Lake. Note satisfactory control of efflux.



FIG. II.—Male (21), 17/10/33. Normal x-ray appearance after gastro-jejunostomy for duodenal ulcer in 1929.



FIG. III.—Male (49), 15/12/32. Polya-Lake in September, 1931, for scirrhus carcinoma. Recurrent obstructing the efferent limb of the jejunal loop. Duodeno-jejunal ileus results.



FIG. IV.—Male (47), 12/1/33. Gastro-jejunostomy for duodenal ulcer in 1912. Symptoms recurred in two years. X-ray examination shows large jejunal ulcer.

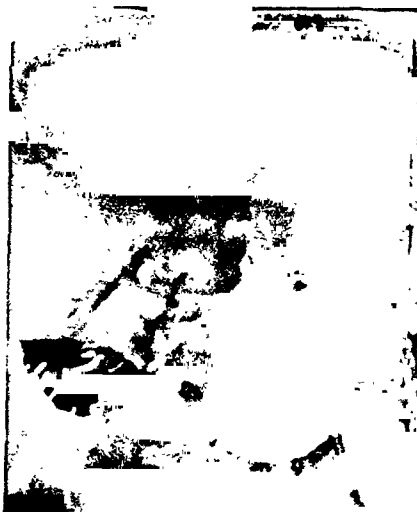


FIG. V.—Male (45), 18/12/33. Gastro-jejunostomy for gastric ulcer in 1913. Laparotomy in September 1933, for jejunal ulcer. Anastomosis undone. Barium meal shows the stoma to be closed, gross irregularity of the pyloric antrum and duodenal bulb, and a duodenal ileus.



FIG. VI.—Male (40), 13/6/31. Post-operative gastro-jejunostomy complicated by periastric carcinoma. Slight stomal stenosis and well-marked jejunal ileus.

S. E. TANNER AND A. L. McCURRY: UVEO-PAROTID TUBERCULOSIS



FIG. 1.—Case 1. Radiogram showing enlarged lymphatic glands in the mediastinum.

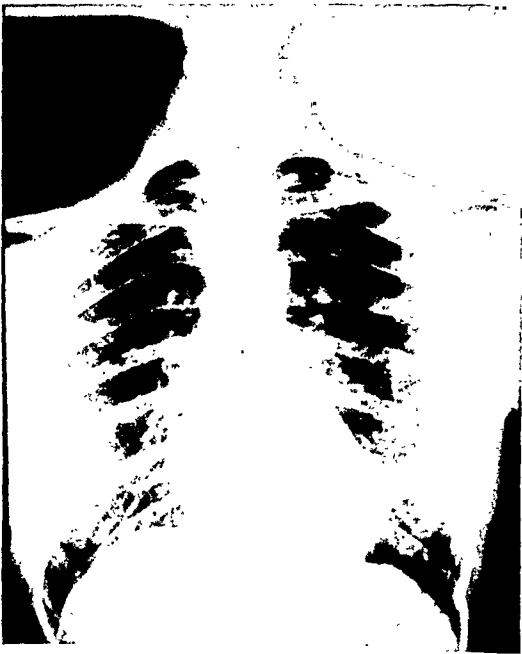


FIG. 2.—Case 1. Radiogram showing appearance one year later.

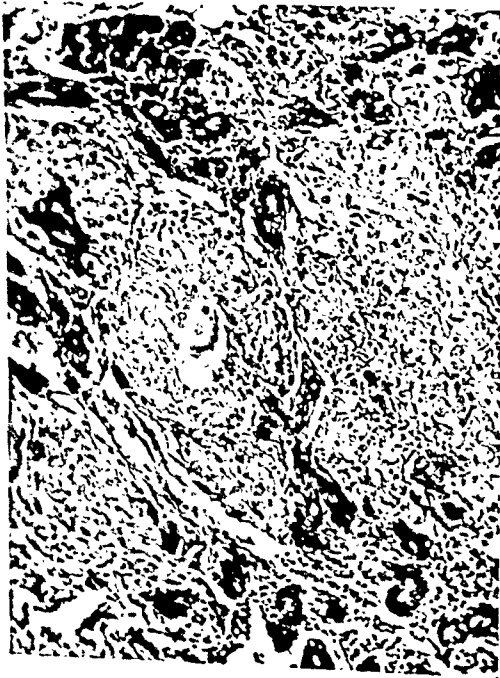


FIG. 3.—Case 2. Photomicrograph of section of parotid gland showing areas of tuberculous granulation tissue with giant cells and endothelial cells, but no caseation.

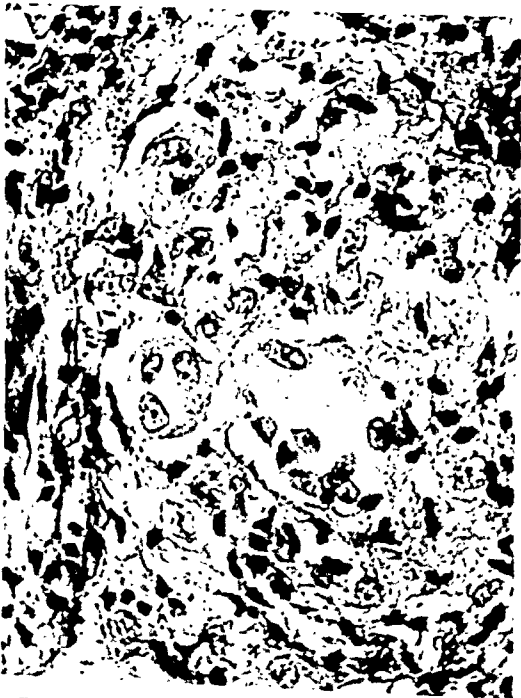


FIG. 4.—Case 2. Photomicrograph of section of parotid gland of higher magnification, showing two giant cells and endothelial cells.

STANLEY J. HARTFALL AND LESLIE N. PYRAH: MEDIASTINAL AND APICAL EMPYEMA



FIG. 1.—Radiogram showing subapical and mediastinal empyema, taken on eighth day. FIG. 2.—Six days later, showing satisfactory drainage, apical shadow and reduction in size of mediastinal shadow. FIG. 3.—Thirteen days later, showing apical loculus almost drained and mediastinal shadow shrunk to a narrow strip.

J. S. MANSON: HEREDITARY SYNDACTYLISM AND POLYDACTYLISM



FIG. 1.—Showing digital abnormalities of mother and three children.



FIG. 2.—Radiogram of "W's" hands, showing webbing of third, fourth, and fifth digits, and fusion of third and fourth metacarpal bones.



TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

THE TREATMENT OF INFLUENZA

BY

LORD HORDER, K.C.V.O., M.D., F.R.C.P.

Preventive Treatment

Against epidemic waves of incidence of the disease we have as yet no remedy. Nor have we any means of lowering the susceptibility of the individual against being attacked. It is commonly held that to maintain a high standard of general health is a safeguard, but in the epidemic of 1918-19 the incidence of the disease was higher in young adults and adults than in children and the elderly, as also was the mortality; nor did persons of apparently poor physique seem to suffer so much as the apparently robust. The virus of influenza, in other words, unlike tubercle and the more chronic pyogenic infections, does not attack only, or even chiefly, persons of low general resistance.

Specific measures of inoculation, or of passive immunization, are not available as yet. By analogy with other virus infections the serum of convalescent patients may possibly be of protective help, but efforts in this direction lie with future epidemics. The only form of prophylaxis so far available is inoculation against the secondary infections of the disease. These are, however, of great importance, and such inoculation is to be recommended. Of the various formulae used, one which is made up in the proportions 2:1:1:1 for *B. Pfeiffer*, pneumococcus, streptococcus, and *M. catarrhalis* respectively, is perhaps the best; but the composition of a vaccine of this kind should be adapted to the prevailing epidemic. From 25 to 1,000 millions of such a vaccine may be given, in graduated doses, at intervals of three clear days.

Curative Treatment

Immediately the diagnosis is made—or even before this, because the sudden onset of fever, with or without respiratory symptoms, is unlikely to carry diagnostic conviction during the first two or three days, unless an epidemic be prevalent—the patient is confined to bed. The room should be as airy as possible and, by preference, warmed by a coal fire. A free current of air is probably the most important single point in the whole treatment. If both ventilation and warmth cannot be obtained at the same time, then give preference to ventilation. The bed should be placed as near the centre of the room as possible, and all articles of furniture that are not required for nursing, and all bric-à-brac, should be removed from the room.

The bedclothes demand special attention. The amount of them is to be determined by the height of the thermometer, not by the patient's sensations. This is a cardinal point, and nurses scarcely ever understand it unless it is explained to them. Quilts and bed-covers are disallowed. If the pyrexia is persistently high the cradle method of control, formerly so useful in typhoid fever, is excellent. Frequent sponging is also of help in reducing fever; it adds considerably to the patient's comfort and tends to induce sleep. The temperature of the water used is to be adjusted to the height of the fever.

Diet and Drugs

The diet should be restricted to warm liquids, given every two hours by day and every four hours by night if the patient is awake. The total intake of liquid should not be less than four pints in twenty-four hours. The drinking of plain water, cold if preferred, is to be encouraged. "Feeding up" is to be deprecated. In most cases alcohol is unnecessary. The bowels are opened by a double dose of the patient's customary aperient; if there be none, give calomel in 1/4 grain doses hourly for four or six doses, and follow this by a saline draught.

There is no specific drug. Aspirin and Dover's powder, given in doses of 5 grains of each and repeated at intervals of six hours, for four to six doses, help to control the fever and allay the headache and general discomfort. (Alternatives are ammoniated tincture of quinine in half-ounce doses or salicin in 20-grain doses, at the same intervals.) If the headache is severe and is not relieved by these measures give a mixture of phenacetin, caffeine, and antipyrine, 3 grains of each, every three hours for four doses. In the case of all drugs a draught or a powder should be ordered, not tablets. When gastric symptoms are troublesome a mixture of sod. bicarb., sod. sulphocarb., and bismuth oxycarb., 5 grains of each, with glycerin of carboic acid 10 minims, in peppermint water, may be ordered four- or six-hourly. If vomiting is present reduce feeds to a minimum, giving rectal salines with glucose 10 per cent., and order 1 minim of tinct. iodi in a teaspoonful of water hourly for six or eight doses.

In the majority of severe cases respiratory symptoms are present. Treatment is then as for acute bronchitis: temperature of room not below 60° F.; a lightly made "pneumonia jacket"; an evaporating liniment such as lin. camph. et terebinth. equal parts; and a "sedative expectorant," such as ammon. chlor. 5 grains, vin. ipecac. 5 minims, tinct. scillae 5 minims, tinct. camph. co. 10 minims, syr. pruni virg. 20 minims in water, six-hourly. For the cough, if this be persistent and exhausting, as is not seldom the case, order an inhalation of tinct. benzoni co., and spray the upper air passages with 2 per cent. each of chlorotone and menthol in paraffin, adding cocaine 1/2 per cent. if necessary. A linctus, such as syr. cocillanæ co., or syr. codeinae, or tinct. terperoin, may also be tried. Failing these measures—and the cough may be very intractable—order a mixture of ammon. brom. 20 grains with syr. chloral 20 minims and bromoform 1 minim in aq. glycyrrhizae every two hours for four doses.

Sleeplessness calls for a revision of the general measures (v.s.): ventilation, hydrotherapy, diet, etc. Alcohol may now be useful, especially in elderly subjects. Try first a draught of ammon. brom. 20 grains with one drachm of syrup of chloral. If still troublesome, order paraldehyde in one-drachm doses, with tinct. quillaiae and tinct. aurantii 20 minims of each to cover the taste. Or give a hypodermic of 1/4 grain morphine with 1/120 grain atropine. The barbiturates are better avoided.

If heart failure threatens alcohol is indicated, and is best given as brandy, in half-ounce doses every four hours in water. It is better not to mix it with the feeds. Supplement this by strychnine 1/60 grain twice during the day and coramine (synthetic camphor) 1 c.cm. twice during the night. Suprarenal solution (1 in 1,000) 0.5 c.cm.

may be substituted for either of these. If the condition remains serious give an intravenous injection of strophanthin 1/250 grain in 15 minims of sterile saline solution with an ordinary hypodermic syringe, and repeat this in six to eight hours' time.

Convalescence

Convalescence must be watched with care in all cases, even in those which do not give much concern during the active stage of the disease. The patient must not be allowed out of bed until the pyrexia has ceased for at least four days. In cases of longer duration than a week this period of recumbent rest after the fall of the temperature should be extended. The state of the heart and the pulse rate must be carefully noted, and any failure to respond satisfactorily to the initial trial of physical effort must be met by further rest. The diet may be now increased, and mild tonics and haematinics may be ordered, but strong stimulants, whether cardiac or nervous, are usually contraindicated.

A complete overhaul, especially in regard to the heart, lungs, and nervous system, should be undertaken a week after the patient gets up, and again a month later. By these means, and by appropriate measures of treatment if any disturbing feature be brought to light by the examination, many of the tiresome sequelae of the disease may be avoided.

OBSTETRICS IN INDIA

BY

RUFUS C. THOMAS, F.R.C.S.Ed., M.C.O.G.

CHIEF MEDICAL OFFICER TO HIS LATE HIGHNESS MAHARAJAH JAMSAHEB OF NAWANAGAR

Much has already been written on the subject of obstetrics in India. The mortality rate, both among mothers and among newborn children, always finds a place in every census report, and that these rates are very high is well known. Attempts are invariably made to reduce them to percentages, but such statistics are at best only approximate, for several reasons. Stringent rules as to the proper notification of the cause of death are the exception rather than the rule. There is no legal necessity for a medical certificate. Thousands of deaths occur annually without the attendance of a medical practitioner. The supply of doctors is grossly inadequate to the population, medical advice being therefore the exception. Even where such advice has been available, no certificate is asked. Cremation or burial takes place as soon as possible, and no question arises unless there are suspicious circumstances, which might often escape notice. In most instances death is notified by a relative, who makes his own diagnosis, or the cause is inferred from his statement. Such haphazard methods render all statistics unreliable.

Take the case of a woman who dies of puerperal fever ten days after her confinement. Her husband would say she died of fever, and make no reference to the confinement at all: the body will have already been cremated, and the ashes scattered to the four winds or thrown into the river. Post-mortem examinations are extremely rare, and are undertaken chiefly by police request in cases of suspected foul play. I often tried to obtain permission for a post-mortem, but never succeeded once in six years. It was looked upon as a desecration of the dead. The cause of death mattered nothing, and the interests of science still less. During my six years in Jamnagar, the deaths regularly exceeded the births to judge by the notifications, and yet at the census the population was found to have increased by many thousands. Obviously this could not have been entirely due to immigration. Exact figures are therefore an impossibility. Those available must be looked upon as erring on the low side. Comparisons between different parts of India are equally impossible. All one can do is to accept the statement that maternal and infant mortality reach limits which can only be described as colossal.

Hospital Facilities

In this paper I propose to give a short résumé of the conditions as I saw them in a State the population of which was roughly 450,000 and the area 3,500 square miles. During the last four years it had a women's hospital, into which many labour cases were admitted from all parts of the State. During the first twelve months the female hospital was not open, and confinements were only rarely admitted, and then into the male hospital. This fact, together with a complete absence of any nursing staff, is quite sufficient to account for the small number of female admissions. The following year, 1928, I opened and equipped the female hospital, engaged the services of a very able and painstaking lady doctor, a graduate of Bombay University, and began to collect a staff of nurses, the nucleus being four Indian women with Bombay Presidency Nursing Association certificates.

I had, six months before, started a women's clinic, spending three mornings a week there myself. Up to this time I knew it was an almost unheard-of thing for Indian women to permit examination by a male doctor, and I was prepared to encounter great difficulty in this respect. I found, however, that with a little persuasion most of them were quite sensible, and the clinic rapidly became popular. After a while, refusal of an examination became a rarity. The number of women attending was often thirty to forty, which proved the necessity of the clinic. Naturally, when the lady doctor took over, the numbers rose rapidly, so that two years later I had to engage a second lady doctor.

It might be thought that in Jamnagar, with a women's hospital ready to receive labour cases at any hour, and an ambulance service which I had organized about the same time at the disposal of the public at a moment's notice, no woman should be in labour for more than a day or two without receiving assistance. This was actually far from being the case. It was many months before the public would take advantage of the hospital to any extent at all. I often admitted women whose confinements had been in progress for three or four days but whose homes were within a mile or two of the hospital. The first year the women's hospital was open the total confinements amounted to about twenty-five. Most of these were cases of delayed labour brought in by ambulance from neighbouring villages. The number from Jamnagar itself was very small. The next three years saw considerable improvement, and over 150 cases were admitted in 1932-3.

There was obviously some very strong influence at work, preventing the women from taking advantage of the facilities offered. All food, dressings, drugs, and accommodation were free, and there was a full and properly trained staff. And yet there was this great unwillingness to come into hospital. For the first year or so cases came in only as a last resource. I concluded there were three main reasons for this. First came the purdah system, with its ingrained mistrust and dislike of allowing women to leave the shelter of their own homes. It mattered not at all that these homes were often squalid and insanitary in the extreme, and that the hospital was a palace in comparison. The purdah system also precluded the attendance of a male doctor on the unfortunate woman, so that she was from first to last in the hands of that menace to the pregnant woman in India—the "dhai," or native midwife. And the dhai was the second reason why women were so long availing themselves of their opportunities. The third was a fatal apathy on the part of the people themselves, by whom I mean the relatives. Life is cheap in India, and wives, I suppose, rarely come by.

Native Midwives

The part played by the dhais needs more consideration. These women are responsible for most of the evils and suffering borne by the women of India. Members of the lowest class, outcaste and unclean, they are ignorant of all knowledge of midwifery, and dirty in the extreme. A woman in labour is considered in India to be unclean, and so, by a process of perverted reasoning, must only be attended by another unclean woman. For the same reason all clothes used for the confinement are the dirty

remnants of the house which cannot be used for any other purpose. Antiseptics and clean hands are not part of the armamentarium of the dhai. The only qualification necessary, as far as I could gather, was membership of the outcaste community which always did this unclean work. I suppose they were taught their trade by their mothers, who were dhais before them. As no dhai ever had any knowledge of the mechanics or pathology of labour, the true worth of any teaching can readily be assessed. So far from being a help to their clients, they were the greatest danger imaginable. Cases which, if left to themselves, might have had a normal labour, were infected by the interfering dhai, and their chances damned from the outset. She fails almost inevitably to recognize an abnormal presentation, until, perhaps, an arm or a leg presents at the vulva. If no such outward or visible sign affords a warning that all is not well, then only the lapse of time or the obviously critical condition of the woman serves to bestir the relatives. Even if the dhai realizes that something is amiss, I strongly suspect that she will conceal the fact in the vain hope that "time" will right matters and save her prestige.

The presenting of an arm or a foot does not always mean that help is sought at once. The dhai will seize the presenting part and endeavour by main force to deliver the child. It was no rarity to admit cases in which an arm had come down twelve hours before, this interval having been well utilized by the dhai in attempts at forcible traction till the arm was almost denuded of skin. I have known a transverse presentation which the dhai had endeavoured to terminate by passing a hook into the uterus in an attempt to drag the foetus out by whatever part the hook engaged around. No attempt had been made to sterilize the hook. In another case the dhai had attempted to deliver the child by hand, and on admission the woman had a complete perineal rupture extending into the rectum, the vulva being nothing but a mass of bruises and oedema. The child was still undelivered. Several cases came in moribund but undelivered, with their babies already dead and mutilated in this way. Cases of placenta praevia were sometimes allowed to bleed for hours before assistance was sought. When the dhai became "active" and resorted to means of hastening labour, the chances of her patient recovering rapidly receded. One favourite method of increasing labour pains is to place a ball of native medicine in the vagina, as near the cervix as possible. This ball is made up of irritant substances rolled together with bits of string or old cloth, the whole being about the size of a small orange. Other means were employed at the same time, such as kneading and thumping the abdomen with the fists, or even treading it with the bare feet.

Conditions Met With

Under such appalling conditions, how can the mortality be anything but incredibly high? And if the victim survives, what wonder that pelvic infection and uterine displacements are the lot of most of them?

Puerperal fever is the natural outcome of such a state of affairs. It was always of a severe type. Many of the cases were ill nourished, the subjects of chronic malaria, and had little power of resistance. In addition, tetanus was a much-dreaded sequel, even in the so-called normal labour. The mortality was considerable, in spite of the most radical treatment. In this connexion it must be noted that cases were often not brought to hospital for several days after the disease was fully developed. Their chances of recovery were correspondingly small. Those brought in early often did well. Tetanus developed in one or two cases delivered in hospital, and it was impossible to say whether infection was conveyed in their own homes or in hospital.

Of the primary causes of malpresentation, immature development of the mother plays a large part. The custom of early marriages is responsible for this, though Nawanagar State is not so culpable in this respect as other parts of India. I have, however, seen a girl of 15 years delivered of her second child, the first being still at the breast. Luckily for the Indian mother, the average size of a full-time child is in my experience less than that

of the European. The head is decidedly smaller, the trunk slimmer; and these two factors have, I feel sure, saved the lives of countless child-mothers. One does see babies of eight or nine pounds, but they are the exception. If a child of this size falls to the lot of a wife of 14 years, what save trouble can result?

The natives' habit of using the hospital for their confinements in preference to their own homes was very slow to develop. Custom dies hard, and I am sure that the grandmothers and aunts had a great influence in keeping the mothers at home. But I am equally certain that, given time and proper facilities, these customs can be broken down. It was an interesting fact that the class which took greatest and earliest advantage of the hospital were the Borah Mohammedans, who really looked upon it in the proper light, and often made arrangements for accommodation beforehand. I remember a Borah girl with a generally contracted pelvis, whose first baby was delivered in Calcutta by craniotomy, and for whom I did a Caesarean section. Her delight at having a son was unbounded. A year later her husband informed me she was again pregnant, and asked me to do another Caesarean at the appropriate time. This was done in due course, with like success. She became quite a heroine to her community, and deserved all her glory. There is a real dread of surgery in India, and for a woman to brave the ordeal twice was indeed a triumph. Apropos of this fear of operation, I had far less difficulty to persuade the relatives to agree to a Caesarean section than I had in cases of other operations. There is a great anxiety for male children among all classes, and the woman who presents her husband with a male child at the first attempt is fortunate indeed.

From the above it will be seen that midwifery in India is often of the "heroic" type. The difficulty of dealing with neglected abnormal presentations, where labour had been in progress for many days, all the liquor amnii drained away, and the uterus tightly contracted on the child, can be well imagined. The risk of rupture of the uterus in any attempt at turning was ever present, and the condition of many of the patients on admission was grave from the commencement. And yet it was amazing how some, provided they did not develop septicaemia or tetanus, would recover.

It is only to be expected that chronic pelvic infection, injuries to the pelvic floor, and uterine displacements are very common. While managing the women's clinic prior to the advent of the lady doctor, I examined hundreds of women, and found that the bulk of them suffered from one or other of these complaints. Sterility, both absolute and relative, was common, the first due to venereal infection soon after marriage, the second to puerperal sepsis. Such infections were responsible for many abortions and miscarriages also. The ideal of curing husband and wife of a gonorrhoeal infection at the same time is almost an impossibility in India. The husband will not submit to treatment, or even to examination.

The number of quite young girls found to be suffering from some form of uterine displacement was very striking. It was sad to see, as I often did, a girl of 15 or 16 with a retroversion and early prolapse. To persuade the patient to allow operative treatment was, however, a difficult problem, unless there was backache, menorrhagia, or other attendant symptom.

Conclusion

The foregoing notes show a little of the problem of maternal mortality and morbidity in India. In the course of a debate in Parliament on Public Health Administration in India, Miss Rathbone quoted the Indian Census Report of 1931 as stating that "present conditions in India resulted in 200,000 deaths of women in childbirth every year, and in 100 out of 1,000 girl brides dying in childbirth before they finished their period of child-bearing." This paper endeavours to show some of the causes at the bottom of such an appalling state of affairs.

The task of providing a remedy seems almost superhuman. Provision of skilled help and the education of the people to take advantage of that help is, of course, obvious. With regard to the dhai, the scheme of training

the existing dhais has, I know, been tried. In my opinion it cannot attain much success. A woman of this type, slave for years of the dirty customs of her class, cannot be expected to throw aside the habits of a lifetime and imbibe the necessary knowledge of asepsis and midwifery of which she is at present totally ignorant, and to which she is by nature opposed. However earnest and sound the training may be, she will relapse inevitably into her old ways. The better plan would be to take fresh material, from a better class, and train them when they are young; they would then have no fixed notions to get rid of. Such material is to be found among the widows of India, whose number is legion. If a scheme for the training of some of the countless child widows in the principles of nursing could be formulated, it would serve the double purpose of providing the Indian mother with the trained help she now lacks, and at the same time of providing thousands of women with occupation and a means of livelihood who are at present nothing more than unpaid drudges, and whose lot is surely as unenviable as any in India. They cannot remarry, have little prospect of any happiness in life, and are a drag on their families. Why not convert them into useful members of society by making them the medium through whom the lot of their sisters—the mothers of India—can be ameliorated?

At the same time the people will have to be taught that a woman in childbirth is not the "unclean" creature she has hitherto been considered, but is someone worthy of that care and attention in her trials and tribulations which should be her right, and whose need is truly great.

IMPERIAL CANCER RESEARCH FUND

The eleventh Scientific Report of the Imperial Cancer Research Fund, which has just been published, is fully up to the standard of its predecessors, both as a record of experimental work and in respect of its excellent illustrations.

The first three papers, by Mr. Foulds, deal with filterable tumours of the fowl and with autoplasmic transplantation of the thymus in the same bird. The general conclusions drawn from the experimental work support the view that these filterable tumours are distinct pathological entities, with individual characteristics as well marked as those of ordinary mammalian transplantable tumours. Alterations in these tumours have been shown to be of merely a temporary nature, and attempts to propagate adventitious abnormalities in succeeding generations have not been successful. The experiments are of great interest, not only from the point of view of the specific character of the neoplasm-forming filterable virus, but as affording additional evidence of the importance of tissue reactions and consequent modifications of the tumour. In the experiment under consideration, however aberrant any particular growths appeared to be, yet on attempts to propagate them in different birds reversion to the normal type was always the result.

DIETETIC EXPERIMENTS WITH LIVER

The two following papers are by Dr. A. F. Watson, and deal with the effect of adding fresh liver to the diet of mice treated with carcinogenic tar. It had already been shown (1927-32) that "any foodstuff whose inclusion in the basal diet improved the general condition of the animals as shown by their appearance, increased life spans and rates of growth, also produced the same effect on the rates of growth of the benign and malignant tissues. Conversely, any food supplement which adversely affected the general condition of the animals decreased the rates of growth of the tumours." It is, of course, a well-recognized fact that transplanted tumours grow best in young, well-nourished animals, while the rapid growth of human cancer when it attacks young, well-developed subjects is among those unfortunate clinical experiences with which we are all only too familiar. The well-known haemopoietic powers of fresh liver doubtless suggested its selection as an addition to the ordinary basal diet of mice treated with tars known to have carcinogenic prop-

erties. With the addition of fresh ox-liver to the diet it was found that the warts appeared earlier and in a greater number of animals than when they were fed on the standard diet, to which no such addition had been made. The results indicate the possibility of experimentally modifying the susceptibility of tissues to the development of malignancy when they are subjected to the action of a carcinogenic agent. The liver feeding, while it caused an increased number of benign warts to appear earlier than in control animals, had no effect upon the rate of development of malignancy once the benign warts had made their appearance; the number of warts becoming malignant was, however, increased. The author concludes from his experiments "that the development of a benign hyperplasia and the subsequent development of malignancy at the site of this hyperplasia are conditioned, partly at any rate, by different factors."

In the succeeding paper Dr. Watson gives the results of some further experimental work upon the same subject, including the observation that the factor or factors in fresh liver which are responsible for the increased wart and neoplasm formation are comparatively heat-stable. Of considerable interest is the fact that preparations of hog's stomach—stated by the manufacturers to have given good clinical results when administered to patients suffering from pernicious anaemia—caused no increased tumour formation in mice. Unfortunately, in this series of experiments, the mortality among the experimental animals was heavy, gastro-intestinal infections being responsible for a large number of deaths. The author's conclusion was that the results obtained gave "no support to the possibility of identifying the factor responsible for the effect on carcinogenesis with the haemopoietic factor."

It is unnecessary to comment on the great scientific interest of these conclusions if they are corroborated by further work. Little by little the various organs of the body are gradually being made to yield up secrets of their activity, which had not only been unrecognized but entirely unsuspected.

MICRO-INCINERATION STUDIES

The sixth communication in the report is by Dr. E. S. Horning, and deals with "Micro-incineration Studies of the Tar Tumours of Rodents." Although the method of micro-incineration was introduced in 1924, it is probably not very well known to most of our readers. The object of the process is to burn off the organic part of the tissues under examination and to leave the mineral constituents *in situ*, so that their disposition can be examined microscopically. For the purposes of these experiments portions of tumour tissue were fixed and embedded in paraffin. Serial sections were then made, of which some, when stained in the ordinary way, served as controls; while others were incinerated in an electrically heated quartz oven, the final temperature being of the order of from 625° to 650° C. Special optical apparatus was necessary for the examination of these incinerated sections, and their microscopical appearance is well shown in a series of plates, together with their corresponding non-incinerated controls. As shown in these reproductions the appearance of the incinerated sections suggests that even in microscopical sections of fossilized plants, though in these, of course, the carbonaceous elements are still often present.

RADIUM

The next paper, also by Dr. Horning, forms one of a group of six, written by different authors, in which different effects of the action of radium are considered. Dr. Horning's paper deals with the action of radium on the inorganic structure of tumour cells as shown by micro-incineration. The method of irradiation calls for special comment. The radium applicator employed was essentially the same as that used in other experimental work described in this report and its predecessor, its activity being equivalent to 55 mg. of radium element. The thickness of the silver screen used is not specified in the present paper, but a later reference (p. 128) makes it probable that the thickness was 0.18 mm. of silver. If this being the case, it is clear that a large proportion of

β radiation and of the γ rays, which are screened off in most ordinary clinical practices, are allowed to pass and to exert their effect. Since the epoch-making work of Dominici in France, the tendency in the clinical use of radium has been to increase the thickness of the filter, so as to allow only the most penetrating γ rays to reach the tissues. At the present time filters of 0.5 to 1 mm. of platinum (or its equivalent) are those which are commonly employed.

In experimental work, however, the use of β and soft γ radiation has a very important application in many cases; since the intensive local action of these rays often gives an indication of the direction in which the effects of hard γ and penetrating x rays are to be sought. In the piece of work now under consideration it is the effect of both β and the softer γ rays, as well as that of the hard γ rays, which is being studied. The results are very interesting, inasmuch as within eight hours after radiation an increased cytoplasmic ash is recorded, while the maximum increase of mineral salts occurs on the sixth day, a time at which marked degeneration is apparent under the above-mentioned conditions of irradiation. This certainly corroborates the view that one of the actions of radiation is an alteration in the permeability of cell membranes.

DR. CRAMER'S WORK

In the three following papers Mr. Crabtree and Dr. Cramer deal with the effects which changes in environment have with the susceptibility of cancer cells to radium. In the second of these the combined effects of hard β and mixed γ radiation are considered, while in the third γ radiation only was used, an additional filter of 0.7 mm. of lead, together with the glass bottom of the container, being interposed between the experimental tissue and the source of radiation. Broadly, the results indicate that inhibition of the respiratory function produces increased radio-sensitivity. A further communication by Mr. Crabtree deals with the action of bicarbonate- and phosphate-buffered media in producing changes in metabolism and radio-sensitivity. "The Therapeutic Action of Radium on Spontaneous Mammary Carcinomata of the Mouse" is the title of Dr. Cramer's next paper. The use of the word "therapeutic" in this connexion manifestly suggests a comparison with the methods of radium therapy used in human beings, and the first point to be noted occurs in the introduction (p. 127). Here it is said that "the therapeutic action of radium on malignant new growths is a purely local one and restricted to the irradiated area. It has no influence outside that area." The second point is the statement (p. 123), "There is no evidence that malignant cells, as such, are more sensitive to radium than the cells of many normal tissues." Both statements are based upon previous work by Dr. Cramer, and published in the report for the year 1932. As they stand we entirely disagree with them. If they be altered so as to say that "under the experimental conditions of radiation employed whereby there was an intensive local action of β and of the softer γ rays, there was no evidence of any immunity (or other) reaction outside the area irradiated, nor was any difference between the radio-sensitivity of normal and neoplastic cells observed," nobody is likely to dispute the conclusions. The point is that the experimental conditions are entirely different from those used in modern therapy, where the most penetrating x and γ rays alone are utilized. Those who claim the existence of immunity as a sequel to irradiation of tumours insist strongly, not only that the dose must be very accurately given, but that the radiation employed shall only be those of distinctly "hard" (or penetrating) character. They further hold that any factor altering the growth of tumours in any other part of the body is the product not of cells rapidly destroyed by β and soft γ radiation, but of injured, slowly degenerating cells before they die. In short, of such an injury as may be caused by highly penetrating radiations.

Similar remarks apply to the radio-sensitivity of normal and neoplastic tissues. It is expressly held that this is specially manifested by using the most penetrating types of radiation. It is rather curious that in the literature appended to these papers no reference is made to any

of the writings of the French school, where these problems have been receiving unremitting attention for a considerable number of years. The fact is that the conditions employed in therapy and those employed in these experiments are so fundamentally different that it is impossible to establish any comparison between them.

OTHER PAPERS

The two remaining papers are by Dr. Ludford. The first deals with the structure and behaviour of the cells in tissue culture of tumours, while the second concerns the reaction of normal and malignant cells to fat-soluble coloured compounds which are insoluble in water. Both papers are of the high standard of excellence which we have learned to expect from their author, but are perhaps of rather too purely technical a character for those who are not intimately acquainted with this phase of experimental work. Everybody is, however, keenly interested in any specific difference which can be demonstrated or suggested between the normal and the neoplastic cell, and Dr. Ludford's final conclusion may thus appropriately find place here: it is that "these results suggest that, although malignant cells are readily permeable to fat-soluble substances, they are less permeable to water-soluble compounds than normal cells. The tentative explanation is that the plasma membrane of malignant cells is relatively rich in fatty substances."

In addition to the main report there is a supplement written by Mr. Foulds: this is a critical review of the filterable tumours of fowls. The whole subject is carefully examined in a comprehensive essay of little more than thirty pages, while an extensive bibliography covering nearly eight pages forms a fitting conclusion to a survey which is as excellently brief as it is interesting.

Scotland

Edinburgh Royal Infirmary

At the annual meeting of the Royal Infirmary League of Subscribers on November 29th Professor G. Lovell Gulland spoke of the valuable help which was given by the League to the funds of the Infirmary. This institution, he said, was always working at high pressure, and last year had dealt with 18,943 in-patients. The out-patient departments were also as full as they could be, and strenuous attempts had been made to reduce the surgical out-patient clientele by referring patients back to their national health insurance doctors instead of allowing them to return to the Infirmary for all dressings, as in the past. In spite of this the out-patients had numbered 66,000, and there had been over 381,000 attendances. The waiting list for the wards was still nearly 3,000, and consideration had been given to the question of some scheme of co-ordination, whereby more could be done to distribute patients to other hospitals. There were in Edinburgh several municipal hospitals on a somewhat different basis from the Royal Infirmary, but still it ought to be possible to effect co-ordination with these, and so to lessen the waiting list and to keep more up to date. Ways and means were also being considered of getting increased subscriptions from every class of the community, because the Royal Infirmary was obliged to spend more money every year, largely on account of the rise in prices. As an example of this, the bill for milk was going to be £2,000 more this year than last, a matter which the promoters of the Milk Marketing Scheme had not contemplated. The continuous progress of medicine and surgery also made new appliances constantly necessary. With reference to the extension scheme, the managers had in hand about £260,000, but another £100,000 was required. An important piece of work during the past year had been the establishment of a school of dietetics, and there had been as many students in this new department as it could

accommodate. Dr. John Orr said that the public did not realize the vastness of the organization of the Royal Infirmary, which was looked up to everywhere in the medical world. There were many people who enjoyed the advantages of the institution, but who did not contribute anything to its upkeep, and something must be done to secure adequate contributions from this class of the community. The report of the League of Subscribers, which had been closed a month earlier than usual, showed the total subscriptions obtained to have been £18,817 for the eleven months, an apparent, though not an actual, fall of about £2,000. The average yearly contributions for the past ten years had been £21,346, and since the inception of this scheme some sixteen years ago the total sum gathered had amounted to £305,462.

Health of Scotland

The return by the Registrar-General for Scotland for the quarter ending September 30th, 1934, states that the births numbered 21,298, a rate of 17.1 per 1,000 of the population, which was 1.8 below that for the previous quarter, or 1.2 below the average for the same quarter of the previous five years. The rate was highest in the large burghs, ranging from 23.4 in Port Glasgow, 22.8 in Coatbridge, and 22.4 in Stirling, down to 11.9 in the county of Peebles and 11.6 in that of Sutherland, and 10.9 in the burgh of Arbroath. Deaths during the quarter numbered 13,301, or a rate of 10.7 per 1,000 of population. This rate was 2.9 less than that of the previous quarter, and 0.1 below the average for the same quarter of the quinquennial period. Deaths of children under 1 year of age numbered 1,211, equivalent to an infantile mortality rate of 57 per 1,000 live births. This rate was 21 less than in the previous quarter, and 5 less than the average for the preceding five years in this quarter. This was the lowest infantile mortality rate recorded for any quarter in the past twenty years. The rate was 61 for the large burghs and 52 for the rest of Scotland, with a range from 111 in Coatbridge and 102 in Arbroath, down to 29 in Roxburghshire and 0 in Selkirk. With regard to the causes of death, measles accounted for 129 deaths, diphtheria for 115, whooping-cough for 68, influenza for 57, scarlet fever for 55, and cerebro-spinal fever for 30. In each case there was a decrease when compared with the relevant figures for the previous quarter. Tuberculosis accounted for 800 deaths, or 6 per cent. of the total. There were 1,864 deaths from malignant disease, or 14 per cent. of the total; the number, however, was 71 fewer than in the previous quarter. Pneumonia and bronchitis accounted for 603 and 359 deaths respectively, with rates considerably below those of the standard for this quarter. Deaths of mothers from diseases and accidents of pregnancy and childbirth numbered 118; this figure was somewhat below the standard for this quarter.

Treatment of Infectious Diseases

In a recent address upon statutory hospitals for infectious diseases Dr. W. T. Benson, medical superintendent of Edinburgh City Hospital, said that the removal to hospital of infectious cases had proved a great convenience to the public by relieving the householder of irksome precautions and restrictions. There might, however, be disadvantages attached to the aggregation of infectious cases and overcrowding of hospital wards which proved detrimental to patients. This important fact was not fully appreciated by the public during the stress of an epidemic. It was now being realized that the common infectious diseases prevalent in the community would never be controlled or exterminated by this means, and that the real value of the fever hospital was not so much to prevent the spread of disease as to provide treatment.

The present practice of wholesale removal of scarlet fever patients to hospital was being severely criticized, for hospital isolation had no material effect on the epidemic spread. During recent years the majority of cases of scarlet fever had been so mild that they did not require the special medical and nursing care provided by institutional treatment. The modern view was that hospital treatment in scarlet fever should be strictly reserved for severe or complicated cases, or for patients who by their occupation or otherwise constituted a serious menace. Beds at present set aside for scarlet fever might be more advantageously utilized in providing accommodation for cases of measles, whooping-cough, and pneumonia. These infectious diseases in young children were important not only as regarded immediate survival, but from the point of view of permanent residual ill-health. Every child under 3 years suffering from measles, whooping-cough, or pneumonia required not only skilled nursing but also prolonged convalescence in open-air conditions, with an ample supply of suitable food. For the great mass of the population these requirements could be most satisfactorily provided in hospital. The function of the well-equipped fever hospital would be to give expert care and treatment to the infectious sick rather than to provide isolation.

England and Wales

Joint Tuberculosis Council

Twenty-seven members were present at a meeting of the council held on November 24th. It was stated that as a result of an interview at the Ministry of Health it seemed likely that some grant would be forthcoming in aid of the work of the Employment Committee. The committee investigating the results of artificial pneumothorax treatment had collected the results of 4,283 cases, but on actuarial advice it was rejecting series with more than 3 per cent. cases "lost sight of," and this would leave some 3,900. With the control series there were 7,000 cards to be prepared and sorted, so that six months must elapse before a preliminary outline could be placed before the council. The greater part of the meeting was spent in discussing a memorandum, on the examination of the contact, presented by Dr. Ernest Ward, the convener of the committee concerned. An attempt was being made to produce something which would be helpful to those engaged in this work, with the full realization of difficulties involved, in particular as concerns young adult contacts who will not usually stay at home to be examined there or attend a dispensary for the purpose. Professor Jameson had, it was stated, circulated useful information on behalf of the Milk Committee, and recommended the council to support the findings of the committee on cattle diseases of the Economic Advisory Council, but to oppose any suggestion that the Milk Marketing Board's scheme of accredited herds would do anything towards the production and distribution of a safe milk free from infection. After discussion the following resolution, drafted by Dr. Hawthorne, was passed:

"This Joint Council, having received a report on the milk supply from a specially appointed committee, and being aware of the much increased number of school children now receiving a daily ration of milk, reaffirms its resolution of April 20th, 1934, to the effect that protection of the children from the risks of infection can be secured only by adequate pasteurization or by boiling the milk, and notes with every sympathy the corresponding advice given by the Board of Education and adopted by the London County Council and certain other education authorities under the expert direction of the corresponding medical officers of health."

Dr. Brand was planning an attractive series of post-graduate courses for 1935, the chief of which would be at Victoria Park Hospital, being devoted mainly to recent advances in technique in connexion with the diagnosis and treatment of disease of the lungs. The question of Spahlinger treatment and the prevention of the common cold were also discussed, and the secretary was asked to prepare a note on these topics for the next meeting of the council.

Association of Certifying Factory Surgeons

The annual dinner of the Association of Certifying Factory Surgeons was held in the Queen's Hotel, Manchester, on November 24th, with the president, Dr. A. Glen Park, in the chair. The guests included Dr. J. C. Bridge, Chief Medical Inspector of Factories; Professor A. Ramsbottom, Manchester University; Dr. S. A. Henry, of the Home Office Factory Department; Mr. J. A. Parkinson, M.P. for Wigan; and Mr. J. A. K. Ferns, coroner for East Cheshire. Certifying surgeons and district inspectors of factories as far apart as Worcester, Yorkshire, and Scotland attended, as well as medical men interested in some special branch of occupational disease. Dr. Glen Park proposed the toast of "The Factory Department of the Home Office." He traced the history of interest shown, and enactments by the Government of the country from Elizabethan times to the formation of a Factory Act, in the relation of physician and workman. He paid graceful tribute to the help the certifying surgeon received from the medical inspectors in His Majesty's Home Office. Dr. Bridge replied, and Dr. Henry, in proposing the toast of "The Association," emphasized the cordial relations which existed between the Factory Department and certifying surgeons. He suggested that the association should frame its policy always on constructive lines. Dr. H. E. Watkins, Newton-le-Willows, in reply, spoke of the loss felt by everyone in the death, at such short intervals, of Sir Thomas Legge, Dr. Prosser White, and Dr. Dearden, whose contributions to the literature of industrial disease had proved of great value. Dr. D. McKail, Glasgow, proposed "The Visitors." Mr. H. Roston, director of education to the firm Tootal Broadhurst Lee Co. Ltd., in his reply, stressed the need of extending the work of the certifying surgeon beyond certification to regular medical examination and advice to employers regarding the growth under industrial conditions of the adolescent in the factory from 14 to 18 years of age. This, he suggested, could best be operated through the day continuation school. This co-ordination of medical and educational service was actually in operation in his firm, and medical records covering sixteen years had been kept, which proved of real value to the adolescent and the employer. It is proposed to hold the next annual dinner in London.

Portsmouth's Housing Question

Owing to the illness of his successor as M.O.H. for Portsmouth, Dr. Mearns Fraser has brought out yet another annual report on the health of the city. One of the most important steps taken during 1933 was the adoption of a five-year programme of slum clearance. Thirteen clearance areas will be dealt with, comprising 1,277 dwelling houses. In addition, 481 single houses which have been condemned as unfit for human habitation will be demolished. This scheme will involve the displacement of 6,528 persons, to rehouse whom the Portsmouth Council proposes to erect 1,429 houses or flats. It has been arranged that, so far as shall prove to be possible, the displaced persons shall be provided with accommodation in the same district in which they previously lived. In September of last year Dr. Mearns Fraser submitted official representations with reference

to certain areas, which were in due course declared to be clearance areas within the terms of the Housing Act of 1930, and application was made for the confirmation of compulsory orders to enable the council to acquire this land. He believes that these measures will go a long way towards the solution of the housing question in Portsmouth. During the year reviewed 912 dwelling houses were erected in the city. Good progress was made with the council's scheme for 150 working-class houses and flats. Satisfactory features in the health statistics of the past year were the very low maternal mortality (1.9 deaths per 1,000 births), the infantile mortality rate of 52 per 1,000 births, and the lowest death rate from pulmonary tuberculosis ever recorded in Portsmouth—namely, 0.67 deaths per 1,000 population. Dr. Mearns Fraser reports also concerning the unification and co-ordination of the health services of the city. He maintains that, if the health department is to perform effectively the functions which are generally accepted as the minimum responsibilities of a modern health department, two more whole-time medical officers will have to be appointed, one for maternity and child welfare and the other for tuberculosis. St. Mary's Hospital was taken over by the health committee on April 1st, 1933, and closer co-operation is being arranged between it and the other public and voluntary institutions in the city. With the removal elsewhere of about 180 aged and infirm patients, and when the new wards of the Royal Portsmouth Hospital are open, it is hoped to have adequate accommodation for all persons in the city needing in-patient treatment. At the present time there is no laboratory in the city licensed for animal inoculation, so that there is much delay, as well as inconvenience, in obtaining the necessary reports of such investigations as have to be made in London.

Nutritional Problems in North Country Children

Previous references to the nutrition of children have appeared in these columns, and details have been given in the last few weeks about the conditions prevalent in Middleton and Hull. The annual report for 1933 of Dr. J. A. Charles, medical officer of health for the city and county of Newcastle-upon-Tyne, contains an account of an investigation made by Dr. J. C. Spence, assistant physician to the Royal Victoria Infirmary, of the health and nutrition of groups of children between the ages of 1 and 5 years. In the absence of definite standards it was obviously impossible to do more than express the results as opinions, but Dr. Spence concluded that at least 36 per cent. of the examined children coming from poor districts were unhealthy or physically unfit, and consequently appeared malnourished. He believes that the main immediate cause of this malnutrition is the physical damage done by infective diseases occurring in young children at susceptible ages and under conditions impeding satisfactory recovery. The salient causes in this connexion are the housing conditions which permit mass infection of children at susceptible ages, and the improper and inadequate diet which prevents restoration to full health. He regards these two causes as being of equal significance, and urges that a full inquiry should be undertaken by trained observers and on scientific lines. Dr. Charles, commenting on these findings, agrees that they appear to conflict at first sight with the data collected annually by the school medical service, but cites figures to show that this is not really so. Both sources of information point to the same conclusion—namely, that much damage has been done to the health of the children coming from poorer residential parts of the city before they reach school age. In the better-class neighbourhoods, out of every 1,000 cases of measles and rubella reported in 1931 and 1932, 648 occurred in children after the age of 5, whereas in the more densely populated areas 687 occurred in

children below that age. Taking the age of 3 and below as being the most fatal period for measles, it is shown by the city statistics that in the residential neighbourhoods 172 cases out of every 1,000 of measles and rubella were below that age, as compared with no fewer than 391 in the crowded districts. With these facts in mind, Dr. Charles points out, it is not surprising to learn that the case mortality rate for measles per hundred notifications of measles and rubella is three times greater in the overcrowded areas than in the better-class residential districts. The rates for the two groups of wards during the decennium 1923 to 1932 were 2.07 per cent. and 0.68 per cent. respectively. In one area where in 1931 there were 10,944 persons occupying 18,889 rooms, there was only one recorded death from measles during the whole ten years. It is pointed out, further, that the diet recommended by the B.M.A. Committee on Nutrition is beyond the means of many of the poorer section of the Newcastle population, and figures are given showing that the amount spent weekly upon food per man-value was more than one shilling short of the B.M.A. figure. Condensed milk is for many the only form within their financial capacity. Dr. Charles argues that the solution of the present problems is to be found in the extension of services already existing, and in a more liberal conception of the communal responsibilities in other directions. Housing improvement should be directed to mitigating the ills of overcrowding as well as to the replacement of insanitary property. More abundant hospital facilities should be provided for the treatment of severe and complicated cases of measles and whooping-cough, and of patients from overcrowded homes. Arrangements for the institutional after-care of these cases during convalescence would do much to reduce subsequent ill-health and invalidity. An improvement in the quantity and quality of the dietary could be obtained by an extension of the issue of milk through the child welfare centres, so as to benefit more particularly children in those age groups where ill-health and physical unfitness are most prevalent; by an increase in the monetary allowance for the child dependant paid under the various scales of unemployment and transitional benefit and Poor Law relief; and by the education of mothers in the purchasing of foodstuffs, the compilation of diets, and cooking. Dr. Charles considers that it would be of inestimable importance to extend those sections of the Education Act of 1921 which relate to the provision of meals so that they might apply to the pre-school child. Home visiting should take more into consideration the toddler, and there might well be a larger provision of nursery schools.

Ireland

Irish Medical Schools' and Graduates' Association Dinner

The autumn dinner of the Irish Medical Schools' and Graduates' Association, which took place at Claridges Hotel, London, on November 29th, was a delightful function. It was presided over by Colonel G. A. Moore, whose repertoire of amusing Irish stories is inexhaustible. As it was the royal wedding day, after the usual loyal toasts had been honoured, the health of the Duke and Duchess of Kent was drunk, and a telegram of good wishes dispatched to Himley Hall. Mr. R. Lindsay Rea proposed the health of the guests, of whom there were two in chief—namely, Sir Thomas Myles and Sir William Patrick Byrne. He referred to Sir Thomas Myles's distinguished career in surgery, and reminded the company that during that week the jubilee of the first successful operation for the removal of tumour from the brain was

being celebrated. The speaker then remarked on the varied career of Sir Patrick Byrne, who, in the troublous times of 1916-19, when he was Under-Secretary to the Lord Lieutenant, had helped to bring a measure of peace to Ireland. Good feeling was possible even between extremes of Irish opinion, especially when men with such large and open minds as Sir Thomas Myles and Sir William Patrick Byrne had direction of affairs. Sir Thomas Myles, in responding for the guests, said that during the week he had been attending the meetings of the General Medical Council. The popular press was accustomed to assail the General Medical Council, but as an impartial Irishman he felt that none could be more just or fair than his colleagues on that body. Sir William Patrick Byrne, in proposing the toast of "The Association," said that he had met Irishmen in many parts of the world and had found them always delightful. His whole life had been spent in the English and Irish public service, and whether co-operating with Irishmen in ordinary routine work or in more difficult adventure he had never found one who failed his friend and colleague. Colonel Moore, in responding to the toast, gave some details of the Association. He said that the committee sitting in London had facilities for learning about any proposed changes which might affect professional interests, and for ensuring that the voice of the Irish schools and graduates was heard. He was proud to think that at every annual meeting of the British Medical Association the Irish graduates' luncheon was an important event; this year at Bournemouth something like 200 Irishmen were present. They were a proud little society of quite ancient origin, but very much up to date.

Milk Bill in the Dail

Dr. Ward, Parliamentary Secretary to the Minister for Local Government and Public Health, on the second stage of the Milk Bill, 1934, stated that the purpose of the Bill was to safeguard the consumer from infection and contamination in milk. The average yearly consumption in the country was low; Switzerland consumed twice as much, Norway 63 per cent., and the United States of America 43 per cent. more per head of the population. A campaign for increased consumption could not be entered upon under present conditions. Milk was a suitable medium for the production of bacteria, and through uncleanly methods of handling an excellent form of nourishment might become a source of infection and danger. Certain powers were already given to the department to deal with the problem of unclean milk, and the Bill was intended to strengthen its hand. Experience with the scheme by which necessitous children were given free milk had proved that many producers were prepared to adopt progressive methods and to submit their cattle to tuberculin-testing. Dr. R. J. Rowlette stated that the Bill was a good one, but had its defects. A little more courage on the part of the Government would have given it a chance of success. The present time was appropriate for provisions for dealing with clean milk, and the problem of the eradication of tuberculosis in cattle should be tackled vigorously. The absence of the licensing system for milk vendors was a serious omission; the danger of forfeiture of a licence would be a deterrent to abuse. The local authority should have power to go outside its own boundaries to inspect the sources of milk supplied to the areas under its control. Unless the department insisted on the appointment of medical officers of health in the counties which had no such officers at present the Bill would be a dead letter in those counties, since dispensary doctors, who were not in an independent position, could not be expected to discharge the duties efficiently. Dr. Ward, in reply, said the measure was not likely to be very popular, but it dealt with a matter

of the greatest importance. Milk producers would have confidence in a good product, and could expect to enjoy a better market and better prices. The department was greatly interested in the subject, and he was informed that the Minister for Agriculture also proposed to introduce his own legislation. As to pasteurization, there were some methods which were absolutely useless for protecting the public. The process of pasteurization would have to be subjected to regulations, and not every form of it would enable a licence to be obtained. It was true that infected milk could come from a tuberculin-tested herd, but under the Bill the "special designation" would be granted not because the milk came from a T.T. herd, but because it reached a high standard of purity.

Reports of Societies

SOME ASPECTS OF ANAEMIA

Lecture by Professor Minot of Harvard

On his way to receive the Nobel Prize at Stockholm Dr. G. R. Minot, professor of medicine at Harvard, visited London and was prevailed upon to address a special meeting of Fellows of the Royal Society of Medicine on November 29th. Dr. Robert Hutchison, President of the Society, was in the chair.

Professor Minot addressed himself to the question of certain aspects of anaemia. There had been a tendency of recent years, he said, to decide at once on liver or iron treatment and to forget that a proper therapy depended upon an understanding of the mechanisms producing the anaemia. It would be extremely unfortunate in a given case if, both liver and iron treatment having been prescribed, the patient got symptomatically well while yet it was not known whether he should continue on liver for the rest of his life or on iron indefinitely. The economic aspect of such a situation was not unimportant. Therefore, it seemed useful to review some of the problems of the aetiology of anaemia and some aspects of diagnosis.

THE AETIOLOGY OF ANAEMIA

Anaemia in many instances could be attributed to defective nutrition, which might arise in other ways than diet deficiency. Multiple factors might be responsible for the anaemia in any one case. Man in this respect was not like experimental animals. Nutrition might be inhibited by infection or by damage to vital organs of the body, such as the liver or cardiovascular apparatus. The degree of deficiency varied, and each case was an individual problem. The principle of treatment must be to replace the deficient factor on a quantitative basis. That might not always be realized when large amounts of iron were being given at relatively little cost. The patient himself was not to be forgotten for the sake of treating his anaemia *per se*. Pernicious anaemia was a disease affecting more than the blood-forming tissues; it involved the central nervous and the gastro-intestinal systems. In diagnosis the use of the stomach tube or the tuning-fork for bone vibration might be as valuable as a complete blood examination. In dealing with the aetiology of pernicious and related macrocytic anaemias, Professor Minot pointed out that the lack of gastric reaction leading to formation of substances necessary for maturation of red blood cells might be due to deficiency of the gastric (or intrinsic) factor, the food (or extrinsic) factor, or to a deficiency resulting from inability to absorb or utilize substances transformed in the body.

He divided anaemias of specific malnutrition into "liver extract" or macrocytic anaemia, "iron" or hypochromic anaemia, vitamin C anaemia, and copper anaemia, as seen in experiments on rats. In the case of "liver extract" anaemia he catalogued four factors: food, as in sprue; gastric, as in pernicious anaemia; absorption, as in coeliac disease; and internal metabolism, as in cirrhosis. In connexion with "iron" anaemia he

also indicated four factors: intake, absorption (anacidity), utilization, and blood loss, as in pregnancy. He showed a diagrammatic slide in which optimal and usual nutriments were indicated by higher and lower levels, with, below these, a zone of partial deficiency, and, lowest of all, a zone of complete deficiency. In all these anaemias there were two main considerations—namely, what was taken by the mouth and what the gastro-intestinal tract was doing. Given perfect dietary and perfect gastro-intestinal function, there would be perfect nutrition. In a very general way it might be said that these two factors interacted; one might be perfect and the other show some deficiency, but if there were deficiency in both the lowermost zone was reached. But there might also be some difficulty in utilization by reason of certain inhibitory factors such as infection, or some organic abnormality, or the lack of some accessory factor concerned in the mechanism. Again, the absorption stage might be successfully completed when there might occur chronic blood loss, resulting again in a deficiency condition.

RELATIVE FREQUENCY OF PREDOMINANT SYMPTOMS

Professor Minot proceeded to an analysis of 100 cases with a view to discovering the relative frequency of predominant symptoms at the onset of pernicious anaemia; of these cases half were seen in private practice and half in hospital. In thirty-one the predominant symptoms were gastro-intestinal; in twenty-six, nervous; in thirty-three, generalized; and in ten, cardiac. He had also ascertained the time which had elapsed from the onset of noticeable symptoms to the diagnosis of pernicious anaemia. For the four classes just mentioned the average time, in years, was respectively 2.19, 1.28, 0.72, and 0.95, making a total average for the hundred cases of 1.36. In thirty-five cases there had been a long history of "indigestion"; the latter had been noticed occasionally for over twenty years in sixteen cases; in eight others there had been recurrent "bilious" attacks over a period of three to seven years; in seven diarrhoea attacks had been frequent for from seven to fifteen years; and in four indigestion had been more or less constant for from seven to twelve years. In thirty of these cases there was an undoubted gall-bladder symptomatology. If, after treatment with liver or a proper substitute, the gastro-intestinal symptoms, however pronounced, did not clear up, there was a distinct suggestion that gall-stones were also present. A few years ago it was customary to see patients who were jaundiced or distinctly yellow. To-day the amount and frequency of distinct sallowness was not nearly so appreciable. This was explained by the fact that nowadays a patient did not remain long enough to have had a series of relapses and remissions before receiving treatment. In a series of cases analysed in 1918 the spleen was palpable in about 35 per cent., whereas in the present series it was palpable in only about 5 or 7 per cent. This again was explained by the greater promptitude of treatment.

CONCOMITANT DISEASES

Concomitant diseases sometimes upset the diagnosis; Wilkinson had published an excellent paper on that subject.¹ It was interesting to note that an appreciable number of patients had carcinoma of the stomach develop some years after they had had pernicious anaemia. In the lecturer's clinic they had tried to discover whether there was any greater incidence of this condition among the people with pernicious anaemia than among the normal population for a given age. The statistical data had not been completely worked out, but the evidence tended towards the probability that there had not been a greater incidence among the people with pernicious anaemia than among a normal group, yet reasons why cancer of the stomach might develop could readily be imagined. A considerable number of papers had appeared during recent years showing the coincidence of diabetes and pernicious anaemia, and the diabetes had almost invariably, with a few exceptions, occurred first, and the pernicious anaemia

¹ *Quart. Journ. Med.*, 1933, ii, 281.

some years later. That opened up some interesting speculations, but he knew of no clear explanation at present. Of course, it must not be forgotten that pernicious anaemia, like other diseases, might have not so much complications as concomitant conditions. In his series of 100 cases, for example, some thirty patients had certain evidence of chronic arthritis of one type or another, and sometimes the symptoms of arthritis were so apparent that the state of the blood had been considered as secondary to the arthritis, so that there had been failure to recognize the case as one of pernicious anaemia. Pernicious anaemia also brought about an aggravation of conditions which had arisen earlier and independently. For example, women who had been subject all their lives to easy bruising, with defects in the blood-coagulation factors or platelets, might show concurrently with pernicious anaemia a great increase in that bruising sufficient for a diagnosis of purpura to be made. The differential diagnosis of other blood disorders he would not discuss. If there was failure of treatment with liver it meant that there was incorrect diagnosis, or that the treatment had been inadequate in quantity, or that the patient suffered from a condition such as an infection severe enough in itself to lead to a fatal issue. There were very rare cases of macrocytic anaemia with no distinctive features and a normal gastric analysis, which showed no response to liver or other therapy.

As with all deficiency diseases, it should always be borne in mind that the disease might be precipitated by infection. In some 11 per cent. of his cases the symptoms appeared concurrently with an outspoken infection; in 15 per cent. they appeared in association with some change of dietary; it was probable that in these cases the intrinsic and extrinsic factors worked together according to the law of mass action. In treatment it was necessary not only to get the patient better, but to get him as well as possible. The reservoirs of the body must be filled up. The treatment must be optimum. There could be no standardization of treatment, no prescription of arbitrary amounts. Enough material must be given to meet all the demands of the individual patient. Probably it took more to prevent the progress of neural lesions than to permit the blood elements to be maintained. A study of what could be done for the neural lesions should not be based on the degree of amelioration, but on the evidence of arrested progress. Of course, if the blood could be improved it meant a return of strength, an exercise of muscles, and improvement of the circulation, and reacted on the general progress in that way. Unfavourable reports on liver therapy were often due to a failure to appreciate the fact that there was no standard dose, and that it was the individual patient who must be treated.

NEURAL LESIONS

In his own clinic during three years there had been twenty-six cases of pernicious anaemia with advanced subacute combined degeneration. An observation of these cases lasting over many months was made by a number of independent neurologists, and in no instance while the patients were under treatment with liver did a single objective neurological sign become more marked; there was objective arrest in many cases and subjective improvement in all. He showed a chart of these twenty-six cases, and indicated that in 17 per cent. signs which had been abnormal became normal, and in no instance was there evidence of progress in the lesion. It was considered, therefore, that the progress of a spinal cord lesion could be arrested with enough material. The sooner the treatment was begun the better. In these patients it was very important to pay attention to training exercises and to improvement in the circulation, if this was not normal. If these patients had to take to bed for some other cause their disorder would be more noticeable on resuming activity, and this should not be ascribed to a progressive lesion. Such patients also complained that their symptoms got worse with the onset of cold weather. This was simply that a person with a damaged spinal cord felt the cold more than others. If severe infection were present it would inhibit the effect of therapy on the

cord lesion quite as much as on the blood. Individualism throughout was the keynote.

In a word on liver preparations Professor Minot stressed the need for a knowledge of the material which was being used. Many extracts in all countries were labelled as "Derived from . . ."; the important information was not what they were derived from but what they were equivalent to. He emphasized the value of the parenteral use of extract. To administer the material intramuscularly had various advantages. It was probably as economical as the oral method, and absorption was assured. It was useful in cases of increased resistance to therapy because it enabled as large an amount to be given as desired, with the assurance that the patient was definitely obtaining the material. Administration must be regular and frequent; arbitrary methods led to unnecessary illness. Each case, however, was an individual problem; there was no one rule for all cases, and if it was more convenient to give by the mouth this might be done. More liver was required when the patient was over 50; when there was arteriosclerosis, cardiovascular or kidney disease, or disease of other vital organs; when there was infection; perhaps when there was chronic fatigue; during pregnancy; and in the presence of neural lesions.

IRON AND ITS UTILIZATION

The use of iron in hypochromic anaemia had been dealt with in a most scholarly way by L. J. Witts.¹ In passing, it might be well to mention that there were other substances in liver besides the liver extract which were effective in anaemia, these including iron itself. In the use of iron the exact proportion was unimportant so long as enough was given for the individual case. There was probably almost no use for iron administered intramuscularly; it must be an exceedingly rare case in which that was strictly needed, and to give enough iron intramuscularly would create uncomfortable symptoms. A certain number of patients might have a double deficiency in the sense that they needed liver extract and also needed iron. The combination of liver and iron was worthy of study. An occasional case might do better with both than with either alone, but it was usually one or the other that was needed, and the combination was seldom of importance.

In his clinic the question had lately been raised whether the pigments of the body could in any way be used in the manufacture of haemoglobin. Some of the bile pigments had been studied from this point of view. Concentrated bile pigments were obtained, and a group of cases studied by means of the double reticulocyte reactions. If material was given to a certain amount and there was a reticulocyte reaction, and then more material was given, and there was a second reaction, it implied that the second lot of material was more potent than the first. With that in mind, the effect of bile pigments introduced at a certain point was studied. Professor Minot exhibited graphs which went to show that the addition of bile pigments accelerated the utilization of iron, and was probably not dependent on absorption phenomena. Chlorophyll also had been studied in many directions. Pure chlorophyll preparations had only been available for a short time. Chlorophyll accordingly was tried, and thirty observations had been made on fifteen cases of idiopathic hypochromic anaemia. When the chlorophyll preparation was added to the iron there was an increase in the haemoglobin and a definite reticulocyte rise. With iron and crude chlorophyll employed in disproportionate amounts the result was negative, but it became positive when iron and crude chlorophyll were used in the relation of 1 to 6 up to 1 to 12. Positive results were obtained with iron and crude chlorophyll and with iron and sodium chlorophyllide given orally or intramuscularly, as well as with other preparations. In other words, it might be said that chlorophyll as a pigment in the body did something which accelerated the utilization of iron. Professor Minot added that he did not regard this for a moment as being of any great practical importance, though it was of physiological interest, and there might occasionally be

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cases in which it had a practical bearing. So far he had had two cases in which a preparation of bile pigment brought up the haemoglobin quite promptly, in two weeks, 14 or 15 per cent. It was then stopped and the chlorophyll preparation was used, and a fall when it was withheld. He thought this had a bearing on the way in which iron might be used in the body, but he did not want anyone to race off with the idea that chlorophyll must be given in all cases. At the same time, it might offer some further approach to an understanding of the mechanism whereby iron was utilized. The observations had left him wondering whether the value of spinach might not be in its goodly amount of chlorophyll as well as in its content of iron. Possibly some natural foodstuffs enabled a better use to be made of iron in the body, and of these accelerating factors probably chlorophyll was one. He concluded with the remark that in spite of recent advances in the knowledge of anaemia there remained much that was still unknown. The continual study of patients at the bedside was essential, as well as a recognition that the science was unstable, that the art was uncertain, and that the sick individual must remain in the centre of the picture.

A vote of thanks to the lecturer and of congratulation to him on the Nobel award was accorded on the motion of Dr. MORLEY FLETCHER.

AETIOLOGY AND TREATMENT OF ASTHMA

At a meeting of the Section of Medicine of the Royal Society of Medicine on November 27th, with the vice-president, Dr. MORLEY FLETCHER, in the chair, Sir HUMPHRY ROLLESTON opened a discussion on "The Aetiology and Treatment of Asthma."

Sir Humphry Rolleston suggested the elimination of renal and cardiac asthma, but said that even with this limitation the subject was enormous. Asthma was a symptom, and only one, of a large and as yet incomplete group of diseases known as allergic—the toxic idiopathies. The name "allergy" had been introduced by von Pirquet to describe all forms of altered reaction of the organism, but it was now used only for hypersensitiveness, the word "anergy" or "negative idiosyncrasy" being used for diminished sensitiveness. The cause was the underlying constitutional state, usually inherited or latent, transmitted on Mendelian lines. It was tempting to invoke an endocrine origin, particularly in the adrenal or thyroid, but the suggestion was met with clinical inconsistencies, as allergic symptoms were rarely seen in Addison's or Graves's disease. Strong evidence had been adduced to show that failure of adrenal secretion was the cause. The integrity of the internal environment depended on the autonomic nervous system, and vagotonia had been described as the primary cause. Should eosinophilia, he asked, be regarded as a defence mechanism or a concomitant reaction? If adrenaline injection drove the eosinophils from the peripheral circulation they must be at best an inconstant protection. Secondly, there was the localizing cause which determined the particular manifestation. In addition to trauma an inherent want of vitality might exert an influence. The many methods of treatment included physical exercises, wide-field x-ray exposures, specific and non-specific desensitization, and urinary proteose.

Dr. JOHN FREEMAN said that the modern minute doses of toxin-antitoxin offered a danger of sensitizing people, so that the next protective inoculation might cause necrosis at the site of injection. The definition of allergy given by Sir Humphry Rolleston must include anaphylaxis and immunity phenomena; von Pirquet had included cancer and old age. All the symptoms of an infectious disease must be in a way allergic. Whenever the irritant poison came in contact with the tissues there were symptoms likely to arise; this accounted for localization. There was also a tendency for one particular variety to run in the family. Damage was undoubtedly a precipitating cause of great importance, and irritation was likely to limit the manifestation to a special spot. Psychological

factors undoubtedly played a part; they were present in all cases. Psychologists described the toxic idiopathies as anxiety neuroses, the mind "choosing" the type of reaction that best symbolized the patient's trouble. Amelioration, and at times real cure, might be produced by desensitization.

Dr. J. LIVINGSTONE said that specific sensitization could be cured or helped by inoculation, but that some patients were sensitive to a very large group of causes, and some 40 per cent. of patients would get better whatever the treatment, if it were given with sufficient authority. Expiratory breathing exercises had proved successful in many patients. The principles were to expire and get rid of the functional emphysema, to get the diaphragm working habitually, and to mobilize the chest muscles. Extraordinary control and mobility could be attained. Of seventy-seven cases 66 per cent. were very much improved, and only 18 per cent. showed no benefit. A good deal of time and patience were required to keep the patients practising regularly and to arouse enthusiasm. Also, much depended on giving them the feeling they were going to improve. Patients learned to prevent attacks by doing the exercises. The treatment was simple, and the results compared well with other methods.

Dr. GEORGE BRAY said that an ordinary case of asthma was mostly sensitive to inhalants, food playing but a small part. The groups were: animal hairs, feathers, dust, and orris root. The obvious treatment was to inject with these singly or together. An ordinary case could be desensitized by relatively large intramuscular doses of a solution of these four, as concentrated as possible and combined with adrenaline. Patients who ascribed their attacks to food usually had gastro-intestinal disturbances, and treatment of these was needed—not desensitization to food. Attacks might become conditioned reflexes in allergic persons, but the changes disappeared after desensitization, and operative interference was seldom necessary. Bacteria did not play an aetiological part in the attacks, but lowered resistance and so increased sensitiveness. Specific desensitization was therefore the most practical method of treatment.

Mr. C. GILL-CAREY reported on 181 nasal cases seen in the last ten years. Allergic rhinitis accounted for a large proportion, and could be recognized by the typical colour changes in the mucosa. Bacterial infection had been superadded in about 10 per cent. Treatment was difficult. Temporary improvement followed practically any surgical operation. Interference should, however, be confined to removal of polypi in purely allergic cases. Non-allergic abnormalities accounted for about 10 per cent., and satisfactory results were obtained by treating sinusitis. The temptation to attack hypertrophic masses of allergic tissue must be withstood, but rhinological treatment gave tissue factory—at times brilliant—results in asthma.

Professor ERNEST M. FRAENKEL showed his film on allergy and protective apparatus. There were, he said, two independent variables to be considered: the constitution, and specific allergens. The film showed skin tests, portable filtering apparatus, an allergen-free room, a zip-fastened sleeping-bag, and a high-pressure tube for several out-patients to use at once. A patient sensitive to dog hairs was shown breathing contentedly through the filter, although dog hairs were shaken into the air in front of her; without her knowledge the filter was removed from the apparatus, and at once she suffered a typical attack. The apparatus had therefore diagnostic as well as therapeutic value. In some cases the psychological effect of confinement in the mask or room was bad at first, and had to be overcome. Use of the apparatus for part of the day sometimes protected the patient for the whole day. Asthma in Germany and in England was very similar. Sir JAMES DUNDAS-GRANT emphasized the importance of examining and treating the nose in asthma. In some of his cases specific sensitiveness had disappeared after nasal treatment. Hypersensitiveness was an explosive, but it required a detonator, and this part might be played by the nose. Dr. E. PARKES WEBER mentioned adrenaline treatment, which, he said, diminished or prevented the reaction in some cases of asthma. Acute generalized

some years later. That opened up some interesting speculations, but he knew of no clear explanation at present. Of course, it must not be forgotten that pernicious anaemia, like other diseases, might have not so much complications as concomitant conditions. In his series of 100 cases, for example, some thirty patients had certain evidence of chronic arthritis of one type or another, and sometimes the symptoms of arthritis were so apparent that the state of the blood had been considered as secondary to the arthritis, so that there had been failure to recognize the case as one of pernicious anaemia. Pernicious anaemia also brought about an aggravation of conditions which had arisen earlier and independently. For example, women who had been subject all their lives to easy bruising, with defects in the blood-coagulation factors or platelets, might show concurrently with pernicious anaemia a great increase in that bruising sufficient for a diagnosis of purpura to be made. The differential diagnosis of other blood disorders he would not discuss. If there was failure of treatment with liver it meant that there was incorrect diagnosis, or that the treatment had been inadequate in quantity, or that the patient suffered from a condition such as an infection severe enough in itself to lead to a fatal issue. There were very rare cases of macrocytic anaemia with no distinctive features and a normal gastric analysis, which showed no response to liver or other therapy.

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Dr. JOHN FREEMAN said that the modern minute doses of toxin-antitoxin offered a danger of sensitizing people, so that the next protective inoculation might cause necrosis at the site of injection. The definition of allergy given by Sir Humphry Rolleston must include anaphylaxis and immunity phenomena; von Pirquet had included cancer and old age. All the symptoms of an infectious disease must be in a way allergic. Whenever the irritant poison came in contact with the tissues there were symptoms likely to arise; this accounted for localization. There was also a tendency for one particular variety to run in the family. Damage was undoubtedly a precipitating cause of great importance, and irritation was likely to limit the manifestation to a special spot. Psychological

factors undoubtedly played a part; they were present in all cases. Psychologists described the toxic idiopathies as anxiety neuroses, the mind "choosing" the type of reaction that best symbolized the patient's trouble. Amelioration, and at times real cure, might be produced by desensitization.

Dr. J. LIVINGSTONE said that specific sensitization could be cured or helped by inoculation, but that some patients were sensitive to a very large group of causes, and some 40 per cent. of patients would get better whatever the treatment, if it were given with sufficient authority. Expiratory breathing exercises had proved successful in many patients. The principles were to expire and get rid of the functional emphysema, to get the diaphragm working habitually, and to mobilize the chest muscles. Extraordinary control and mobility could be attained. Of seventy-seven cases 66 per cent. were very much improved, and only 18 per cent. showed no benefit. A good deal of time and patience were required to keep the patients practising regularly and to arouse enthusiasm. Also, much depended on giving them the feeling they were going to improve. Patients learned to prevent attacks by doing the exercises. The treatment was simple, and the results compared well with other methods.

Dr. GEORGE BRAY said that an ordinary case of asthma was mostly sensitive to inhalants, food playing but a small part. The groups were: animal hairs, feathers, dust, and orris root. The obvious treatment was to inject with these singly or together. An ordinary case could be desensitized by relatively large intramuscular doses of a solution of these four, as concentrated as possible and combined with adrenaline. Patients who ascribed their attacks to food usually had gastro-intestinal disturbances, and treatment of these was needed—not desensitization to food. Attacks might become conditioned reflexes in allergic persons. The nose became very unhealthy after repeated attacks, but the changes disappeared after desensitization, and operative interference was seldom necessary. Bacteria did not play an aetiological part in the attacks, but lowered resistance and so increased sensitiveness. Specific desensitization was therefore the most practical method of treatment.

Mr. C. GILL-CAREY reported on 181 nasal cases seen in the last ten years. Allergic rhinitis accounted for a large proportion, and could be recognized by the typical colour changes in the mucosa. Bacterial infection had been superadded in about 10 per cent. Treatment was difficult. Temporary improvement followed practically any surgical operation. Interference should, however, be confined to removal of polypi in purely allergic cases. Non-allergic abnormalities accounted for about 10 per cent., and satisfactory results were obtained by treating sinusitis. The temptation to attack hypertrophic masses of allergic tissue must be withstood, but rhinological treatment gave satisfactory—at times brilliant—results in asthma.

Professor ERNEST M. FRAENKEL showed his film on allergy and protective apparatus. There were, he said, two independent variables to be considered: the constitution, and specific allergens. The film showed skin tests, portable filtering apparatus, an allergen-free room, a zip-fastened sleeping-bag, and a high-pressure tube for several out-patients to use at once. A patient sensitive to dog hairs was shown breathing contentedly through the filter, although dog hairs were shaken into the air in front of her; without her knowledge the filter was removed from the apparatus, and at once she suffered a typical attack. The apparatus had therefore diagnostic as well as therapeutic value. In some cases the psychological effect of confinement in the mask or room was bad at first, and had to be overcome. Use of the apparatus for part of the day sometimes protected the patient for the whole day. Asthma in Germany and in England was very similar.

Sir JAMES DUNDAS-GRANT emphasized the importance of examining and treating the nose in asthma. In some of his cases specific sensitiveness had disappeared after nasal treatment. Hypersensitiveness was an explosive, but it required a detonator, and this part might be played by the nose. Dr. E. PARKES WEBER mentioned adrenaline treatment, which, he said, diminished or prevented the reaction in some cases of asthma. Acute generalized

dermatitis of unspecified allergic origin gradually disappeared in time, but if treated by rest in bed and semi-starvation it cleared away much more rapidly. The reason might be removal of an allergen from the food, or that relative starvation lowered the allergic reaction just as adrenaline did: probably both factors played a part. Bleeding might be a correlated factor; it had afforded relief, in olden days, in "sthenic attacks of pneumonia"—probably allergic phenomena. Dr. JAMES ADAM spoke of the nutritional factor, ending in toxicosis. Asthma in canaries, dogs, and other pets could be cured by regulated feeding, plenty of open-air exercise, and blue pill. Nasal, nervous, endocrine, and psychic factors did not enter in animals. "Only" children were in the same position as pets: they were coddled, overfed, and their sympathetic systems were not stimulated. The struggle of the body to maintain the alkalinity of the blood was the chief problem. A dose of urea sent up the eosinophil count, and might precipitate an attack. A cold douche after a warm bath kept adrenaline flowing and reduced eosinophilia. Golf was most useful in treatment. Mr. C. FRANCIS thought that removal of polyp benefited asthma only if the blood pressure was normal and the patient was not aspirin-sensitive. Light cauterization of the septum reduced high blood pressure and improved asthma. Anything that improved the circulation improved asthma.

DIAGNOSIS OF INTRACRANIAL TUMOURS

At a meeting of the Medical Society of London on November 26th, with Lord HORDER in the chair, a discussion took place on the value of accessory methods in the diagnosis of intracranial tumours and allied conditions.

VENTRICULOGRAPHY AS AN AID TO LOCALIZATION

Mr. HUGH CAIRNS said that it was just fifty years since Godlee's operation for the removal of tumour of the brain. The greatest significance of that event of 1884 was that Hughes Bennett, Ferrier, and Hughlings Jackson felt sufficient confidence in their growing knowledge of cerebral function to predict the presence and precise situation of the tumour and advise its removal. Looking back, it seemed that brain surgery was set in motion by the advance in diagnosis. Accessory methods had helped greatly to increase its scope. They could not be employed with discrimination in any one case, however, until careful clinical studies had been made; the value of these accessory methods was enhanced or belittled according as clinical studies were positive or negative. A preliminary question was whether lumbar puncture was dangerous in intracranial tumour. It seemed to him that lumbar puncture was often rather loosely used, also that too much fluid was taken. The dangers were minimized if the fluid was only in small quantity. After showing some cases which illustrated the value of x rays alone, he came to the methods of air injection, introduced in 1918. The method was at first called ventriculography, but when it was found that a lot of air went into the subarachnoid space as well it became "encephalography," and as such was adopted widely in Germany, where, in spite of initial claims that it was without danger, it had been shown that the injection of such a large quantity of air resulted in severe headache, lasting for some days. It had been found recently, however, that by putting in 10 or 15 c.cm. of air by lumbar puncture, with the patient sitting and the head slightly flexed, a good outline of the ventricles in the antero-posterior view was obtained, and without too great an ordeal for the patient. It was this method of ventriculography which he had used, and by means of lantern slides he discussed the significance of the appearances in the various deformities of the ventricular system produced by tumours, and it was remarkable what a large deformity a small tumour would produce. He showed how the position could be inferred from the difference in level of the two ventricles, also how guidance could be obtained as to third ventricle tumours, the localizing diagnosis of which, from the clinical point of view, was extremely difficult.

The limitations of ventriculography were that it would not show gliomatosis or sarcomatosis or any of the diffuse

tumours, that non-surgical lesions would sometimes produce deformity of the ventricles, and that the method would not give the pathological diagnosis. Its advantages were that it saved operative exploration in a number of cases suspected of tumour, it was a better form of exploration than operation, because it enabled more to be seen of what was going on inside the cranial cavity than an opening in the skull, and it was not without use in the post-operative period. He had never experienced any trouble with it in a patient who had normal ventricles and no intracranial tumour though one had been suspected, but in cases in which there were actually tumours the method had its dangers, the most important of which appertained to general reactions in the patient. Sometimes after air injection there ensued progressive stupor. To avoid danger the first thing was to let out the air and operate immediately. It was customary to make the x-ray examination early in the morning, and proceed with the operation as soon as the plates had been read. To avoid the dangers attending ventriculography the method of ventricular estimation had been introduced. The estimation was done by aspirating fluid instead of injecting air. If one lateral ventricle was small or collapsed and the other reasonably large, the tumour must be on the side of the collapsed ventricle; if both lateral ventricles were dilated, the tumour must be in the third or fourth ventricle. Ventricular estimation was done as a routine in every case of cerebellar exploration, and saved many mistakes. Mr. Cairns had particulars of 129 cases, in forty-two of which air injection had been done, and in twenty-seven ventricular estimation. Of the 129 cases the tumour was wholly or partly removed at operation in ninety-four; in eleven other cases the lesion was identified, but did not give histological material; in four cases there were mistakes in diagnosis. In 105 of the cases the tumour could be localized correctly by clinical methods alone; in twenty of these the clinical methods did not give a certain localizing diagnosis, and in four the clinical examination gave a wrong localizing diagnosis. X-ray examinations provided crucial diagnostic evidence in three cases and false localizing signs in three. Ventricular estimation was the main factor in five cases. The future lay in much more careful clinical examination and further experience of tumours.

EXAMINATION OF CEREBRO-SPINAL FLUID

Dr. J. G. GREENFIELD said that in going through his records he had been struck with the great variations from the typical cerebro-spinal fluid syndrome which were seen in cerebral tumours. The syndrome typical of cerebral tumour had raised pressure and increase of protein, with no increase of cells. Once the pressure passed 200 mm. it might rise rapidly to pressures dangerous to life. Pressures of 200 mm. were often found before there was any evidence of headache or vomiting. The rate of reduction of pressure was probably much more important than the situation from which the fluid was withdrawn. Normal pressures might be found with cerebral tumours and even with cerebral abscess; they were not uncommon with subdural haematoma. With regard to the dangers of lumbar puncture, probably tumours in the middle line and low down in the posterior cranial fossa were much more liable to cause dangerous symptoms after lumbar puncture than those above the tentorium. The exceptions to the rule that cerebral tumour produced no increase of cells were few and well defined. One of the exceptions was gliomas when these occurred in the walls of the lateral ventricles. Another was cancers of the posterior fossa. There were forms in cerebral tumours in which excess in protein was the rule, and others in which it was the exception. In eighth nerve tumours a considerable excess was always found. Cancers of the posterior fossa also usually raised the protein above 100 mg., but slow-growing gliomas and gliomatous cysts apparently did not. Nor was any great excess found in angiomatous cysts of the cerebellum. With tumours above the tentorium yellow fluids with only a slight excess of protein were indicative of haemorrhage only. It was uncommon to find excess of protein (over 100 mg.) in cases of meningeal endotheliomas or meningiomas, but his records included a few

cases of endotheliomas with proteins of between 100 and 200 mg. The more malignant gliomas were more apt to cause oedema of the surrounding brain tissue, usually reflected in a rise of protein in the fluid. In some cases it might be possible to distinguish between cerebral tumour, cerebral abscess, and subdural haematoma by the cerebro-spinal fluid, but one was never very safe.

Dr. M. H. JURE said that results and conclusions could only be reached by a combination of methods. At times the radiograph would lead to the diagnosis of a case when other methods failed, but that was seldom. He showed examples of routine radiography, pointing out the signs indicating general increase of intracranial pressure. It was in meningiomas that the surgeon was most likely to turn to the radiologist for help. Meningiomas were extremely complex; they calcified, ossified, caused hyperostosis, and destruction.

BILATERAL VENTRICULAR EXAMINATION

Dr. OLJENICK of Amsterdam, who has worked out a special modification of ventricular estimation, said that the mortality figures for ventriculography were not very high, though he knew surgical departments where they were up to 8 per cent. He did not regard ventriculography as purely diagnostic, since by using it a long surgical intervention might be avoided, therefore perhaps some small mortality was not without excuse. Nevertheless, to reduce even this small mortality was worth while. In his clinic a method of bilateral ventricular estimation or examination had been adopted, puncturing the ventricles, examining the fluid from the two aspects (chemical and microscopical), and measuring the pressure. If symmetrical conditions were found in the right and left laterals it must mean that the obstruction, if any, was in the middle part of the ventricular system, in either the third or the fourth ventricle. He strongly agreed with the late Mr. Donald Armour that the pressure should always be measured on a manometer; it was not safe to count drops. Bilateral puncture and examination made it possible for the fluid to be taken out first on one side and then on the other. In a case of cystic glioma he had found a reciprocating action between the pressures, as though the fluids were in communicating vessels, which was not the case, and he came to the conclusion that it was due to the fact that the glioma was adjoining the ventricle on one side, and so the fluid might go one way or the other, according to the change in pressure of the ventricular system. Another advantage in having a double puncture opening was that in cases where it was not possible to reduce the intracranial pressure before opening the dura mater, the complementary opening allowed the pressure to be reduced without introducing intravenous salines. In 1933 he had carried out sixty-one bilateral ventricular examinations. When the results did not coincide with the clinical localization the examination was repeated—which was easy to carry out, as the openings were already present—and when again the results did not coincide, ventriculography was done; this happened in four of the cases. So far in 1934 he had done 110 ventricular examinations, and the number of ventriculographies had increased to twenty-seven. The danger of ventriculography was mostly in temporal lobe tumours, probably because in such tumours there was no *fals cerebri* to act as a buffer, and if there was a shift with any such tumour it reacted directly on the neighbouring tissue and the brain stem. If a ventriculography was done he followed it immediately by operation, but it was perhaps not correct to say that this reduced the mortality rate, because in such cases it was difficult to say whether the patient died from the ventriculography or from the operation, or both.

Dr. C. P. SYMONDS said that neurologists owed a great deal to the surgeon for the advance which had taken place in knowledge of the localization of cerebral tumours. The work of Mr. Cairns and his colleagues and of Dr. Oljenick in Holland had opened up a very real advance. Mr. JULIAN TAYLOR drew attention to curious annular shadows sometimes seen in the x-ray picture right in the substance of the hemisphere. One such case proved to be an aneurysm. He was unable to say why the aneurysm

should show such a clear shadow, but that it did so there was no doubt.

Mr. HUGH CAIRNS, in reply, expressed his agreement with Dr. Oljenick's remark that with a diagnostic method proper there should be no mortality, but in practice every diagnostic method had a mortality. If all the methods available were discriminatingly used, however, the ultimate outcome should be a lessened mortality for brain tumours, provided, of course, that surgeons did their work properly. People had asked whether it was worth while to diagnose intracranial tumours. The results in the past had not been such as to answer that question promptly in the affirmative. The brain had seemed rather a hopeless field for radical surgery. But he recalled a remark by Gowers in 1893 to the effect that it was not likely that the removal of a tumour from the mid-cerebellum could be survived. The people who were going about their ordinary activities to-day after having had tumours taken out of the cerebellum were numbered by hundreds, and he believed that in future the results of brain surgery would be still further improved, especially if, beforehand, the cases worth operating could be distinguished from those not worth operating. The future lay in the hands of the physician and in closer clinical examination of cases.

BILATERAL RENAL CALCULUS

At a meeting of the Cork Clinical Society, held on November 16th, Dr. D. F. HEGARTY presented clinical notes and treatment of a case of bilateral renal calculus in a married woman.

The history was that some years ago this patient was operated on for chronic appendicitis, and two months afterwards she had an attack of right renal colic, and passed a small stone two days later. She suffered no further disability for the next six years and had four full-term pregnancies. She became pregnant twelve months ago, and when seven months advanced she had another attack of right renal colic, and again passed a small stone. A month before confinement she had an attack of left renal colic, the pain remaining for four days. Radiography and pyelography after her confinement showed four calculi in her right kidney and a small one blocking her left ureter, and free excretion of the dye by the right kidney. Owing to the risk of calculus anuria and to the patient's condition, it was decided to remove only the calculi on the right side and not to interfere with the left side for the present. The patient made an excellent recovery.

Professor J. M. O'DONOVAN read a communication on "Pernicious Anaemia: Results in a Series of Cases." He subdivided his cases treated since the advent of liver therapy according to the response to treatment, and in each group suggested the reasons for rapid or slow response. One case of particular interest was that of a patient who developed pernicious anaemia after a partial gastrectomy. A prolonged discussion followed.

J. Rousset (*Presse Méd.*, September 29th, 1934, p. 1518) records a case of acute gastric dilatation with perforation after hysterectomy. Many causative factors of post-operative gastric dilatation have been suggested: infection from a perigastric peritonitis; mechanical obstructions; aerophagia and sialophagia; anaesthetics (especially chloroform); the state of the nervous system; and shock. Perforation is an exceptional complication; it has been noted during the course of certain nervous conditions, and ulcerous lesions may be a possible factor. Rousset believes that the dilatation is the most probable cause, and advances the following hypothesis. Subacute gastric dilatation supervenes after the operation, followed by haemorrhage, due to vaso-dilatation or distension of the mucosa; the mucosal lesion gives rise to an ulceration with subsequent necrosis and perforation. Simple gastric lavage, repeated as long as necessary, should be instituted on the first appearance of symptoms. Operative measures, owing to their poor results, are not advised.

CORRESPONDENCE

London University and its Medical Schools

SIR,—The awful prospect of being thought foolish and unwise by Mr. Eric Pearce Gould (December 1st, p. 1018) will not, I hope, deter your readers from expressing their opinions upon the question of principle raised by Sir Ernest Graham-Little. The additional information sought by Mr. Pearce Gould happens to be irrelevant to the question raised, which is not why so many undergraduates fail to graduate in medicine, but whether those who have completed the second M.B. should be allowed to become at once graduate members of the University.

There seem to me to be two reasons strongly in favour of Sir Ernest's contention. The first is that to enter a son or daughter for the London M.B. course is not an absolute guarantee against death or misfortune. A youth who, owing to family misfortune, is unable to complete his medical course at all is at a disadvantage in London as compared with Oxford or Cambridge. He is not a university graduate, and, whether we like it or not, the right to append academic letters to one's name is an economic advantage in many careers.

The second and, in my opinion, more important reason is that one of our academic weaknesses in London is the faintness of the emotional appeal made by the University. Oxford and Cambridge men take a legitimate pride in membership of illustrious corporations. Too often London men seem only to take pride in having passed rigorous examinations. Affection for or pride in the University as something nobler than an examining body is still rare. But an examination is a means, not an end; it is used as a test—one test—whether a person is worthy to become a member of a great corporation devoted to the service of liberal education. If it be true that the young men and women who have completed their pre-clinical education are worthy to be admitted to full membership, or that a relatively slight modification of their intellectual training would make them worthy, we should rejoice. It would mean that a number of young people who, in the ordinary course of events, will continue their education in London for some years, would be able to participate as graduates in the life of the University. I do not believe the University of London can fulfil our aspirations unless we have an increasing number of young graduates who take pride in the University as such. It is very difficult to catch these young people without running the risk of lowering intellectual standards. If, in this particular case, we can make graduation easier without providing a "soft option," we ought to do so.

The late Professor M. S. Pembrey, no believer in "soft options," was an enthusiastic advocate of this reform. He it was, I think, who moved for a return to the Beard of the Faculty of Medicine of the statistics upon which Sir Ernest has based his argument.—I am, etc.,

MAJOR GREENWOOD.

Loughton, Dec. 2nd

Fractures of the Neck of the Femur

SIR,—I note with some surprise, in your issue of December 1st (p. 1012), remarks which I cannot pass without some commentary.

Gunshot fractures of the neck of the femur in 1915 were the first to suggest to me that the blood supply of the proximal fragment was very often inadequate, and this, combined with sepsis, caused a large percentage of heads to necrose, which, in turn, were duly removed at operation. These observations were carefully noted, with x-ray pictures (Figs. 24, 25, and 26), in my book *Fractures*, which illustrates these points and hints at the very long prognosis. The correct and almost universal application

of the Thomas splint—first, in the trenches; secondly, as a bed splint; and finally, as an ambulatory splint—reduced (1) the appalling death rate from shock and sepsis from 80 per cent. in 1916 to 15.6 per cent. in 1917, and (2) saved innumerable limbs which would certainly have been amputated if treated otherwise.

After retiring from the Service, and since 1926, I have been working at the L.C.C. hospitals, where some 200 cases of fractures are constantly under my care. A very great number of intracapsular fractures have during this time passed through my hands; the majority of these have been satisfactorily treated in Thomas splints and extended, as I was wont to do during the war. When union is solid enough—see *Fractures*, Fig. 138, showing marked displacement, and Fig. 139, showing complete replacement with union—the result will, I hope, even please the hypercritics.

The age of these patients has varied between 13 and 94 years, and large numbers of them have left the four hospitals walking, some united and others not, in calliper splints—even a spontaneous fracture in a malignant case returned, after being treated and sent out of hospital, with some union, in her calliper splint, to die a year later of the primary cause. At Dulwich Hospital, S.E.22, where there have been for years casualties in these high fractures occurring at the rate of two deaths per month, there has not been a single death in this variety of case since the fractures were taken over by me some eighteen months ago. Surely this is sufficient proof as to the efficiency of the Thomas splint. All these statements of mine can be readily verified.

These are some of the facts and figures I advance for denying the remarks made by Mr. Watson Jones, who is reported to have said "that the Thomas splint or calliper was dangerous in such high fractures, and was not to be recommended at any stage of treatment."—I am, etc.,

London, W.1, Dec. 3rd.

MEURICE SINCLAIR.

Short-wave Diathermy

SIR,—As one who took part in the discussion on this subject at the Royal Society of Medicine on November 16th (see *Journal*, November 24th, p. 956), and who had on that date given 1,792 ultra-short-wave treatments, I would like to comment on Dr. C. B. Heald's letter.

Papers on ultra-short-wave therapy have been published since 1926. Schliephake, in the second edition of his book *Kurzwellentherapie*, which has just become available, gives 236 references to books and articles dealing with this subject. This method, therefore, can hardly be described as a new one, though its use in this country is comparatively recent. In regard to the differences between treatment given by diathermy and by ultra-short waves, it should be remembered that some of the greatest successes which have followed the use of ultra-short waves have been in cases where there has been enclosed pus—namely, pulmonary abscesses, pleural empyema, sinusitis, dental abscesses, etc.—conditions in which diathermy is contra-indicated; also in cases such as carbuncles, boils, whitlows, etc., where it would not be possible, for technical reasons, to give diathermy treatment. At the Royal Society of Medicine discussion it was noticeable that those speakers who had had an opportunity of using apparatus of sufficient power appeared to have had the greatest success in treatment. As in every other form of therapy, efficient apparatus is essential, and in ultra-short-wave treatment particularly improvised home-made accessories have not proved satisfactory. Adequate care and skill in the technique is, of course, just as necessary. Exaggerated claims are equally to be deplored as uncritical condemnation without personal experience or trial.—I am, etc.,

London, W.1, Nov. 26th.

W. KERR RUSSELL.

Treatment of Epilepsy by Snake Venom

SIR,—I shall be pleased, as Colonel Elliot says, to offer any help in my power to medical men wishing to treat epilepsy by snake venom, but I would like to make my attitude clear.

There is, I think, sufficient evidence of the successful treatment of epilepsy in this way to warrant further investigation, but I have no evidence to make me more optimistic than this. The treatment would, of course, be quite empirical, though reports of cases seem to show that it depends on something in the nature of protein shock.—I am, etc.,

BURGESS BARNETT, M.R.C.S.
Curator of Reptiles, Zoological
Society of London.

December 3rd.

SIR,—I have recently received communications from sources which cannot be considered either unimportant or negligible, to the effect that the medical profession in this country has been very slow to take up the treatment of epilepsy by the injection of snake poison. It is suggested that we have been prejudiced because a leading part in this movement has been taken by laymen and not by those of our own profession.

In favour of the treatment of epilepsy by venom there are two sources of evidence. (1) Very striking cases have been published, both in America and in Africa, of the complete cure of epilepsy following the bites of poisonous snakes in which, though the patients were made very ill, the amount of venom injected was not sufficient to cause death. (2) There are a number of records of patients treated by the injection of snake venom in which it is claimed that long-standing epilepsy has been cured. These come both from America and from Africa, and, unfortunately, many of them are open to some criticism. In both the above countries it has been comparatively easy for medical men to obtain a supply of snake venom, whereas in this country it is very difficult for them to get it. Moreover, snake venom, as usually obtained, is full of dangerous septic organisms.

The fact that the curator of reptiles at the Zoological Society's Gardens is now a medical man who has in the past been in active medical practice, has an important bearing on snake problems at the present and I hope for a long future. Dr. Burgess Barnett, the curator of the reptile house, is very keen to help in work of this kind. He is prepared to advise medical men as to the most suitable form of snake venom for use in any particular type of case, and as to the method of obtaining an aseptic product by appropriate treatment of the venom.

If low doses are given to begin with, the risk of any unfortunate happening is practicably negligible. Through the kind introduction of Mr. Ditmars of the New York Zoological Park, I was put in touch with Colonel M. L. Crimmins, a retired Army medical officer of the United States of America. Colonel Crimmins, taking advantage of an accident to begin with, has immunized himself against rattlesnake poison, and has shown conclusively that it is possible to do this in the same way as we have long known that immunity against snake venom could be established in animals. Colonel Crimmins's blood has been used successfully in the case of a child bitten by a venomous snake. Needless to say, the method has been well established in animals, so that it can no longer be described as an unjustifiable experiment, or, indeed, as an experiment at all. Even were it an experiment, which it is not, I have abundant evidence in writing from epileptics and others that they would be only too willing to take the risk involved if it offered any reasonable prospect of cure.

May I venture to hope that some enterprising medical men, preferably those with hospital opportunities and

practising in London, will get in touch with Dr. Burgess Barnett, who has most kindly promised to give any such all the help in his power. He has authorized me to make this offer on his behalf, and he can be addressed at the Zoological Gardens, Regent's Park, N.W.8.—I am, etc.,

R. H. ELLIOT, M.D.,
Lieutenant-Colonel,
Late of the I.M.S.

London, W.1, Nov. 26th.

Ingrowing Toe-nail

SIR,—From articles that have appeared in the *Journal* it seems that rather severe surgical procedures are still in use for the relief of the above. The following will be found a method of treating the condition which is simple, painless, and entirely successful. The relief is immediate, the cure is complete in a few days, and if ordinary after-care is used there is no recurrence. I was shown this treatment forty-five years ago by a farmer's wife in Australia, who operated on me, and I have used it ever since.

The procedure is simple, but it is important that the technique should be followed exactly. Two points must be borne in mind. First, the downward curve of the nail from side to side must be replaced by an upward curve, or its nearest approach; and secondly, on no account must anything be removed or pared from the edge of the nail where the so-called ingrowing is taking place.

The toe must first be thoroughly soaked in hot soap and water. Then a groove, or rather a "flat," is made down the centre of the nail by paring. The instrument to do this with



Illustration showing spur on left and area to be shaved thin to form hinge in centre.

is a piece of broken bottle glass. It is quite useless to try to do it with a file or scissors. It will be found that the sharp edge of the broken glass "spokeshaves" down the softened nail with the greatest ease and accuracy. The shaving must be continued until the centre line is quite thin, and the pink nail bed shines clearly through. This line now forms a hinge on which the two sides of the nail can be bent up. Of course, this is done chiefly on the affected side. As the edge of the nail is lifted pledgets of wool are packed under it. In a few hours, for convenience at the next visit, the edge of the nail can be lifted clear of the bed and packed again.

Now comes a very important point. If the case is of any standing it will invariably be found that on the edge of the nail at the most painful point is a spur or spike. This seems, and probably is, the cause of the pain, and it seems the obvious thing to do to remove it. On no account must this temptation be yielded to. If it is removed recurrence is certain to take place. The proper course is to raise it tenderly, by bending the nail still further on the central hinge, and letting it grow out, up, and over the irritable ulcer under it. This preserves the full width of the nail. As soon as it is raised the relief is immediate, and in a few hours the patient can walk without any pain.

The spur is, I believe, caused by the sufferer cutting round the nail, and leaving a small piece at the corner at each cutting; hence the importance of cutting the toe-nails straight across and always leaving projecting corners. If this is done ingrowing toe-nail will not occur. Those who have a tendency to suffer should always keep their nails on the long side. There is one difficulty which may be

met with. In some of these cases the nail is very short and sunken. This makes shaving a proper groove and raising the edge difficult, but it can generally be managed to some extent, which will give relief, and further treatment can be carried out on the same lines as the nail grows. Many of the cases treated by this method show a good deal of suppuration, and a boric compress is a useful addition to the treatment in such circumstances.

I would be interested to hear from anyone who may try the above treatment.—I am, etc.,

P. F. CHAPMAN, M.B., C.M.Ed.

Taynult, Argyllshire, Nov. 26th.

Obstetric Methods at St. Mary Abbots

SIR,—I have carefully read the report of the work at the Louise Margaret Hospital, published by Colonel E. L. Moss in 1924 (*British Medical Journal*, 1924, ii, 272), and it is clear that his "challenge," published in your issue of November 24th (p. 964), is due to the fact that he has confounded morbidity with mortality. His paper contained no figures relating to morbidity as measured by any known standard. It is quite impossible to compare the mortality rate of a sheltered hospital, where all except four of the patients were soldiers' wives, and regularly attended an ante-natal clinic, with that of a unit like the one at St. Mary Abbots. During the last fortnight three of the puerperal patients in the suspect ward suffered from tuberculosis, two were sent in from outside after being many hours in the second stage of labour, and one was sent in because of severe varicose veins. There are in the ante-natal ward three patients sent in with morbus cordis, one being admitted with serious circulatory failure, one with asthma, one with pyelitis, and one with a blood sugar of just under 400 mg. per 100 c.cm. All of these patients save one were sent in because of the "complication," and they are typical of the material dealt with in the unit. I still assert that, so far as I am aware, the morbidity rate at St. Mary Abbots Hospital was the lowest ever recorded in this country.

I must apologize for the error pointed out by Colonel Moss. The enema is given towards the end of the first, not the second, stage of labour. I regard a temperature of 98.4° F. during the puerperium as pathological because, so far as I am aware, a healthy individual confined to bed rarely, if ever, records a so-called normal temperature. All the patients are kept on an exceedingly generous diet, and I can assure Colonel Moss that they have plenty to get rid of, and are not suffering either from acute diarrhoea or burned "seats." It does seem to me that he tends to assume that a thing is good because it is new. Are his present results superior to those published in 1924, at which time he could not have used dettol, and probably did not wear a mask? Still, I agree so heartily with much of his letter that I hope he will allow me to congratulate him on his excellent results.

Dr. James Cook has succeeded in astonishing me. I am delighted to have his categorical assurance that for the last quarter of a century general practitioners have always worn gloves, shaved the pubic hair, used more than a gallon of antiseptic solution, and a corresponding number of swabs for each confinement; have dispensed with vaginal examinations in normal cases; have not touched the perineum during delivery; have dispensed with induction of labour and Caesarean section, and kept the forceps rate below 4 per cent.; have used adequate amounts of anti-streptococcal serum in possibly infected cases; have insisted on adequate drainage and purgation; and have kept the urine alkaline during the puerperium.—I am, etc.

G. W. THEOBALD.

London, W.1, Dec. 3rd.

SIR,—May I, a humble practitioner who practises midwifery without having "resided for at least three years in a maternity hospital," offer some comments upon various points mentioned by Dr. G. W. Theobald (*Journal*, November 10th, p. 850).

1. Two ounces of castor oil plus two enemata during labour might be considered by some to be unnecessarily enthusiastic treatment.

2. "The nurses . . . do not wear masks." As every surgeon now wears a mask while operating, is there any reason why a nurse, "when conducting a confinement," should not do the same?

3. "It may be assumed that organisms responsible for puerperal infection gain access through this narrow portal"—that is, the vulva. Why may this assumption be made? Is there no such thing as autogenous infection?

4. "If the vulva is kept antiseptic . . . infection cannot and does not occur." I make bold enough to say that even if the vulva is kept antiseptic infection *can* and *does* occur. We all know the case in which the confinement has been normal, with every aseptic and antiseptic precaution, with no vaginal examination at all, and in which death has resulted from puerperal septicaemia.

5. "Two drachms of liquid extract of ergot are given as soon after the placenta is delivered as possible." Assuming this to be a prophylactic against post-partum haemorrhage, is not an intramuscular injection of pituitrin or lemergin more efficacious? And is it not a little difficult to administer drugs by mouth when the patient is, presumably, anaesthetized?

6. "Each patient is given 3ij of castor oil on the morning after delivery and a purgative on each subsequent night that she spends in hospital." (My italics.) Is this necessary? It is certainly unnecessary in general practice. I am sure that most doctors would find themselves very unpopular if they ordered this drastic procedure for their private patients.

7. "I have long been convinced that infection of the urinary tract usually precedes or is causally connected with puerperal infection." What pathological or bacteriological evidence is there for this statement?

8. "Each mother . . . soaks her hands in biniodide before feeding the infant." Might not biniodide get from the mother's hands to her nipples, and thence to the child's stomach?

9. "I maintain that a temperature of 98.4° during the puerperium is pathological." I am going to be charitable, and suggest that this is a misprint!

10. "Forceps were applied on twenty-nine occasions." Without making the slightest suggestion that forceps were applied unnecessarily, one would like to know the specific reason in each case, as one has been taught that there are only two absolute indications for forceps: (a) maternal distress, (b) foetal distress.

11. There has been no mention of anaesthetics whatsoever—apart from an injection of morphine and scopolamine at the beginning of labour—whether they are given at all, what they are, or the technique of their administration.

May I say that it is with the greatest diffidence that I submit these points to one whose ability and experience in obstetrics is so many times greater than my own.—I am, etc.,

Sydenham, S.E.26, Nov. 19th.

W. A. BELLAMY.

Puerperal Morbidity

SIR,—Much alarm has been caused generally throughout the country by reason of the rising death roll of maternity. Many suggestions have been offered to lessen this rate, both in medical journals and in the lay press, and money has been promised by the Government for methods for its solution. Emphasis has been laid on the creation of more ante-natal clinics and for their increased use, for the creation of hospital beds, and for the linking of home and clinic by the creation of more district visitors.

I do not deprecate any of these suggestions—rather are they all in their way very useful—but I do stress the fact that in my opinion the chief factor in reducing maternal

him only three days before. (Incidentally, I had seen him in private with Dr. B some time ago.) Yet, without a word to anyone, he is sent off to hospital because the school inspecting medical officer cannot take the trouble to discover what is being done, and finds it simpler to send direct to hospital than to advise the parents to consult their own medical adviser.—I am, etc.,

Bristol, Nov. 26th.

F.R.C.S.

Pott's Paraplegia: Pathological Material Wanted

SIR.—During the last two and a half years we have been engaged in a study of Pott's paraplegia, and our findings were reported in papers read at the annual meeting of the British Orthopaedic Association on November 2nd (see *Journal*, December 1st, p. 1011).

Although the pathology and the clinical features of this condition are by no means obscure, there are still many points meriting further investigation. Pott's paraplegia is no longer a particularly lethal condition, and when a fatal case does occur a necropsy is rarely performed. Consequently, there is a dearth of fresh pathological material.

As we are anxious to continue this work, may we take this opportunity of seeking the aid of those who see the occasional fatal case? Specimens may be sent to either of us, and we shall be pleased to send photographs and microscopical preparations made from the material to the donors, and, whenever possible, return half the specimen if desired. We should also welcome opportunities to see cases clinically.—We are, etc.,

R. W. BUTLER,
Grove Lodge, Cambridge.

H. J. SEDDON,
Royal National Orthopaedic Hospital,
Stanmore, Middlesex.

November 29th.

Harvey Memorial Tower

SIR.—The response so far to the appeal, which was circulated at the beginning of November to every member of the profession with reference to the above memorial has not been sufficient to warrant the committee taking any steps at present to complete the building of the Harvey Memorial Tower.

As it was our earnest hope to do so early in the New Year, may I ask those who have not yet contributed to kindly send a donation made payable to the Harvey Memorial Fund, and addressed to me at the Royal College of Physicians, Pall Mall East, S.W.1.—I am, etc.,

G. DE BEC TURTLE,
Honorary Secretary.

* An article commending this appeal to our readers, and showing the progress so far made with the tower, appeared on November 3rd (p. 820).—ED., *B.M.J.*

Medical Benevolence

SIR.—“Fair Play's” apologia (November 24th, p. 968) in defence of the medical non-subscriber to our own charities is beside the point. In his original letter Dr. Hawes laid down the principle, with which most of us will agree, that it was the duty of the profession to look after its own poor. This duty is not being adequately carried out, for lack of sufficient funds. Moreover, the admirable relief work that is being done is financed by a minority of practitioners which includes many who are not in “rosy” circumstances.

No one wishes to rob the harassed doctor—country or town—of his hard-earned savings for the sake of this or any other charity. All that is asked for is that in

assessing his charity budget for each year a practitioner will remember the distressed brethren of his own Hippocratic family.—I am, etc.,

HONORARY LOCAL SECRETARY, ROYAL
MEDICAL BENEVOLENT FUND.

Scotland, Nov. 24th.

R.M.B.F. Christmas Gifts

SIR.—In October, by your courteous permission, I was able to make an appeal to your readers for contributions towards our Christmas Gift Fund. I do not wish to labour the distress which, unfortunately, exists, for it is well known to all. The response to my appeal to date is £126 4s., a sum far short of what we need. I am confident that it will be the desire of the profession that we should distribute gifts to each of the 650 beneficiaries on our books. May I ask once more for a generous response, and as soon as possible, so that when we sit down to our comfortable dinners we may know that some comfort and pleasure has been given to our own poor people.—I am, etc.,

THOMAS BARLOW,

President, Royal Medical Benevolent Fund.
11, Chandos Street, Cavendish
Square, W.1, Nov. 26th.

Obituary

The death took place at his residence, The Cedars, Corstorphine, Edinburgh, on November 27th, of Dr. JAMES GRIEVE CORMACK, who for many years was a medical missionary in China, and who, since his retirement in 1927, had been in practice at Corstorphine, Edinburgh. Originally a missionary under the China Inland Mission, to which he had been attached in 1890, Mr. Cormack returned to this country on furlough in 1898. He was then so greatly impressed with the special need for doctors in China that he decided to study medicine, and took the triple qualification at Edinburgh in 1904. Returning to China under the London Missionary Society's auspices, he did medical work in Shanghai, Hankow, and Hwangpei, and in 1910 was transferred to the Peking Medical College, of which he became Principal in 1913. While on furlough in 1912 he took the higher qualification of F.R.C.S.Ed., with midwifery and gynaecology as his special subject. In 1917 he began private practice in Peking, being appointed specialist in gynaecology and obstetrics at the Central Hospital, Peking, and professor of surgery at the Army Medical College. He was also surgeon to the Peking-Mukden Railway, and medical officer to the British Legation in that city. He rendered a special service to Chinese medicine in the translation into Chinese of several medical textbooks, of which the chief were Rose and Carless's *Manual of Surgery*, and Hutchinson and Rainy's *Clinical Methods*. Dr. Cormack is survived by a widow and two sons and two daughters.

The death of Dr. CHARLES JOHN JACOMB-HOOD took place with great suddenness on November 28th, at Hove. He was attending a dinner party at a friend's house, when he suddenly collapsed and died immediately. Dr. Jacomb-Hood took the M.R.C.S. and L.S.A. in 1884. At the time of his death he was in his seventy-third year, and had been a member of the B.M.A. for thirty-five years. He retired from the chairmanship of the Brighton Insurance Committee, of which he had long been a member, in September last. His services to this committee were invaluable, and were much appreciated by his colleagues. He held the office of vice-president of the Navy, Army, and Ambulance Section of the Association at the Annual Meeting at Brighton in 1913. During the war he held the rank of lieutenant-colonel in the R.A.M.C.(T.), and did good service from 1914 till 1918. He was a bachelor, and had retired from practice some few years owing to indifferent health. He was popular

among his patients, to whose interests he was devoted. It was said that he never sent in accounts, but left it to his patients to do as they liked as regards fees. The funeral took place on December 1st at the Brighton Crematorium, and was attended by many of his old friends, colleagues, and patients, including members of the Brighton Insurance Committee, and of the Women's Hospital, on the staff of which Dr. Jacomb-Hood served for a long period.

The death occurred, at 3, Minto Street, Edinburgh, on November 24th, of Dr. WILLIAM MORRISON MILNE, a well-known practitioner on the South Side of Edinburgh. Dr. Milne was born at Gortich, Morayshire, and after a distinguished course at the University of Aberdeen graduated M.A. in 1885, with the intention of taking up the teaching profession. Determining to study medicine, however, he graduated M.B., C.M. at Edinburgh in 1896, and took the F.R.C.S.Ed. in 1901. After a period as house-surgeon at Leith Hospital, he entered private practice in Edinburgh. In a period of thirty years he had gained a large general practice, and was regarded with great affection by his numerous patients. Dr. Milne had a serious illness while on holiday last August, and since that time he had been in failing health. He is survived by a widow and two sons.

Universities and Colleges

UNIVERSITY OF OXFORD

Congregations will be held, for the purpose of granting Graces and conferring Degrees, on the following days at 2.30 p.m. Michaelmas Term, 1934—Saturday, December 15th. Hilary Term, 1935—Thursday, January 24th, and Saturday, March 2nd.

UNIVERSITY OF CAMBRIDGE

Dr. F. Goldby has been appointed University Lecturer and Dr. H. W. Hall University Demonstrator in the Department of Anatomy for three years from October 1st, 1934. The Faculty Board of Medicine has appointed Dr. G. S. Graham-Smith, Dr. T. S. Hele, Dr. G. H. Orton, Dr. E. P. Cumberbatch, Professor S. Russ, and Dr. R. J. Reynolds to be members of the Committee for Medical Radiology and Electrology for the year 1935.

Gwynneth Pretty Studentship

Applications for this studentship, the holder of which shall devote himself to original research in the aetiology, pathology, and treatment of disease, with particular but not exclusive reference to those diseases which cripple or disable in childhood or early life, are invited, and should be sent, accompanied by copies of papers containing published work, and by testimonials and references, before February 1st, 1935. The studentship is of the annual value of £200 and is tenable for three years. The place and nature of the studies of the student are subject to the approval of the Professor of Pathology, provided that the student shall be bound to pursue his studies within the University unless the Managers dispense with this requirement for special reasons. At a congregation held on December 1st the following medical degrees were conferred:

M.D.—T. G. Reah.
B.Chir.—C. E. P. Markby, W. F. Richards.

UNIVERSITY OF LONDON

The Paul Philip Reitlinger Prize, offered this year for the best essay embodying the result of some research work on a medical subject carried out by the candidate, has been awarded to Edward Graham Murphy, M.Sc., a student of University College, for his essay on "The Behaviour of Liver Glycogen in Experimental Animals." The prize, of the value of £30, was founded with funds given to the University by Mr. Albert Reitlinger in memory of his son, a student of Middlesex Hospital Medical School. Next year the prize will be awarded for the best essay on "A Critical Study of Post-war Historical Biography."

The following candidates have been approved at the examination indicated:

POST-GRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—(With Special Knowledge of Psychiatry): W. E. Mellroy, J. H. Malloy, R. W. Maxwell. (With Special Knowledge of Mental Deficiency): R. M. Norman.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS

TRANSFER OF PRACTICES

The British Medical Association and the defence societies issue from time to time detailed advice to medical men who contemplate buying a practice, and many useful facts are also set out in Barnard and Stocker's book. The purpose of this article is not to duplicate such work, but to point out one or two of the legal implications of an agreement to buy a practice. The value is generally calculated on the average gross yearly receipts for the last three years—that is, the actual cash receipts. The average of three years is usually taken in order to obviate the effects of ordinary fluctuation. The buyer should also, however, take into account such factors as the expenses of carrying on the practice and the amount of work required to earn the income, which differ widely in different practices; and also the prospects of the practice increasing or diminishing. If the gross figures are not available, an annual figure has to be estimated from the books.

NEED FOR AN ACCOUNTANT

It is most important that the prospective purchaser should have the figures audited or prepared by a qualified accountant with special experience of medical work. A doctor's training does not necessarily make him an expert in accounts, and a vendor may in perfect good faith and with the best intentions produce an entirely incorrect estimate. A medical man who neglects this precaution practice is not worth nearly as much as he thought it would be. This is an unfortunate beginning to a very important stage in a man's life, and if he is to work in partnership with the vendor it may well be disastrous to their mutual confidence. Moreover, if a doctor, after purchasing a practice, finds that the income it actually produces is substantially less than the income the seller said it produced before it was sold, he can only bring a successful action if he can prove that the seller made material misrepresentations to him, or withheld material information from him about the practice.

In addition to securing an expert investigation of accounts, the purchaser should make all possible inquiries of the agents acting for the seller. If, also, he knows a medical man who practises in the immediate neighbourhood, he might do well to ask him for confidential information about local conditions, with special reference to any personal quarrels which may adversely affect the practice. If the purchaser can afford the somewhat heavy cost, it might pay him to employ a good inquiry agent to supplement this information.

INTRODUCTION TO PATIENTS

The introduction to the patients is one of the most important parts of the purchase, and when an introduction cannot be given, as when the vacancy is due to death or serious illness, the practice is worth less by a quarter or a third. The written agreement to buy and sell a practice therefore usually contains a clause under which the seller binds himself to stay in the neighbourhood for a specified time (often three months), actively assist the purchaser in the conduct of the practice, and do all he can consistent with medical ethics to introduce his successor and secure for him the custom of all the patients and the transfer of all the appointments. As the seller is being well paid for the introduction, he should consult the purchaser's views on the best way to effect it, and should make sure from time to time that he is satisfied. The introduction is a

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), the fourth on July 21st (p. 141), the fifth on September 22nd (p. 574), the sixth on October 6th (p. 660), the seventh on October 20th (p. 750), and the eighth on November 3rd (p. 841).

London and Counties Medical Protection Society, Annual Report, 1928, p. 33.

fairly frequent source of complaint, and the seller should spare no reasonable effort to fulfil it.

When complaints of incomplete introduction have been made to the courts, the legal question has usually been either how far it is consistent with morality to recommend another to a position of trust, or how far the court can compel a doctor actually to carry out a promise to do so. In 1803 (*Bunn v. Guy*) the King's Bench—apparently with some misgivings—held valid a contract binding an attorney to introduce his clients to two others who were succeeding him in practice. This decision has not been overruled, and the courts will probably regard such a transaction as legal. To compel a doctor or solicitor to perform specifically a promise to introduce is, however, quite another matter. If the seller does not do what the purchaser has bargained for, the court can fairly easily make him return part or all of the purchaser's money, or can release the buyer from paying it. If the buyer has suffered damage it may make the seller recompense him. But the whole essence of introduction is that it has to be done willingly, and the court never commits itself to an order which it may not be able to enforce. When one medical man agrees to transfer his practice to another, and afterwards refuses to carry out his contract, the court has no means by which it can put the newcomer in possession of the practice. To get over this difficulty Barnard and Stocker recommend that the agreement should contain a condition that if the introduction is not actually carried out, or does not last as long as the agreement specifies that it should, the purchaser shall pay less. If this is not done the court may hold that the promise of the owner to introduce the newcomer, and the promise of the newcomer to pay the purchase money, are independent of one another, and that the introduction is not a condition which must be fulfilled before the purchase money is handed over. Moreover, if the owner dies before he has handed over the practice, and there is no provision for such an accident in the agreement, the purchaser cannot claim any relief, for "death is a contingency which all persons must be supposed to have in their contemplation."

The agreement should contain provision for the period during which the newcomer is being introduced and before he actually takes over. One of the defence societies suggests that if the successor is giving his professional services free during this period he might reasonably expect to be at least entertained free of charge, but that if he is being adequately paid he should bear the cost of his own board and lodging. If, on the other hand, the retiring practitioner stays on for the benefit of the successor after the transfer has taken place, he likewise can expect to be properly remunerated. The terms will depend on what is reasonable in the particular circumstances.

The same society points out that when a new partner is entering the firm, or the practice is being transferred, the present members or the owner may send a circular letter to all the *bona fide* patients of the practice informing them of the change and of any alterations that are to be made in the hours of attendance or the address, but the letter should not contain any laudatory observations on the in-coming practitioner. In order to protect the firm or doctor who sends the letter from an accusation of advertising if a circular should by mistake fall into the hands of a person who is not a patient of the practice, each circular should be sent in a closed envelope, and each envelope should bear the name of the patient for whom it is intended.

SUCCESSION TO APPOINTMENTS

In many cases the purchaser buys, besides the goodwill of the practice, the prospect of succeeding to the appointments of the seller. The retiring practitioner cannot of course sell the appointments themselves or guarantee that the newcomer will be appointed in his place, but he can bind himself to use all legitimate means, by recommendation and otherwise, to secure that the purchaser succeeds him. One of the defence societies warns the purchaser not to commit himself in paying for a mere possibility, but to insist on a clause in the agreement that the seller shall return a certain part of the purchase price if the appointments are not transferred. Barnard and Stocker

suggest that the agreement should lay down that if any appointment is not in fact transferred the purchase money shall be reduced by an amount appropriate to the annual value of the lost appointment. If, for instance, the buyer is paying one and a half years' purchase for the practice, the deduction would be the income from that appointment for one and a half years. The buyer may be well advised to insist that the seller should not resign until the introduction has been completed. The agreement should therefore provide for a time limit of three to six months for the transfer of the appointments. It is not usual to stipulate that the price shall be altered if the appointment is transferred at a lower or higher salary, or to make the sale itself depend on the transfer of the appointments. If, however, any particular appointment brings in an exceptionally large proportion of the income, it is reasonable to make an exceptionally large allowance for its loss.

The following case¹ shows the necessity for insisting on security against the loss of appointments, and also of instituting local inquiries before buying a practice.

Dr. A bought a practice of Dr. B, who held two appointments to which Dr. A hoped to succeed. Dr. A was then unlucky enough to enter into partnership with a Dr. C, with whom the family of Dr. B had for many years carried on a bitter feud. The family thereupon induced another doctor to open a branch practice in competition with Drs. A and C, and to apply for the two appointments. Dr. A complained to his defence society, but it replied that Dr. B could not be held responsible for the opposition unless it could be proved that he had encouraged it, and that it would be difficult to prove that he was able to exercise any control over his friends and others.

Apart from the matter of the appointments, this situation could not have been avoided by the strictest legal safeguards, but only by careful preliminary inquiries in the neighbourhood. It is not clear from the report of the society concerned whether Dr. A, in taking Dr. C into partnership, acted with his eyes open or in ignorance of the quarrel.

If the purchaser is also proposing to succeed to the owner's house, it is better transferred by a separate agreement. The agreement for the transfer of the practice should also contain a clause providing for arbitration in the event of a dispute arising between the parties. If it came to the knowledge of patients that the parties were engaging in a lawsuit, it would be bound to decrease the value of the practice.

A HOSPITAL EXONERATED

An unfortunate fatality recently occurred at the Crumpsall Hospital, one of the hospitals administered by the Manchester Corporation.

A young married woman arrived at St. Mary's Hospitals, a voluntary hospital in Manchester, at about 6 p.m. on May 11th. She was expecting to be received as a maternity patient, and arrangements had been previously made for her to enter that hospital. Within twenty minutes of her arrival, and while she was still waiting in the out-patient department, her child was born. No bed was available for her, and the medical officer on duty gave orders that she and her child should be transferred by ambulance to the Crumpsall Hospital, which is some miles away. She and the child were admitted to Crumpsall at 7.40 p.m., and she was put to bed in a maternity ward. She died at the hospital at about 1.25 a.m. next day. The Board of Management of St. Mary's Hospitals, with the approval of the Health Committee of the corporation, held a private inquiry in June. The City Council considered the report presented, and made a request to the Minister of Health for a public inquiry, which was held by Dr. Isabella D. Cameron and Mr. Henry J. Comyns on September 20th. It took place in public and was attended by about 200 persons each day. These were chiefly women, and many of them were either critics or supporters of the hospitals. The hearing lasted five and a half days, and the commissioners have just

¹ London and Counties Medical Protection Society, Annual Report, 1932, p. 37.

issued their report, which consists of twenty-six foolscap sheets of typescript, together with the report of the private inquiry and various appendices.

REPORT BY THE MINISTRY OF HEALTH

The inspectors, in the absence of any report of a post-mortem examination, found that the patient's death was due to delayed obstetric shock, and that her death was neither caused nor materially affected by her transfer from St. Mary's Hospitals to Crumpsall Hospital. They recommended that the City Council should review the staffing position at Crumpsall Hospital and satisfy itself that the arrangements for medical and nursing attendance are adequate for the number of beds now provided for maternity patients. It should also take steps to ensure that the services of the obstetric consultant are utilized fully. With regard to St. Mary's Hospitals they recommended, among other things, that every effort should be made to reduce the number of patients transferred to other hospitals by a reorganization of the system of booking cases; that an administrative medical officer, senior in status to the resident medical staff, should be responsible for the medical administration of the hospital; that the printed notice supplied when a bed is booked should show more clearly that a bed is not guaranteed, and that each patient's attention should be drawn to this statement; that when transferring a patient after delivery ample time should be allowed and suitable nourishment should be supplied to her, and an experienced midwife should accompany her, and a telephone message be sent to the other hospital. While the inspectors did not consider that the arrangements at Crumpsall prejudiced Mrs. Taylor's condition, they found them highly unsatisfactory. They also made a number of suggestions concerning the allotment of beds at St. Mary's. In conclusion, they expressed sincere sympathy with the relatives and friends of Mrs. Taylor, and acknowledged that the public interest and anxiety aroused by her death was an expression of the desire for efficiency and humanity in the administration of hospital services. This public interest is, they say, an invaluable support to the responsible authorities, but it carries with it a corresponding responsibility to consider the problems presented in an informed and balanced attitude of mind. The public inquiry thus confirms the result of the private inquiry, which exonerated both hospitals.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

Resolutions authorizing the grant of money to the new Commissioners for the Depressed Areas and for British shipping subsidies were discussed by the House of Commons this week.

The text of an international convention for mutual protection against dengue fever was laid and issued. This convention has not been ratified by the United Kingdom.

On December 4th the Parliamentary Medical Committee was addressed by Sir George Newman on nutrition and malnutrition. He compared present figures and reports issued by the Ministry of Health and Board of Education, and also the investigations now made through school attendance officers and the national insurance, Poor Law, and Ministry of Health medical services in different areas and under different conditions, with those of 1908, when the school medical service was instituted, and back to the year 1892, when Sir George first started research into nutrition at Dr. Barnardo's Homes. During the discussion which followed, Dr. Salter commented that during the period medical men's standard of normal nutrition had altered, and that comparisons were made more difficult by other factors, such as the greater and earlier use made of the medical attention available under national health insurance.

An address to the Conservative M.P.s Health and Housing Committee, by Dr. Orr of the Rowett Institute, Aberdeen, was arranged for December 5th. The subject

was nutrition in relation to the present economic conditions, with special respect to the depressed areas.

The House of Lords had no business during the week.

The Educational Endowments (Scotland) Bill, to continue for two years the existence of the present Educational Endowments Commission in Scotland, was read a second time by the House of Commons on November 30th after a critical debate.

Detection of Disease Carriers.—Sir HILTON YOUNG told Mr. T. Morris on November 28th that there was no evidence that the number of disease-carrying persons was increasing. Improvements in bacteriological and serological technique and their wider application in public health practice had enabled the presence of such persons to be more readily discovered. No national statistics were available, but the results of many special inquiries, both at home and abroad, had been published. Present knowledge suggested that most infectious diseases might be carried in this way.

Small-pox and Vaccination in Nigeria.—Replying to Mr. Groves on November 28th, Sir PHILIP CUNLIFFE-LISTER stated that he had seen the statement in a report recently issued by the Health Section of the League of Nations that in Nigeria small-pox was considered to be endemic, and frequently gave rise to epidemics, especially in the Northern Provinces. In Nigeria vaccination was compulsory in the Colony and in the Southern Provinces of the Protectorate. In the Northern Provinces it could be made compulsory in any area by order of the Governor in Council, and so far it had been made compulsory in the townships of Minna and Idah. Cases of small-pox in the larger centres of the Colony and the Southern Provinces were isolated, and immediate steps were taken to vaccinate all contacts. Isolation was not at present generally practicable in the Northern Provinces, and preventive measures had been mainly confined to vaccination, to which the people, by careful propaganda and education, were being gradually persuaded to submit.

Carriers of Foot-and-Mouth Disease Infection.—During questions to Dr. Elliot, on November 29th, about foot-and-mouth disease, Sir FRANCIS FREMANTLE asked if the Ministry had evidence that this disease was carried by starlings. Dr. ELLIOT said the Ministry had no special knowledge of its dissemination by starlings, but the possibility of the disease being spread by the contamination of birds, foxes, or other animals was obvious.

The Next Census.—Mr. SHAKESPEARE, replying on December 3rd to Sir Arnold Wilson, who asked if it was proposed to make an Order in Council, under the Act of 1920, for a census in 1936, said the Minister of Health hoped to make a statement on the subject in the near future.

Maternal Mortality Investigations.—Mr. H. WILLIAMS asked the Minister of Health, on December 3rd, to explain the differences in the maternal mortality rates per 1,000 births in the following urban districts of not dissimilar characteristics: Rochdale, where the rate was 2.71; Huddersfield, 8.81; Cardigan, 9.6; and Merioneth, 4.8. Mr. SHAKESPEARE replied that the Minister was not yet in a position to explain the differences, but special investigations were directed into the circumstances of the areas where there was a persistently high maternal mortality rate.

Drunkenness from Methylated Spirit.—Sir JOHN GILMOUR, replying to Sir Arnold Wilson on December 3rd, said the figures of convictions for drunkenness due to methylated spirit had increased in recent years, but in 1933 they amounted to less than 2 per cent. of the total convictions for drunkenness. No special action in the matter, so far as England and Wales were concerned, was at present contemplated by the Government. No information was as yet available to indicate the effect of the new denaturant.

Casual Wards Closed.—On December 4th Mr. SHAKESPEARE, replying to Sir Arnold Wilson, said that for the three years ending December 4th the Minister of Health had sanctioned the closing of 115 casual wards. The average number of persons relieved in casual wards from April 1st, 1934, to date

was 12,616. For the corresponding period in 1931-2 the figure was 12,462. The policy adopted in this matter was based on the report of the Departmental Committee on Vagrancy, which made a full inquiry into the subject. The wards closed were redundant ones, and the Minister was satisfied that there had been no overcrowding as a result of the policy, which had been coupled with extensions and improvements in many of the wards which remained open.

Health Insurance on Leaving School.—On December 4th Mr. LLEWELLYN-JONES asked if the Minister of Health had considered representations from organizations connected with the administration of national health insurance which advocated that the National Health Insurance Act of 1924 should be amended to bring within its scope all children as soon as they left school and entered insurable employment. Mr. SHAKESPEARE said that the matter was not being overlooked.

Milk-in-Schools Scheme.—Mr. RAMSBOTHAM told Sir R. Aske on November 29th that as the existing law made it possible to provide free milk for all necessitous children, there was no need to introduce legislation which would enable free milk to be given to all children of parents who had been unemployed more than six months, irrespective of the physical condition of the children. The Board had made it clear in its Circular 1437 that the children should be selected for the provision of free meals or milk who showed any symptoms, however slight, of subnormal nutrition.

Mr. SKELTON told Mr. Storey on November 28th that the Lancashire Education Authority had decided to adopt the scheme for milk in schools. They were making the necessary arrangements with distributors, and it was expected that the scheme would be brought into operation when the schools reopened after Christmas. On December 3rd Mr. RAMSBOTHAM informed Mr. West that as the milk scheme had only been in operation since October 1st it was too early to express any opinion regarding its effect on the health of school children. He did not think it would be possible to show the effect of the scheme for at least six months or so.

During the debate on the second reading of the Depressed Areas Bill, on December 3rd, Mr. OLIVER STANLEY stated that he had provided that the scheme for cheap milk, which was now current in the schools, should be extended to the junior instruction centres. He had also made arrangements that in any case where a medical certificate was obtained of evidence of malnutrition two-thirds of a pint of milk should be supplied free daily.

The committee stage of the Bill was put down for December 6th.

Notes in Brief

A committee appointed by the late High Commissioner of Palestine to examine the labour legislation has recently reported, and the report covers the question of health insurance. The Colonial Secretary awaits the High Commissioner's recommendations on the report.

During 1933 880 persons were killed by accidents at mines and quarries in Great Britain and Northern Ireland.

The Services

DEATHS IN THE SERVICES

Major Thomas Joseph Lencham, R.A.M.C. (ret.), died on September 29th, aged 68. He was born at Rathgar, Dublin, on September 13th, 1866, and was educated at the Carmichael School and at Trinity College, Dublin. He graduated B.A., M.B., B.Ch., and B.A.O. at the Royal University of Ireland in 1890. Entering the R.A.M.C. as surgeon captain on July 28th, 1891, he became major after twelve years' service, and retired on July 28th, 1911. In August, 1914, he was recalled to duty from the Reserve of Officers. He served on the North-West Frontier of India in the Chitral campaign of 1895 with the relief force, receiving the frontier medal with a clasp; and in the South African War in 1899 to 1902, when he took part in the defence of Ladysmith; and in the operations in the Transvaal, Orange River Colony, and Cape Colony, receiving the Queen's medal with four clasps, and the King's medal with two clasps.

Medical News

The Duke and Duchess of York have promised to attend a *matinée* at the New Victoria Cinema, S.W., on December 13th, in aid of the work of the Grenfell Association on the coast of Newfoundland and Labrador. Since Sir Wilfred Grenfell started his medical and social work in Newfoundland and Labrador forty-two years ago, five hospitals, seven nursing stations, four orphanage boarding schools, together with hospital steamers and a supply schooner, have been provided.

H.R.H. Princess Alice, Countess of Athlone, and the Earl of Athlone will visit the Harrow and Wealdstone Hospital on the afternoon of December 14th to open the new extensions, comprising a children's sun balcony, the linen guild room, and a consultation block to be called the Exeter Rooms.

An address will be given by Professor H. Levy, entitled "Science and Philosophy in Nature," at University College, Gower Street, W.C.1, on Tuesday, December 11th, at 8.15 p.m., with Professor E. A. Milne in the chair. Application for cards of admission should be made to the Director of Studies at University Hall, 14, Gordon Square, W.C.1.

The Royal Sanitary Institute and the South-Eastern Centre of the Sanitary Inspectors' Association will jointly discuss "The Moyné Report on Housing" on Tuesday, December 11th, at 6 p.m., at 90, Buckingham Palace Road, S.W., with Dr. James Fenton in the chair.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Tuesday, December 11th, at 8.30 p.m., when a lecture on "Dosage above the Pharmacopoeial Maximum" will be given by Dr. A. F. Hurst.

At a meeting of the Food Group of the Society of Chemical Industry, on December 12th, at 8 p.m., in the London School of Hygiene and Tropical Medicine, Professor E. Waldschmidt-Leitz of Prague will lecture on "Recent Developments in Enzyme Chemistry."

The Jewish Health Organization of Great Britain (Woburn House, Upper Woburn Place, W.C.1) has arranged a series of health lectures to be given at the Synagogue Hall, Harley Street, Bow, E.3, on Monday evenings, and another series at Bayswater House, 111, Blenheim Crescent, W.11, on Thursday evenings. Particulars may be had from the secretary.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on December 11th and 18th, at 2.30 p.m.; also the last of the lectures on diet and dietetics, on December 12th, at 8.30 p.m. A special M.R.C.P. course in chest diseases will take place at the Brompton Hospital on Wednesdays and Fridays at 5 p.m. from December 12th to January 11th (excluding Christmas week). Courses in the New Year include: cardiology, at the National Hospital for Diseases of the Heart, January 14th to 26th; urology, at St. Peter's Hospital, January 21st to February 2nd; diseases of the heart and lungs, at the Royal Chest Hospital (all day), January 19th and 20th; manipulative surgery, January 29th to February 1st, at 5.15 p.m.; surgical tutorial classes, on Tuesdays and Thursdays, at 8 p.m., at the National Temperance Hospital, January 15th to March 7th; a series of demonstrations at the Wellcome Museum of Medical Science, on Thursdays, at 3 p.m., beginning January 17th; lecture-demonstrations on general medicine, on Fridays, at 4.30 p.m., at 11, Chandos Street, W. Full details of all courses, which, with the exception of the cardiology course, are open only to members and associates of the Fellowship, will be issued shortly.

The third Pan-American Congress of Tuberculosis, organized by the Latin-American Union of Societies of Phthisiology, will be held at Montevideo from December 16th to 19th.

The Deutsche Gesellschaft für Wissenschaftliche Filme of Berlin is giving a private demonstration of German medical and surgical films in the Academy Cinema, 156, Oxford Street, London, W., on Sunday, December 16th, at 11 a.m. Members of the medical profession are invited to attend. Admission is free on presentation of a visiting card. The following films will be shown: fertilization and first segmentation of the rabbit ovum; version and extraction in transverse lie; normal and malignant cells *in vitro*; tumours of the brain, technique of operation after Olivecrona; action of the heart; and cholecystectomy in empyema of the gall-bladder.

At a meeting of the Académie de Médecine on November 6th the president, Dr. Siredey, congratulated Dr. Guéniot on his one hundred and second birthday.

The issue of *La Riforma Medica* for October 6th is devoted to the proceedings of the recent Italian congresses of internal medicine, surgery, urology, and orthopaedics.

A committee, under the direction of Dr. Larguet of the Tunis Pasteur Institute, has gone to French East Africa to study methods of inoculating against yellow fever.

A new university institute for balneology and dietetics has been founded at Bad Homburg under the direction of Dr. Lampert of Frankfurt.

The Société de Neurologie of Paris has awarded the Déjerine prize for 1933 to Dr. Laruelle of Brussels.

As we go to press we regret to announce the death of Lord Riddell, an honorary member of the British Medical Association, and an honorary Fellow of the British College of Obstetricians and Gynaecologists.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to the EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors overseas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Antiology Westcent, London.

FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), Articulate Westcent, London.

MEDICAL SECRETARY, Medisecra Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kidare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Delayed Birth of Second Twin

Dr. J. M. POSTLETHWAITE (Whalley, Lancs) writes: There has been a good deal of discussion in the daily press about maternity cases. I can recall a case of twins, or dual conception, that occurred in my own practice that is of both medical and, I think, legal interest. The mother, a multipara, was delivered of a male on February 24th, and, though another child was in the uterus, things were left alone to take their own course, and she brought forth a female on April 4th (1913). After this length of time I am not able to give the infants' weights, but they were healthy children and grew up quite normally.

I should be glad to know whether there has been any other case of such an interval between the births. The occurrence caused quite a stir at the time, and the parents had several attractive music-hall offers, which were, however, rejected.

Priapism after Circumcision

"M.D." writes in reply to "D. R." (November 24th, p. 975): Erection of the penis when the bladder is full, particularly on waking, is a common and healthy phenomenon in young and adolescent males, whether circumcised or not. It is probably due to stimuli originating in the neighbourhood of the sphincter vesicae and passing, via the hypogastric nerves, to the cells of origin of the nervi erigentes in S2 and S3 segments of the spinal cord, as it is through the nervi erigentes that the bladder is voluntarily emptied. One can readily imagine that when voluntary stimulation to the bladder is forcibly withheld the brunt of the reflex stimulus falls on the erectile mechanism, which is less under the control of the will. The condition has nothing to do with sexual erection, so I suggest that the boy's father be reassured and his mother and medical attendant exonerated.

Dr. R. MACDONALD LADELL (Birmingham) writes: The parents of "D. R.'s" patient appear to be unnecessarily worried over their boy's tendency to erection, and probably their anxiety communicates itself to the youngster, and thus tends to promote the condition. The mother should be told that she need not fear masturbation, which is a habit common to all young people and not in itself detrimental. Such a habit is not likely to become excessive or to stand in the way of normal development if it is mildly discouraged instead of being actively reprobated.

Chronic Enlargement of the Lip

Dr. D. H. SHEAHAN (Portsmouth) writes: Regarding Dr. H. L. Pearson's query concerning the treatment of macrocheilia (*Journal*, December 1st, p. 1024), I have treated the condition in three cases with intravenous injection of 0.3 gram N.A.B. at weekly intervals. Case I was markedly improved after a course of seven injections; in Case II there was a marked temporary improvement; Case III was not affected in any way by the treatment. A consultant who saw this latter case suggested that the infection had taken place through a fissure in the nose. The enlargement in all three cases was of the upper lip. The Wassermann reaction in each was negative at the commencement of treatment.

Income Tax

Payment for Guaranteeing a Loan

"W. G. R." writes with reference to a case in which a bank loan was obtained for the purpose of purchasing a practice. Charges have been paid annually to the brokers who guaranteed the loan. The inspector of taxes proposes to disallow such payments in calculating the practitioner's income tax liability.

** The statement of facts in the leading case of *Ryall v. Hoare* makes it clear that while claiming that such payments were assessable on the recipients the Revenue did not refuse to allow them as expenses incurred by the company making the payments. While there are presumably various differences in detail between that case and the present one, the same general principle would seem to apply—that is, the payments in each case are made annually for the purpose of providing capital necessary for the taxpayer to carry on the income-earning activity.

Car Allowance to M.O.H.

"J. C. M." receives a payment of 6d. per mile when using his car in connexion with his duties. Can he claim any allowance for costs exceeding that rate—for example, half his total car expenses less the amount received?

** The rules of Schedule E restrict the deduction to sums expended wholly, exclusively, and necessarily in the performance of the duties of the office. Presumably the council which granted the allowance of 6d. per mile thought it adequate, and "J. C. M." would probably have difficulty in persuading an income tax appeal tribunal to the contrary. It should be borne in mind, for instance, that if a small and low-powered car would serve the purpose any additional expense caused by the use of a better car would not be allowable. The inspector of taxes was apparently within his rights in obtaining the information from the council. Unless there is something quite unusually harmful in the use to which the car is put professionally we would not advise an appeal.

LETTERS, NOTES, ETC.

Salyrgan in Cardiac Oedema

Dr. J. M. GREENWOOD (West Didsbury, Manchester) writes: A patient, aged 23 years, was admitted to the Withington Hospital on November 14th, 1934, suffering from cardiac failure, following mitral valvular disease. She was extremely ill, with dyspnoea and a massive oedema, and was passing very little urine. Digitalis was given by mouth until the 24th of the month, when, although the general condition was rather improved, she still had marked oedema, and was passing approximately 25 ounces of urine in the twenty-four hours. Salyrgan 2 c.cm. was administered intramuscularly without previous medication with ammonium chloride, and 305 ounces of urine were passed during the following twenty-four hours. The patient appeared rather weary after this effort, but generally much improved, with only a slight degree of oedema remaining. Is this a record?

Maternal Morbidity and the G.P.

Dr. MICHAEL H. DOBBYN (Southwick, Brighton) writes: Some ten years ago I, together with many others, passed my final examination, having learned my midwifery at the Rotunda. On buying a practice I also purchased an expensive bag and set of midwifery instruments, ready to take on all the "midder" I could get, and very keen I was. The years have gone and I am disillusioned; the cases which I hoped to get have been taken from me by organized and subsidized nurses, clinics, and hospitals, which I am expected to help to pay for. Having done about 250 cases in ten years with no maternal deaths, I hardly think my lack of cases is due to bad midwifery or bad luck. How can a G.P. become expert at maternity work when he only gets a few cases a year to do? Just picture a surgeon remaining skilled and keen with about ten to twenty operations a year! He would soon become out of date, and give it up as far as possible; and that is what the G.P. is doing with midwifery at present. The nurses, backed up by public health officials, have failed to reduce the death rate. Give midwifery back to the G.P., to whose province it rightly belongs, and relieve him of all the futile clerking work which is rained upon him from all sides, and I believe you will see a reduction in the maternal death rate.

Labelling Patients

Dr. CHARLES J. HILL AITKEN (Kilnhurst, nr. Rotherham) writes: I was called urgently to a man, not a patient of mine. From the history given to me, and as the result of my examination, I felt justified in saying there was nothing serious the matter. Some days later I heard that this man, a few hours after I saw him, had been operated on for perforated gastric ulcer. Presumably I had seen the patient in the "quiet" stage of perforation. To prevent such a catastrophe happening to any of my own patients I now, if they are diagnosed as "ulcer," hand them a card on which I have written: "I am supposed to have an ulcer of the stomach." An intelligent patient said: "I see. If I collapse among strangers they will know what's amiss with me." The "stranger" I had seen had a history of indigestion, but made no mention of it to me, although I gave him the chance of taking me into his confidence.

Allergy

Dr. H. S. RUSSELL (Bradford) writes: Dr. C. Paget Lapage's article (*British Medical Journal*, December 1st, p. 985) is interesting both for his review of allergy and for his new word "autophil." As regards the question of diet, I am pleased to find some support for Adam's condemnation of milk. As food for asthmatics it would be hard to find anything worse. Exercise, however, which he tends to "damn with faint praise," rarely does anything but good in asthma. Admittedly violent exercise carried to the point of producing breathlessness may occasionally precipitate an attack, in the same way as coughing, sneezing, or even laughing, though this effect depends not on "overloading of metabolism" but on forced expiration. An "autophil" who gives up motoring and takes to walking instead will find his tendency to asthma considerably reduced.

Cancer Research: A Suggestion

Dr. RICHARD KERRY (Montreal) writes: There is one method of attacking the cancer problem which does not seem to have been sufficiently explored. If the technique of the Canti film, or even high magnification, be used, and if,

instead of radium, which kills growth, the effect of modifying the electrical potential or pH of the fluid which surrounds the growing malignant tissue by other electrolytes be studied, such direct observation on the process of growth should yield valuable results. As mouse cancer develops in an acid medium one would use divalent alkalis to begin with, such as lime-water or a weak suspension of magnesium hydroxide, and then other compounds as indications may suggest. If positive results be obtained, repeated infiltration of the tissues surrounding any tumour presents no insuperable difficulty, and the method can easily be applied to practical treatment.

Chemically Bleached Flour

Dr. JAMES OLIVER (London) writes: Because flour—that is, white flour—as obtained by grinding and bolting wheat, enters so largely into the dietary of every one of us, and more especially of the children, as bread and other forms of food-stuffs, it should be as wholesome as possible, and it should in every sense of the word be in conformity with Section 2 of our 1928 Food Act, wherein it is decreed that "no person shall sell, to the prejudice of the purchaser, any article of food which is not of the nature and not of the substance and not of the quality demanded by the purchaser." Flour bleached by any one of the following four powerful chemical reagents—namely, benzoyl peroxide, nitrogen trichloride, chlorine, and nitrogen peroxide—when ingested and assimilated, is prejudicial to health, and should be prohibited by the Government. No commercial interest should be allowed to stand in the way where health is concerned.

Queen Alexandra Sanatorium Fund

Lord BALFOUR OF BURLEIGH desires to bring the above fund to the notice of the professional and middle classes, for whose benefit it was originally founded. The fund is primarily intended to enable those of small means who are threatened with consumption, or who may be suffering from consumption in its earlier stages, to obtain the benefits of mountain air in Switzerland. The fund is not intended for those who are suffering from chronic or advancing disease, or for patients who require surgical treatment. To selected cases grants are made at the rate of 50 Swiss francs a week during the late autumn, winter, and early spring, on condition that the recipient stays at an approved institution in Davos. Grants will also be made to parents or guardians of children of the professional and middle classes who may be suffering from consumption or other diseases of the chest, to enable them to stay in an approved home for children at Davos. In general, patients require about 100 francs a week in order to live in comfort at Davos, which means that they require a private income of £3 a week in addition to the grant provided by the fund. Forms of application may be obtained from the honorary secretary, Mr. A. Stanley Herbert, 25, Birch Lane, London, E.C.3. Applications will be considered by the Selection Committee, and, if necessary, an appointment will be made for the applicant to see one of the honorary examining physicians in London. If after this interview applicants are for any reason not considered suitable, a third-class railway fare will be paid to those residing over fifty miles from London.

"Ciba" Jubilee

The Society of Chemical Industry in Basle (Ciba) is celebrating the jubilee of its foundation, and has produced a handsome volume describing the history and present activities of the company. In 1859 the production of coal tar dyes was instituted in Basle by Clavel, who was a native of Lyons. This and other works were combined in 1884 to form the present organization. The chief activities of the company are the production of coal tar dyes and of pharmaceutical products, and to-day they have branch factories in many parts of the world.

The medical meeting of the Charterhouse Rheumatism Clinic, on December 13th, at 5 p.m., will be held at 15, Portland Place, and not at the premises of the Clinic (94, Hulam Street).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 68, 69, 70, 71, and 74 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 72 and 73.

A short summary of vacant posts notified in the advertisement columns appears in the Supplement at page 292.

BRITISH MEDICAL JOURNAL

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PAIN AND THE MECHANISM OF ITS PRODUCTION*

BY

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You might anticipate that my task as an anatomist in opening this discussion would be to describe the structures concerned in pain production, the distribution and the connexions of the nerve apparatus, and to present to you a more or less finished picture of the anatomy of the appropriate parts of the nervous system, leaving you to discuss the bearing of what I might say on the clinical manifestations with which you are all so familiar. That method of approach to the subject would be a stereotyped one, but in the present instance it is inapplicable. Let us try another method, first seeing where we stand and what exactly we want to know about pain; then we can approach the problems from the experimental side, discuss the results of these experiments, and see where they lead and what the next step is to be.

Pain is the most important of complaints, and the commonest and most clamant symptom with which the physician and surgeon have to deal. It drives the patient to his doctor, whose most urgent task is often its relief, while the search for its cause provides some of the most difficult problems he has to face. On the clinical side volumes have been written about it; I need only mention the classical work of John Hilton, and the monumental works of Behan and Pottinger. The current literature dealing with it is enormous; there is hardly a single number of the recent issues of the *Journal of the American Medical Association* in which there is not a reference to, or abstract of a paper dealing with, some aspect of the subject or recording observations upon it. Interest in pain is not confined to the medical world; philosophers and ecclesiastics have pondered over it, and the problem of pain has raised issues of deep significance in philosophy and theology.

Much of the discussion about pain has dealt with its "protective" aspect, but I do not think that any good purpose is served by philosophizing about this aspect of the question. Pain in some instances serves a useful purpose by warning against agencies to be avoided, or by deterring the sufferer from attempting physical exertion which would be harmful to the condition underlying his pain; but this principle is not a universal one. Pain is not always "protective," nor does it invariably arise when harmful agencies are at work, and pathological changes are going on. A burnt child may dread the fire, but the sufferer from renal colic is warned by his pain neither what to avoid nor what to do to ease it; and pathological changes may take place in the body, such

as those which convert a pliable artery into a rigid pipe-stem, without a hint of pain being given.

The definition of pain is also an unprofitable subject of discussion. Like other forms of sensation it can be defined only in terms of itself. Visual phenomena can be described only in terms of sight, and are unappreciable by one who has never seen. We have all experienced pain and know what it is like; we can say of it only that it is painful and immediately recognizable whenever it occurs. It is different from a mere unpleasantness of sensation, which is a "tone" that may accompany other sensations, just as may its opposite, pleasantness or agreeableness.

Our first task must be to discover the mechanism of its production if we are to solve any of the later questions which arise. We cannot, for example, understand the action of anaesthetics or of any means employed to relieve pain unless we know it. Pain is so varied in its forms, and arises apparently from so many different causes, that at first sight it might appear almost hopeless to discover the underlying mechanism and the processes that are at work, and still more difficult and improbable that any common cause operating in all cases will be discovered. The search will be a prolonged and difficult one.

Mechanism of Pain Production

The study of the mechanism of pain production is a problem in which anatomy and physiology can take a part, leaving clinicians to determine the diagnostic value and the prognostic significance of its occurrence. At this age of physiological research, when so many secrets of the action of the nervous system have been discovered, it may seem strange that we still have to discover the mechanism of pain production, but this is indeed the case. We do not know what are its nerves, or, indeed, whether it has its own nerves or not, nor whether the "centre" is in the thalamus, if there is a "centre"; nor do we precisely know the pathways for its impulses within the central nervous system. The reason for this ignorance is doubtless due largely to the impossibility of carrying out such physiological experiments as can be employed for other forms of nerve activity. The existence of pain can be recognized only in a sentient animal, and man himself must undergo experiment.

Another reason why pain is not better understood is found in the failure to recognize in it a definite form of sensation, with its own nerve apparatus. In many people's minds there is present the idea that pain is peculiar and unlike other sensations: that it is merely a manifestation of some sort of increased or disordered activity of any sensory nerves, and that, for example, it may arise from "over-stimulation" of these nerves. There is also the idea that this form of sensation can arise

* The opening paper of the discussion on "Pain," held in the Section of Neurology, Psychological Medicine, and Mental Diseases at the Annual Meeting of the British Medical Association, Bournemouth, 1934. [By inadvertence a contribution to this discussion appeared in the *British Medical Journal* of November 17th before the opening paper had been published.]

in consciousness independently of the afferent impulses which are its ordinary cause; that there is what is termed, as I understand it, "psychogenic pain."

All recent work on sensory physiology is opposed to the former of these ideas. It has been shown that variations in the stimulus applied to afferent nerves alter the number of impulses which are transmitted by them, and increase or diminish the intensity of the sensation, but there is no alteration in its quality. Division of the optic nerve may excite some visual sensation, but it does not cause pain, and the cutaneous nerves of the epidermis, the nerves, as I believe, of tactile sense, can also be divided without the production of pain. With these examples before us it is difficult to imagine that pain is ever due to impulses along nerves of other forms of sensation.

Pain is often, but not invariably, accompanied by other symptoms such as pallor, fainting, and sweating, and these are sometimes ascribed to the pain. They are not, however, invariable concomitants of pain, and hence we must conclude that they are produced in a different way, by other afferent impulses than those which cause pain, travelling by a different path and producing their effects often by exciting the sympathetic system. These concomitants fall into Mackenzie's group of "associated phenomena."

Different Pain Response from Different Tissues

The mechanism of pain production may be studied in two successive steps: the first is to determine the tissues and organs that can give rise to pain, and the second, the effective stimulus in each of them for its production.

It is a well-recognized fact that different parts of the body are entirely different in their pain responses. I remember well a case of enormous prolapsus of the rectum which came under my care during the war, and the difference in the sensory responses which could be elicited from its surface. The prick of a pin near the margin of the anal orifice was painful, but whenever one passed beyond a definite line and stuck the pin into the mucous membrane higher up no pain whatsoever was elicited. This afforded a simple but dramatic illustration of "visceral insensibility," or, in other words, that stimuli which are effective or adequate for pain in some tissues, which we may call the "somatic," produce no sensation from the "viscera." We know that the alimentary canal is so insensitive to such stimuli that the intestine may be cut or pierced or even burned without any pain resulting.

We have not as yet equally precise and well-established information about other viscera, but there is evidence to show that the lungs, the heart, and the brain itself show the same sort of "insensitivity," in that pain is not produced from them by mechanical stimulation such as that described, though it may originate from other causes. This is a field of study in which clinical observation on the sensitivity of exposed organs will in time provide the necessary data. The problem of visceral pain presents special features, and my own view is that its mechanism will not be understood until we know more about "somatic" pain—namely, the mechanism of its production from the tissues and organs of the body wall and limbs.

Experimental Mechanical Stimulation of Different Tissues

The experiments which I have carried out in work on the first of these problems have been published, and I need only summarize the results. They were devised to test whether pain could be produced by direct mechanical stimulation of different tissues. The stimulus used was a sharp needle, the point of which was passed through

the skin and onwards into different tissues, muscle, fibrous tissue, periosteum, and also into the walls of veins and arteries. These experiments showed that among "somatic" tissues there are great differences in the responses elicited by stimulation in this way.

Epidermis has its own nerves, but pain does not arise from them, even when they are divided. The dermis gives an immediate and acute response, as everyone knows, to a wide variety of mechanical stimuli. The subcutaneous tissue is less responsive. For the greater part it does not give a pain response to mechanical stimulation. We all know that the introduction of a hypodermic needle is painless once the skin has been penetrated. The subsequent injection may, however, cause acute pain, and evidently in subcutaneous tissue there is a pain mechanism. Fibrous tissues are responsive to direct mechanical stimulation. Acute pain is caused by the passage of a needle through the fibrous aponeurosis of muscles.

The walls of veins are almost entirely insensitive or give but slight response. This is my experience, but some who have observed the results in a similar experiment have found that considerable pain was produced. One observer told me that in himself he found pain produced almost as severe as that which I have described from arteries. Arteries give a very acute response: the pain is immediate, severe, and sickening, and tends to radiate along the course of the vessel. In my own observation, the wall of my brachial artery was penetrated, and I have received confirmation of my observations from those who, in their clinical work, have had occasion to open an artery.

Ordinary striated tissue gave practically no pain response to mechanical stimulation; the sensation elicited was dull, felt like pressure, and was unpleasant, but not as a rule definitely painful. Periosteum may give a pain response, but often does not, and bone is definitely insensitive to this kind of mechanical stimulation. To strip periosteum from bone, however, is definitely painful.

The value of these observations lies in the demonstration they afford that the somatic tissues do not all give a pain response to mechanical stimulation, while we know also that severe pain can be produced even from those insensitive to mechanical stimulation, by the operation of other causes. The case of muscle is specially instructive. Severe pain can be produced from muscles which contract if they have not a proper blood supply, and Sir T. Lewis has provided the important discovery that the pain is due to the production locally of a chemical stimulus, which he terms the "p substance." There are reasons which lead one to suspect that a chemical agent may be the stimulus for pain in certain other tissues and perhaps in all of them. Pain, for example, is seldom momentary; it persists for a shorter or longer time after the exciting stimulus has ceased to act, and this can be due only to the continued operation of a local cause.

Pain and Hyperalgesia

The condition of hyperalgesia throws some light upon the mechanism of pain production. Hyperalgesia shows itself by the occurrence of a pain response to a mild form of "stimulation," such as usually, and in the normal condition, fails to cause any pain. Illustrations of this are numerous, and among those with which we are familiar are the tender scalp which is present in neuralgia, and the subcutaneous and the muscular hyperalgesia found in visceral abdominal disease and in angina pectoris, when pressure on a fold of skin or on muscle produces an acute pain.

The same sort of hyperalgesia may be produced by local causes. If, for example, the skin be reddened by the application of a mustard leaf, the affected area is hyper-

aesthetic to warmth, or hyperalgesic, for exposure of the surface to even a mild degree of warmth causes severe pain. Lewis has recently shown that if the skin be injured in a variety of ways a local condition which he terms "susceptibility" follows, in which stimuli usually painless cause pain from the affected area. He has ascribed this to the local production of a chemical substance, which raises the excitability of the terminals of the pain nerves. These facts throw a very important light upon the mechanism of the production of pain, showing as they do again that a chemical factor may be the agent.

"Referred" or "Heterotopic" Pain

While pain is often localized to an area at or near the site of its cause, there is also the large group of instances in which pain is, as it is termed, "referred," as in many forms of visceral disease. Examples of this are innumerable, but one may mention particularly the pain of angina referred to the arm, shoulder pain in liver and diaphragmatic disease, and the headaches which arise from defective ocular accommodation. In this group we should, I suppose, include the labour pains of childbirth, which are referred to regions remote from the uterus. The term "referred pain" for these forms of pain is not to my mind a good one, and its use has led to misconceptions. All pain is "referred" by the sufferer to some place; the point of distinction between the two kinds of pain is that in some forms the pain is referred or localized by the sufferer to the place where the disordered process is at work, while in the others it is referred to some distant region. The distinction between the two types is of importance, and for the former I would suggest that the word "homotopic" be used, while for the latter in contrast we might apply the term "heterotopic." An advantage found in these terms is that they provide a contrast, whereas to "referred" pain there is no suitable contrasting term.

The means of the production of "heterotopic" pain is yet uncertain. Mackenzie's provisional theory of its production, his "viscero-sensory reflex," postulated that an "irritable focus" was produced in the spinal cord by afferent impulses from the viscera, and that this focus was in some way responsible for the transformation of the ordinary impulses of touch and pressure in cerebro-spinal nerves of that segment into impulses which gave rise to pain. The facts at least are clear—namely, that the hollow viscera do not give rise to a sensation of pain from ordinary stimulation, while afferent impulses from them induced by a special local condition—spasm of unstriated muscle—do cause severe pain, localized to some portion of the distribution of the cerebro-spinal nerves.

There are many difficulties in accepting Mackenzie's theory in its details, and another theory based upon what we have come to learn about pain production may now be put forward. Areas of heterotopic visceral pain and tenderness are very puzzling; there are present in them severe pain and acute tenderness, but there is usually no other feature to distinguish them from their surroundings. The colour is the same, there is no added warmth, there is no pilomotor excitement, and the activity of the sweat glands is unaltered. Some observers have claimed that they have been able to detect slight alterations and especially a difference in the local response to the application of warmth, and some oedema may be present, but the information is as yet rather vague, and additional observations are necessary to establish it.

In my view the close similarity between an area of pain and tenderness due to local causes and one of visceral pain and tenderness render it extremely probable that the same underlying condition is present in both of them. I have found that an area of fibrous and muscular pain

and tenderness due to local causes may be abolished by the local injection of a small amount of normal saline solution. The mode of its action is uncertain; presumably it helps to get rid of the "p substance" which is present. It is known that areas of heterotopic visceral pain and tenderness can be relieved by the local injection of anaesthetics, and, further, Dr. Forman has found the striking fact that normal saline solution injected into these painful and tender areas can act in the same way, and relieves them.

This procedure can act in no other way than by modifying the local condition, and the observations demonstrate that in "heterotopic areas" the same underlying condition is present—namely, that there has been a local production of a "pain-producing" substance. So far we know of the production of a "p substance" from muscle by local causes. On the evidence provided it seems probable that this substance may be produced in other ways, as by a visceral reflex, and I think that we shall find that in the areas of "heterotopic" visceral pain and tenderness there is formed the same pain-producing substance as that which is formed from local conditions, gives rise to pain, and, in a lesser degree of concentration, causes hyperalgesia.

Summary

Pain, as I understand it, is a definite form of sensation, not to be confused with unpleasantness or with discomfort or mental conflict, served by its own nerves, which are part of the cerebro-spinal nervous system. The various tissues and organs show a wide range of difference in their capability of exciting a pain response; some do so in response to mechanical stimulation, others respond only to a special chemical stimulus.

There is evidence to show that in areas of pain and tenderness from local causes there has been formed locally a "pain-producing" substance, which acts upon the terminals of the pain nerves.

This substance is liberated where there has been skin injury and in muscles under certain conditions. Probably it is liberated in fibrous tissues also.

We know little as yet of the way it is produced nor whether it is liberated from other than local causes. The close resemblance of areas of "homotopic" pain and tenderness to those of "heterotopic" pain and hyperalgesia, and the relief to both conditions afforded by local injection of normal saline solution, point to its being occasionally liberated locally from reflex sympathetic impulses from viscera, and this would afford a satisfactory explanation of Mackenzie's "viscero-sensory reflex."

Citing the various ill effects of a sedentary life, G. Laroche, de Chaisemartin, and A. Grigaut (*Bull. de l'Acad. de Méd.*, October 16th, 1934, p. 291) present a study of the changes in the chemical composition of the blood caused by exercise in twenty-one cases. Tests made at the beginning and end of a six-weeks' course of regulated exercises showed a return to normal of the blood cholesterol, urea, and uric acid; the blood content in these substances is evidence respectively of fat, nitrogenous, and purine and protein metabolism. An increase of weight, due possibly to an increased density of the tissues produced by the exercise, and a stabilization of the blood pressure, due to activation of the general circulation, were also noted. As no dietary or medicinal treatment was given, these effects can only be ascribed to the exercise, which is taken to have a regulating influence on metabolism. It is emphasized that the exercises were regulated, and the authors suggest that sports undertaken without due preparation and medical control may have harmful effects.

"ARTERIAL EMBOLECTOMY"*

BY

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From time to time it falls to the lot of most of us to advise on the treatment of an embolus lodged at some high level in a peripheral artery (subclavian, axillary, brachial, iliac, femoral, popliteal, and even at the aortic bifurcation).

The ideal treatment for arterial embolism, which is a grave emergency calling for intervention as early as, or even earlier than, that in respect of a perforated viscus, is immediate arteriotomy, removal of clot, and suture of the vessel. This procedure, when successful, restores the circulation, and gangrene is averted. Experience drawn from other types of gangrene, such as the senile, arterio-sclerotic, and diabetic types, is quite useless; the rarer embolic form is a distinct and separate entity, which can often be prevented by immediate and decisive surgery.

Several tentative attempts to this end were made during the first decade of this century (Lejar, 1902; Moynihan, 1903; Sampson Handley, 1907; Proust and Lecène, 1908; Carrel and Leriche, 1909), but without success. At the turn of the first decade Carrel's experimental work on the surgery of the blood vessels demonstrated that, given a careful technique, very fine silk suture material, and the use of anticoagulants in the wound, vessels could be incised and closed again without thrombosis at the suture line. His work, and that of others in the same field, paved the way for successful embolectomy, and it was but a matter of opportunity before some more venturesome surgeon would be able to claim a success. This fell to the lot of Labey, who in 1911 removed an embolus arrested for six hours in the femoral artery. Since that date numerous cases have been put on record, some successful, others not, and at the present day embolectomy can be regarded as a standardized and useful addition to surgery. This is in no small degree due to the Swedish surgical school, led by Einar Key, whose masterly papers in 1922 and 1927 laid the foundations on which all else has been built up. In recording my own successful case in 1925 I was able to collect from the literature seventy-three cases, of which twenty-eight had done well. Since then the literature has grown prodigiously, and important analyses have been made by Petitpierre (118 cases, 1928), H. E. Pearse (296 cases, 1933), and Max Danzis (detailed analysis of all cases reported, 1922-32). The time has arrived when general compilations have done their very useful work in driving home the lessons of embolectomy: future general studies are likely to be concerned with embolisms of individual vessels rather than discussions of the whole subject comprehensively.

I do not intend, therefore, to make a new survey of the whole field as I did in 1925, for Danzis's paper, in particular, has brought the whole subject sufficiently up to date. A better purpose will be served by an account of my personal experiences of embolectomy. The 1925 case was the first successful one in this country, and I have now five new cases to report. Two other British successes have, in the meanwhile, been obtained individually by A. G. Banks and G. E. Larks, and others will be recorded to-day.

* Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

Personal Cases

The six cases which follow record embolisms in the axillo-brachial junction, brachial, common iliac, and femoral arteries, four of which have been diagnosed and immediately referred to me by my colleague Dr. G. J. Langley.

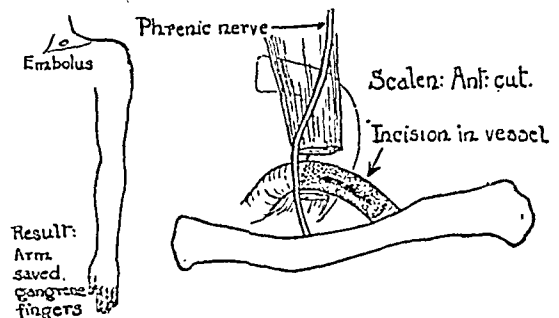
CASE I

This case has already been reported, being my original success of 1925. It concerned a man of 42 years of age, operated upon at Salford Royal Hospital on April 23rd, 1925, for radical cure of an umbilical hernia. Twenty-six hours after operation he complained of pins-and-needles in the left arm, with increasing numbness and paralysis of all muscles below the elbow. The pain rapidly became intense. The arm was blanched, cold, and pulseless below the anterior fold of the axilla. Palpation of the subclavian artery above the clavicle gave free pulsation there, and pulsation was felt again, but not so distinctly, in the axilla. Under local anaesthesia the junction of the axillary and brachial arteries was cut down upon two and a half hours later, a 2 cm. long incision was made in its wall, and a clot removed. The artery was sewn up with fine paraffined silk, with immediate return of colour and muscular power, and cessation of pain. The patient made a perfect recovery, and is well nine years later.

Comment.—This was a completely successful case, pulsation returning at once, and all symptoms disappearing immediately. Banks and Larks have published very similar and equally successful cases since; both were axillo-brachial, both occurred in hospital, and both were post-operative.

CASE II

W. P., male, aged 49 (date, 10/12/31), after a period of ill-health, developed an acute and semi-gangrenous ischio-rectal abscess. He was seen by Dr. Langley, who found a very high blood sugar, and the patient was removed to a nursing home in order to have the abscess opened by my colleague Mr. Garnett Wright. In the early hours of the morning, about 3 o'clock, the patient was awakened from sleep by severe pain in the left arm, which he attributed to a draught. When seen by Dr. Langley later in the morning the patient complained of exceedingly severe pain, and on examination the arm was found to be pale, cold, and pulseless—indeed, no pulse could be felt in the axilla. The projected



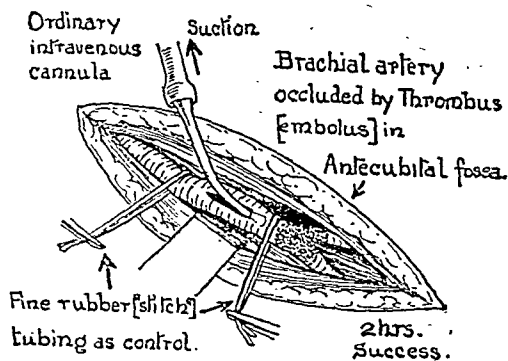
opening of the ischio-rectal abscess was therefore postponed until the arm could be dealt with. I saw the patient with Mr. Wright and Dr. Langley at noon. All the classical signs of acute arterial obstruction were present—a cold, pallid, marbled limb, with wrist-drop, and absence of all finger movements. Flexion and extension of the elbow could be feebly carried out. No pulsation could be detected in any artery of the limb, but above the clavicle, on deep inward pressure, a muffled beat could be felt. The embolus was evidently lodged in the subclavian artery in its first or second part, and operation was decided upon. At 6 p.m., fifteen hours after lodgement, the left subclavian artery was exposed through a transverse incision under omnipon, scopolamine, and gas-oxygen anaesthesia. The clavicular head of the sterno-mastoid muscle was divided, the phrenic nerve retracted inwards, and the scalenus anticus cut through at its

attachment to the first rib. This gave excellent exposure of the artery, in which an embolus could be both seen and felt. The artery was isolated, and two fine controlling bands of rubber tissue threaded round it above and below the clot. A short incision was made in the vessel and the main clot milked out in one piece. A glass suction tube was inserted, and more clot fragments obtained by judicious release of first one and then the other ligature. The arterial incision was closed with interrupted vaselined fine silk, a difficult task in this situation. The immediate result was good, the pulse returning feebly at the wrist, but next morning it could not be felt, though the pain had largely gone and movement had returned in some measure to the hand. During the ensuing days this power disappeared again, and in the long run a considerable amount of tissue had to be removed from the hand, including all the fingers.

Comment.—A point of considerable interest is the origin of the clot in cases such as this with a surgical lesion. The thrombus might come from the auricle, as presumably occurs in the cases of auricular fibrillation. Bull showed that most arterial emboli are cardiac in origin, and only come from great vessels when there is gross disease in the intima. But paradoxical embolism has to be considered, for a patent foramen ovale is present in a number of cases. It seems unlikely that an aseptic clot will arise from a septic area, such as was present in this case, but it is not impossible, for I have seen the median cephalic vein thrombose slowly along its whole length in the arm of a man with a septic wound of the dorsum of the hand. No sign of infection and no tenderness, certainly no cellulitis, developed over the vein, so that a propagating clot, which is in large part at least aseptic, may arise from a septic area. Case II cannot be regarded as a complete failure; for without operation an amputation above the elbow-joint would certainly have been required. The patient's arm now is vastly superior to any artificial limb that was ever invented.

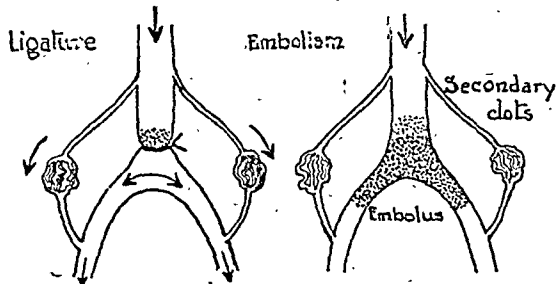
CASE III

S. T. J., male, aged 42 (date, 3/2/32), was admitted to the Salford Royal Hospital under the care of Dr. G. J. Langley suffering from auricular fibrillation. He was treated



with massive doses of digitalis, and on 3/2/32, at 9 p.m., complained of sudden violent pain and weakness in the left hand. On examination no pulses could be felt at the wrist or in the hand; pulsation in the brachial artery could be felt in the lower third of the arm, but ceased in the antecubital fossa. Diagnosis was made of embolus at the bifurcation of the brachial artery, and two and a half hours later, under local anaesthesia, this vessel and the upper ends of the radial and ulnar arteries were exposed. A clot was removed by incision into the brachial artery, and recovery ensued, but with feeble pulses at the wrist. There was a slight degree of ischaemic contracture of the hand and the wrist in this case, a point of considerable pathological interest. This patient was lost sight of on leaving hospital, but he died of syncope whilst on holiday six months later.

Comment.—This case furnished an interesting example of the damage which an embolus will do as compared with arterial ligature at the same level. In the antecubital fossa the brachial can be tied with impunity, yet an embolus, by blocking all collaterals, causes a very severe circulatory disturbance, and the hand may well be lost. In this case collaterals were undoubtedly freed, but I doubt if the full blood stream was restored in the brachial artery past the point of embolism and arteriotomy. At the present day I should not open the brachial artery as soon as it was exposed, as I did in actual fact. It is better to conserve the main trunk and to milk the clot,



Showing collateral circulations.

under rubber ligature control, into a vessel of lesser importance, as I did in Case v, and as Nyström, Schmorell, and Westerborn have so brilliantly done in their cases of aortic embolism. I shall refer to this point in technique again later.

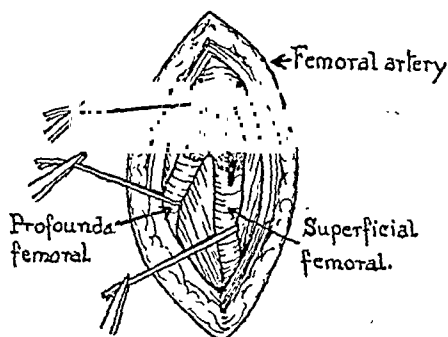
CASE IV

Mrs. Y., aged 66 (date, 20/10/33), a doctor's wife, was admitted to a nursing home under the care of Dr. Langley with high-speed auricular fibrillation. At 6 a.m. she complained of severe pain in the left lower limb. Seen three and a half hours later the limb was cold to the touch, pallid, and powerless, with no pulse in the femoral artery at Poupart's ligament. The right femoral pulse was strong. It was probable, therefore, that the embolus was lodged at the bifurcation of the common iliac artery, and operation was advised and accepted. Under spinal anaesthesia the left common iliac artery was exposed, five hours after embolism, extraperitoneally by cutting through the flat muscles of the abdomen. A large embolus could be felt riding the bifurcation of this vessel, with short limbs projecting into the external and internal iliac arteries. The common iliac was lightly controlled with improvised forceps covered with rubber tubing, and the other two branches controlled by tension bands of thin rubber ("stitch") tubing. An incision 1.5 cm. long was made into the external iliac artery, below the embolus, a suction nozzle was introduced into the empty artery, and an attempt made to break up the clot. This failed until a blunt pituitary spoon was used, when, in a moment or two, the whole Y-shaped embolus came away. Momentary release of the controlling forceps verified the absence of any further clot. The artery was sutured with interrupted sutures of arterial silk, and proved to be watertight after three sutures had been placed. Recovery was complete and perfect. In spite of a small cerebral embolism two months later, the effects of which passed away completely, she is alive and well ten months later, and walks well.

Comment.—This was a completely successful case. It was in many respects a severe test of the operation. There was complete arterial block, and a high-level amputation would have had to be done if the arteriotomy had failed. Amputation in a case with severe cardiac disease is a more difficult obstacle to surmount than an embolotomy, not only immediately, but later on. To a patient with heart disease the loss of a lower limb is a most serious thing, because of the added exertion on movement.

CASE V

Mrs. E., aged 52 (date, 28/2/34), was admitted to Salford Royal Hospital by Dr. G. J. Langley, who had seen her in consultation with Dr. Andrew Clarke. Some years ago she had an attack of aphasia, but, apart from recent auricular fibrillation on an old-standing mitral stenosis, had been reasonably well and active. At 10.30 a.m. on 28/2/34 she felt sudden severe pain in the left leg, and signs of embolism at the level of the profunda femoris were classically present. The clot, which made a palpable and visible swelling in the artery, was easily removed under spinal anaesthesia through a 1.5 cm. incision under full control. The immediate effect appeared to be good, though the absence of feeling in the legs prevented discriminating observation. The vessel below the



arteriotomy wound had been noted to be unduly small before the skin was sutured, but this is not uncommon, as vessels contract primarily when stripped. Next day she still complained of pain in the foot, though higher up the circulation had greatly improved. During the next few days the pain became so intense that 1/2 to 1 grain of morphine a day did not control it. Finally, fifteen days after embolism, the patient consented at last to amputation above the knee. A second embolism was found blocking the posterior tibial and an abnormal peroneal artery. Two days later she suddenly developed signs of embolism in the femoral artery of the other side, but just as operation was about to be undertaken all signs and symptoms disappeared, and colour and pulsation returned to the leg. Evidently the embolus had side-tracked into the profunda artery. On 21/3/34 the patient died, with signs suggesting an aortic embolus.

Comment.—This case was a failure, and exemplifies the disadvantages of spinal anaesthesia. There is no escaping its use in iliac and aortic embolism, but in the limbs infiltration anaesthesia is far preferable, as it allows of immediate observations of the effect of the operation on pain and mobility in the limb. Had it been used here we should at once have been sure that something else was wrong, and either an arteriogram would have been made or the popliteal artery exposed. A small embolus was found in the amputated leg in the posterior tibial artery. I believe these distal embolisms to be most serious. Arteriograms in cases of thrombo-angiitis obliterans show how apparently trivial deficiencies will lead to distal gangrene. To be sure, the conditions are not entirely parallel, for there is no general arterial disease involving small vessels in the embolic cases. The pain experienced by this patient was pitiable in its severity, and would have been an object-lesson to those few who think that embolisms are best left alone.

CASE VI

Mrs. M., aged 48 (date, 13/4/34), a patient of Dr. Sissons of Lymington, had long suffered from thyrotoxicosis and auricular fibrillation. Three weeks prior to the present attack she had had a sudden attack of pain in the right leg, which became pale, dead, and powerless. At the end of two or three hours, after having kept it warm, and after vigorous massage, it recovered spontaneously. At 2 a.m. on April 13th, 1934, she experienced the same pain in the right arm. Thinking

that the symptoms would pass off as they had done in the leg, she did not send for Dr. Sissons until six hours later, when he at once diagnosed a brachial embolism, but she appeared to be dying. As the day wore, on she slowly improved generally, and as her physical condition improved so the pain in the arm became more distressing. At 9 p.m., nineteen hours after embolism, a clot was removed under local anaesthesia from the upper end of the right brachial artery at the level of the superior profunda branch. The clot was extracted without incident, but although there was a free flow of blood from the upper end further clot was felt and seen lower down. A second incision was made in the lower third of the arm, and a further small incision made, and the long clot milked out. The pulses still did not return to the wrist, and by this time the patient had developed increasing pain in the abdomen, suggesting an embolism of the mesenteric vessels. The attempt to restore the circulation in the arm was therefore abandoned. Next morning the arm was warm as low as the wrist, and pulsation was present in the antecubital fossa. Pain in the abdomen was by this time very severe, and blood-stained diarrhoea set in, confirming the suspicion of intestinal embolism. She died the next day, forty-eight hours after the embolism.

Comment.—This case would, I think, have been a failure had the patient survived. Of course, her mesenteric embolism made recovery impossible. But this was an interesting case, showing how rapidly secondary thrombus formation occurs in the distal part of the vessel; for, nineteen hours after occlusion, the brachial artery, and no doubt the more distal vessels too, contained long rods of clot. Her medical attendant had wished for an embolectomy at once, but her immediate state of collapse prevented an intervention; no blame therefore attaches to him.

To these cases of proven embolism must be added one in which the left iliac bifurcation was exposed under a mistaken diagnosis. The condition found was uncommon, and the indication for exploration and the decision to operate were, I think, not unsound.

CASE VII

J. C., male, aged 33 (date, 14/12/29), consulted his medical attendant, Dr. Young of Kersal, for pain over the heart. Dr. Young made a diagnosis of ulcerative endocarditis and aortic disease, and sent him to bed. At the end of a week his dyspnoea improved, and he got up on his own responsibility. At 8 p.m. he experienced a sudden pain in the left leg, and at 8.30 p.m. was seen in consultation by Dr. Langley, who found the leg to be pulseless and cold. The very proper diagnosis of acute arterial occlusion was made, no doubt embolic, and he was sent into a nursing home. At 11.15 p.m., three and a quarter hours after the presumed embolism, I explored the left common iliac artery. No pulse was present in the left common femoral, and as the right leg was quite unaffected the occlusion should not have been aortic, but somewhere in the iliac arteries, probably at the bifurcation of the common iliac. Under general anaesthesia an oblique incision was made above the inguinal ligament, and the muscles divided. By blunt dissection the bifurcation of the iliac arteries was brought into view, and free pulsation found there. Following the external iliac down, there was seen to be a dark haemorrhage, 4 cm. long, occupying the anterior half of the circumference of the vessel. This had caused so much swelling of the arterial wall that no blood could get past it. This haematoma was incised, but was found to be in the middle as well as the adventitial coat of the artery. The pathology of the condition was clearly the earliest possible stage of a dissecting aneurysm, due to softening of a segment of the artery by lodgement of an infected particle (such as is a commonplace of ulcerative endocarditis) in a vas vasorum. It seemed that nothing useful could be done, though, to be sure, after the relief of tension in the wall by incision feeble pulsation was detected in the femoral but not in the popliteal artery nor at the ankle. The wound was closed, and next day the leg was slightly warmer but far from normal. The patient died on the third day, the combination of unfavourable circumstances being too much for him.

Clinical Picture

The clinical history of the patients in the foregoing series is remarkably constant, and there has been no great difficulty in arriving at a diagnosis (except, of course, in Case vii). This is important, because it is the general practitioner who sees these cases first, and everything depends on the promptitude with which he makes his decision and acts upon it, for he has at best four hours, and at most ten hours, in which to have an arteriotomy performed.

Most of the subjects are sufferers from heart disease with some form of myocardial damage, and auricular stasis with unsuspected clot formation. They stand the relatively benign operation very well. A smaller number occur as post-operative disasters in hospital, and this group undoubtedly has the best chance of survival, for reasons which will occur to everyone.

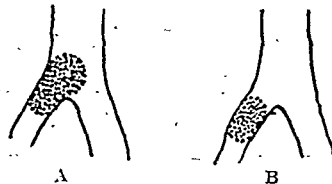
The picture can best be summed up as consisting of pain, pallor, and paralysis, with absent pulsation in the vessels of the limb. The mechanism of the production of pain of the intensity experienced by these patients is difficult to explain. For the moment we may rest without an explanation, because it is an unescapable fact that diminution in the blood supply to a limb invariably produces pain. Raynaud's disease, intermittent claudication, and even the vaso-constriction produced by cold are all obvious examples. Muscular paralysis is a less familiar result of the same thing, and may puzzle the clinician who has had no experience of embolism. In a case only partially relieved, contracture of the muscle can occur through death of some of its fibres (as happened in Case iii). Cutaneous anaesthesia is also found in embolism, sometimes in a known anatomical distribution, and more often with a less recognizable pattern. Nerve endings require an efficient circulation for their proper function; the anaesthesia is therefore more apt to have a vascular distribution than a purely nervous one, though anaemia of nerve trunks as well as of nerve endings must be taken into account in explaining the distribution of anaesthetics and paralyses.

Localization of the Embolus

There have been no mistakes in the localization of the embolus in my own cases. Difficulties are only likely to arise in cases with multiple embolisms (such as Case v), or when the clot slips from its first point of lodgement to be arrested at a lower level. Emboli usually lodge at bifurcations, because the arterial lumen narrows suddenly at the points where large branches are given off. Clots are usually of some size, and on the whole it is more probable that a large rather than a small vessel has been obstructed, otherwise the symptoms would not have arisen.

The ictus is not always as dramatic as in the cases described above, but develops from relatively small beginnings, with paraesthesiae and considerable, but not intense, pain associated with pale blotching of the limb. In these cases the embolus has not completely blocked the vessel, and rides the spur at an important bifurcation, allowing a diminished blood stream to flow past. Some such cases make a sudden and spontaneous recovery (as in the first embolism in Case vi), and this occurrence has puzzled some observers, who have invoked spasm rather than clot obstruction as the explanation. In such cases it is justifiable to assume that the clot, after riding for a time and impeding the flow in the main nutrient artery of the limb, suddenly disappears into the less important of the two branches. Thus with a clot insecurely lodged at the common iliac or common femoral bifurcations, the thrombus might on occasion pass into

the internal iliac or profunda femoris arteries, where it would do little harm. When the embolus is large, and at once firmly and definitively plugs the vessel, the pain and all other symptoms and signs are instantaneous, and steadily worsen as the hours pass.



A, Clot, chiefly in large branch, partly occluding the main blood supply. B, clot hammered into branch releasing circulation to distal limb.

If there is great difficulty in localizing the site of embolism, help may be obtained from an arteriogram, an idea already put into successful practice by Pearse (see also Abbeloos). Failure to find the obstruction at the expected point is remedied by injection of thorotrast or uroselectan into the artery and a radiograph taken as the solution is injected. I have so far no experience of the method, but it is sound practice.

Treatment

Treatment need not detain us long, for most of the points are inherent to what has gone before. The artery should be exposed with as little delay as is compatible with making the diagnosis and the removal of the patient to a suitable place. The time factor is important, because secondary clot formation beyond the embolus sets in after a few hours, but not immediately. I am no believer in the view advanced by some that it is not until secondary thrombosis occurs that the signs become definite. The vessel distal to the point of occlusion is empty during the first few hours, and ready to accommodate the blood stream as soon as the obstruction is removed.

I believe that the failures that sometimes follow early operation are due to there being more than one embolus, rather than because of coagulation at the point of incision into the artery. The use of local anaesthesia as opposed to spinal is important, as the patient's subjective sensations are most helpful in deciding whether immediate success has been achieved. I have indicated briefly what should be done if the result is not at once satisfactory. There is one point remaining which requires discussion, and it arises out of the treatment of aortic embolism. I have seen three such cases, but in none of them was operation possible for various reasons (the patient's state too desperate or the embolus lodged too long). Nyström and Key both advise the massaging or "milking" of the clot from the aortic bifurcation down into the common femorals under direct vision (the femoral arteries having both been exposed and controlled by rubber bands to prevent the broken clot lodging at some less convenient site). In a case of Hildebrandt's, reported by Schmorell, the clot suddenly and unexpectedly disappeared into the internal iliac artery as it was being massaged down to the exposed femoral artery, with immediate return of function to the limb. I have referred to such a side-tracking as the explanation of the sudden recoveries that may undoubtedly occur in embolisms before such time as the clot becomes adherent to the intima, but it seems to me that a practical hint might be taken from these happy chances, and that when it does not happen of itself we should try to compel it. The first step would therefore be the exposure and temporary control of the main vessel above and below the embolus

in the ordinary, followed by a deliberate attempt to massage the clot into the subsidiary branch. If this failed the operation would be proceeded with on normal lines and the artery opened. It is likely that the alternative method will not always succeed; in the late cases it certainly cannot, but it is worth a trial. I must be very explicit as to my exact meaning, for I think that no greater disservice could be done a patient than a haphazard breaking up of the clot by finger pressure, allowing the resulting smaller emboli to go free in the circulation. We should then have multiplicity and small size of emboli, two factors which I have come to regard as most unfavourable. It is far easier to remove an embolus from the femoral artery than from the posterior tibial, so that if the clot cannot be persuaded into the profunda femoris, for example, it must at once be removed by arteriotomy without for one instant relaxing the clamps or temporary ligatures which are preventing the escape of the clot.

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According to P. Esch (*Zentralbl. f. Gynäk.*, October 27th, 1934, p. 2530), many cases previously described and accepted as osteomalacia have in reality been examples of generalized osteodystrophia fibrosa (von Recklinghausen's Disease). He gives details of two cases in which this mistake had been made; in both, radiological examinations of the skeleton, and in one necropsy, showed the characteristic signs of generalized bony fibrosis, with "brown cysts" in certain bones. The patient who died had adenomata in three parathyroid glands. Distinction between osteomalacia and von Recklinghausen's disease is important: in one of Esch's cases of the latter, removal of one and irradiation of the other ovary had been unnecessarily done for a supposed osteomalacia, and on the other hand successful treatment by parathyroidectomy is possible in some cases of osteodystrophia fibrosa. In diagnosis radiology is the most important measure. The pelvic deformity in von Recklinghausen's disease, if symmetrical, causes marked lateral flattening: the pubis projects forward beakwise, the ascending rami of the pubis are nearly parallel, and the inlet takes the shape of the heart on a playing card. Accepting the view that Paget's disease and von Recklinghausen's disease are different varieties of osteodystrophia fibrosa, Esch points out finally that the non-generalized form of the former may begin in the lumbar vertebrae or the pelvis, so that early cases may come first to the gynaecologist.

RUPTURED SPLEEN AFTER TRIFLING MISHAPS

A RECORD OF TWO CASES

BY

HAROLD DODD, M.Ch., F.R.C.S.

The cases described below are of interest, owing to the apparently trivial domestic incidents which excited a serious abdominal lesion—that is, a ruptured spleen. These accidents initiated slight but progressive symptoms and physical signs, necessitating splenectomy. Fortunately, judging from the literature, the condition appears to be an uncommon one.

Case I

Frank P., forty-eight hours before admission to hospital, fell against a gas-oven door and bumped his left lower ribs. This accident gave rise to no immediate effects beyond temporary pain. A few hours later he vomited several times and had diarrhoea, but he stated that he saw no blood or slime in the stools. In twelve hours he had developed general abdominal pain, slightly worse in the upper region. After the initial looseness there was no further action of the bowels, so that when he was admitted to hospital he had been constipated for about forty hours.

When I saw him first his general condition was good; he was complaining of abdominal discomfort, but not of definite

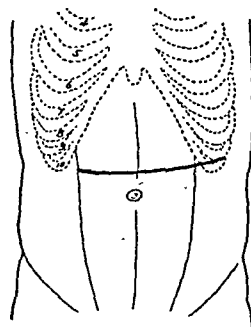


FIG. 1.—Shows the transverse incision.

pain. His temperature was 100°, pulse 110, and respirations 20. The abdominal reflexes were normal, and there was no hyperaesthesia. In the right iliac fossa was a visible fullness with a vaguely defined soft swelling; he was tender on pressure here—that is, over the appendix and caecum. He was slightly sensitive over the lower left ribs external to and below the nipple, the point of contact with the oven door, but this was apparently outside the abdominal area. The diagnosis of an atypical acute appendix or "something odd" in the abdomen was made. The possibility of the fall having caused an intra-abdominal traumatic lesion, such as a ruptured spleen, was considered and rejected on account of the seeming slightness of the mishap, and also of the clinical picture.

Immediate operation was advised, and was performed under a percaine spinal anaesthetic. Owing to the element of doubt in the diagnosis, the abdomen was opened through a right paramedian incision centred at the umbilicus. Blood shone through the peritoneum and poured out freely when it was opened. This recalled the abandoned suspicion of a ruptured spleen. The peritoneum was rapidly closed and a transverse incision made through the upper left abdomen (Fig. 1). Through this approach the spleen was easily delivered from its surroundings of blood clot; its vessels were ligatured, and it was quickly removed. On dividing the peritoneum the second time the patient collapsed, became pulseless, and seemed as if he were dead. Intracardiac adrenaline and intravenous saline were administered, and after these his pulse faintly returned. The entire procedure was brief, and while the abdomen was being closed the patient was turned into the Trendelenburg position, extra blankets being tucked around him, and electric stoves placed near by. In an hour's time

he was sufficiently recovered to be levelled up, moved on to his bed; and taken back to the ward. A blood transfusion shortly afterwards established the improvement, and his recovery was uneventful.

The spleen was enlarged to twice its size by several closely adherent layers of thrombus. It was possible to peel these off like the skins of an onion. The surrounding space was filled with a large amount of fluid and clotted blood. Apparently the blow caused a subcapsular injury and haemorrhage, whose waxing and waning stripped up, distended, and ruptured the capsule, forming the laminated perisplenic haematoma.

Deliberating on the sequence of events since, it appears to me that the bleeding from the lacerated spleen irritated the splenic flexure and the descending colon into contraction, thus explaining the diarrhoea. Later, this segment of the bowel became paralysed by aseptic peritonitis, causing partial intestinal obstruction, followed consequently by distension and tenderness of the caecum in the right iliac fossa. It was the latter sign, coupled with the previous history of three weeks' indigestion, which urged the pre-operative diagnosis of acute appendicitis.

Case II

A woman aged 56, while standing on the sill cleaning a window, slipped, and in falling to the floor struck her left side on a chair-seat. She was faint, and felt sick for a time, but continued her duties as a housewife for two days, although admitting that she did not feel well. On the third day she went to bed, owing to weakness and being short of breath. The next day she consulted her doctor, and he sent her to hospital.

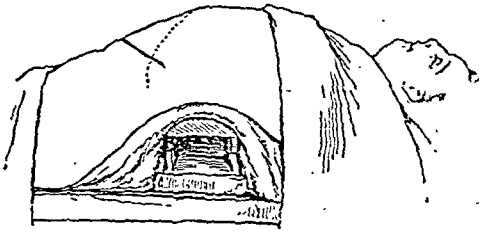


FIG. 2.—Shows the incision and the elevation of the loin.

On admission she complained of breathlessness and of pain in the lower part of her left chest, which was worse on coughing and on movement. In addition, for two days she had experienced stomach-ache and constipation. Her temperature was 99°, pulse 110, and respirations 25. She was placid and did not appear to be anaemic. There was a slight bruise over the ninth and tenth ribs at the mid-axillary line, but, apart from impaired resonance at the left base, the chest was considered to be within the normal. A radiograph of the ribs revealed no injury. The abdomen showed moderate generalized tenderness, and some shifting dullness in the flanks. The next and the following day the pulse increased slightly, averaging 120, and the signs were indefinite. When I saw her first on the seventh day after the accident she was much worse, and was undoubtedly very ill; her pallor was striking. The abdomen was distended, visible peristalsis was observed, and at the left upper quadrant was rigidity, tenderness, and dullness. Shifting dullness was still an equivocal physical sign. The haemoglobin was 55 per cent.

The diagnosis of a ruptured spleen was submitted, and confirmed at immediate operation, when the torn organ was removed. The abdomen was filled with blood clot. A transverse abdominal incision was made, and with the bridge of the table raised under her lower ribs as for a gall-bladder operation the exposure was ideal; the entire procedure took fifteen minutes (Fig. 2). She collapsed as the peritoneum was incised, but responded to an immediate intravenous saline and to a blood transfusion two hours later.

An Epitome of the Clinical Picture

This condition—that is, “delayed haemorrhage following traumatic rupture of the spleen”—has recently been very carefully studied by A. H. MacIndoe.¹ With his permission some of his findings are used here. The con-

dition is rare, for he found only forty-five cases in the literature, and reported one of his own.

The Exciting Injury.—This varies from being mild to severe in character. It is usually to the left upper abdomen or to the base of the left side of the thorax. Ruptured spleen from contrecoup is very rare. In chest injuries ruptured spleen complicates fracture of the lower left ribs sufficiently often for the possibility of its occurrence to be always seriously considered. Consequently, these patients should be observed in bed for at least fourteen days. The immediate effect of the accident may be marked temporary shock, grading to almost nothing, so that the patient has forgotten about an injury when questioned a few days later.

Latent Period.—In the article referred to, MacIndoe remarked on the period of “symptomatic silence” after the accident, termed by Baudet the “latent period,” and well illustrated by my second case. Two to eight days is the usual time; it has been as long as six months. Although the term “symptomatic silence” is applied to this interval and patients have continued to work, they usually admitted experiencing a persistent dull left upper abdominal pain, and examination showed slight rigidity as well. Less frequently, slight acceleration of the pulse rate, pallor, weakness, dizziness, or faintness are present.

Symptoms and Signs.—The picture may be a dramatic one, patients exhibiting collapse from a sudden torrential bleeding, as in Case II, or one not so striking, but nevertheless equally serious, where slow, progressive bleeding causes a gradual yet persistent deterioration of health (Case I). Varying degrees of pain in the splenic region are present in every case; my patients experienced it. Further pain is referred to the left shoulder, and is of diagnostic significance. Ballance's sign²—“a dull note in both flanks, but on the right it can be made to shift, whereas on the left it is constant”—and increased splenic dullness are sometimes observed. There is rigidity in the epigastrium, at the left costo-vertebral angle, and below the left costal margin; fullness may be noted in the last area. Appreciation of the tender fullness in the region of the caecum, resulting from inhibition of the colon about the spleen, is important; I have also seen it in a case of torsion of the spleen. It may proceed to centralized distension—that is, from small intestine obstruction—with visible peristalsis (Case II). Signs of pneumonia, pleurisy, or an effusion may be found at the base of the left lung.

Haemorrhage.—Faintness occurs as the bleeding progresses. An abdominal catastrophe with agonizing pain may be precipitated by a large sudden haemorrhage. It sometimes occurs spontaneously, or after a slight strain such as coughing. Great collapse may follow, causing a perforation of a hollow viscus to be suspected, and sudden death has followed. The power of the bleeding usually increases the original damage to the spleen, proceeding to the gross changes, occasionally morcellement, found at operation. It is quite the exception for a splenic wound to heal.

Summary

1. Two cases of ruptured spleen with delayed acute symptoms are described.

2. An epitome of the condition is added.

3. Emphasis is laid on: (a) the possibility of a ruptured spleen occurring with fracture or bruising of the lower left ribs, (b) the significance of persistent left upper abdominal pain and muscular tension after even a trivial injury, and (c) the facility with which splenectomy can be performed through an upper abdominal incision with the loin well elevated (Fig. 1).

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A CASE OF CONGENITAL HEART-BLOCK

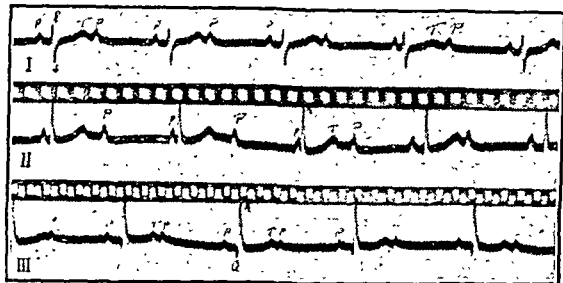
BY

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Congenital heart-block appears to be a comparatively rare condition, and so few cases have been confirmed by electrocardiogram that I am prompted to make an addition to the sparse literature on this interesting abnormality.

Before heart-block can be considered to be of congenital origin it must conform to the criteria laid down by Yater¹ in his exhaustive review of the literature on this subject in 1929. There must be some evidence of the existence of a slow pulse at an early age. A graphic record soon after birth would further establish its existence in the absence of a history of an acute infection such as



A. Auricular 75, Ventricular 43.

diphtheria, scarlet fever, chorea, influenza, rheumatic fever, or other causes of myocarditis. The knowledge of syncopal attacks at an early age, combined with a slow pulse and graphic evidence in later years, would lend support to its congenital origin, while the coexistence of other congenital cardiac abnormalities would support a diagnosis of congenital heart-block.

Case Records

A girl, aged 8½ years, was brought to the cardiac outpatient department for examination to ascertain the present condition of her heart. Her mother stated that the child was born with a slow pulse, and that her doctor had said she had had a murmur in her heart from birth. Born at full term, the patient never at any time exhibited cyanosis or fits of any kind. There was a complete absence in her history of an attack of tonsillitis, diphtheria, chorea, etc., likely to interfere with the conduction through the bundle of His. There were no obvious stigmata of congenital syphilis.

A bright, vivacious, and intelligent girl of more than the average size, she suffers no distress whatever from her condition. There is complete absence of cyanosis, even with exertion at games. Her pulse rate was regular at 42 a minute. To all outward appearances she does not differ from any other girl of her age; in fact, she might be considered to exceed the average, both physically and intellectually.

RESULTS OF EXAMINATION

The apex beat was not displaced, and the cardiac impulse was not abnormal. There was no thrill palpable over the præcordium, even after exertion. A continuous murmur was audible all over the præcordium; this was thought to be due to a defect in the interventricular septum. The blood Wassermann test was negative. The pulse rate at rest was regular at 43 a minute, and increased to 48 after slight exertion.

X-ray and screen examinations were reported on as follows by Dr. F. G. Stewart: "Heart shows some transverse enlargement, the heart-lung coefficient being 1 to 1.87. The apex lies above the diaphragm, and is rounded. Pulsation good. The shadow of the right auricle is not enlarged. The pulmonary area is prominent and pulsation marked. First

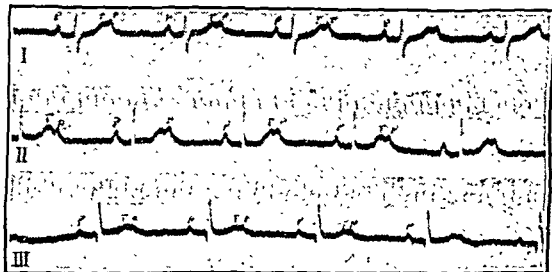
oblique shows the left auricle to be enlarged backwards to a moderate degree. The conus is rather prominent. Aorta not enlarged. Findings: Enlargement of the left and right ventricles and of the left auricle. There is no enlargement of the aorta, but the pulmonary artery is enlarged.

The electrocardiograms revealed the following (see Figs.):

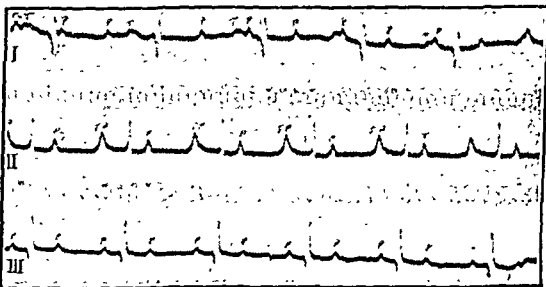
A. Complete heart-block of roughly 2 to 1 rate, the auricular rate being 75 and the ventricular 43 a minute.

B. Films taken three months later show the persistence of the block without alteration in the auricular rate, and a ventricular rate of 45 a minute.

C. Atropine sulphate (1/100 grain) was injected subcutaneously, and this record was made when the patient was under its influence: about three-quarters of an hour after Tracing B and half an hour after injection of the atropine. A very definite alteration is seen, especially in Lead II, showing the P wave superimposed on the T. The effect of the atropine on the auricular rate was obvious, increasing it from 75 to 90 a minute, whilst the ventricular rate was entirely unaffected.



B. Three months later. Auricular 75, Ventricular 45.



C. After 1/100 grain atropine sulphate. Auricular 90, Ventricular 45.

Comment

The literature contains about forty cases of congenital heart-block, the great majority of them having a patent ventricular septum. One is struck by the paucity of symptoms in most of these cases. In roughly half of them there was an absence of cyanosis, in others it was mild, whilst in a few it was noticed at birth, but disappeared in later years. This cyanosis can justly be attributed to the coexisting cardiac defects. Fainting fits or syncopal attacks were rare, occurring in only seven cases, one of which had a pulse rate of 20. This case, reported by D'Espine and Cotton,² showed the slowest rate of any of the recorded cases; while that of Nicholson,³ with a rate of 80, showed the highest. The average rate in congenital heart-block is roughly 43 a minute.

The commonest coexisting lesion is a patent interventricular septum, and was observed in twenty-five cases, while pulmonary stenosis accompanied three of them. It is extremely difficult to give a prognosis on account of the limited literature available. It is highly doubtful if the heart-block itself would influence the prognosis to any great extent. The other cardiac abnormalities must interfere with the outlook considerably.

Of the recorded cases some deaths occurred at a very early age, while others have been known to reach the age of 21 (Calandre⁴), 20 (Smith⁵), and 18 (Myer⁶) years.

Dr. Aitken,⁷ in her excellent survey of the literature, described two cases of this abnormality, and suggests an overgrowth of fibrous tissue between the auricle and ventricle as the possible cause, leading to interference with the conduction through the bundle of His.

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SUBLEUKAEMIC LYMPHADENOSIS IN A CHILD

BY

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Lymphadenosis in children is a rare condition, and the case reported here has some unusual and interesting features. Gittins,¹ in a recent review of the condition, states that the average duration of lymphadenosis in children is under two months, and the most chronic case recorded lasted not more than eight months. Cases of myelogenous leukaemia may, however, give a longer history. The following case, definitely of lymphatic type, lasted at least ten months, and a special feature was the presence of deposits of lymphoid cells in the subcutaneous tissues of the eyelids. Subcutaneous deposits are not very uncommon in lymphatic leukaemia in adults, but in children they are extremely rare, and in a review of 100 cases Ramsay² records only one, that of a case reported by Ward³ in 1912.

Case Record

The patient, a male aged 4½ years, was admitted to Booth Hall Hospital on January 17th, 1933, with a history of loss of weight and anorexia for several weeks. The child was fat and flabby, and the skin yellowish; the gums were ulcerated, the lips excoriated, and the breath foul. Local and dental treatment sufficed to clear up the mouth condition, and the child was discharged one month later, no blood examination having been made.

On June 16th, 1933, he was readmitted, having been ill almost constantly since discharge, with listlessness and tiredness, repeated attacks of pain in the limbs, slight fever, and occasional night sweats. At this time the skin was definitely yellowish and waxy, and there was marked gingivitis. Neither the lymph glands nor the spleen were enlarged. A blood examination showed a severe anaemia, with a colour index of unity and 7,000 leucocytes per c.mm., of which 82 per cent. were lymphocytes. The possibility of a primary anaemia of pernicious type was considered. Fractional gastric analysis showed complete achlorhydria, but the exhibition of a potent liver extract given intramuscularly failed to produce any reticulocyte response. Subsequent blood counts (see table) showed great variation in the total number of leucocytes from 5,000 to 33,000, but always with a high proportion of lymphocytes and generally some lymphoblasts, which nine days before death constituted 84 per cent. of the total white cells. The hypoplastic anaemia, improved for a time by a blood transfusion, was present throughout, and blood platelets were very scanty. A somewhat similar blood picture of lymphadenosis commencing with hypoplastic anaemia has been reported by Weber and Weisswange.⁴

Date	R.B.Cs. ($\times 1000$)	Hb. %	Colour Index	W.B.Cs. (total)	Differential Count: Percentages									Blood Platelets
					Polymorphs	Lymphocytes	Eosinophils	Basophils	Monocytes	Myelocytes	Lymphoblasts	Normoblasts	Megaloblasts	
June 23rd ...	1,328	25.0	95	7,000	14	32	1	—	1	2	—	2	1	V. scanty
July 12th ...	992	27.1	1.05	33,000	4.5	88.5	0.5	—	1	0.5	—	0.5	1.5	V. scanty
July 21st ...	2,240	47.1	1.1	19,000	6	73	—	—	1	—	20	—	1	V. scanty
Aug. 2nd ...	1,856	41.3	1.3	9,200	4	55	—	—	3	1	36	—	—	V. scanty
Sept. 15th ...	952	25.1	1.0	4,000	6	92	1	—	—	—	1	1	—	V. scanty
Oct. 3rd ...	2,096	42.1	1.0	5,000	21	71	—	—	3	—	5	2	—	Fairly plentiful
Oct. 17th ...	2,568	49.1	1.0	7,200	12	70	—	—	3	1	14	1	—	V. scanty
Nov. 10th ...	1,704	33.1	1.0	22,000	1	12	—	—	3	—	31	—	—	V. scanty

After four weeks in hospital the mouth was normal, but a slight swelling appeared in the right upper eyelid, and shortly afterwards discrete shotty glands were palpated in the neck and groin. The glands varied much in size at different times during the illness, but tended to become larger. Three weeks after the appearance of the nodule in the right upper eyelid a similar swelling appeared in the left upper eyelid. The child was noticed to bruise easily, and at one time a fine purpuric rash appeared on the limbs and persisted for two days. X-ray examination of the long bones showed osteoporosis, a condition which has previously been noted in this disease. During the last month the spleen became palpable, and a week before death reached almost to the umbilicus, while the liver was one inch below the costal margin. A swinging temperature, 97° to 100.2° F., was present throughout the illness, and the general condition, which was fairly good for the first three months, gradually deteriorated. The urine contained neither albumin nor Bence-Jones's albumose. Death occurred on November 19th, 1933.

If it be admitted that the illness in January was due to the same cause as that found in June, which seems extremely probable, the duration of the illness was at least ten months.

POST-MORTEM FINDINGS

The chief features at the post-mortem examination were as follows. Skin: minute petechial haemorrhages present; almond-shaped subcutaneous nodules, approximately half an inch in length, present in each upper eyelid. Lymph glands: submental, cervical, axillary, inguinal, and mesenteric glands definitely enlarged. Pericardium: multiple subpericardial haemorrhages. Lungs: many haemorrhagic infarcts throughout all lobes. Liver: weight 1,000 grams; pale yellow in colour and of increased consistency. Spleen: weight 170 grams; definitely enlarged and of increased consistency. Meninges: small recent subdural haemorrhage on left side. Marrow of femur: dark red. Other organs: nothing of note.

MICROSCOPICAL REPORT ON TISSUES

Microscopically the subcutaneous nodules are of moderate vascularity and not encapsulated. They consist of large numbers of fairly widely spaced mononuclear cells, which have a large nucleus, slight chromatin differentiation, and a rim of basophilic non-granular cytoplasm. The stroma is loose and coarse, and in it are many voluntary muscle fibres between which the invading cells have infiltrated, giving almost the appearance of a sarcoma. Mitotic figures are present in small numbers. The oxidase reaction on the cells in these rabbits and on similar cells found in the bone marrow and elsewhere in the tissues is completely negative, and as the cells are similar to those found on many occasions in the blood they must be regarded as lymphocytes or their precursors. Fresh films of bone marrow from the femur show an almost entire replacement of erythroblastic tissue by primitive lymphocytic cells, very few normoblasts being present. No myelocytes can be seen.

The lymph glands show massive accumulations of similar cells, and the lymph follicles are poorly defined. The pulp

of the spleen consists chiefly of cells similar to those found in the bone marrow. There is an extensive central fatty change in the liver, and a moderate amount of free iron in the cells around the portal area. Some well-circumscribed periportal collections of lymphoid cells are present.

Summary

The blood and post-mortem examinations and the histological findings leave no doubt that the case was one of lymphadenosis, for the greater part of its course subleukaemic, the special features being the relative chronicity and the presence of subcutaneous deposits of lymphoid cells, both extremely rare occurrences in this disease in children.

I wish to thank Dr. J. D'Ewart, medical superintendent of Booth Hall Hospital, for permission to publish this case.

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A PRACTICAL NOTE ON SUICIDE

BY

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It is an aphorism among psychiatrists that every case of depression is a potential suicide. Yet how difficult it is to get the general public to realize this fact. Reports of inquests on suicides, even when the verdict is the usual one of unsound mind, contain as a rule singularly little indication that the relatives had observed in the victim previous to the act the existence of any abnormality of mind. On inquiry by the coroner it may transpire that the deceased was "worried" or sleepless or suffered from pains in the head. But the depression, almost always present, is usually minimized or completely overlooked, and the act of suicide invariably takes the relatives by surprise. Depression is the commonest precursor of suicide, but even when it is recognized by those about the patient as a sign of mental disorder it still remains a problem to persuade them of the danger of suicide that consequently exists. They generally consider they know better. They tell you they understand the patient so well and are sure that he, or she, would never think of doing anything like that.

A case which emphasizes this difficulty was that of a woman who had become depressed after the death of her husband some weeks previously. The sister, who was looking after the patient, was warned that a definite danger of suicide existed. She plainly thought an alarmist view was being taken, although admitting that the patient was "not herself." It was agreed that she should be sent without delay into a home on the South Coast, and in the evening another relative telephoned to say that final arrangements had been completed and that he would accompany the sick woman the following day to the nursing home. The warning was repeated to him, but little notice was taken of it, and in the train next day he allowed the patient to leave the carriage. She opened a door in the corridor, threw herself on to the line, and was later found dead. At the inquest no reference was made to the warnings that had been given.

Suicide may be actuated by a variety of motives depending on the nature of the mental disorder and the mechanisms at work in the patient's mind. Our insight into these motives will obviously depend on the depth of our psychological analysis of the mental state. I do not intend in this article to consider the influence of the deeper levels of mental activity. The introduction of the concept of the unconscious has thrown much light on the whole subject of mental disorder, an instance of great importance being the discovery that motives which are apparent on the surface may be no true indication of those existing deeper in the mind. But the development of unconscious psychology has brought about also many complexities of theory and technical problems which can

more appropriately be dealt with in journals specially devoted to the subject. Melancholia is the condition in which suicide is most to be feared, and the periods of greatest danger in the majority of cases are at the beginning of an attack and when the patient is showing signs of recovery. At these stages psychomotor inhibition, which puts a brake on suicidal impulses, is less developed, and supervision commonly tends to be relaxed.

Suicide a Means of Escape

Speaking generally, we may say that suicide is a way of escape from a situation that has become intolerable. Mental conflict may reach such a degree of intensity that deliverance from the unbearable conditions seems an imperative necessity. People vary in their capacity to tolerate conflict, anxiety, or "worry," and an accidental accumulation of troubles or an incident which to others seems comparatively unimportant may, in unstable types, precipitate an attempt at self-destruction. Sometimes a transient condition of confusion may develop at the critical moment or a short phase of automatism may occur when the act is committed. In these cases, if the attempt is unsuccessful, there is an amnesia of varying duration, and the patient may "come to" and discover himself the victim of injuries with no recollection how they occurred.

Worry from external circumstances, unless the latter are of an extraordinary or exceptionally disturbing character, cannot be said to be sufficient in itself to arouse a suicidal attitude of mind. Other components are always present, the external conditions acting only as accumulative and precipitating factors. Guilt and self-reproach are the commonest motivating elements in melancholia, and may develop to an extreme and overwhelming degree. In these cases suicide is a punishment for sin, an atonement and washing out of guilt. In other cases fear or apprehension of something terrible about to happen is the dominating feature. The grounds for the fear may be unknown or may be definite, though irrational, such as the conviction of being about to be tortured. In this condition the suicidal attempt is made to avoid the horrors that are thought to be imminent.

A belief that they are injuring those they love is a common motive in another class of depressed patients which may produce great mental distress and lead to determined efforts at suicide. It may be some spiritual injury they feel they are the cause of, or they may believe they are unclean and in danger of transmitting some dreadful disease. Self-pity and the hypochondriacal attitude may be accompanied by suicidal attempts, and in these cases an exaggerated egoism seems to be a constant feature. They frequently tend to dramatize themselves and appear to obtain a distinct satisfaction in the process. Savage¹ declared that as a rule the hypochondriac is not actively suicidal, although he made an exception in the case of sexual hypochondriasis, and certainly when suicidal attempts do take place in these cases they appear often to be curiously unconvincing. Other writers, however, are not of this opinion, and it is probable that there are at least two forms of this disorder which differ considerably so far as the danger of suicide is concerned.

Suicidal and Homicidal Impulses

The paranoid psychoses are more commonly associated with homicidal than with suicidal tendencies. Mercier went so far as to say that no paranoiac should be allowed at large, and that if he were so allowed his perpetration of a murder was merely a matter of time and was certain to take place.² However that may be, these cases with their morbid suspiciousness and persecuted outlook on the world sometimes find the strain of a life of victimization too much for them and make an end of it to obtain relief. When the mental conflict turns in this direction it generally is put into effect with great thoroughness and determination. The relation between suicidal and homicidal impulses in cases of mental disorder is a problem of great interest and importance. They may occur together as in the not infrequent case of murder

¹ *Insanity and Allied Neuroses*, fourth edition, 1907, p. 146.

² *Text Book of Insanity*, second edition, 1914, p. 20.

and suicide by the same individual. Or they may alternate, and a patient from being suicidally inclined may become violent towards others, the impulse apparently, instead of being directed inwards towards the self, is directed outwards as aggressiveness.

A woman who became depressed after her father's death described how a tragedy very nearly took place one night when, after lying in bed thinking that it was no use for her and her two sisters to go on living as it all ended in nothing, she got up with the intention of killing her sisters and herself. She obtained a pair of scissors with which to carry out her design, but an acute mental conflict supervened which ended by her cutting off her hair.

How commonly a history of suicidal attempts is found in convicted murderers I am unable to state, but cases of considerable interest in this connexion occur from time to time.

Phobias and Obsessions

Phobias and obsessions most commonly develop as symptoms of the psychoneuroses. Their relation to the major psychotic states is not yet clear, although they are quite frequently associated and in particular may usher in an attack of insanity. In regard to the danger of suicide in these cases two problems require to be considered. The first refers to the mental conflict which is the usual accompaniment of these disturbing symptoms. This may be of a very distressing nature and may cause a reactive condition of depression with suicidal impulses.

A case in point was that of an unmarried lady of 60 who, on the occasion of a visit to a cinema, saw a picture of a number of small boys bathing naked in a river. There came into her mind immediately some obscene words which she was unable to banish despite all her efforts. The condition soon became established with the typical characters of an obsessional neurosis. She struggled with it for some time until she became convinced that she must be a wicked woman to harbour such thoughts and attempted to end her life by taking poison. In another case a woman of 28 developed the obsession that she must find the meaning in everything. She felt compelled to ask herself this question about all the most ordinary acts of her life and to analyse everything with this end in view. She always arrived, as she put it, at a dead end and spoke of suicide as the only way out. After a few months she ended the strain of the constant questioning by putting her head in the gas oven.

The other problem concerns the seriousness with which a phobia ought to be regarded. Cases occur, for example, in which a fear of committing suicide exists or a fear of travelling in a train or a fear in a mother that she will injure her child. The doctor may be faced with a grave responsibility. Is he to take the phobia at its face value and deal with the situation as if a real danger existed? Or is he to rely upon the teaching of those who say that phobias are never translated into action, and advise the patient to court the occasions of his fear and "conquer" it? The answer will depend to some extent on the nature of the phobia. It may be one of little practical importance to the individual such as a fear of heights, but if it involves another person it assumes a more serious aspect. Bearing in mind that a fear commonly denotes a wish in the unconscious, that we can never be sure a reactive state of depression will not develop, and, further, as we cannot exclude the likelihood that the phobia may be the incipient stage of a psychosis, the wise physician will be alive to the possibilities and act with caution in the advice he gives.

A woman of 28, some months after the birth of her first child, developed the fear that she would injure it. She was afraid to touch it in case she might do it harm; phrases such as "a nice little throat to cut" came into her mind and distressed her greatly. She had to keep looking at the baby to assure herself she had not done something to it. In this case it was considered advisable to separate the mother and the child, but the condition proved persistent, and four months later she committed suicide by taking poison.

Impulsive Suicide

Suicide is occasionally attributed to mere impulse—that is to say, to a sudden action that appears quite unmotivated and is carried out in the absence of any grounds or reason for it. Attempts of this nature are said to take place particularly in schizophrenia, but it is

very doubtful if such an anomaly can ever with any assurance be said to occur. Our knowledge of mental mechanisms and of mental life in general enables us to draw the highly probable conclusion that a motive exists in every case of suicide, although it may not be easily discoverable. Guilt and anxiety, for example, are factors which are very prevalent in all forms of mental disorder. They may exist concealed and buried and so unapparent to ordinary examination, and may be the source of suicidal tendencies in seemingly unlikely cases. Impulsiveness in this sense must, however, be distinguished from the impulse which is the final step in a suicidal attempt. Many cases of mental abnormality contemplate suicide long before it is put into effect. In other instances a background of depression exists as the predisposing condition, and in both cases the actual attempt may take place as the result of a sudden impulse.

This is well illustrated in the case of a man of 53 who became depressed after an attack of influenza. Following upon a sleepless night his depression increased and he developed the idea that a crowd had gathered outside his house and were clamouring for the return of certain club moneys he had in his control. He was greatly distressed at this, but declared that the idea of suicide had not up to that point entered his mind. He went into the bathroom, happened to see his razor lying on a shelf, and, impulsively seizing it, drew the blade across his throat, inflicting a serious wound.

Suicide may also be associated with the occurrence of hallucinations. These are most commonly of the auditory type and constitute as a rule only part of the mental syndrome. Sometimes "voices" explicitly instigate a person to kill himself, and the situation then becomes a particularly anxious one, as the injunction is generally conveyed in the form of an order or command. These voices have a peculiarly convincing and compelling effect upon the mind, considerations of reality being of little weight in comparison. They are of graver import in this respect than delusions and seem to lead to action of the most direct and dangerous type.

Other Aspects of Motivation

There are other issues of importance in connexion with the problem of motivation in suicide, in particular the significance of unconscious factors. Motives that are apparent at the clinical level of mental activity are never the sole or essential elements at work. As was mentioned earlier in the article, deeper psychological investigation always reveals additional and generally more significant causes. A common constituent, for example, of melancholia, is hate, but it is repressed and concealed as a rule. The mechanism of identification with another—which makes suicide equivalent to homicide—and such motives as the desire for rebirth into a happier state of existence are revealed in most cases only by special methods of investigation. The relation of suicide to the death instinct and to the super-ego—the nucleus of the moral sentiments—are other problems of intrinsic importance. But it is impossible here to enter in any detail into a consideration of this aspect of the subject; too many technical problems are involved and too many points that are still open to dispute. Concerning the importance of sexual disabilities in these cases Savage¹ remarked that no class of patients is more suicidally inclined than those who believe themselves to be impotent, and none are more dangerous than those who believe themselves to be "tapped," "drawn," or "emasculated" by others—an interesting adumbration of modern views on the significance of sexual factors.

Individual Preferences

An important fact about suicide is the individual preference for particular methods that is exhibited in practically all cases. Suicides, consciously or unconsciously, select certain modes of death and restrict themselves more or less to these, even neglecting opportunities that may arise in other directions.

A case in point was that of a depressed and apprehensive woman who believed she was going to be murdered. She pleaded frequently to be given chloroform and killed quickly

¹ Loc. cit. p. 281.

instead of being tortured to death, and on one occasion swallowed a large coin, which fortunately was recovered without much difficulty. She discovered one day a window open and unattended on an upper floor and climbed through on to a small balcony. Instead, however, of precipitating herself to the ground she dropped from the balcony on to a garden table, and was brought back little the worse, having sustained nothing more than a few bruises. Shortly afterwards she was again pleading to be put out of her misery.

Another woman who was depressed and abnormally suspicious threw herself from a first-floor window, fracturing her pelvis and femur. She was offered brandy by her sister but refused it, saying she believed it was poisoned.

This selectivity is a source of security in most of these cases and lightens the anxiety of supervision. If it were not so the difficulties of treatment would be greatly increased, as it is probably impossible to prevent suicide in the case of a wholly determined person on the look out to seize any means of achieving his end. At the same time it cannot be entirely relied upon in practice, as we can never be sure that our insight into particular cases is sufficiently complete.

The different methods that are adopted—poisoning, hanging, precipitation, and the others—have in all probability a special psychological significance in each individual case. It is this that leads to the development of the preferences we have mentioned, but further consideration of this subject would lead us too far into the region of unconscious psychology. Suggestion is a significant factor in this connexion, and it is generally held that newspaper accounts of suicides provide a dangerous source of stimulation and encouragement. "Epidemics" have been described of multiple cases of suicide carried out by the same means, originating apparently as the result of the prominent and sensational reports appearing in the Press. This is, without doubt, an exaggerated view, for our knowledge of psychological causation makes it obvious that a pre-existing tendency must invariably be present and that suggestion is but the end link in a chain of determining conditions. A family history of suicide may have a strong suggestive influence in unstable persons. In the case of a man who became depressed and hypochondriacal two of his sisters had committed suicide and his father had attempted it unsuccessfully. The brother and father of another similar case had committed suicide, and the patient on several occasions remarked that the only way out of his misery seemed to be "to do what the others did." Both of these cases were lost sight of, but the influence of the family history was looked upon very seriously while they were under treatment.

Threat and Performance

It is commonly believed that those who speak openly of suicide and threaten to carry it out are not really dangerous in this respect, and seldom or never put the threats into effect. Sometimes patients suffering from depression irritate and exhaust their relatives by referring frequently to suicide while ignoring daily opportunities, and the impression is received that it is done merely to attract attention and obtain sympathy. It is important to realize that this is an erroneous view, as experience shows that persons of this type are quite as likely to commit suicide as those who are more inhibited and reticent on the subject.

A striking example was that of a woman who became depressed and frequently threatened to end her life. The husband was advised not to take the threats seriously, and allowed her on one occasion to open the carriage door of the train in which they were travelling when she said she wanted to throw herself out. She did nothing at the time, but later precipitated herself from an upper-floor window and fractured her skull. Another patient of the same kind was permitted by her husband to open the window on an upper floor of the house and look down after she had said she would jump out and kill herself. She did not carry out her threat on that occasion, but some weeks later made a serious attempt at suicide by swallowing a number of sedative tablets.

Some depressed patients are very theatrical in the expression of their misery and dramatize themselves in a way that looks unreal and artificial. It is often thought that this attitude denotes a lack of seriousness and a desire to draw attention to themselves, and that in consequence little danger of suicide need be apprehended.

This is a mistaken opinion and may, if acted upon, lead to tragedy.

A case which well illustrated this fact was that of a woman who had been under care for some time suffering from melancholia. She made the most theatrical manifestations of grief and remorse, going down on her knees, clasping her hands before her, and begging forgiveness from the doctor for imaginary sins. A strong-minded aunt came from abroad and, after a visit to the patient, said the histrionics were just "put on," that she would look after her and talk the nonsense out of her. The patient was taken to a hotel in London and the following day was found dead, having thrown herself from a top-floor window.

Unsuccessful attempts at suicide very frequently occur and are often taken to imply a lack of serious intention. It is not an uncommon thing to meet cases in which two or more attempts have been made, sometimes to all appearance of a doubtful or even trivial character. It is unwise, however, to label these mere exploits or "demonstrations" made simply for the purpose of attracting the notice and gaining the solicitude of others. The suicidal impulse seldom occurs in a free and uninhibited form. Generally the tendency is in conflict with other restraining tendencies, which accounts for the irresolution so often displayed, the sudden change of mind, and the reduction of an attempt, begun in earnestness, to insignificant proportions. The mental state is generally double-sided or ambivalent, consisting of opposing impulses, and the issue will depend on the relative strengths of these conflicting forces. Indecision, therefore, or apparent insincerity should not blind us to the existence of dangerous proclivities, as a situation may develop which increases the tension and tips the balance with fatal results.

A case in which this condition was well displayed was that of a woman who became depressed and acted in a manner that was looked upon as merely foolish and unbalanced. She waded into the sea and came out again of her own accord, making demonstrations, as it was thought, to draw attention to herself. These episodes occurred on two or three occasions and were not looked upon as indicating a true suicidal tendency. One day, however, she threw herself from an upper floor over the staircase and fractured her spine.

On the other hand, occasionally the act is carried out in a very determined and even over-determined way, as in the case of a man, reported some time ago from France, who took poison, mounted a chair with a rope round his neck, the other end being attached to a chandelier, stabbed himself in the chest and, as he kicked the chair away, shot himself in the head.

In conclusion, an aspect of the subject of great moral and practical importance calls for consideration—namely, the responsibility that attaches to the relatives or others in a case of mental abnormality when warnings have been disregarded or obvious indications of danger ignored and a tragedy ensues. The problem was illustrated in the first case described in this article, but it applies not only to persons with suicidal tendencies but to others also, in particular those with dangerous proclivities. A striking instance in point was the celebrated McNaughten case, which aroused a great deal of discussion at the time and led to the famous ruling of the judges—the basis of our present law on criminal responsibility.

In 1843 Daniel McNaughten shot and killed Edward Drummond, Sir Robert Peel's private secretary. The crime was readily recognized to be the outcome of McNaughten's abnormal state of mind. He had never, in fact, seen Mr. Drummond before, and seems to have met him accidentally in the street just before the tragedy took place. The singular fact, however, that appears in connexion with the case is that for at least two years before the crime McNaughten had been known to be suffering from delusions. Incredible as it may seem, he had consulted on the subject of his delusions not only his father but also, among others, a clergyman, the Provost of Glasgow, the Sheriff of Lanark, a member of Parliament, and the Commissioner of Police for Glasgow, and not one of them had felt called upon, in the public interest, to take any action in respect of the man's obvious mental abnormality. As a legal commentator on the case remarks: "Who was morally responsible for Mr. Drummond's death? Was it the unfortunate prisoner himself, who was suffering from a diseased brain? Was it not rather his relations and those others whom he consulted in his misery, and who yet took no steps to have him placed under medical care?"

The Defence of Insanity in Criminal Cases. An Essay by F. Lancelot Everest, Barrister-at-Law.

Clinical Memoranda

JACKSONIAN ATTACKS IN CONNEXION WITH EXTRADURAL ABSCESS OF THE FRONTAL LOBE

In both of the cases reported below the progress was extremely rapid—approximately one week. There was a history that the patients had been swimming and diving on several occasions during the week previous to the onset. The inability to demonstrate any direct spread through bone in Case I seems to indicate that the infection travelled in the blood stream, possibly by way of the anterior ethmoidal vein. It would appear that even abscesses in the frontal lobe frequently give rise to no localizing signs in this silent area of the brain. It is therefore interesting to note the occurrence of Jacksonian attacks in connexion with an extradural abscess in this region. A possible explanation is suggested by the microscopical examination of the frontal lobe in Case II—namely, that a non-infective inflammatory reaction is set up in the cerebral tissue adjacent to the extradural abscess, and causes the motor phenomena.

CASE I

E. S., male, aged 9½ years, was seen at Moorfields on July 27th, 1933, and was referred to the Central London Throat Hospital. Previous history: nothing of note. Present history: patient was quite well until July 20th, on which day he swam twice. It was noticed in the evening that he looked slightly flushed. On July 21st he was kept in bed, but was not complaining of anything. On July 22nd the patient felt better and got up. On July 25th he complained of pain in the right eye and round the right cheek. He went to the seaside and bathed; afterwards he was languid. On July 26th a slight swelling of the upper right eyelid was noticed. On July 27th the swelling of the eyelid had increased, and he was drowsy.

On examination the same afternoon the patient was found to have oedema below the right eyebrow extending on to the upper eyelid; tenderness was marked above the inner canthus. Examination of the nose showed it to be congested, but no pus was seen. On transillumination the right side was dull. An x-ray photograph was taken and the patient put to bed, and treatment with three-hourly cocaine and adrenaline sprays was ordered. X-ray report: Thickened lining membrane of both antra and of anterior ethmoids. Frontal sinuses absent. Thickened lining membrane of both sphenoids and posterior ethmoids.

On July 28th the child's condition was much the same; he was not complaining of any pain. Temperature 102°0, pulse 100. At 7.30 p.m. he gave a short cry of pain, and started clonic spasms of the left side of the body, commencing with the face and spreading to the arm and leg. He vomited, bit his tongue, and breathed stertorously. The spasm became generalized and less severe. The attack was continuous, with quieter intervals, until 9.30 p.m. Lumbar puncture carried out the same evening showed cerebro-spinal fluid under pressure, but quite clear.

Operation, July 29th: An incision extending from the middle of the supraorbital ridge carried medially down the side of the nose to a distance of three-quarters of an inch below the inner canthus of the eye. The tissues were oedematous, but no pus was encountered on cutting down to the bone, the outer wall of which appeared normal. The frontal sinus was absent, but a large anterior ethmoidal cell filled with pus was found situated approximately where the frontonasal duct opens into the frontal sinus; the inner wall of this cell was intact and appeared normal. On its removal a large extradural collection of pus under considerable tension was discovered, and the dura mater was found to be thickened. The entire ethmoidal labyrinth and sphenoidal sinus contained pus. The lamina papyracea was almost entirely absent, and pus was issuing freely from the peristoma of the orbit. The opening in the orbital periosteum

was enlarged to facilitate drainage. The wound was packed with flavine and paraffin gauze, and left widely open.

The patient made an uninterrupted recovery; the temperature, coming down by lysis, was normal on the eleventh day after the operation. He complained of diplopia for the first week; this subsequently recovered.

CASE II

L. R., male, aged 13 years, was admitted to the West London Hospital on July 12th, 1932. Previous history: nothing of note. Present history: the patient commenced with headaches and pain over the left eye on August 6th. He had been swimming and diving on several occasions during the previous week. The pain and headaches persisted, and slight swelling above the left eye was noticed on August 8th. On August 9th the patient was seen by his doctor in the evening; his temperature was 102°0, and the supraorbital swelling had increased.

The patient was seen at the hospital on August 10th. Temperature 102°0, pulse 120. Oedema over left frontal sinus and upper eyelid. Very tender on pressure over this region. Transillumination showed the left side to be dark. No pus was seen in the nose. X-ray: left frontal and ethmoid cells opaque.

August 10th, 9 p.m.: sudden onset of Jacksonian attack commenced with twitching of the face and spread down the right side to the arm, lasting one and a half hours. Operation the same evening. Left frontal sinus explored, full of pus; anterior and posterior ethmoids also contained pus. The following morning right-sided Jacksonian attacks recommenced, passing into generalized spasms and lasting two hours, when the patient died.

Post-mortem Report.—Slight cellulitis above the left frontal sinus between bone and scalp. Right frontal sinus and right ethmoids were grossly infected. An extradural abscess 1½ in. by 1½ in. was found over left frontal pole. Pia arachnoid over this area was purulent. The meninges over left cortex appeared to be a little more opaque and oedematous than on the right side, but there was no macroscopic purulent meningitis at the base or vortex. There was no cerebral tumour or abscess on sectioning the brain. Both maxillary antra, sphenoidal sinuses, and middle ear were clear.

Cerebro-spinal fluid was taken just before death, and it contained 150 cells, 95 per cent. polymorphs and 5 per cent. lymphocytes. Section of the cerebral cortex well away from the lesion in the frontal lobe showed well-marked inflammatory reaction.

For permission to report Case I I am indebted to Mr. Gill-Carey, and for Case II to Mr. Hamblen Thomas.

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TRAUMATIC RUPTURE OF THE HEART WITHOUT EXTERNAL INJURIES

In the *Journal* of November 24th Dr. H. O. Gunewardene records a very interesting case of traumatic rupture of the heart without external injuries, death taking place ten days after the accident. The circumstances of the case are certainly unique.

The following case is similar in some respects; but, the violence being more severe, the damage to the heart was more extensive and death took place immediately.

In 1922 the body of a girl, aged 7 years, was brought to the Cumberland Infirmary, Carlisle, by the driver of a Daimler car, who stated that a front wheel of the car had passed over the child's chest. External examination revealed a slight abrasion on the forehead, but nothing more.

At the post-mortem examination all the ribs were found to be intact; the left pleural cavity contained approximately 24 oz. of blood; the pericardium was split longitudinally on the left side and both ventricles were ruptured, the right one to a greater extent than the left.

Both cases illustrate the very marked resilience of the ribs in young children, which permits of extensive internal damage without fracture of the ribs taking place.

Southport.

J. A. HAMILTON, M.B., Ch.B.

Reviews

SIR ROBERT MORANT

The publication of the life of Sir Robert Morant is a little belated, and the book itself more than a little disappointing. *Sir Robert Morant: A Great Public Servant*,¹ by BERNARD M. ALLEN, LL.D., is not without its merits. It is interesting almost throughout, and is written in a clear, straightforward fashion. Excellent use has been made of correspondence placed at the author's disposal, and the earlier chapters contain an account of formative experiences which were hitherto very imperfectly known even to many of Sir Robert Morant's acquaintances and associates with him in his later work. Nevertheless, the author, though he clearly realizes that his subject is a great one, scarcely ever rises to the height of his opportunities, seems to lose a sense of proportion, and does not succeed in presenting that vivid, impressive, and inspiring picture of the man that many had been hoping for. It must be admitted that the life of a civil servant can never be very easy to write. His own personal official work is necessarily merged in that of his Government Department as a whole, and can be known in full and in detail only to a small company of fellow administrators and to the succession of Ministers whom he serves. A great civil servant is perforce immersed in his job, and, by the traditions of his profession, takes but a relatively small and reserved part in other public activities. Sir Robert Morant's surpassing qualities as a civil servant, and his greatness as a man, penetrated this screen to an extent much more than is usual, but the limitations are still there for a biographer to surmount. Dr. Allen has not surmounted them: perhaps no one could in any adequate degree. There is one passage beginning on page 202, just too long to quote conveniently, which catches fire and illuminates the portrait of a resplendent character; and the author quotes a little later a letter from Mr. Augustine Birrell which, in the circumstances in which it was written, constitutes a fine tribute to the unique position which Sir Robert Morant had attained in the Civil Service; but we doubt whether anyone who did not know Morant would gather from this book an accurate appreciation of his outstanding personality.

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This carefully prepared and presented monograph records original work of great biological and clinical interest, carried out by the author, who has made the fullest use of his exceptional opportunities; but it is a little unfortunate that he has wrapped up his argument in a volume which contains so much other work which is classical and well authenticated. If Dr. Rameses's theory of unisexual infection by *Schistosoma mansoni* finds general acceptance a most important "forward step" in our conception of the bionomics and bionosis of bilharzia must be registered. The work, written in English and published in London, merits sympathetic and considered judgement. Speaking generally, the English does credit to the author, though European names are sometimes spelled wrong, and such words as cacogeusia, polydipsia, anaemating, and expressions like autochthonous infection might be replaced by simpler phraseology. Rameses's disease, masculine mansoniiasis, and shaafa schistosomial splenohepatomegaly appear to be new names. We notice also the sentence "his studies were carried out in Egypt which had its origin in the courtyard of the Kasr-el-Aini Hospital in December, 1919."

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Authorities incline, no doubt, to the opinion that Egyptian splenomegaly is a schistosomatic infection: Dr. Rameses advances a reasoned statement in support of this view. Having established its aetiology the author formulates his conception of the origin of Egyptian splenomegaly, the "syndrome which for a long time was obscure": male cercariae (issuing from a single snail or snails producing the same sex), reaching the liver, grow into immature males; finding no, or insufficient, females, they remain in the liver, their presence provokes an immunity preventing the arrival of other parasites, and the case is still a masculine infestation. Intestinal symptoms remain negligible. The toxins excreted by the males produce the lesions in liver and spleen. The author writes with great confidence, and finds biological, pathological, and clinical evidence in support of his thesis.

Parts IX and X—devoted to treatment, specific and prophylactic—are excellent. It being impossible to exterminate the carrier snails, an increase in the number of mobile hospitals offers the most hopeful measure. The hospital doctors, in the author's opinion, should be prohibited private practice, and morning and afternoon injections should be instituted, in order to treat the greatest possible number. The staff should be permanent and experienced, and be paid adequate salaries. Medical and surgical measures are discussed, and the great efficacy of antimony tartrate confirmed. "Tartar emetic has no disadvantages if given with proper care." The numerous illustrations and line drawings are good, particularly the plates by the photo-offset process. The half-tones, printed on text paper, are perhaps somewhat disappointing. Figures 162, 163, and 164 show the remarkable effect of tartar emetic, testifying to the schistosomatic aetiology of Egyptian splenomegaly.

Notes on Books

The call for a second edition of BOYD'S *Text-Book of Pathology** within the comparatively short interval of two years has given the author the opportunity to arrange the subject-matter of the sections on general pathology in a more logical order. After discussing degenerative conditions, the subject of circulatory disturbances, especially those of histamine shock due to tissue injury, leads up to the subjects of inflammation and repair, whilst immunity, allergy, bacterial infections, and animal parasites follow in logical sequence, and disorders of growth are placed in relation with tumours. Several of the sections dealing with these subjects have been rewritten. A new chapter has been added on dental pathology, and among other new material may be mentioned sections on trauma, von Gierke's glycogen-storage disease, lead poisoning in children, the localization of infection, rhinosporidiosis, Oroya fever, the causation of angular pain, duodenitis, stasis of the gall-bladder, renal infantilism, and Cushing's work on basophilic invasion in hypertension. More than a hundred new illustrations have been added. These changes will enhance the value of the book to students of medicine, for whom the work is primarily intended.

Ronald Ross: *Dragon Slayer*† is a sympathetic account of the discovery of the part played by the mosquito in malarial infection written by Mr. J. O. Dobson, who first met Sir Ronald Ross in 1917 as a consultant in malaria at Taranto in Italy during the war. In addition to his work, Ross's life is pleasantly sketched in the last chapter, entitled "The Hero as Scientist." The words "dragon slayer," which are perhaps somewhat dramatic, are taken from the *Times* of September 17th, 1934. It is appro-

* *A Text-Book of Pathology*. By William Boyd, M.D., F.R.C.P. Second edition, thoroughly revised. London: H. Kimpton. 1934. (Pp. 1,047; 416 figures, 8 coloured plates. 45s. net.)

† *Ronald Ross: Dragon Slayer. A Short Account of a Great Discovery and of the Man who made it*. By J. O. Dobson. London: Student Christian Movement Press. 1934. (Pp. xiii + 112; frontispiece and 2 figures. 3s. 6d. net.)

prate that this little book should appear in the same year as the union of the Ross Institute with the London School of Hygiene and Tropical Medicine, a description of which is given by Sir Malcolm Watson in the Introduction.

A new and revised edition has appeared of Dr. WARREN T. VAUGHAN'S book on *Allergy and Applied Immunology*.* The subtitle of this work, which was reviewed in these columns on its first appearance three years ago, is: "A handbook for physician and patient, on asthma, hay fever, urticaria, eczema, migraine, and kindred manifestations of allergy."

The two chapters in *To Remind: A Biological Essay*† are the only records which illness allowed the late Sir WILLIAM HARDY to finish of the informal lectures he delivered at Vanderbilt University in February and March, 1931, as the second holder of the lectureship endowed by Mr. Bernard Flexner to commemorate the services rendered to the Medical School in its reorganization and development by Mr. Abraham Flexner. Hardy was a genius with a wide and exceptional knowledge of biology and physical chemistry, and in a brief but masterly survey he starts with Dujardin's discovery in 1835 of sarcode, afterwards called protoplasm by Moll, and carries the subject up to "the modern period in which the physical and organic chemist has taken possession of biology." Of the great problem of the origin of life he says "the most striking feature is its improbability"; and later "to follow the chemistry of life is like treading a maze where the paths twist and turn . . . but the pattern is, so far as human experience goes, fixed for all time." Pasteur's work on molecular asymmetry and its relation to the origin of life were discussed at some length, and he inclined to the belief that the hypothesis of special creations is almost as valid as that of continuous evolution.

Drs. D. SANYAL and R. GHOSE have just published a second edition of their volume *Vegetable Drugs of India*.‡ The book gives a full account of the reputed medicinal properties of some hundreds of indigenous Indian plants. In each case the Latin name is given, followed by a list of the commoner vernacular names, together with a description of the plant and an account of its reputed actions and uses, while in many cases a special paragraph is added mentioning the Ayurvedic uses. The volume therefore constitutes an excellent work of reference for those who desire to obtain information about the reputed therapeutic properties of Indian plants.

* London: H. Kimpton. 1934. (Pp. 420; 23 figures. 21s. net.)

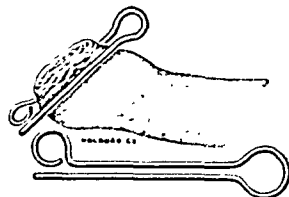
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‡ Calcutta: S. Chatterji. 1934. (Pp. 590. Rs. 4/8)

Preparations and Appliances

CIRCUMCISION CLIP

Dr. BENJAMIN BEST (Liverpool) volunteers a description of the small spring clip illustrated here. Advocating its adoption in practice, he writes: "I use it instead of the usual circumcision



shield. It is small and light enough to retain itself in position, and has no moving parts, yet it is easily adjusted to allow the correct oblique cut to be made. It was made at my suggestion by the Holtorn Surgical Instrument Company, Ltd., London, at an extremely moderate cost.

THE MARIE CURIE HOSPITAL

PRIME MINISTER'S TRIBUTE

The drawing-room at No. 10, Downing Street was crowded on December 6th for a meeting in support of the Marie Curie Hospital at Hampstead. The Prime Minister, who presided, paid a tribute to the genius of the late Mme Curie, a lady, he said, of great personal charm, vigorous intellect, and one who seemed able to find her way by instinct through the intricacies of the science of chemistry. It was good to have her name associated with a hospital, not a merely sentimental memorial but a severely useful institution, staffed by women of great medical and scientific capacity. Its history, though brief, was sufficient to show how sound and purposive was its work. The Medical Research Council had the fullest confidence in it, and, having been given by the War Office a certain amount of radium which was used for gun-sights during the war, the Council had handed over a substantial proportion, though actually amounting only to a small quantity, to the workers at the Marie Curie Hospital.

LORD HORDER'S SPEECH

Lord Horder said that the disease of cancer, which the Marie Curie Hospital set itself to combat, was by far the greatest of the remaining problems of medicine, and was still in many of its worst aspects unsolved. This hospital dealt only with cancer in women, and, in the way of treatment, only by irradiation. He had been since its inception a member of the British Empire Cancer Campaign, and was now chairman of its scientific advisory committee, whose chief function was to select institutions and individuals for the disposal of such funds as the public bestowed. The confidence which this important body felt in the Marie Curie Hospital was shown by the fact that ever since the hospital was founded in 1929, and for five years before that, when the preparatory work was being done by a cancer research committee of the London Association of the Medical Women's Federation, the Campaign had made grants, totalling now to £5,340, together with the loan of radium of a value approximately of £3,000. The days had gone by, Lord Horder continued, when radium or other treatment could be used with reckless empiricism in regard to technique—had gone by, at least, except in the ranks of quacks, and the quack, he supposed, must remain so long as some of the British public thought it a finer thing to work on disease without expert knowledge than with it, and that because a man was not qualified therefore he must be exceptionally clever. The technique of radium, as also of x rays, had become in itself an applied science. He had always thought that there was a great sphere for women in medicine—and that, of course, was now beyond discussion—but he could not help feeling that there were certain spheres in medicine, particularly in therapeutics, in which women showed an exceptional bent, and were able to produce specially good results. Whether it was that women were more painstaking, or were more accustomed to attention to detail as part of their daily routine, the fact remained that in this particular branch of treatment they did excel, and there was definite evidence that they got their results, not by the application of different principles from others, but by the more careful application of the same principles. In a summary by the Medical Research Council of the results of radium treatment of cancer of the uterus, results from seven different institutions were tabulated, and although the names were not stated he knew which of those institutions was the Marie Curie because the figures coincided with those given in the report of the British Empire Cancer Campaign under the name of that hospital. In the other six institutions the average percentage of cures in the first and second stages of the disease was 50 per cent., and at Marie Curie

83 per cent., while for the third and fourth stages the other institutions gave an average percentage of cure of 27 per cent., and Marie Curie 40 per cent. The cases were of the same type, the disease was at corresponding stages, the same principles of treatment were applied, and the answer to the question as to why the results were so different was to be found, he believed, in the fact that this was one of those spheres of treatment in which scrupulous care and observation during and after the application made considerable difference to the eventual result.

METHODS AT THE MARIE CURIE HOSPITAL

Miss Louisa Martindale, honorary surgeon at the hospital, said that over 1,000 cases of cancer of the uterus had now been treated, a special study being made of cancer of the cervix with a modification of the treatment first elaborated by Heyman of the Radiumhemmet, Stockholm. The success in treatment was apparently due to team work and perhaps superior asepsis. The application of the radium was made by the surgeon herself, the technique was controlled by the pathologist, and the screen and measuring of the dosage by the physicist, the director examining every patient and being present at a great number of the treatments. The follow-up was regularly done, and the nursing was also carefully supervised. In January last a new x -ray department was opened, with an apparatus capable of generating 300,000 volts. It employed a modification of Professor Henri Coutard's method—a long, fractional treatment extending over two or three months for each patient. To treat all patients adequately at least four more cubicles were needed, with consequent extension of plant, or alternatively a one- or two-gram bomb of radium. Out of 997 patients with uterine cancer, treated since 1925 88 per cent. of the early operable cases and 79 per cent. of the borderline cases were living and well. It was now becoming possible to compare the five-year survival rate with that of other leading clinics, and the results were most encouraging. A higher percentage living for five years could be reported than in any other international clinic except Paris, whose figure was equal to that of the Marie Curie in London.

ROYAL SURGICAL AID SOCIETY

The seventy-second annual meeting of the Royal Surgical Aid Society was held at the Mansion House on December 10th. The Lord Mayor (Sir Stephen Killik), who presided, referred to the resignation of the society's senior surgeon, Mr. E. Muirhead Little, who has served the society for thirty-nine years. He was very glad to state that Mr. Little would retain his connexion with the work as honorary consulting surgeon and as a member of the committee. The income for the past year showed a slight fall, mainly due to a decrease in special donations, although the patients' own payments showed an increase of almost £1,300. Nearly 30,000 cases had been relieved during the year, and 36,000 appliances supplied. These appliances included over 7,000 trusses, a similar number of stockings and knee-caps, more than 3,000 abdominal belts, and about the same number of pairs of spectacles. The Lord Mayor said that the society had won public confidence for itself, and the gratitude of patients was abundant. The work already accomplished was its best appeal for continued support. Mr. Sheriff Twyford and Dame Beatrix Lyall spoke in support of the work. Mr. Girling Ball moved a vote of thanks to the surgeons—Mr. Muirhead Little, Mr. E. Laming Evans, and Mr. B. Whitchurch Howell—and paid a high tribute to Mr. Little's services, which had extended over more than half the period of the society's existence. To fill the vacancy on the surgical staff caused by Mr. Little's resignation, Mr. Cecil Flemming has been appointed. Mr. Laming Evans acknowledged the vote of thanks on behalf of the surgeons. Donations to the amount of about £200 were announced at the meeting.

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THE ENDOWMENT OF CLINICAL SCIENCE

In his Presidential Address delivered before the Royal Society at their anniversary meeting, Sir F. Gowland Hopkins dealt at some length with the subject of clinical science and its endowment. He was glad to recognize that practice in the wards and activity in the laboratory, which but a generation ago made few contacts, have now come into close relations with a degree of mutual respect that was perhaps lacking in the past. But he suspects that some clinicians fear that the introduction of multitudinous laboratory methods into the domain of diagnosis is tending to destroy the true clinical art. We should prefer to say that the risk lies in undue dependence on laboratory tests to the neglect of clinical observation, instead of the co-ordination of both methods of attack. Apparently Sir Gowland Hopkins is somewhat alarmed by the claim that distinct from all the laboratory science that is ancillary to medicine there is clinical science *sui generis*, the progress of which depends on the direct and intimate study of disease as manifested by human beings. It might, however, be considered that the claim was rather that in addition to the help of laboratory methods the clinical evidence should be assessed with the same exactitude, as far as possible, as those methods demand.

Sir Gowland proceeds to consider the three main activities of clinical science as defined by Sir Thomas Lewis. The first is the "discovery of disease," or the clear description of specific diseases or states, so that these may be identified by others. This conception of disease as an entity is submitted to an illuminating criticism from the historical standpoint in the presidential address. He shows clearly how the pendulum has swung through the centuries: at one time the centre of interest is the patient who has the disease; at another, attention is focused on the disease which the patient has. While admitting that the conception of individual maladies, however abstract such a conception might be, is essential in bedside practice, if only for clear description and guidance in treatment, he asks: Does it mean more than this? Broussais strenuously maintained that diseases are not actual entities but convenient metaphysical abstractions; that no two cases displaying certain morbid symptoms in common are ever really the same. It might be added that the popular use of the expression "an attack" of a disease bears witness to the deeply ingrained conception of its being something imposed upon the organism from without, instead of the more scientifically accurate view of its being the reaction of the organism as a whole to some change

in its external or internal environment. It must be admitted that so far Sir Gowland Hopkins has the best of the argument, for at the moment the philosophy of "holism" is in the ascendant. Sir Thomas Lewis's second category comprises experimental work on clinical cases. The method of controlled experiment, wherever it can be applied, is a shorter route to knowledge than the slow path of recorded observations. So far as it can be applied at the bedside, to pursue it there to-day is one of the most praiseworthy of scientific aims, there being, of course, no thought of experiments which can do harm to the patient. Sir Gowland's opinion is that the fields in which really controlled experiments can be carried out on the intact human body are limited, and he feels that the same difficulty applies to Sir Thomas Lewis's third category—the application of physiological discoveries to human material. While appreciative of the great services to knowledge that have been rendered by Dr. J. S. Haldane's applications of this method, he is nevertheless of the opinion that "anyone who has followed the progress of physiology during the last twenty years knows that it has developed in wide fields where experiments on the intact body of man could have had no possible application." Therefore, while bearing testimony to the brilliant work of such men as Dr. Edward Mellanby and Sir Thomas Lewis as illustrating the interaction of clinical and experimental study, he harbours a suspicion that experimental fields for clinical science are relatively few. On the other hand, he is sure that there are many very wide fields in laboratory science the cultivation of which will continue to benefit medicine, and that the pursuit of pure science may at any time contribute to unexpected progress in entirely new directions. Since this has been so in the past, that is a fairly safe deduction for the future.

These criticisms demand serious attention, especially as they come from one whose own purely laboratory work has opened out entirely new fields in nosology and treatment. No man has done more than the President of the Royal Society to place the conception of deficiency diseases on a sound basis. Moreover, there is a disarming moderation in the whole tenor of his remarks which adds weight to them. But he goes on to say that he has sensed the beginnings of a definite movement, not, of course, to ignore the laboratory, but in the distribution of funds provided for medical research to endow the clinic on a scale which might endanger the future of research in fundamental biological science. This, he is convinced, would in the long run sterilize advance. Here we think Sir Gowland shows an unnecessary fear. We have indeed heard exactly the opposite criticism made as to the distribution of funds specifically earmarked for medical research—namely, that too much goes to subjects of which the medical aspect is somewhat remote. It may be hoped that when competent authorities express diametrically opposite views the conclusion may fairly be drawn that a safe middle course is being successfully steered. Clinical research may be difficult, and few

may be adapted for it, but the very instances Professor Hopkins quotes in his interesting and thoughtful address encourage us to feel that when its technique is more fully grasped it will yield more results of equal value. In the meantime, there fortunately seems little fear of pure scientific research being neglected or starved in comparison.

THE NATION'S CHILDREN

The school medical service for England and Wales is responsible for the health of approximately five million children. Of this school population between 70 and 80 per cent. are normal children, and it is a feature of Sir George Newman's report for 1933—a summary of which appears at page 1115—that he urges fuller concentration on the legitimate claims of this section. "Are we," he asks, "doing all that is practicable for the nutrition, physical education, nurture, and health of the normal child?" And he answers himself emphatically: "I fear we are not." This is a clear admission that to some extent the public health authorities of this country are failing to ensure the physical health of the normal child under 14 years of age. All complacency that things are much better than they were twenty-five years ago will not counteract this admission, and it is clear that medical science has not yet entirely succeeded in translating its discoveries and advances into practical measures in the homes and in the schools. There is a "lag," as Sir George Newman himself pointed out in another report, and it is true to say, as he does on this occasion, "there are signs of public anxiety on this subject."

With this introduction the Chief Medical Officer to the Board of Education plunges straightway into the vexed question of nutrition and school feeding, and the intelligent reader of this chapter will find it difficult to get into clear perspective the issues that are raised. The term "malnutrition" is of comparatively recent origin in these reports, and it is clearly stated that as used by school medical officers it "should include only the children whose nutrition was reported as 'bad,' prolonged, or serious undernutrition." On this strict basis the returns for 1933 include 20,579 children found to be malnourished and requiring treatment, and a further 23,760 also returned under the "malnutrition" heading as requiring "observation." At this point it is pertinent to ask how "observation" of children in this badly nourished category is going to help. Moreover, these are the returns of the routine inspections in the specified age groups. To them must be added the results of special inspections—namely, 19,400 children with malnutrition requiring treatment, and 8,407 children in the same category requiring observation. On this basis there are over seventy thousand children in the public elementary schools of England and Wales with bad, prolonged, or serious undernutrition, half of whom may possibly, since only observation was con-

sidered necessary, be included in some less well-defined "subnormal" category. On this Sir George Newman comments that in 1933 there was no general or widespread malnutrition among children attending public elementary schools. Since the proportion for the whole five million is somewhere in the region of 1.4 per cent. such optimism is, perhaps, justified, but it must surely mean that in those areas where there are admittedly "patches of serious undernutrition," areas where there is also "evidence of a slight increase in undernutrition," things cannot be quite as rosy as the general tenor of this chapter might lead one to suppose. Fortunately there was a substantial increase in the number of school meals provided in 1933, amounting to over 6,500,000 in round figures, and the scheme of the Milk Marketing Board, which came into operation on October 1st, may be expected to make some differences in the next report. The method of selecting children for school meals is another vexed question which has been frequently discussed in these reports. It is again asserted that the provision of free meals (including milk) must only be allowed through a system of selection by the school medical officers, and while this should secure that available funds are used for the children most in need of extra nourishment, it still appears to be regrettable that the teacher is not allowed more responsibility in choosing children for such help, since school meals are undoubtedly intended, in the words of the governing Act, "for children who are unable, by reason of lack of food, to take full advantage of the education provided for them."

In another section of the report Sir George Newman's stress on the importance of physical education and hygiene, more especially for the well-being of the healthy child, will be applauded by those whose daily work brings them more especially into contact with the adolescent. The new syllabus of physical education, issued in the autumn of 1933, has attained the sales of a best-selling novel, and there are hopeful signs of a new eagerness in securing the "mental and spiritual" benefits which physical training on a sound physiological basis must bring. "Games are not enough" is a phrase for which we must be grateful. Sir George Newman wisely points to the State efforts of other countries in preserving and maintaining adolescent physique, although there are many products of voluntary aspiration and effort available in this country for those who can make use of them. The open-air school is another adjunct towards preserving health as distinct from treating disease to which the present report directs special attention, but there are only 146 schools available, and the local authorities are clearly urged to a greater extension and practice of the principles upon which these institutions are based. The third point upon which emphasis is laid is effective training in hygiene, to which last year's report gave great attention. The "habits of health" which it is desired to encourage will do much to carry the advantages received in school into adolescence and adult life. It is this aspect of the health and well-being

¹ The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the year 1933. H.M. Stationery Office. (3s.)

of the nation's children which is of the greatest importance. Open air, physical training, and hygiene can build a nation of healthy adults, always providing that the children are maintained in such a state of nourishment as to be able to benefit by them.

TUBERCULOUS RHEUMATISM

The problem of whether the tubercle bacillus can give rise, on the one hand, to a symptom-complex clinically indistinguishable from acute rheumatic fever and, on the other, to a chronic non-suppurative polyarthritis resembling rheumatoid arthritis has been attracting much attention during recent years. The evidence for and against is very fully marshalled and examined by Drs. Brav and Hensch in the October number of the *Journal of Bone and Joint Surgery*. The idea has received little support in this country; but abroad, and especially in France, many physicians of the highest repute as clinicians now admit that chronic polyarthritis may be tuberculous in origin. The subject was extensively discussed at the third International Congress on Rheumatism, held in Paris in 1932. Reitter and Löwenstein claim to have isolated the bacillus of Koch from the blood stream in a considerable number of cases of rheumatic fever by a special method of culture which they have devised, and their work gave a fresh stimulus to the subject. Many other workers have investigated cases by this method with varying results, but the majority have failed to confirm these findings, while several observations have been recorded in which the bacillus has been cultured from the blood in conditions definitely not tuberculous, and in some of these post-mortem examination revealed no evidence of tuberculosis in the body. It must be admitted, therefore, that the discovery of acid-fast bacilli in the blood stream of rheumatic patients cannot be accepted as proof that the rheumatic symptoms are of tuberculous origin. Many cases have, however, been recorded of chronic polyarthritis in which acid-fast bacilli have been isolated from the synovial fluid, and others in which microscopical examination of synovial tissue obtained by biopsy has shown histological appearances considered to be tuberculous. These appearances did not include actual tubercles or giant cells, but a preponderance of large endothelial cells together with swelling and vacuolation of the intima of the small arteries. Cases in which giant cells and other characteristic lesions are observed must be regarded as true tuberculous arthritis as distinguished from the so-called tuberculous rheumatism. Accounts have been given of cases of chronic polyarthritis in which one joint has developed into typical "white swelling," and have been cited as evidence of the tuberculous origin of the whole disease, but it would appear probable that a secondary infection with tubercle bacilli had been implanted on the original joint disease. True tuberculous rheumatism is believed to be due to an attenuated form of the bacillus, possibly the granular filter-passing form demonstrated by Mellon and Fisher, among others. Calmette and Valties state that synovial effusion appears to be caused by "ultravirus," and many other workers have shown that if guinea-pigs are inoculated with this attenuated form or with material

from the joints affected with tuberculous rheumatism glandular enlargement results, but only after some months; and this effect is overlooked if the animals are killed after a month or six weeks, as is the usual practice. If this glandular material is inoculated into other guinea-pigs, after one or two passages typical lesions are produced with acid-fast bacilli. In the endeavour to diagnose tuberculous rheumatism cutaneous tests are unreliable, since they indicate nothing more than the existence of a focus somewhere in the body, and this applies equally to agglutination and complement-fixation tests. Subcutaneous inoculation, however, of a very dilute tuberculin has in some cases given rise to foetal reactions in the shape of increased joint pains, and this must carry weight. On the whole, the balance of evidence is in favour of the view that a certain proportion of cases of chronic polyarthritis are of tuberculous origin; cautious observers place it at 10 per cent. Further investigations are required, and the subject deserves to receive more attention in this country. There will be general agreement with the view advanced by Coste, Forestier, Saenz, and Costil that the proof of tuberculous origin of a polyarthritis must depend on positive laboratory results in subjects in whom no other active tuberculous focus can be detected, and that the tubercle bacillus should be discovered in the joint fluids or in portions of tissue obtained by biopsy, or positive results obtained by inoculation of suspected material.

MENTAL STATES ASSOCIATED WITH EPILEPSY

As Kinnier Wilson has said, we ought no longer to talk of epilepsy but of the epilepsies, and if the exact pathogenesis in certain patients who exhibit this symptom cannot be elucidated, ignorance should not be cloaked by the elevation of a symptom into a disease entity. There can therefore be little justification in attempting to identify an epileptic mentality, and this is the thesis advanced by Dr. Bridge¹ in a recent article. Pierce Clark and others, however, have sought to establish an epileptic personality possessing certain constitutionally determined characteristics which in their view are responsible not only for the particular form of personality but also for the convulsive attacks themselves. It will be readily admitted that the type described by Clark as domineering, asocial, egocentric, restless, and of a violent temper does exist; but not all such people exhibit epilepsy nor are all those who suffer from epileptic attacks of this type, though it is probably true that the two coincide quite often. Bridge quotes cases to show that these personality traits may equally be the result of the social and family disabilities consequent upon the epilepsy. Also he points out that such characteristics may wax and wane with the frequency and severity of the attacks, and may even disappear altogether if medicinal treatment leads to control of the convulsions. The mental changes, therefore, may not after all be constitutionally determined, but may represent phasic alterations in brain function dependent upon the same pathological changes—whatever they may be—that determine the convulsions. If this is so, it helps to explain the frequently observed fact that in some cases psychological treatment which succeeds in

¹ *Arch. Neurol. and Psychiatry*, October, 1934, p. 723.

improving the mental attitude of the patient improves the convulsive state as well, while in other cases medicinal treatment which improves the convulsive state will alter the personality for the better. The functional derangement of the cortex which results in the epileptic attack—with or without certain significant mental changes—may be due to all sorts of underlying causes. Where these are of far-reaching structural import there is likely to be some degree of intellectual enfeeblement. Or the derangement may be due to comparatively transitory disturbances, and here no intellectual deficiency will be discoverable, although in such cases there may be temporary mental changes simulating mental defect. Observers would be wise, therefore, not to be too dogmatic in the assertion that epilepsy is always or even often accompanied by amentia, and especial care must be taken to scrutinize the evidence of formal intelligence tests, which may be very misleading in such cases. Similarly, the effects of the disturbance responsible for the convulsion will vary considerably. In some instances permanent changes occur which lead to mental deterioration and dementia; but in others convulsions may recur for years without inducing the slightest permanent damage in the cortex, and in these no mental deterioration ensues. Just as one must think of epilepsies and not of epilepsy, so must one think of mental changes not as necessary cause or effect of the convulsion but as a function of the cerebral disturbance responsible for both: this may or may not be associated with gross cerebral maldevelopment, and may or may not result in gross cerebral deterioration.

A FIVE DAYS WEEK

The hours of work and the use of leisure are obviously two factors which may greatly affect both individual and public health. In present-day economic conditions, especially as influenced by widespread unemployment and by the rapid mechanization of the production and distribution of goods, they have both become of vast national importance. The exploitation of leisure, especially by large interests established to make financial profit by the provision of various forms of occupation, excitement, or amusement, has so far outstripped instruction and experience in the proper use of leisure. The problems thereby raised are very serious, and some would say that they should be faced before any further attempts are made to increase that leisure. Experiments in the reduction of hours of labour have, however, been made for a long time, and careful investigations as to the results of some of them, both as to their bearing on economics and as to their influence on health, have been undertaken. The latest of such investigations is that of Sir Richard Redmayne on the experiment which Messrs. Boots of Nottingham have recently made of having only a five days working week in their main productive works in Nottingham and Beeston.¹ The report is a very interesting document, and deserves the attention of medical practitioners and public health medical officers as well as of those concerned with industry and other forms of social service. Sir Richard Redmayne reports in detail about the

various departments, and his general conclusions are that the experiment "has proved an unqualified success both from the business point of view and from that of the employees"; that the cost of production "has not been enhanced and certainly there has been attained a higher efficiency on the part of the employees"; and that "the effects in regard to enhancement of health and contentment, regularity of attendance at work, and diminution of absenteeism have been very marked." It should be added that there has been no lowering of the weekly earnings of any employee, that overtime has been almost completely abolished, and that a holiday period with full pay is allowed each year, the duration of this period being dependent upon length of service, nature of the work, and age. Generalization from these results as to the application of a similar system to other forms of industry is obviously dangerous, but Sir Richard Redmayne indicates that "there are many works at which the experiment might be applied—at large printing works, for instance, and at works where the production and distribution are vested in the same concern and where the wages cost does not constitute a very high proportion of the selling price of the commodity."

PROPHYLAXIS IN WHOOPING-COUGH

We recently¹ called attention to the heavy incidence in England of whooping-cough in infancy and to the two or three thousand deaths that occur each year. It is now generally accepted that, to make a protective vaccine with any promise of success, it is essential to use the haemolytic "S" form of the bacillus, toxic to animals. G. S. Shibley and H. Hoelscher,² in their study of approximately 100 strains of *H. pertussis*, have confirmed many of the earlier observations, and have noted that the desired "S" form travels more slowly in the electric field and that its iso-electric point is at a higher pH. J. M. Frawley³ and his co-workers also employ recently isolated smooth strains for their vaccine. Among 505 children vaccinated, eighty were intimately exposed to infection: forty-nine escaped entirely, while in thirty-one pertussis developed. Frawley records that the attack was mild, and in twenty-five of the thirty-one children the whooping lasted less than a week, whereas of 174 unvaccinated children who became infected 116 whooped for two weeks or longer. The results are described as "encouraging but not entirely satisfactory." Frawley, following the work of Anson and Mirsky on denaturation of proteins, attaches considerable importance to mechanical disruption of the washed bacterial cells and to filtration through collodion membranes. At no stage is heat applied. It is difficult to know what importance to attribute to these points. At one period of bacteriology high hopes were entertained that mechanical disruption of bacteria, or other methods avoiding possible denaturation, would provide antigens of unexampled effectiveness, but the harvest has not been great, and the Madsen and Sauer vaccines, which apparently gave good protection, were not thus made. Krueger⁴ and co-workers record that they immunized rabbits which tolerated lethal doses of culture injected intravenously. If a parallel vaccine

¹ A Review of the Experimental Working of the Five Days Week by Boots Pure Drug Company at Nottingham. By Sir Richard A. S. Redmayne, M.Sc., K.C.B. Nottingham: Boots Pure Drug Co. 1934. (1s.)

² British Medical Journal, 1933, ii, 1177.

³ Journ. Exper. Med., 1934, lx, 403.

⁴ Journ. Amer. Med. Assoc., 1934, ciii, 960.

⁵ Proc. Soc. Exper. Biol., 1933, xxx, 1097.

made from the same strains by the usual methods had failed to immunize, a strong case would have been made out for the necessity of the disruption of bacilli and collodion filtration. It is essential that the vaccine should be truly protective, and desirable that one should be able to test the vaccine before it is used clinically. Lawson¹ states that the toxin of smooth strains produces an intradermic reaction in guinea-pigs which is neutralizable by immune serum. If it is possible regularly to immunize animals actively—and recent work in England tends to support the results of Lawson and Krueger—the immunologist should be in a position to guarantee antigenic efficiency when he hands over a vaccine to the clinician. This desirable stage appears to be in sight, but how shall we in England test this rich hope that vaccination will protect infants? There are probably members of our Association troubled annually with outbreaks of pertussis in infants' homes under their care. Is it possible to pool their opportunities?

BACTERIOPHAGE THERAPY

Among the more novel forms of treatment now being exploited commercially is the use of bacteriophage. Those familiar with the history of the subject are aware that the original startling discovery of a "principle" (whether virus or something inanimate) capable of destroying bacteria so thoroughly that they simply disappeared from cultures has had subsequent results which are more of interest to the theorist than of value to the clinician. When it was asserted that the diminution in numbers of typhoid bacilli in the faeces during recovery from enteric fever coincided with an increase in the quantity of bacteriophage, there seemed good reason for believing that the latter, if not part of the regular mechanism by which the disease is overcome, could at least be employed to partake in it. It is actually in intestinal infections, and particularly in dysentery, that bacteriophage therapy appears to breed most conviction of its utility at the present day. But this is by no means its only field. The first lytic action of this type ever recognized was observed by Twort in a culture of staphylococci, and staphylococcal infections have not escaped attention from this point of view. Those involving the skin have the great practical advantage that direct application is possible and the study of its effects comparatively simple. Jern, Howes, and Meleney² have treated 110 cases of furuncle and carbuncle by this method, and have investigated its effects in some detail. They found that susceptibility to lysis was unrelated to the type of staphylococcus (whether haemolytic or non-haemolytic); only three of their 110 strains proved resistant. Cultures obtained from the lesion twenty-four hours after treatment exhibited lysis; but, later than this, evidence of lytic activity diminished. The conclusion was reached that bacteriophage had not multiplied in the tissues, and far from increasing in potency, as it may *in vitro*, it "grew progressively weaker." Bacteriophage being itself antigenic, it is conceivable that antibodies to it developed by the patient may interfere with its further action; antiphage was demonstrable in the serum of some of these patients, but its existence appeared to be

unrelated to the survival of bacteriophage in the lesion. If some of these conclusions are correct, and if the bacteriophage used was fully active, it is evidently misguided to expect staphylococci to be devoured in the body with the same avidity as in the test tube. These authors are commendably reluctant to pronounce in favour of this form of treatment, and propose to defer judgement until "two absolutely parallel series of cases" have been treated with and without bacteriophage. Would that all other clinical investigators followed this example.

THE HEALTH OF THE R.A.F.

The Air Ministry's report for 1933 on the health of the Royal Air Force¹ shows a slight increase of sickness as compared with the previous year, amounting to 53 per 1,000 of strength for cases admitted to hospitals and sick quarters only, and 76 per 1,000 for all cases of medical non-effectiveness. The greater incidence of influenza is quoted as the chief reason for the figures being larger for 1933. The incidence of deaths for 1933 was 3.7 per 1,000 of strength (3.6 in 1932, 4.1 and 4.4 for 1927-32 and 1921-6 respectively), while invalidings from the Service fell to 6.1 per 1,000 (6.8 in 1932). There was a very slight rise in the incidence of venereal disease above the lowest figure yet recorded—namely, 11.3 per 1,000 in 1932. As well as presenting a very full statistical picture of the state of health of the Service, the report deals with such subjects as the special departments, with the physical efficiency of personnel, the medical examination of recruits, the transfer of casualties by air, dental treatment, etc. In detail it makes interesting reading. During the year under review disease accounted for 82.1 per cent. of the total sickness, and injuries for 17.9 the more or less constant relation between disease and injury as a cause of sickness having thus been maintained. As regards invaliding, the same conditions—tuberculosis and psychoneurosis—proved the chief causes of invaliding from the Service as during previous years. It is also of interest to note the increase, as a cause of final invaliding, in the number of cases of mental disease, for which no reason is obvious. Two other points of note are the decrease in the number of cases of chronic suppurative otitis and the marked fall in final invaliding for heart disease as compared with the two previous years. An analysis of the fifty-one deaths from injury shows that sixteen occurred from motor accidents off duty. Among the other matters with which the report is concerned, one may pick out the following. No conclusion has yet been drawn from the incidence of pulmonary tuberculosis classified by age groups, trade groups, length of service, and type of unit. There were forty-eight deaths due to flying accidents during the year—two less than in 1932. 43 per cent. of the total flying casualties resulted in death. The nosological tables show injuries, gonorrhoea, and influenza as the chief causes of sickness.

At the distribution meeting of King Edward's Hospital Fund for London, held on December 11th, with the Prince of Wales in the chair, it was announced that £320,000 would be awarded in grants to hospitals and convalescent homes for the current year.

¹ Studies on *Bacillus pertussis*. Harvard School of Public Health, 1932. Thesis.

² *Journ. Lab. and Clin. Med.*, 1934, xix, 1257.

¹ Report on the Health of the Royal Air Force for the Year, 1933. London: H.M. Stationery Office, 1934. (Is. 6d. net.)

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

TREATMENT OF ACUTE BRONCHITIS

BY

R. A. YOUNG, C.B.E., M.D., B.Sc., F.R.C.P.

Bronchitis is often regarded as a minor malady. In reality, even in its milder forms, it often involves serious risks, particularly in the early or late periods of life. The care, management, and medicinal treatment of patients suffering from it should always receive the closest attention. A common fallacy is to expect recovery in a week or less. It often lasts longer than more acute and more immediately serious conditions, such as pneumonia.

Unfortunately, although the pathological basis of bronchitis as an infective catarrhal or suppurative process affecting the bronchi is definite and clear-cut, the clinical manifestations are varied and ill defined. Clinically the term "bronchitis" comprises conditions varying from a simple mild tracheo-bronchitis to grave involvement of the small bronchioles—a condition indistinguishable at the bedside from bronchopneumonia. In discussing the treatment of acute bronchitis it is therefore necessary to make some attempt to separate different clinical forms, at the same time premising that any of the mild varieties may merge into or progress to the gravest forms. It is also necessary to point out that bronchitis is often a secondary manifestation, either as an essential feature or as a complication of many other primary conditions, such as the infectious fevers, tuberculosis, glanders, and septicaemia, or after injury, anaesthetics, or gassing. Treatment in such cases may have to be subordinated to that of the primary condition or modified in various ways.

Although the general principles of treatment in the various forms are the same—namely, to combat the cause, whether mechanical or bacterial, to treat the inflamed mucous membrane, and to promote the evacuation of the products of the inflammatory process—yet the actual treatment varies with the degree and the extent of the inflammation. With the reservation that the classification adopted is chiefly clinical and in some senses artificial, we may for convenience recognize the following varieties:

1. Inflammation of the larger bronchi, or more accurately tracheo-bronchitis.
2. Bronchitis of the medium-sized tubes.
3. Inflammation of the bronchioles.
4. Suppurative bronchitis or "suffocative catarrh."
5. Fibrinous bronchitis.

A condition of fetid bronchitis has been described, but this is in most cases due to unsuspected bronchiectasis, or to bronchitis associated with empyema, abscess, or gangrene.

Tracheo-bronchitis

This condition is perhaps the commonest malady met with in family practice in these islands. Climatic conditions from the late autumn to early spring tend to promote the incidence of catarrhal infections, and the widespread neglect of elementary precautions favours their spread.

The best treatment is clearly that of prevention or protection. The common cold or infectious coryza which so often progresses to the conditions under consideration is the basis of the favourite gibe at the expense of our

profession—that we are supposed to be unable to prevent or to cure it. The facts are that patients too often regard it as trivial or negligible, and do not consult the practitioner till it has spread to the bronchi or lungs, when they quite rightly speak of a "neglected cold." A day—or perhaps two in severe cases—in bed at the onset of a coryza will usually tend to limit the process to the nasopharynx, and incidentally avoid spread to others by preventing the droplet infection, which the stage of sneezing is so peculiarly adapted to promote.

The value of prophylactic vaccines is still open to discussion and even to doubt, in view of the fact that the cause of upper air passage infections is probably a filter-passer. In my opinion, though vaccines may not prevent coryza and catarrhal bronchitis, they often serve to protect from the attacks or to mitigate them, and to avoid complications. The use of antiseptic applications to the nasal cavities is also one about which there is no consensus of opinion. I am not in favour of watery saline nasal douches, but I believe that solutions or suspensions of antiseptics and astringents in oil or liquid paraffin may be useful, such as adrenaline or chloretone inhalant, adrephine, metaphedrin, or ephregel.

TREATMENT

The patient should remain strictly in bed, though the decubitus should not be too flat, especially in older patients. The room should be well ventilated, free from draughts, and kept at a temperature not below 60° F. nor above 65° if possible. In the "dry" stage, when ineffective painful cough with retrosternal soreness is a prominent feature, the air of the room may be kept slightly moist by means of a steam kettle, placed well away from the patient. To each pint of water in the kettle five drops of oil of eucalyptus or terebene may be added, or some other volatile oil. Steam tents should not be used, as the object is to moisten the air slightly, not to make the neighbourhood of the patient damp and misty. A moist inhalation is, however, sometimes soothing, and the time-honoured friars' balsam, one drachm to the pint of water at a temperature of 140° F., is often soothing in this stage. The preliminary Turkish bath or hot bath is to be avoided unless the patient can go straight to a warm bed without exposure. A hot footbath, with or without mustard, may be comforting and useful, provided it can be given in the patient's bedroom.

Even though there may be little fever, the diet in the dry stage should be largely fluid, and solid food, for which as a rule the patient has little inclination, should be avoided. Milk, hot milk and water, milk and soda-water, jellies, beef tea, soups, custards, tea, and cocoa, to the total of two or three pints, with hot and warm demulcent drinks—such as hot lemon water, linseed tea, fruit *tsisanes* made by adding fruit syrups up to half an ounce to the pint, or glucose lemonade—may soothe the inflamed bucco-pharynx and shorten the dry stage in the trachea and bronchi. Marshmallow or glycerin and black currant lozenges are soothing. A hot or cold compress to the neck may be comforting. A mustard leaf over the sternum or rubbing in a liniment, such as liniment terebinth. aceticum, may also be helpful. A preliminary purge is usually advised, such as calomel at night followed by a saline in the morning—either a drachm of Epsom salts or sulphate of soda and water, or some effervescent saline.

The most useful medicines at the outset are saline diaphoretics and diuretics: for example, give six-hourly:

R Pot. cit.	gr. xx
Liq. ammon. acetat.	5 j
Vin. ipecac. (tinct. ipecac.)	℥ x
Syr. tolu.	5 j
Aq. chlorof.	ad 3 j

For the first night at least it is desirable to give some soporific; 10 grains of Dover's powder is that most commonly employed, but codeine phosphate, grain 1/2 to 1, medial grains 7, phanodorm 3 grain tablets, or heroin grain 1/12 may be used as alternatives. If prescribed on subsequent nights after the first they should be stopped at the earliest opportunity.

In cases with severe pain or with much dry ineffective cough, 3 minims of vinum antimoniale may be added to the diaphoretic mixture or substituted for the vinum ipecacuanhae. Apomorphine is also useful in this type of case, and may be given in the form of syrup, apomorphinae co. (B.P.C.) in 1-drachm doses every six hours for four doses. Each drachm contains 1/36 grain of apomorphine. One-drop doses of tincture of aconite in water were formerly recommended in such cases, especially if there was much fever. When the dry stage gives place to copious expectoration of mucoid material, and later of muco-purulent sputum, simple expectorant mixtures may be given every six hours, such as:

R Vin. ipecac.	℥ x
Tinct. camph. co. (tinc. opii camph.)	℥ x-℥ xv
Syr. tolu. (or syr. pruni virgin.)	5 j
Aq. chlorof.	ad 3 j

In elderly patients at this stage ammonium salts may be helpful in the form of either the chloride or the carbonate.

R Ammon. carb.	gr. iv
Vin. ipecac.	℥ x
Syr. tolu.	5 j
Aq. chlorof.	ad 3 j

Stimulants are not necessary as a rule unless patients are accustomed to them, when usually small amounts may be allowed. In the later stages patients are often left with a troublesome and persistent cough, particularly at night and in the early morning. This is frequently due to some residual tracheitis, and may be relieved by elixir diamorphinae et terpinii c. apomorphina (B.P.C.) in 1-drachm doses. Each drachm contains 1/40 grain of diamorphine, 5/18 grain of terpine, and 1/32 grain of apomorphine. Collosol bromoform co. in 1-drachm doses may also be helpful, or some similar proprietary preparation. If cough persists in spite of treatment the nasal sinuses should be investigated and the sputum be examined for tubercle bacilli. If these prove negative a simple acid tonic mixture may be tried, such as

R Liq. strych.	℥ iij
Acid. phosph. dil.	℥ x
Syr. aurant.	5 j
Aq. chlorof.	ad 3 j
t.d.s., p.c.	

The most effective convalescent treatment is often afforded by a few days at a coast resort.

Bronchitis of the Medium-sized Tubes

The clinical manifestations begin as a rule like those of tracheo-bronchitis, but the fever and systemic disturbance are greater and the local symptoms and signs more severe. The same general management, diet, and treatment should be employed at first. Depressant expectorants, like antimony and apomorphine should be avoided, except

perhaps in the earlier stage of dryness of the mucous membrane.

Stimulant expectorant mixtures may be prescribed as soon as the cough becomes loose, such as:

R Ammon. carb.	gr. iij ad v
Pot. bicarb.	gr. x
Tinct. scillae	℥ x
Syr. tolu.	5 j
Aq. chlorof.	ad 3 j

In patients with bronchial spasm or with asthmatic tendencies, potassium iodide in doses of 3 to 5 grains may be added to this mixture, and 5 to 10 minims of tincture of stramonium or of tincture of belladonna.

A careful watch should be kept on the pulse and blood pressure. Digitalis may be added in suitable doses or Nativelle's digitaline given. Coramine may be taken by the mouth or hypodermically in doses of 1 c.cm. from once to four times a day. If cyanosis or dyspnoea develops oxygen should be administered at once. The most suitable method and the most economical is the continuous administration by a No. 9 nasal catheter or by a special rubber nasal plug. The oxygen cylinder should be fitted with a fine adjustment, and the oxygen should be bubbled through warm water in a Woulfe's bottle at the rate of three to five bubbles a second.

After the first night or two special care must be taken in regard to the use of hypnotics, especially those like opium, morphine, heroin, and codeine, since they tend to lull the cough reflex. It is important, especially in elderly patients, to avoid accumulation of bronchial exudate, particularly at the bases of the lungs. It is sometimes useful to give first thing in the morning the well-known Brompton Hospital "hot-water mixture":

R Sod. chlorid.	gr. iij
Sod. bicarb.	gr. x
Sp. chlorof.	℥ x
Aq. anisi	ad 3 j

This should be taken in an equal quantity of hot water.

Alteration of position is to be advised in these cases. The patient should have a bed rest or extra pillows, and not be allowed to slip down in the bed. Counter-irritants and hot applications to the skin are frequently of use in this condition. The acetic turpentine liniment is pleasant, and not unduly rubefacient. Antiphlogistine may be applied, or poultices or turpentine stupes. These should be applied to the back and side, and but rarely to the front, owing to the fact that the weight impedes inspiration. The Gamgee jacket, formerly so popular, is, I think, of little use, and often causes discomfort by promoting undue sweating. Stimulants are more often necessary in this type of case.

Inflammation of the bronchioles or capillary bronchitis is a condition which is indistinguishable clinically from bronchopneumonia, and should be treated as such.

Acute Suppurative Bronchitis or Suffocative Catarrh

This condition, though rare, is grave, and is usually due to the pneumococcus. In general its manifestations are similar to those of bronchopneumonia, but cough with copious expectoration, marked dyspnoea, and extreme cyanosis develop very rapidly, while dangerous prostration is a very early feature.

The treatment is similar to that for severe bronchitis of the medium-sized tubes, but oxygen inhalation should be started early; stimulant expectorants should be given freely. Digitalis may be necessary from the start, and coramine may be administered up to 1 c.cm. every four to six hours, either by the mouth or hypodermically, or

even intravenously. Pituitrin, adrenaline, or ephedrine may be prescribed if the blood pressure falls. If marked cyanosis develops early and the heart is beating forcibly, venesection may be tried to the extent of ten to fifteen ounces. If the bronchitis is due to the pneumococcus, and this can be typed, Felton's serum may be injected if the organism proves to be either Type I or Type II. Skilled nursing with careful observation of changes with regard to pulse, colour, position, and cough, are of great importance in all cases of severe bronchitis.

Fibrinous or Plastic Bronchitis

This condition, though rare, may easily be overlooked. In all cases with cough and sputum, especially where cough is violent and paroxysmal, and where there are signs of local collapse of the lung, the sputum should be poured into water in a large transparent glass vessel. In this condition characteristic tree-like casts may be recognized. The treatment is similar to that for severe bronchitis. A mixture containing iodide of potassium and antispasmodics like belladonna and stramonium should be used. Lime-water and olive oil by intratracheal injection have been recommended, but are of doubtful value.

ANNUAL CONGRESS OF RADIOLOGY

The eighth annual congress and exhibition of apparatus under the auspices of the British Institute of Radiology was held at the Central Hall, Westminster, on December 5th and following days. Two medical sessions were held, also a session for papers on physical subjects, and two memorial lectures were given, one by Sir William Bragg on "X Rays in the Study of the Coarse Structure of Materials," and the other by Dr. H. H. Berg of Dortmund on "The Digestive Mucosa." The crowded exhibition included many installations of self-protective shock-proof x-ray apparatus, motor-driven movable tables for diagnostic work, new sets for deep therapy, and ultra-short-wave installations.

PHYSICIST AND RADIOLOGIST

Sir HUMPHRY ROLLESTON, in opening the congress, said that the art of medicine was inspired by applied science, but carried on with due consideration for the special circumstances of the individual patient. This might seem a truism, but it was often forgotten. Undoubtedly it was scientific to remove, destroy, or neutralize the cause of disease, but if this were carried out regardless of the patient the result might be disastrous. Radiological treatment of cancer was in some degree exposed to this danger; the patient and his individual circumstances were liable to recede into the background and treatment to be directed solely to the malignant growth. The relation of the pure physicist to the medical radiologist somewhat resembled that of the bacteriologist in the laboratory to the physician in the sick-room. The medical radiologist should not demand too much of the physicist. Each of the two parties had his own field. The proper dose of radiation and the mode of its application were in the province of the medical radiologist, and the role of the physicist was to supply data bearing on those problems which the medical radiologist must finally settle.

ARTIFICIALLY INDUCED RADIOACTIVITY

One of the most interesting demonstrations was by Professor F. L. HOPWOOD of St. Bartholomew's Hospital, on induced radioactivity. He began by reading a sentence of remarkable prescience from H. G. Wells's *The World Set Free*, published in 1914, in which Wells prophesied that the problem of inducing radioactivity in the heavier

elements, and so tackling the internal energy of atoms, would be solved by a wonderful combination of intuition and luck in 1933. And in fact it was in 1933 that Mme Curie's daughter, Mme Curie-Joliot, and her husband demonstrated the phenomena. Professor Hopwood reminded the congress of what had already been shown by Rutherford and others to occur on the bombardment of the nucleus of a stable atom, causing it to become unstable and to emit a disintegrating particle. This idea had been carried further in the Curie laboratory. If beryllium, for example, were irradiated by gamma rays or x rays of suitable voltage, this metal gave off neutrons, which, being allowed to fall on bromine, rendered it temporarily radioactive. Recently some bromine which had been treated in this way was sent by aeroplane to Professor Hopwood's laboratory from Berlin, and here its radioactivity was found to persist and its period was measured—the first time, he thought, that radioactivity had been induced in a substance in one country and demonstrated in another. The elements to which the radioactivity was imparted had various periods, the half-life activity being in some cases thirty minutes, in others six hours. Many of the elements occurring in the human body could be transmuted temporarily into radioactive substances; the only notable exceptions were hydrogen and calcium. Substances commonly used as drugs, such as manganese, could be similarly treated. By means of a very delicate "counter," connected to a telephone which emitted clicks as the stream of electrons arrived, Professor Hopwood demonstrated induced radioactivity in aluminium and silver and other materials, including, thanks to its phosphorus, an elephant's tusk. He believed that within a few years materials to which this transient radioactivity had been imparted would be available for transmission from laboratories in quantities suitable for therapeutic purposes. Whether they would prove desirable in therapeutic use remained to be seen, but it seemed to him that a vast new field of therapy was being opened up. There was one great advantage in the artificially induced radioactive elements over naturally occurring radioactive elements—namely, that they quickly died or transformed to some stable element, so that a dose could be repeated indefinitely and an uncertain amount of radioactive material would not be accumulated in the body.

CONSTITUTIONAL EFFECTS OF X RAYS

A joint paper by Dr. S. GILBERT SCOTT and Dr. F. HERNAMAN-JOHNSON on the constitutional effects of x rays as determined by blood-serum tests was presented by the latter. It was extremely probable, said the authors, that x rays, like ultra-violet light, had constitutional as well as local effects. In the case of ultra-violet light, however, a knowledge of its physical properties made it reasonably certain that constitutional action could only be through the skin, and this narrowed the investigation to chemical changes in the surface tissues. All these possibilities were present in x-ray action also, but many more, for even with x rays of medium wave-length there was not an organ or tissue in the path of the beam which might not be affected. Clinical radiology had so far concerned itself mainly with direct action, but a study of constitutional or indirect effects might yet yield results of great value, perhaps in unlooked-for directions. Recently the vanadic acid blood-serum test, originally introduced by Bendien for the diagnosis of cancer (for which purpose it had not yet been proved reliable), had shown itself of great value in the control of x-ray treatment, indicating constitutional reactions to x rays and the state of the patient's resistance. Asthma was the first condition to be investigated on these lines. The fact of overdose could be recognized from the serum picture. These allergic patients were very sensitive to radiation, and the

vanadic acid test could indicate when it was wrong to increase the dose. With this test it had been shown that 40 per cent. of asthma cases were likely to benefit from radiation, in another 40 per cent. it was of doubtful efficacy, and in 20 per cent. no good results were achieved. Asthma had furnished the best example up to the present of the value of the vanadic acid test in prognosis and treatment, and the effects of x rays, which were undoubtedly constitutional, as opposed to local, could be watched in an objective manner. It was of interest to note that the thorax could be excluded without prejudicing the result. In the case of breast cancer, with wide field x-ray therapy of low intensity and medium voltage, a normal curve for the reaction might even be found in the presence of small-scale recurrences or involved glands. On the other hand, a patient going downhill showed a markedly abnormal curve. The appearance of an abnormal curve in a patient apparently well was of bad prognostic import. Once the primary growth had been got rid of, whether by radiation or by operation, the problem of preserving the patient from metastasis was a constitutional one, and the vanadic acid test of blood serum gave results of sufficient constancy to furnish a guide.

THE DIGESTIVE MUCOSA

In his Silvanus Thompson Memorial Lecture, delivered to the congress by Dr. H. H. BERG, who has lately been appointed professor of internal medicine at Hamburg, the speaker described how he had followed up the work of Forssell on the movements of the intestinal mucous membrane, and that of Åkelund in increasing the accuracy of the radiological diagnosis of peptic ulcer. A preliminary condition for the demonstration of mucosal details was complete emptiness of the viscus. In cases of retention of food or fluid it might be necessary to use a stomach tube; for colon examinations several enemas were required. Generally, for oral administrations of barium a watery suspension was used, but for demonstration of details of the oesophagus a jam-like mixture was preferable. As a general rule, only small amounts should be given, sufficient to fill the depressions of the mucosal pattern with a thin layer of the contrast medium. The less the material it was necessary to use the better was the mucosa visible. In the majority of cases three or four swallows of the watery suspension were sufficient to demonstrate the mucosal relief of the stomach walls. Adequate distribution of the thin layer was obtained by varying the amounts, changing the position of the patient, and applying graduated compression. Quick change from horizontal or oblique to erect position was of special value. Screen work and radiography were used in such close connexion that a radiogram of every important detail could be taken instantaneously. Professor Berg paid a tribute to the work of A. E. Barclay: no one had better summarized the general postulates for examination. He then described the theory of Forssell that the different formations of mucosal relief were the result of active movements corresponding to the requirements of digestion, and passed on to indicate some pathological aspects of the condition of the mucous membrane, best set out as follows:

Causes	Symptoms
Pressure from without.	Displacement, flatness, disappearance of folds.
Inflammation.	Elevation, swelling, coarseness, stiffness of rugae.
Ulcer.	Crater with smooth, elevated border; cicatrization with stellate folds converging on the ulcer.
Growth.	Tortuosity and loss of folds; sudden discontinuance of folds; irregular protuberances, craters, etc.

With the aid of lantern slides he discussed the various appearances, and concluded with the remark that in the diagnosis of every organic lesion of the digestive tract this new method had proved its value, but nowhere more than in the diagnosis of malignancy. The smallest carcinoma of the stomach he had seen was the size of a thumb-nail; nobody believed him when he said that it was a carcinoma. Six months later, when removed, it was the size of a goose's egg. The problem of cancer, however, was not solved by the detection even of the smallest growth, because small growths had often extensive metastases, and big growths sometimes none. Progress had been made in the differentiation of malignant and benign changes. Chronic ulcer of the prepyloric area could give a very similar picture to malignancy. Chronic gastritis of different types could be suggestive of cancer because of the stiffness of the coarse mucosa. It was always necessary to bear in mind that histological work could not be carried out with the x-ray tube. Careful screen work was always the best safeguard against error.

CINERADIOGRAPHY

Dr. RUSSELL J. REYNOLDS gave a demonstration of cineradiography. We have already (*British Medical Journal*, May 5th, 1934, p. 813) described Dr. Reynolds's ingenious methods. He showed films illustrating movements of the joints, of the heart and lungs, of the stomach and duodenum, both in normal and in pathological conditions. One film showed an artificial pneumothorax of the right lung, 500 c.cm. of kaolin having been injected on the morning when the film was taken. He also showed a slow-motion film correlated with graphic records of the heart's action. Within the last fortnight he had been able to incorporate the electrocardiograph tracing on the films. In that connexion, of course, the difficulty had been the elimination of current interference, particularly in view of the fact that he had been working on alternating current cycles.

Dr. Reynolds suggested that there was a large and varied field for research opened up by this new method. It should prove of immense value in investigating lesions of the lungs and pleurae, especially after lipiodol injections, or in cases where artificial pneumothorax had been induced. As regards movements in the alimentary tract in pathological states, the advantages of being able to study such movements indefinitely after the administration of an opaque medium were obvious. In orthopaedic lesions the range of movements in limbs and joints could be observed. He summarized the advantages by saying that the cinematograph method enabled a rapid, inexpensive, and permanent record of the functioning of active organs to be obtained; the continuous "band" made it possible to study movements for an indefinite period, and permanent records might be used for diagnostic purposes, for comparison with previous records, for teaching, or for transmission to other places.

OTHER PAPERS

A therapy generator operating six x-ray tubes in parallel was described by Dr. J. STRUTHERS FULTON. By suitably arranging the controls it was possible for the apparatus to be operated by one person. Communication between patient and operator was arranged by a simple telephone circuit; there was also an elaborate timing arrangement. He showed dispositions in which as many as four tubes were simultaneously irradiating a patient, or in which five patients were being treated at the same time on different milliamperages.

Dr. J. RALSTON PATERSON made a plea for the more scientific estimation of dosage in radiation therapy. The use of biological units of dosage was only a temporary though necessary phase in the development of technique.

to be succeeded as soon as possible by the more reliable phase of physical measurement. In radiation therapy this measurement was actually of the x rays or gamma rays used, and must be stated in terms of some physical unit. The choice of unit in which quantity of x rays should be expressed had been settled by the international adoption of the "r." The problem of dosage as it affected radium presented rather different considerations. To describe radium dosage by "milligram hours" was an empirical guide only. No gamma ray unit had as yet received international adoption, but the matter was under discussion, and he hoped it would come about within the next three years. Much more attention should be paid clinically to the time factor in radium dosage.

Three papers on radiographic subjects concluded the congress. Dr. A. C. JORDAN gave a radiological study of asthma due to toxæmia. Granting, he said, the spasm and the oversensitiveness to certain substances, it was still necessary to ask why asthma patients were sensitive in their particular ways. His radiological studies of the gastro-intestinal tract had supplied an answer, in many cases a complete answer. In the course of years a certain number of patients sent to him for gastro-intestinal investigation had been asthmatic; other results of chronic intestinal stasis had been there too, but in every case of asthma the general aspect of the patient had been that of pronounced stasis. To prove his contention that the asthma was due to the toxæmia of stasis, and that it could be cured by thorough treatment of the stasis, he brought forward the x -ray evidences of twenty-seven cases, and sketched the subsequent history of those that had been treated systematically.

Professor J. PRESTON MAXWELL described some studies on osteomalacia and foetal rickets. Radiology had played a large part in the elucidation of the subject. On his last visit home from China he had had very little to offer on the subject of osteomalacia, save radiological evidence, but he had now been able to obtain pathological specimens of what he termed "adult rickets." He showed a series of slides depicting Chinese women and babies, and drew attention to the shrinkage of the body, the neck disappearing, as it were, into the chest, and the standing height sometimes being reduced by as much as six inches. Radiology had played a large part in the discovery of foetal rickets, and he had now sixteen proved cases of that disease.

Dr. J. DUNCAN WHITE read a paper on "Familial Marble Bone." Thirty years ago Albers-Schönberg first described a case of "marble bone," a condition in which there was a transformation of the spongy part of the skeleton into compact bone, resulting in thickening and density of cortical bone at the expense of the medullary canal. Since then about forty cases had been added to the literature. In view of the rarity of the condition Dr. Duncan White brought forward four more cases, all members of the same family, two of them requiring surgical intervention for the relief of cerebral symptoms.

The Therapeutic Union, a new international organization which has come into being this year under the auspices of the Therapeutic Society of Paris, has for its president Professor Maurice Loeper, while one of its vice-presidents is Dr. E. P. Poulton, physician to Guy's Hospital. The Union will include medical practitioners and physiologists who are particularly concerned with therapeutic problems, and will aim at establishing closer mutual relations between them in various countries. There are already some 250 members. It is proposed to hold a congress next year, some time between June and August, at Berne. Those desiring further information about the Union or the congress should apply to the secretary of this society, Dr. G. Leven, 24, Rue de Téhéran, Paris VIII.

THE HEALTH OF THE SCHOOL CHILD

SIR GEORGE NEWMAN'S REPORT

The School Medical Service was founded in 1907, and had therefore completed its first twenty-five years of work at the end of 1933. The occasion is seized by the Chief Medical Officer for a review of the purpose and achievement of the service. The foundation provided the authority first of all with a means of ascertainment, for up to then the local authorities did not know what the physical condition of children actually was. Secondly, there followed arrangements for attending to the health of both groups—the sick and the healthy. For some years the ailing child was referred to the family doctor, but experience showed that certain disorders, such as defective vision, dental decay, and minor ailments, fell outside his sphere or his facilities, or else that the parents were unable to pay his fee. The authorities therefore began to establish means of treatment under their own control. So steadily has this process grown that in 1933 inspection was made of 1,855,499 children in the routine age groups, and of 1,239,427 specially referred on account of sickness. Many of these were treated under the local authority, and certain morbid conditions have been substantially reduced by this treatment. The anaemia of girls has almost vanished. Ringworm is steadily disappearing. Blindness is being prevented. A verminous child does not expect admission to school, and the malnourished child now forms only 1 per cent. instead of 10 or 20 per cent. Heart disease, rickets, and tuberculosis have been steadily reduced; and the condition of teeth is improving. The physical condition of the children has been reformed beyond all comparison with the past. A third national advantage of profound importance is that children have been rendered more fit for education, and education has been more closely adapted to individual needs. Finally, a health consciousness has been developed among parents, who almost universally support the school medical service.

Sir George Newman insists, however, that nothing is being so well done that it cannot be better done, and deprecates any tendency to become static or routine. In some districts there is urgent need for effective co-ordination of the various means of treatment available. Moreover, experience and research are constantly disclosing new aspects of disease and new methods of dealing with it. The school medical officer must be alive to all these. Again, the pre-school child still presents a problem to which more attention should be devoted. Finally, much more consideration should be given to the health of the normal child, so that every child is trained in the way of healthy living. "We have devoted much labour, time, and public money," says Sir George Newman, "to the treatment of the defective child; are we doing all that is practicable for the nutrition, physical education, nurture, and health of the normal child? I fear we are not."

NUTRITION AND SCHOOL FEEDING

The enactment providing for school feeding dates from 1906, and the succeeding years have demonstrated three facts: (1) that a substantial number of children come to school inadequately nourished; (2) that such undernourishment is due to a variety of causes; and (3) that undernourishment does not depend on lack of food alone. It depends upon the natural powers of the body to assimilate suitable food, and these depend upon a properly functioning body. Over many of the indirect causes of undernourishment the local authority has no power, but it is empowered by Parliament to feed and to teach, and every local education authority should examine with the utmost care its moral duties and its legal power in regard to all that this implies. Recent criticism has suggested that undernourishment may be missed by the school doctor, and that his methods are insufficiently thorough or exact. While doctors and other officers of the school service are no more infallible than other specialists, it is unlikely that all of them in any district are incompetent or continually misled. The determination of under-

nutrition is in any case one of exceptional difficulty, as there is no accepted standard of nutrition. In practice, however, the results are sound and relatively uniform, though it may be difficult to tabulate them in a mathematical form. Of the children submitted to routine examination during 1933 1.11 per cent. were found to be malnourished and requiring treatment, while 1.28 per cent. were undernourished and requiring observation. It is obvious from the reports, many of which are quoted, that there is no widespread malnutrition among children attending public elementary schools. In some districts there was a decline in undernutrition, and in others a slight increase.

During the year under review the provision of school meals continued to expand, and at the end of that period 192 authorities were exercising their powers in this way. Generally speaking, the only authorities not providing meals were certain rural counties, some comparatively prosperous seaside towns, and small country towns. The total number of meals provided was 68,800,000, an increase of 6,500,000 on the previous year. The number of children who received meals was 414,800, as compared with 399,400 in 1932-3. More than half the meals provided were in the form of milk, and this has been found to be the most valuable food. The Milk Marketing Scheme came into force on October 1st, 1934; the surplus milk is to be supplied to children at school at $\frac{1}{4}$ d., instead of 1d., for one-third of a pint. The result of this cannot yet be estimated. The Board of Education has issued a circular to local authorities pointing out the value of the scheme. The provision of school meals was never meant to be a form of poor relief; its object is to secure that public funds are not wasted in an attempt to educate children who, owing to subnormal nutrition, are unable to obtain full benefit from their education. The children must be selected for the milk or meal by the medical officers. It must be remembered that malnutrition is not the only morbid condition following insufficient or unsuitable food. The recent marked decline of deficiency anaemia, tuberculosis, rickets, dental caries, and infective disease is due in part to the greatly improved general nutrition.

PHYSICAL EDUCATION AND HYGIENE

It is the business of the local education authority to ensure that every child receives an appropriate education in health and physical training, or, if the Greek be preferred, in harmony and gymnastic. The lost incentives of early man's activities of body, which gave him his rude health, have to be created artificially. The organized physical training of the body of every child has for its objective a physiological purpose, a recreational aim, and a mental and moral intention. The physiological purpose must begin in childhood for all children, and the exercises must be so designed as to increase the growth, strength, and control of the body of each individual child. Secondly, physical exercises must be taught in order to increase and develop the physiological functioning of the body, and of the whole body and not only of the muscular system. A child of 5 or 6 must be dealt with differently from the growing boy or girl of 8 or 9, or the older child of 12 or 14. No cast-iron system will suffice, and the final goal of physical training is mental and spiritual.

To make effective arrangements for dealing with the physical education of five million children calls for organization. The subject must be in the time-table; the school teacher must be equipped; the teaching must be conducted in accordance with approved standards; it must be supervised by organizers; and must be regarded as part of the routine education in hygiene. Sir George Newman remarks: "No formal words can express the value of the work of the teachers, for their continuing and living interest and enthusiasm, and for the large amount of time and voluntary services, in and out of school, which they devote to this important branch of education." So great has been the demand for the revised syllabus of physical training, issued last year, that 150,000 copies have already been sold.

There are 182 junior technical schools preparing students for commercial and industrial employment. A recent opportunity for surveying the position of physical education in these schools has not disclosed a very bright picture. Only about half of them have suitable gymnasiums or halls, and a number of them have nowhere at all for physical exercises. This is particularly serious in such an institution, because the training and development of the body is of direct importance from the point of view of future occupation. It teaches precision of movement and economy of effort, and helps to cultivate the habit of assuming the best posture for the work in hand.

A number of reports from the physical training organizers in different districts are quoted, and give a vivid picture of the movement. There are now 169 organizers—four more than last year. Dancing is a vital form of bodily exercise which has not obtained an established place in the physical education of children. It teaches control and balance of mind and body, and aids in encouraging poise, ease, and lightness of movement. It arouses the living sense of rhythm, affords direct training of eye and ear, and develops the feeling of space and order. Also it gives scope for the imagination and creative powers of the child. With so much at stake it should be taught well and wisely. Child dancing should be a simple, free, and living thing, by means of which the energy and natural exuberance of the child's spirit have full play. Anything that savours of self-conscious posturing is harmful. The aim must be to teach dancing rather than dances. During the last two years there has been an exceptional extension of the facilities for swimming, a form of physical training which is of high physiological value, and also recreational and utilitarian.

The new physical training college for men at Leeds, which was opened in 1933 to meet a long-felt need, has established itself satisfactorily; thirty-seven students have completed the first year's course, most of them being men who have already had teaching experience. There has been a reawakening of interest in the teaching of hygiene, and increasing emphasis is laid upon instruction in the creation and establishment of habits of health. What the child hears or sees may be soon forgotten, but what it does as a habit is retained. The question of sex hygiene still calls forth divergent views, but certain authorities are providing it.

NURSERY AND OPEN-AIR SCHOOLS

The report emphasizes that the child under 5 years of age stands at the gate of the whole educational system, that he is the seed plot of everything—medical, physical, mental, and moral—that what happens to him is bound to have results; and that he is not yet being sufficiently provided for. Much has been done, but not yet enough. Large numbers of children are admitted to school every year requiring immediate medical treatment, although the percentage has declined from 23 in 1925 to 16 in 1933. The facts are known, and public interest has been drawn to them. There are now six services available for children under 5: maternity and child welfare centres (between 2,000 and 3,000); clinics for toddlers; 100 day nurseries; sixty-two nursery schools, with accommodation for 4,933 children; nursery classes; and emergency open-air nurseries. Nursery schools play an important part in persuading children to take food to which they are unaccustomed, and in securing suitable dietary, rest, sleep, and fresh air. The average length of stay in the school is two and a half years, and in this period many defects are remedied and prevented. The emergency open-air nurseries have been established in connexion with the Save the Children Fund, the aim being to erect inexpensive buildings in distressed areas, at the same time providing work for the unemployed men. Another invention of the school medical service is the open-air school, the value of which is not by any means fully represented by the fact that there are 146 in existence, because they have introduced the open-air principle into the elementary schools of the whole country.

MEDICAL INSPECTION AND TREATMENT

Since the school doctor can only visit two or three times a year, it is essential that the school nurse should be an intelligence officer and also a link between the medical officer and the home. Teachers are turning more and more to the school medical service to help them to solve their problems with individual children. Increasing co-operation with the family doctor is evidenced by the fact that numbers of children are referred by practitioners to school clinics for diagnosis and treatment. Effective co-operation, says the report, must depend rather on mutual good will than on formal administrative arrangement, but there are certain steps which local authorities can take to promote it. The school medical officer can send the general practitioner a short note when he refers a child to him, and the local authority can publish a small handbook setting forth what services are available in the area. One undesirable result of the increasing interest of the public in the health of the child is a tendency to parental over-anxiety, but the effective reassurance of an anxious parent is by no means a waste of time, and may have a far-reaching beneficial influence on the psychological development of the child. The modern tendency to seek medical advice early not only benefits the individual but also adds to the medical profession's knowledge of how to prevent end-results which may be difficult to cure. There are now 1,340 school medical officers, of whom 264 are whole-time and 370 are women. There are 992 specialists, of whom thirteen are employed whole-time, and 778 school dentists, 488 being whole-time. The total number of nurses is 5,585. The number of children inspected in specified age groups was 36.7 per cent. of those in average attendance, and this figure is raised to 61.3 per cent. when the children referred for some special reason are included. The table of defects requiring observation or treatment remains much the same as in previous years. There is a decrease in the number of children suffering from chronic tonsillitis and a slight increase in malnutrition. Schemes of medical treatment for secondary school children have not yet reached the same stage of completeness as those for elementary school children.

TREATMENT SCHEMES

During the year under review there was no significant increase in the scope of treatment schemes, but thirty-four authorities effected improvements by extending their existing provisions. The total number of clinics for minor ailments—eyes, teeth, and orthopaedic defects—has increased slightly, but those for operations on tonsils and adenoids and the x-ray treatment of ringworm have decreased. Many authorities make use of voluntary hospital provision for forms of treatment which require expensive apparatus or elaborate premises. Nearly all school medical officers report a steady improvement in cleanliness, and there has been an enormous reduction in the incidence of ringworm. The direct application of elastoplast for impetigo contagiosa is being tried in some centres, and is said to heal the sore more quickly than the older ointments, and at the same time to prevent spread of infection. Several local authorities have made arrangements to test the eyesight of children below the age of 8, and valuable results have been obtained despite the difficulties. Several squint clinics are doing excellent work. The audiometer is being used for testing hearing, but the report utters a warning that this instrument may give a somewhat exaggerated figure for the incidence of impaired hearing. Much valuable work is being done in a few districts under aural schemes of treatment, but this branch of work is much less common than, and its development has not reached the same degree as, the visual and orthopaedic schemes. A committee was appointed in January, 1934, to discuss the medical, educational, and social aspects of the problems attending children suffering from defects of hearing not amounting to total deafness. The committee has to consider the best means of ascertainment; otological standards for determining the need of special educational provision; cause, prevention, and treatment of defective hearing in

children; the value of electrical aids; and the best type of educational provision for those unfit for ordinary schools but not bad enough for deaf schools.

TONSILS, EYES, AND TEETH

The term "enlarged tonsils" has now been replaced by the words "chronic tonsillitis," the categories for defects of the nose and throat now being: chronic tonsillitis only, adenoids only, chronic tonsillitis with adenoids, and other conditions. The year 1933; therefore, was a transitional period, but the records are interesting in showing a transference to the fourth category of a number of cases of tonsillar hypertrophy which would have appeared in the first group in previous years. This was to be anticipated, but it is surprising to learn that there is a much greater relative decrease in the category of "adenoids only." The operations for tonsils and adenoids numbered 77,564, as against 95,875 in the preceding year and 110,239 in 1931. Early in the year it was decided to obtain an authoritative expression of opinion as to the best anaesthetic for these operations. The body of anaesthetists consulted deprecated the use of chloroform and of chloroform and ether mixtures.

A committee appointed in 1931 to inquire into the medical, educational, and social aspects of problems affecting blind children reported in July, 1934. Their report was reviewed at the time. The fundamental line of thought in it was to emphasize that partially blind children belong educationally and socially to the sighted world; the term "partially sighted" was suggested instead of partially blind. The committee formulated ophthalmic standards for defining these children, and the report strongly urges that all those responsible for blind children should most carefully review their charges periodically, in order to determine what type of treatment is most appropriate to them.

The report declares that of all the schemes provided by the local educational authorities the school dental service is the slowest in developing. During the year there was an increase of only eleven in the number of school dentists, bringing the total to 566. Since this means only one full-time dentist to 8,900 children, it is obvious that there is much to be done. During the year 3,303,983 children were inspected, and there was a slight increase over the preceding year in conservative work, with a corresponding decrease in extractions. A good deal of propaganda has been carried out by the Dental Board, but there is still great need of a wider appreciation among the whole population of the value of care of the teeth. Dental disease is said to be the most common of all physical defects among children.

ORTHOPAEDIC AND MENTAL WORK

A considerable proportion of children in the elementary schools show postural defects. The aim of an orthopaedic scheme is to ascertain the cripple at the earliest possible moment and to provide treatment, re-education, and after-care, and, where necessary, special vocational training. Any scheme, to be effective, must include children under 5, and the education, health, and infant welfare committees must co-operate. The interrelationship of the orthopaedic clinic, the infant welfare centre, the tuberculosis dispensary, and the orthopaedic hospital is of the utmost importance. Nor must the necessity for the co-operation of the parent and private practitioner be overlooked. To embark upon orthopaedic treatment without ensuring effective co-ordination of all concerned is, says Sir George Newman, to court disaster from the outset. The diseases chiefly responsible for crippling occur mainly before school age, and ascertainment must be pushed earlier and earlier. Comprehensive schemes have been approved in 233 areas, but there are still forty areas where no provision of any kind has been made for cripples, and in another forty-three areas there are only partial arrangements which are of very doubtful value.

The report gives a survey of the special schools for physically and mentally defective children, and of the work done in them.

INFECTION AND MORTALITY

The common infectious diseases—measles, whooping-cough, diphtheria, and scarlet fever—still occupy a prominent position among the principal causes of death in childhood. Measles and whooping-cough take their toll in the younger age groups and the other two in the older children. The death rate from tuberculosis continues to fall, but 1933 showed an increase in death from rheumatic fever and heart disease, an increase correlated with the prevalence of scarlet fever during 1933. This disease was 50 per cent. more common than in 1932, and 129,525 cases were notified. The total number of deaths, however, was well below the average. There was a serious outbreak of apparently simple sore throats in some districts, and this may well have been part of the scarlet fever wave.

THE INFANTS HOSPITAL EXTENSION

OPENING BY THE PRINCESS ROYAL

The Princess Royal, on December 11th, opened a new in-patients' block, nurses' home, and remodelled wards at the Infants Hospital, Vincent Square, Westminster. Her Royal Highness was received by the Mayor of Westminster and by Sir Gomer Berry and Dr. Eric Pritchard, respectively the chairman and the medical director of the hospital, and various members of the staff were presented. Brief speeches were made by the Chairman and Dr. Pritchard, and by Violet, Lady Melchett, after which the Princess declared the new sections open and made a round of inspection.

The new building, on an extension of the island site where the hospital has stood since 1907, overlooking the playing fields of Westminster School, will accommodate seventy infants and seven nursing mothers, and, with the thirty cots in the reconstructed old building, will bring the total accommodation to just 100 patients. The hospital, which takes children up to the age of 5 years only, claims that it is the largest of its kind in the British Empire. Only two years ago a new out-patient department was opened, containing a large waiting hall, a number of consulting rooms, departments for x-ray work, light treatment, massage and remedial exercises, a dispensary, and a theatre for minor operations, with, in the basement, isolation rooms for patients suffering from infectious complaints, pending their removal elsewhere.

OBSERVATION "WARDLETS" AND MILK LABORATORY

The ground floor of the new building is given up to administration. On the first floor there are seven small separate rooms for the accommodation of nursing mothers with their infants, also four separate wardlets, each containing one cot only, for observation purposes. Each of the next two floors contains five wards for four patients, and four additional ones for either one or two cases. On the fourth floor is a well-equipped operating theatre, with anaesthetic and sterilizing rooms, and on this floor, also, there is accommodation for a number of private patients in separate wardlets. Every possible arrangement is employed for ensuring light and ventilation and the avoidance of cross-infection. Open-air balconies, to which every ward and wardlet has direct access, extend along three sides of the hospital, and are large enough for all patients to be put in the sun or shade, according to the time of year. The separating partitions are all of glass to facilitate supervision and to provide the maximum of light. Every ward has its baby's bath, so that risk of change of temperature on passing to an outside bathroom is avoided, and each infant has its own locker with all toilet provisions and thermometer. The barrier system for the prevention of infection is carried out meticulously. The older part of the hospital building has been reconstructed to accommodate surgical cases, housed in two large and two small wards, providing a total of thirty cots. On the top floor is a fully equipped milk laboratory, with refrigerator and dietetic kitchen.

The new nurses' home provides for thirty-six nurses; the nursing staff in an infants' hospital of 100 cots has, of course, to be much larger than that, but others are still accommodated in the old home apart from the main building, where also lecture and demonstration rooms have been installed. The pathological and research laboratory, of surprising extent for a relatively small hospital, was designed by the founder of the hospital, Sir Robert Mond, more than twenty years ago, and so well and ambitiously was it planned that when the main institution had recently to be reconstructed in accordance with modern ideas no alterations were necessary. Last year nearly 6,000 investigations of one kind or another were carried out in this laboratory.

CLINIC FOR DEAF CHILDREN

One department of the reconstructed hospital is a clinic for deaf or partially deaf children, who are likely to go on to deaf-mutism unless some attempt is made to educate them. An amplifier enables those who have any sense of hearing to appreciate sound, and for others there is a special instrument which enables them to follow the voice by using the tips of their fingers. The decoration of the hospital has been well carried out on simple lines. The whole of the new buildings are heated by the plenum and ceiling-panel systems, with provision for emergency heating by gas and electric fires when required. All the floors of the wards are composed of teak blocks, while those of the consulting and treatment rooms are covered with rubber. The cost of the new buildings and reconstructions has been £150,000. In view of the considerable enlargement of the hospital's provision the consulting staff has been increased. The schedule of charges for private patients has not yet been worked out, but something like £1 a day was mentioned. It goes without saying that an infants' hospital is the most expensive of general hospitals to run.

Reports of Societies

MENINGITIS OF OTITIC ORIGIN

At a meeting of the Section of Otology of the Royal Society of Medicine on December 7th a discussion took place on meningitis of otitic origin. Mr. E. A. PETERS was in the chair.

Mr. T. B. LAYTON, in opening, limited himself to the cases of otitic meningitis which arose from the newly infected mastoid. He divided lumbar puncture into diagnostic, prognostic, and therapeutic. A diagnostic lumbar puncture was performed to distinguish an otitic from other forms of meningitis, a prognostic to determine the stage to which the disease had progressed, and a therapeutic as supplemental therapy, either for drainage of the theca, intermittent or continuous, or for the insertion of pharmacological substances into the theca. The essential treatment in every case was to remove the "factory" of organisms in the mastoid or other part of the temporal bone which was in contact with the dura mater. He proceeded to speak in detail of the treatment common to all stages. The mastoid was opened, and if a track of disease could be recognized leading down to the dura mater it was followed and the bone in contact with it removed widely from both middle and posterior fossae. Steps were then taken to fix the wound widely open, and the cavity was hosed with saline, anything up to a couple of gallons. The container was held high and the nozzle at some distance from the wound, so that a good stream played upon it, and it was then tightly packed. The operation did not save the patient's life, but it put him in such condition that the nurse, under medical guidance, had a chance of doing this. Mr. Layton then passed to a description of the three stages of otitic meningitis. The symptoms were bilateral and proceeded from above downwards. The first was rigidity of the neck. As soon as this symptom was found the treatment already described should be instituted. Every hour lost endangered the patient's life. Lumbar puncture, in his opinion, should

not be done at this stage. It resulted in delay, hurt and distressed the patient unnecessarily, and revealed nothing not already known. By disturbing the intrathecal circulation it might do harm. There were those who said that this first stage was not meningitis, but he begged that it might not be called meningism, for that word, by its origin and tradition, was associated with inactivity, and a term was needed which inferred immediate and vigorous treatment. "Meningeal irritation" would be better. Where rigidity of the neck only was present the great majority of patients should recover. Once any further symptom had arisen the case would not be safe "unless luck is with you, and you must not expect this to be so in more than alternate cases." By "luck" Mr. Layton explained that he meant the combination of unassessable factors. The second stage was that in which Kernig's sign was present in addition to rigidity of the neck. The state in which the sign could not be elicited but at the same time one could not feel sure of its absence formed the boundary zone between the first and second stages of meningitis. The boundary zone between the second and third stages was that in which the abdominal reflexes were lost. For many years he was uncertain whether Kernig's sign appeared before or after the loss of the abdominal reflexes, but now he felt certain that it always preceded. The two symptoms of neck rigidity and Kernig's sign, and their relation one to the other, were the only signs of clinical importance. If the patient's life was to be saved action must take place before anything else developed. Headache was due to the distension of the theca with fluid; he had not found it an early symptom, and would class it in the late second stage. In this second stage a prognostic lumbar puncture should be done, and from the appearance of the fluid a decision made as to whether the prognostic lumbar puncture should be converted into a therapeutic one. If the fluid was clear and the pressure not high this should not be done. If clear, but with an increase of pressure, sufficient should be removed to reduce it to normal. If cloudy, more should be drawn off, the exact amount depending upon whether the patient was under an anaesthetic or not. In the subsequent treatment at this stage he believed that if the fluid was clear the treatment should be that described in the first stage; if it was opalescent this should be supplemented by intermittent thecal drainage obtained by performing lumbar puncture twice or thrice daily for several days. The number and period should be determined by the characteristics of the fluid and the condition of the patient, with special reference to headache and rigidity of the back. In the late stage of otitic meningitis the patient lay on his side with the knees bent up, the back extended, and the head thrown back. A cry escaped him from time to time, owing to the severity of the headache. The lips were parted, the mouth dry, the tongue heavily furred, and the temperature steadily mounting. It was characteristic of the condition that the symptoms were exactly bilateral. In this stage of the case a spirit of defeatism had been acknowledged; nevertheless, he thought these cases should be attacked with vigour and determination, always remembering that a case should never be allowed to get to this stage if it could be helped. A prognostic lumbar puncture must be done. In the examination of the fluid he laid most stress upon two observations: the number of cells as indicated by the degree of opacity, and the presence of organisms. A distinction must be made between cases in which the haemolytic streptococcus could be grown *in vitro*, and those in which an organism, probably the haemolytic streptococcus, could be observed directly in a smear. The former was of pathological interest only, and of no clinical value; the fight was over before the report arrived. Intermittent thecal drainage was still a stand-by for the milder cases in this group. The insertion of any antiseptic drug was valueless. Whether intermittent thecal drainage would occasionally save a case he did not know; it was not to be relied on. He did not think Jenkins's operation of translabyrinthine drainage was applicable to these cases, except where the access of the disease to the meninges was across the labyrinth. Along two other lines of treatment they must work in the future: (1) to add to intermittent drainage of the

theca the replacement by a serum, specific or non-specific; and (2) to replace intermittent by continuous thecal drainage.

Mr. NORMAN A. JORY said that any pressure of the fluid above 200 mm. of mercury was to be regarded as pathological. Anything which raised the intracranial venous pressure and the pressure—in consequence—of the choroid plexus gave an increased filtration of the fluid. In meningitis several factors combined to raise this pressure. An increased cell count over 10 per c.mm. must be regarded as pathological. On the count alone a degenerating glioma of the brain could be confused with a cerebral abscess. In a series of thirty-nine cases of acute-septic lepto-meningitis seen at one hospital in ten years, thirty-six proved fatal. The majority of the cases were in children. There was acute or subacute trouble in the mastoid in twenty-nine cases; organisms were recovered from the cerebro-spinal fluid in twenty-one. In thirteen of the cases lumbar puncture proved sterile. Translabyrinthine drainage was carried out in only three cases. In three instances the labyrinth was found infected at the necropsy. In all the cases the chlorides were below 700 mg. per 100 c.cm. In serous meningitis the fluid was under increased tension, with increased protein, and it might be either clear or turbid.

Dr. C. P. SYMONDS said he considered that neck stiffness and Kernig's sign depended on irritation of the posterior root in the lumbar and posterior cervical regions; he did not regard them as signs which were inseparable from actual meningitis. He spoke of a case of tuberculous meningitis which came to necropsy and yet there had never been neck stiffness; the exudate was confined to the cisterna pontis. But one could not say that when neck stiffness and Kernig's sign were absent there was no meningitis; early, localized, or mild meningitis might exist without the presence of these signs. A diagnosis could be made only by an examination of the spinal fluid. There were three main modes of progression of infection from the middle ear to the meninges: (1) from infected vessels into the bone, these vessels being ultimately corrected with those in the subarachnoid space; (2) the path might be through the labyrinth, whose fluid communicated with the cerebro-spinal fluid; (3) through bone, dura, and arachnoid, with a reactive process on the part of the newly infected tissue. If the invasion was by means of infecting blood vessels there might be no premonition of meningitis. When the invasion was in the form of osteomyelitis, with progressive spread step by step, warning signs such as headache, vomiting, and increased temperature were very important. With regard to the risks associated with lumbar puncture, he had at one time stressed the danger of micro-organisms finding their way via the blood stream to the meninges, this being rendered easier by the puncture, but investigations in America did not support that fear. But he still felt that withdrawal of spinal fluid might lead to mechanical rupture of adhesions, and so to the diffusion of a meningitis which previously had been only local. One case he knew was that of a patient with extradural abscess who, following lumbar puncture, rapidly developed a diffuse meningitis. The danger was greatly lessened if not more than 2 c.cm. of fluid was removed and a very fine needle was used so as to withdraw it very slowly. He tried to have a report on the fluid within six hours of the puncture; the cell count was the important feature, and the quantitative estimate of the protein was quickly done. Helpful points in prognosis were the presence and nature of the micro-organisms found and the patient's general condition. As to the possibility of recovery of a case showing micro-organisms in the spinal fluid, Neumann published a series of fifty-nine cases of otitic meningitis, twenty-two of which recovered, six having had organisms in the fluid. He doubted the efficacy of serum, and his objection to its use intrathecally was that it provoked a marked reaction of the meninges of itself.

Mr. E. WATSON-WILLIAMS said that in these cases neck rigidity, without other signs, was not confined to early stages. In a series of twelve cases neck rigidity was of no great significance in prognosis, and it did not indicate

the stage of the case: five of the twelve cases not showing neck rigidity early, died, and of seven who had marked rigidity and head retraction, with Kernig's sign, one died. Two factors which had a direct bearing on the prognosis were: first, the presence of organisms in the fluid, a matter of grave prognosis, but not necessarily fatal; secondly, the interval between the onset and the date of operation. If a patient did not get well with 40 c.c.m. colloidal silver solution fifteen minutes before daily lumbar puncture, he thought there was a poor chance of his answering to more vigorous measures.

The PRESIDENT said there were two groups of cases: (1) those of infection owing to approximation—that is, in which streptococcal infection passed through all barriers and directly infected the meninges; (2) those owing the usual causes. He thought that the condition named by some "meningismus" was present in more cases than was generally recognized. Mr. SYDNEY SCOTT said that when comparing sets of statistics on this subject it was impossible to make a just comparison unless one could be sure that only cases showing micro-organisms in the fluid were included. Retraction of the head he regarded as a very important sign of meningitis, but he would not diagnose a case without other confirming signs, and lumbar puncture should be done. When a case of meningitis succumbed, it was because of either encephalitis or septicaemia. The so-called "lucky" cases, in which recovery ensued, were those in which the antibodies were potent and the infection relatively mild. Transthecal drainage had but a limited applicability. He related several difficult cases. Mr. HOLR DIGGLE showed how much the accepted treatment of otitic meningitis had varied in nine years. He considered that if a patient had headache, perhaps with a little vomiting, and he had a tender spot in the mastoid region, he would eliminate the sepsis, but saw no reason for disturbing the lumbar theca by reducing the pressure if there was a danger of spreading the infection. Cases had recovered which had no treatment other than repeated lumbar puncture. Mr. C. P. WILSON asked questions as to procedure, and Mr. LAYTON and Dr. SYMONDS replied.

PUERPERAL SEPSIS: SERUM TREATMENT

At a meeting of the Fever Group of the Society of Medical Officers of Health on November 30th, with Dr. H. S. BANKS, the president, in the chair, Dr. J. M. GREENWOOD, late assistant medical officer, Monsall Fever Hospital, Manchester, opened a discussion on "Puerperal Sepsis."

Dr. Greenwood based his remarks upon the number of patients admitted to Monsall Hospital, Manchester, during the twelve months, August 1st, 1933, to July 31st, 1934. During that period, he said, 196 women were discharged from the puerperal sepsis unit of the hospital, and these cases might be classified as follows: (1) sepsis following full-time labour, 112; (2) sepsis following abortion, sixty-two; (3) admitted as septic, but not considered to be so, twenty-two. General peritonitis was found in twelve and septicaemia in eleven cases. Anaerobic cultures were not made. Four of the former group had a septicaemia associated with the peritonitis. Normal labour had preceded admission in 53.3 per cent. of all patients, in 55.5 per cent. of those with peritonitis, and in 20 per cent. of those with septicaemia. The symptoms and signs of general peritonitis varied considerably from those enumerated in textbooks. They were chiefly as follows: gradual onset; anxious expression; tympanites; vomiting, 50 per cent.; diarrhoea, 33 per cent.; rigors, 75 per cent.; no pain, or rather severe pain; no rigidity of abdomen; average range of temperature, 100° to 103° F.; pulse between 120 and 140. Operation was performed in every case of doubt, and no abdomen was opened unnecessarily. Cases of peritonitis were not admitted much earlier than others; this was probably due to the difficulty in diagnosis. Cases of septicaemia, however, were admitted rather earlier. There were sixteen deaths in the total of 196 patients, giving a mortality of 8.1 per cent. Four of these patients died from causes other than puerperal sepsis, and twelve

from puerperal sepsis in 174 septic cases, giving a mortality of 6.7 per cent. It was found post-mortem that in all the patients who died from sepsis the uterine wall was infiltrated with white cells. One specimen was obtained by subtotal hysterectomy in a patient with peritonitis following a perforated uterus after abortion; a well-marked leucocytic barrier line could be seen microscopically. This patient recovered. Treatment was directed at preventing complications after the onset of puerperal sepsis. Glycerin irrigation of the uterine cavity was a routine measure, as well as other general procedures. It was shown by Philips in 1923,¹ Dr. Greenwood continued, that prior to the use of glycerin, when douching of the uterus was employed at Monsall Hospital, the complications present were about double those found after glycerin therapy was instituted. He also showed that the average duration of stay in hospital was forty-eight days, as compared with 26.2 days when glycerin was used. The duration of stay must vary with each individual medical officer, but in the present series all the patients were able to walk up and down a flight of stairs before discharge. The duration of stay was 25.4 days after full-time labours, and an average of 22.5 days after abortion. Glycerin irrigation of the uterus was employed in cases of septicaemia and peritonitis; intramuscular arsenic, given in the former, appeared to be of some value. Anti-scarlatinal antitoxin was only used in a few cases, such as puerperal scarlet fever. It was considered that the report of Benson and Rankin² on 114 cases of proved septicaemia by blood culture demonstrated that serum was of no value in the treatment of the condition. The treatment of peritonitis resolved itself into early diagnosis and laparotomy, but the results were very unsatisfactory. It was found that all the patients with a haemolytic streptococcal peritonitis died. Dr. Greenwood concluded by saying that attention was being drawn to the prevention of puerperal sepsis, and it was found in the report of the Ministry of Health³ that 50 per cent. of deaths might be prevented. Supposing this result were achieved, 50 per cent. of women would still require treatment. The treatment of puerperal septicaemia and peritonitis merited as much consideration as the prevention.

Dr. COLEBROOK spoke of the results of treatment by anti-streptococcal sera in cases admitted to Queen Charlotte's Hospital. They afforded no evidence, he said, that the serum had been useful, but rather suggested that in some cases it might have had a harmful effect. He thought there was need for careful investigation of this latter possibility, and that nothing was to be gained by the continued use of the sera now available.

Mr. WYATT said he regarded diarrhoea in cases of general peritonitis as almost a constant symptom; perhaps it had not evidenced itself in Dr. Greenwood's series, as the peritonitis had been present in some of the cases a day or two before admission, and it was undoubtedly an early symptom. The highest pulse in two of the patients with septicaemia who recovered was 116; this was very surprising, since in all cases with a haemolytic streptococcus in the blood a pulse rate in the neighbourhood of 140 was usual. Concerning Dr. Colebrook's report on the possible harmful action of serum, Mr. Wyatt said it was a pity the cases had not been analysed according to whether or no the patients had been given serum. He asked Dr. Colebrook if he had any idea whether blood grouping had been done in horses in the same way as in man, and whether that might have any bearing on the action of sera in general.

Dr. R. A. O'BRIEN said that serologists would be deeply interested in Dr. Colebrook's figures and deductions, but he did not think the collected figures from the whole country would bear out the latter's interpretation of his own series. Though the old style of anti-streptococcal serum showed no protective value in the laboratory, the modern concentrated streptococcus antitoxin used in scarlet fever would save the lives of rabbits given lethal doses of either filtrate or culture of haemolytic strepto-

¹ Philips, H. J. *Proc. Roy. Soc. Med.*, 1926, xix, 25.

² Benson and Rankin: *Lancet*, 1933, i, 849.

³ Report of the Departmental Committee on Maternal Mortality and Morbidity, 1932, p. 14.

cocci, whether obtained from scarlet fever or puerperal patients. He did not agree that horse serum was lethal to mice, for he had seen many batches of serum tested by intravenous injection into mice of relatively large quantities. It was difficult to accept that horse serum was harmful to human beings, for the huge series of cases treated in America with anti-pneumococcus serum, either concentrated or unconcentrated, had never shown a higher mortality among the serum-treated than among the controls.

Professor JAMES YOUNG referred to the question, which Dr. Greenwood had raised, of the route of infection in cases of peritonitis. There could be no doubt, he said, that spread along the open veins of the uterine wall was a common mode of dissemination, and thence it was possible the peritoneum became involved. As against a spread by the Fallopian tubes he referred to cases of criminal abortion where acute peritonitis was present in the absence of any microscopical evidence of tubal infection. He regarded Dr. Colebrook's figures as of great interest, and agreed with him that they seemed to suggest that the employment of serum in puerperal sepsis might seriously aggravate the risk. The findings were of such clinical importance that they demanded a thorough investigation of the whole matter on large and comparable groups of patients.

Dr. SAGE SUTHERLAND gave a survey of the puerperal sepsis case mortality at Monsall Hospital during the period from 1910 to 1933 (twenty-four years); this showed a steadily increasing recovery rate. The highest death rate was 28.8 per cent. in 1920, and the lowest 7.9 per cent. in 1923. During the seven years ending 1933 the incidence of septicaemia among 1,130 cases of puerperal sepsis was 12.7 per cent., and was diagnosed as the cause of death in fifty-four cases, giving a mortality rate of 37.5 per cent. Peritonitis occurred in thirty-one cases in this series—incidence of 2.7 per cent. All these cases were fatal. During the last twelve months out of nine cases of puerperal peritonitis three patients recovered. This was attributed to operation at a much earlier period, and, as Dr. Greenwood pointed out in his paper, to the fact that in no case was the abdomen opened in error. Dr. Sutherland referred to minor septic infections unassociated with subjective symptoms as a possible source of morbidity resulting from the puerperium, the only sign leading to diagnosis in many cases being the objective symptom of subinvolution of the uterus, the absence of subjective symptoms being due to the insensitivity of the larger portion of the pelvic generative canal, sometimes spoken of as the "great silent area of the pelvis." In his opinion infection was more readily spread by the lymphatic drainage system than by the return blood circulation, and there was some analogy between puerperal infection and infection of the blood stream from a poisoned wound through the lymphatic system. Thrombophlebitis, he said, usually remained undiagnosed until the occurrence of cerebral or pulmonary embolism, and the absence of success in treatment was frequently due to the difficulty definitely of tracing the primary source of infection of the blood stream and lymphatic supply until the symptoms had progressed beyond the most favourable period for treatment.

Dr. H. STANLEY BANKS said it was becoming quite clear that neither the old anti-streptococcal serum nor the newer streptococcus antitoxin exerted any beneficial effect in puerperal septicaemia and peritonitis, which were the forms responsible for most of the mortality. Whether the antitoxin was of value as a prophylactic against these grave forms was, he thought, neither proved nor disproved. The other principal new factor in recent treatment was glycerin irrigation of the uterus. His own experience of the method was entirely favourable, provided correct technique was employed. The available evidence appeared to suggest that the substitution of glycerin treatment for former crude methods had had a favourable influence on the fall in mortality. In one particular form—namely, puerperal scarlet fever—where presumably the Dick toxin was a noxious agent, treatment by intravenous antitoxin was attended by strikingly favourable results.

He had frequently given hundreds of cubic centimetres of horse serum intravenously with apparently beneficial results, except perhaps in patients so ill as to be beyond the power of reaction. The suggestion that certain horses appeared to give a toxic serum was one that called urgently for investigation. In an extensive experience of the use of scarlet fever antitoxin intravenously, he found with all the makes of serum he had tried that batches were occasionally encountered which were entirely unsuitable for intravenous injection, owing to the severe immediate reactions they produced. None of the suggestions so far advanced by serum makers afforded a satisfactory explanation of this phenomenon.

GROWTH-RETARDING FUNCTION OF PARATHYROIDS

At a meeting of the Liverpool Medical Institution, held on November 29th, with the president, Dr. J. MURRAY BLIGH, in the chair, Dr. T. LLOYD HUGHES read a paper on "The Parathyroid Glands, particularly in Relation to their Growth-retarding Functions."

Dr. Hughes said that the work of Thompson and Robinson in 1931 had led to the investigation of the possible relationship between the parathyroid oxyphil cells and the growth-retarding hormone. Dr. Hughes then described the investigation he had made. The parathyroid glands were dissected out from 200 post-mortem cases, and were examined from the point of view of numerical, anatomical, and histological variations. The oxyphil cell content of all the glands in these cases was numerically computed according to a modification of a method used by Rasmussen in counting the oxyphil cells in the anterior lobe of the pituitary. In this way variations in the oxyphil cell content with age and various diseased conditions were identified and graphically represented. The oxyphil cell content of the parathyroid glands was found to increase with age in a more or less regular manner. The oxyphil cell content of the parathyroids was shown in cases of malignant disease to be reduced below the normal for the age period. This was considered to indicate an absence of growth-retarding hormone resulting in a tendency in the body to develop conditions of excessive growth should the necessary stimulus be forthcoming. The possibility was considered of the oxyphil cells being cells of special function related to the growth-retarding factor isolated from the parathyroids, and not degeneration products of the principal cells.

CLINICAL CASES

At a meeting of the North of England Obstetrical and Gynaecological Society at Sheffield on November 23rd, with the president, Professor DANIEL DOUGAL (Manchester), in the chair, Mr. J. E. STACEY (Sheffield) described some clinical cases. The first was an unusual abdominal cyst.

Mrs. T., a 4-para aged 47, complained of gradual abdominal enlargement for over two years, with vomiting after over-eating and dull pain in the upper abdomen for six months. She had had one attack of jaundice three years previously, and was severely constipated. A huge cystic mass filled the abdomen, the girth being fifty-four inches; on bimanual examination the cyst filled the pelvis, pushing the cervix behind the symphysis. A diagnosis of ovarian cyst was made and the abdomen opened by an incision eight inches long. Three pints of brownish fluid were free in the peritoneal cavity, and the abdomen was filled by a thick-walled cyst adherent to all the viscera but not to the parietes. Forty-six pints of brownish fluid containing cholesterol were aspirated. The cyst was opened through the transverse mesocolon, and an inspection of its posterior wall showed what appeared to be pancreas. Marsupialization was done, and the patient left hospital with the wound healed after draining five weeks. Analysis of the fluid proved that the cyst was pancreatic, lipase, trypsin, and amyllopsin all being found. Mr. Stacey had been unable to find so large a pancreatic cyst described in the literature.

The second case was that of a nullipara aged 39, married for thirteen years. She had had five weeks' daily haemorrhage with pain, following thirty-three days' amenorrhoea; her periods normally occurred every twenty-four days. This history and the presence of a tender mass felt behind the uterus, apparently in the pouch of Douglas, led to a diagnosis of ectopic gestation. On laparotomy the uterus was found to be two months pregnant an irregular mass, two inches by one inch by half an inch, was seen growing from the back of the lower segment and attached to the rectum. It was decided to remove it in order to prevent obstructed labour; during its extirpation the uterine cavity was opened and part of the cervix removed; hysterectomy with bilateral salpingo-oophorectomy was therefore done. Part of the mass was left adherent to the rectum. The uterus contained five fibroids, one being the size of a walnut and encroaching on the cavity; the foetus was two and a half centimetres long. Section of the tumour showed an adenomyoma of the recto-vaginal septum, with decidual reaction.

Mr. Stacey went on to report a series of five cases of epithelioma of the vulva, treated in the first instance with radium. At intervals varying from three months to two years after the radium treatment excision of the vulva with the diathermy knife had been done, owing to extension of the growth or severe local pain, or both. The radium dosage in specified cases was applied in the form of twenty-five needles, each of three milligrams, for seventy-two hours, to the ulcer and regional glands. Sections taken after the radical operation showed radium burns in two cases, and epithelioma was present in all. Mr. Stacey had been impressed for some time by the ineffectiveness of radium treatment for vulval carcinoma. He found that when the ulcer failed to heal extension was rapid, and radium burns caused such intense pain that local excision was soon demanded. He suggested that a judicious combination of radium and excision at the start, with the addition of deep x rays, was perhaps the solution of the problem.

The PRESIDENT described a case of malignant ovarian tumour, and Mr. ST. GEORGE WILSON (Liverpool) one of angular pregnancy.

CORK CLINICAL SOCIETY

At a meeting of the above society, on November 30th, Dr. R. C. CUMMINS reported a case of vertigo. After first dealing with the commonest causes of vertigo, the speaker outlined the clinical features of a recent case, the attacks being very severe and becoming progressively worse. He had come to the conclusion that the causal factor here was a septic focus in the form of low-grade infection around the teeth, though they were not badly diseased. Removal of the teeth resulted in a complete recovery. The point stressed by Dr. Cummins was that the teeth, as seen in this patient, were the most dangerous and yet the most difficult type of teeth to deal with, because they remained efficient for mastication and caused no pain or other obvious symptoms. They were grey-tinged, dull, but firmly set. A slight blue line was present at the gum margin, but no pus could be milked up. In such cases the individual is loath to agree to, and may even resent, removal. But painless low-grade inflammatory reaction was taking place round the roots, making them firmer, and extensive bacterial absorption into the circulation was certainly present. Dr. O'HEA CUSSEN then read a paper on speech defects. The communication dealt in turn with lispings, falsetto voice, stammering, and cleft-palate speech. Each defect and the method of treatment was illustrated so far as was practicable.

The executive committee of the Brussels Diplomatic Conference, 1935, has received a communication from the fifteenth International Red Cross Congress at Tokyo congratulating the Belgian Government on taking the initiative in calling a meeting aimed at the humanization of war and charging the Red Cross Society to give every assistance. In view of the importance of the Tokyo gathering, this action represents a valuable step forwards towards the realization of the objective of the International Committee of Military Medicine.

CORRESPONDENCE

London University and its Medical Schools

SIR,—The letter of Sir E. Graham-Little in the *Journal* of November 24th (p. 962) raises a point of great interest and importance to medical students and teachers in the University of London. It is, as he points out, a deplorable fact that only a relatively small percentage (56 per cent. in 1932, 59 per cent. in 1933) of the students of medicine of the University who have passed the Second M.B. (anatomy, physiology, biochemistry, and pharmacology) ultimately take the M.B., B.S. degrees, because, as Sir Ernest rightly points out, they are often, on account of economic stress, unable to stay the course.

Now it is probably true to say that practically every medical student of the University, though intending to proceed ultimately to the degree, first takes the qualification of the Conjoint Board (M.R.C.S., L.R.C.P.), which he can do at a somewhat earlier period than he can sit for the degree. This enables him to register and go out and earn some money as an assistant, or perhaps in a practice of his own. In almost every instance he intends to keep up his reading and come back in a year or so and take the Third or Final M.B., B.S. But here comes the difficulty. The Third or Final Examination comprises pathology, bacteriology, forensic medicine and public health, medicine, surgery, and midwifery. Though this can be passed in two groups, one of the groups is composed of surgery and midwifery (B.S.), the other of medicine, pathology, bacteriology, and forensic medicine, including public health and hygiene (M.B.), and failure in one subject of a group means failure in the group. There would be comparatively little difficulty in keeping up the three clinical subjects, and even improving his knowledge of them, for he is in touch with them in the course of his daily work. It is, however, utterly different in regard to pathology and forensic medicine. These are academic subjects with little relation to his daily experience in general practice, and if he is to keep up to examination standard he must do it by a pure "grind." Even that may be impossible, for there is no access to actual pathological material and specimens. Is it any wonder that many give up the struggle and never return to face the Final?

The remedy is, to my mind, simple. Let a third professional examination be instituted, comprising pathology, bacteriology, forensic medicine, and public health, and make it possible for this to be taken, say, at the end of the fourth year and before it is possible to sit for the Final Examination of the Conjoint Board. He would then, no doubt, take the Conjoint Board Examination as usual, but, having already passed in pathology and forensic medicine, would have little difficulty, even though he had gone into general practice, in getting up his three clinical subjects to the degree standard. At least the attempt would not be the hopeless struggle that it is so often at the present time.—I am, etc.,

University College Hospital Medical
School, Dec. 6th.

F. J. BROWNE.

SIR,—The important question raised by Sir Ernest Graham-Little (November 24th, p. 962) is one which in my opinion should receive careful consideration by the University of London. Two important reasons for this have been given by Professor Major Greenwood (December 5th, p. 1072), and need no amplification. There are many other points in its favour, of which I consider the following to be one.

By the time he has reached the Second Examination for medical degrees the student has attended the Univer-

sity for at least two years and two terms, and has passed examinations of a standard comparable with those for the intermediate science examination; or, alternatively, has actually passed the intermediate science examination at the end of his first year of study. The standard of examination at the Second Medical Examination is, in my experience, at least equal to that of the final general B.Sc. degree, and possibly somewhat higher. If it is objected that three whole years must be spent after matriculation in order to qualify the student for a degree, this could easily be remedied by the addition of a further term of work for those wishing to take the science degree. This additional term could be well spent in further study in either anatomy, physiology, chemistry, biochemistry, or pharmacology, and I would even suggest that the addition of general pathology might be considered. Some such curriculum and degree would have very many things to recommend it, and I have little doubt could, in principle, be made effective.—I am, etc.,

London, N.W.11, Dec. 7th.

C. LOVATT EVANS.

Uveo-parotid Tuberculosis

SIR,—It is very gratifying to learn that Dr. Tanner and Mr. McCurry have seen three cases of uveo-parotid tuberculosis since Dr. Thomson and I published our review of this condition in 1933.

An unfortunate state of affairs has arisen, however, with regard to their second case, and it is important that the error should be corrected. This case, which was originally under the care of Mr. R. S. Lawson in July, 1931, is the second case reported by Dr. Thomson and myself in the *Lancet* (October 6th, 1934, p. 743), and the photomicrographs reproduced in the *Journal* of last week are from the same sections as those (Fig. 4) published by us. As we pointed out, this patient had not been seen by us, but we recorded the notes kindly supplied by Mr. Lawson, who also sent us the sections prepared from the parotid biopsy. We communicated with this patient in the summer of 1933, when she said she was then normal in every way. There is no doubt that difficulty will arise in the future as a result of the conflicting statements made by Tanner and McCurry and Garland and Thomson about the same patient, as the former authors state that "tubercle bacilli were demonstrated" in the parotid, whereas we stated that "tubercle bacilli could not be found in spite of the most careful searching." This latter statement was based on the pathologist's report (supplied by Mr. Lawson) and on our own failure to see any bacilli in the sections which we borrowed. Perhaps we were in error, but in any case this fundamental point should be cleared up.

It is interesting to learn that this patient is now developing chronic pulmonary tuberculosis.—I am, etc.,

Leeds, Dec. 10th.

HUGH G. GARLAND.

SIR,—I have read with great interest the paper relating to the above condition in the *Journal* of December 8th, including the clinical accounts of three descriptive cases. Several points emerge from the discussion, principally in connexion with aetiology and symptomatology, which, in virtue of their important bearing on the subject-matter, would seem to be worthy of special attention. In passing, it is of interest to note that the disease is one which appears to have a definite affinity for the female sex. Such a statement is ably confirmed in appropriate literature, whilst the three cases described in the text substantiate it. The age incidence seems to favour the period from 20 to 40 years.

One of the most significant findings is that of the demonstration of the tubercle bacillus described in Case 2. Microscopical appearances and post-mortem changes have

continually shed grave suspicion on a tuberculous aetiology, but failure to isolate the specific organism has proved a thorn in the flesh to many exponents of this theory. A family history of tuberculosis is not by any means always conspicuous by its presence, though a story of discharging neck glands in youth is often obtainable from patients. Perhaps one of the most constant physical signs is that of enlargement at the root glands of the lungs, demonstrable in skiagrams, and it would appear from the post-mortem results of Souter's case, mentioned in the text, that tuberculous infection can be cited as the cause. With regard to the question raised in the discussion as to whether the prodromal symptoms are due to toxic absorption from such mediastinal adenitis, I am inclined to the belief that the latter is resultant rather than causative. During a recent investigation which I had occasion to make into cases of this malady and Mikulicz's disease, infection of the hilar glands was observed in both diseases. When one considers that little or no constitutional disturbance is witnessed in the latter condition it is difficult to blame mediastinal adenitis for promoting toxæmia in the former, since both maladies bear a striking resemblance to each other.

The conception of a tuberculous infection, gaining entrance by the nasopharynx, mouth, or tear duct, or indeed of familial origin, giving rise to uncomplicated salivary gland enlargement in its latent stage (as evidenced in Mikulicz's disease), and causing constitutional upset in its active stage (as evidenced in uveo-parotid fever), would seem to associate each malady more intimately, and meet the case to the aetiological and symptomatological satisfaction of both.—I am, etc.,

Alloa, Dec. 10th.

A. D. MACDONALD, M.D.

Treatment of Haemoptysis

Endotracheal Injections of Adrenaline

SIR,—In their note on pathology and treatment of haemoptysis, published in the *Journal* of October 27th (p. 762), Drs. H. V. Morlock and A. J. Scott Pinchin report to have used the introduction of adrenaline into the bronchial tree both by the nasal catheter and by the cricothyroid route; however, they do not seem to have been favourably impressed with the efficacy of that treatment. In connexion with these points I would like to state that for ten years the medical clinics under my direction have been using a very efficient method of staying haemorrhage from the lungs. Such method has been devised by a pupil of mine, Dr. Giuffrida, and traces its origin from the studies carried out by my school on a local reticulo-endothelial pulmonary chemotherapy. It consists of injections of adrenaline by the endotracheal superglottic route.

The technique of administration is very simple. A source of light is placed in front of the patient, who puts out his tongue. The operator, standing opposite, seizes the tongue between his left thumb and forefinger, while holding with his right hand a syringe filled with 3 c.cm. of the drug (1 c.cm. of 1 per 1,000 adrenaline diluted in 2 c.cm. of water) and fitted with a cannula of 2 mm. bore and 11 cm. length, bent—at a distance of 7 cm. from the cone—so as to form an angle of 110 degrees. The cannula is introduced by the tongue into the mouth as far as the epiglottis, and the patient is directed to breathe in deeply and slowly. The piston is then swiftly pushed down during an inspiration.

The administration of adrenaline often causes coughing, which generally is unlikely to become severe; moreover, coughing shows that the drug has not been swallowed, but has gone right home. The psychic trauma of haemoptysis abates the pharyngeal reflexivity in a remark-

able way, thus making the procedure easy; only a small proportion of highly excitable patients require their throat to be sprayed with a 4 per cent. novocain solution prior to injection with adrenaline. The good effects of this method are confirmed in about 90 per cent. of the cases. If necessity arises the administration of the drug may be repeated every twelve hours (or every eight hours in the worst cases) for two or three days.

Italian and foreign experience has amply borne out the value of such treatment, which is often little short of astonishing; as a matter of fact, it is not an uncommon occurrence for the next sputum subsequent to the injection to be no more blood-tinged. However, the popularity of the method is not, chiefly abroad, on a par with its efficacy, owing, I think, to the misconception that extreme knowledge and delicacy of technique are required. On the contrary, the method stands the test of simplicity.

Quite recently Dr. Pennetti has shown that haemoptysis may be controlled also by a mere endotracheal injection of water, and our contribution warrants such finding, especially in not severe cases. It appears, therefore, that there is a factor of reflex nature concerned too.—I am, etc.,

Sicily, Nov. 20th.

Prof. MAURIZIO ASCOLI,
Director of the Medical Clinic,
Royal University of Palermo.

Short-wave Diathermy

SIR,—I have read with much interest the recent correspondence in the *Journal* with reference to the uses of short-wave therapy, and in addition have received numerous brochures from the makers with the claims of short-wave therapy enumerated. Sinusitis, carbuncles, and neuralgia are three of the conditions which can be benefited. It may be fitting to indicate that many of us engaged in the practice of physical medicine have treated successfully over the years numerous patients suffering from these conditions by means of infra-red and ultra-violet irradiation. Cases of sinusitis require an average of eighteen treatments to cure the condition, provided free drainage can be established by the irradiation. This is indicated by a copious nasal discharge during the initial treatments. One has treated cases of all types, acute and chronic, and in every case not only have the symptoms abated, but the necessity for operation has been obviated. The results should, as far as possible, be verified by an ear, nose, and throat specialist, and by a radiographer. Infra-red rays act by producing a hyperaemia, and this is further enhanced by the application of focal ultra-violet irradiation. The nares and pharynx can be disinfected by the application of the bactericidal rays of the Kromayer lamp, and the external auditory meatus can be similarly treated. General irradiation from a suitable ultra-violet generator should also be administered. My own preference is for the titanium alloy arc. I very much doubt if these results can be improved upon by ultra-short-wave therapy, and if the latter is the method of choice general ultra-violet irradiation should also be given as an adjuvant in every case.

In a patient recently treated and referred to me by an ear, nose, and throat specialist every sinus was involved. His general condition precluded operation. As a result of treatment on the above lines symptoms of pain and tenderness have disappeared, chest symptoms have cleared up, and he has gained 14 lb. in weight in six weeks. This latter fact indicates the "passing" of a septic condition, as also does the amelioration of the secondary symptoms resulting from toxic absorption from infected sinuses.—I am, etc.,

W. ANNANDALE TROUP, M.C., M.D.

London, W.1, Dec. 7th.

SIR,—There is rapidly increasing evidence of the value of short-wave therapy; but if the development of this form of high-frequency currents is to be based upon a scientific rather than upon an empirical basis, the co-operation of the physicists and the biologists with the electrotherapists is urgently needed, and is, indeed, much overdue.

The high-frequency currents of quantity (diathermy) evolved from the high-frequency currents of tension (d'Arsonval), and now the high-frequency currents of resonance or syntony (short-wave therapy) have in turn evolved from the high-frequency currents of quantity. This process has occurred as the result of instrumental development involving most difficult and intricate electrical problems, for the solution of which the aid of the electrical physicist is absolutely essential. Though these three forms of high-frequency currents merge one into the other by imperceptible gradation, the characteristic clinical and biological action of the three is widely different. The electrotherapist requires the assistance of the biologist to reveal the fundamental nature of these differences. But it is not only in reference to the high-frequency currents that this associated investigation is required; there are very many problems of electrotherapy that would be much advanced by the co-operation of the biologist and the physicist with the electrotherapist.

Surely the investigation of these problems is worthy of the consideration of the Medical Research Council. Would it not be possible for the National Physical Laboratory or some other body to assist us by demonstrating the relative merits of spark-gap and valve machines for the generation of short-wave high-frequency currents, and also to show us, as the result of their investigations, how the physical properties of high-frequency currents alter as the frequency increases and the wave-length shortens?—I am, etc.,

Oxford, Dec. 9th.

W. J. TURRELL.

Transport of Cases with Back Injuries

SIR,—In your account (*Journal*, December 1st, p. 1012) of the discussion on this subject at the meeting of the British Orthopaedic Association you mention that I supported the recommendation of Mr. McMurray, but you do not give my reasons. May I state them now?

In the first place, it is necessary to get rid of several misconceptions which seemed to vitiate the discussion.

(1) That a man injured in a coal mine is carried away by his companions just as he is, without being first put on a stretcher. (2) That fractured spine of the character under discussion is always liable to be complicated by injury to the spinal cord. (3) That a fall of rock or coal always doubles a man up, causing exaggerated flexion of the spine, which should be treated by hyperextension. (4) That fractured spine is an injury by itself, and is not accompanied by other injuries to ribs or limbs or pelvis.

The true facts are: (1) That there is *always* a stretcher at the coal face, and that the man is *always* placed on it before being carried to the ambulance room. (2) That injury to the spinal cord does not occur in more than one in ten of the cases. (3) That whether the man is doubled up or not depends on which part of the back is struck. If it is struck high up between the shoulders the man is undoubtedly doubled up, forced flexion occurs, and the twelfth dorsal or first lumbar body gives way, causing kyphotic deformity. But if he is struck low down in the lumbar region instead of being doubled up he is hyperextended, producing fracture of the third or fourth lumbar body with displacement forwards, the treatment of which should be flexion, not extension. (4) That fractured spine is very commonly accompanied by other injuries.

I supported Mr. McMurray in condemning the prone position at the coal face because of the above facts, and because, even if certain cases may be benefited by it, a large number of complicated cases will be rendered much worse, and a correct decision as to which position should be adopted can only be come to after a careful x-ray examination. I submit that the best first-aid treatment is to clear the rock and coal away, lift the man on to the stretcher in the usual manner, carry him to the ambulance room, and get him off to hospital as quickly as possible.—I am, etc.,

North Staffordshire Royal
Infirmary, Dec. 6th.

PAUL BERNARD ROTH.

Obstetrics in India

SIR,—I have read with interest the article in your issue of December 8th (p. 1060) on obstetrics in India, by Dr. Rufus Thomas, and should like to congratulate him on the energy and vivid language with which he describes the conditions in Jammu, which I fully believe he has not exaggerated. At the same time I should like to make a few further remarks.

The conditions Dr. Thomas describes were once universal, and still prevail in many parts of India, but efforts made during the past fifty years, and especially during the past twenty, have done something to mitigate them. It was these conditions which led to women medical missionaries opening work in India, and which caused Lady Dufferin to organize her fund for providing medical aid by women in 1885. Women doctors were brought out from England, training of nurses and midwives was begun, and, later, Indian women were admitted to the medical schools and colleges. In 1903 Lady Curzon organized a fund for training indigenous dhais, and in 1921 Lady Chelmsford a similar fund for maternity and child welfare. All these charitable funds were far too small for the purpose. In 1914 the Government for the first time made a grant to the Dufferin Fund, which made it possible to open a small women's medical service, and placed the relief of women on a sounder footing, although still a very inadequate one. Since 1915 modern child welfare has made its appearance in India, and there is now an All-India Bureau of Maternity and Child Welfare in connexion with the Red Cross, and with a medical woman as director. Infant welfare centres are multiplying, and ante-natal work is getting known. Seven training schools for health visitors are established in different parts of the country. The workers trained in these have a midwife's as well as a health worker's training. The endeavour is to plant them out in different areas under local bodies or charitable organizations to help mothers and infants, and especially to teach the indigenous dhais and keep their work under supervision, because it is now recognized that it is hopeless to expect illiterate women to carry out what they have been taught in the way of cleanliness and antiseptic when there is no public opinion to require it, unless they can be kept under supervision.

It would, of course, be better to replace these dhais by midwives of a better class, trained, and at least partly educated. This is being done successfully in some parts of the country, but in other parts there are almost insuperable difficulties. Women in the more backward areas prefer the dhai, and will not employ the trained midwife. Midwives, after training, tend to gravitate to the large towns, where fees can be obtained, and it is difficult to get them to work in small towns and villages. Then the class of educated women to draw on is small. True, as Dr. Thomas suggests, there is the class of Hindu widow, but only a proportion of this class is allowed to work, and they are much in demand for teachers and

nurses, both of which are more popular professions than midwifery. It must not be forgotten, in reviewing the causes of maternal mortality in India, that a great part of it is due to disease as well as to bad attendance. Osteomalacia is rife in some parts of the country, and pernicious anaemia in pregnancy is a frequent cause of death. Premature birth leads to much infant mortality.

It cannot be stated too strongly that, in spite of the efforts made, conditions such as Dr. Thomas describes are still prevalent over large parts of British India and the Indian States. It is impossible in a letter of this nature to go further into the matter, but it does seem as if, in spite of energy, hard work, and enthusiasm of workers, too little has been accomplished. The Government has too much taken the attitude that childbirth is a domestic subject not to be interfered with. It has left the campaign too much to charitable organizations, whose funds were not enough to deal with one-fiftieth of the country. Indian local bodies have shown themselves slack and uninterested; Indian women have not until quite recently been represented on them, nor had they formerly knowledge as to what was needed. Government, lately, has shown more interest, but there is still the attitude, as expressed by one Government officer some years ago, "Women's work is, of course, very desirable, but it is a luxury"—so to be dispensed with when retrenchment is needed. Many instances could be given.

What is needed is a much larger vision on the part of the authorities—a realization that the present conditions of childbirth not only cause untold suffering to hundreds of thousands of women, but that they handicap the rising generation with weakness and poor physique at a time when India particularly needs strength—mental and physical—for its people.—I am, etc.,

Upper Norwood, Dec. 11th.

MARGARET I. BALFOUR.

Surgical Diathermy for Cervicitis

SIR,—Mr. J. C. Ainsworth-Davis's article (November 24th, p. 935) on surgical diathermy for cervicitis must have aroused interest in a subject which is rather backward in this country. Having failed to get satisfactory results myself with medical diathermy, I was impressed by the writings of Hyams on his treatment with surgical diathermy. This was one of my reasons for deciding to visit the U.S.A. in 1931, and for starting a clinic at Charing Cross Hospital for the treatment on my return. There is a good deal to learn in this method, and I did not consider I had sufficient experience after four years' work to bring the subject to any very general notice, though I have referred to it in post-graduate lectures and medical addresses.

The soundness of the method lies on its pathological basis. A purely surface infection of a mucous membrane composed of compound racemose branching glands is a pathological impossibility, and in the case of the cervix uteri, like that of other mucous membranes, the idea of a "surface infection" is giving way to a more rational view. In the cervix uteri there is (1) a surface infection which gives rise to discharge and its sequelae; (2) interstitial infection of the deeper tissues which reaches up to the level of the internal os itself, and which is responsible for the metastatic symptoms in joints, etc.—an infection under tension of the tissues. It is this which all superficial forms of treatment fail to eradicate, and likewise trachelorrhaphy or amputation. Another aspect of the pathology is the bearing of the cervical infection on puerperal infections. I think the argument is incontrovertible that a great deal of puerperal infection does arise from an opening up of this infection in the process of labour, but as a lymphatic, not a surface, spread. I think a distinction has to be made between these cases and the mere carrier of streptococci in the cervix and its environment, whether they are haemolytic streptococci or not. The latter, I believe,

are in labour entirely harmless to the subjects themselves provided there is no local trauma of tissues, and in such cases I have proved it is safe to perform even a bougie induction of premature labour.

In quite a different category is the woman who has an infection of her cervical tissues (and they are far from uncommon). This type of case I treat with a modified surgical diathermy as late as the thirty-sixth week of pregnancy, and do not allow them to have their labour in the ordinary labour wards, because they are a risk both to themselves and to other patients. I think it is a failure to recognize this principle in pathology that is one of the weakest points in ante-natal work as often carried out. Many of these women have developed a natural immunity to their infection, so that their labour may be attended by nothing more than a morbid puerperium, provided there is no *locus resistentie minoris* caused by local trauma in the delivery. But I do not know of any means of distinguishing them from those in which a general infection from the lower uterine segment and its attendant sequelae will occur, as was shown by Whitridge Williams long before many of us were born. In technique it is important to avoid, as far as possible, removal of tissues deeper than the mucous membrane (and for this reason the "coniser" is better than a loop), otherwise the early result will be serious haemorrhage and the late result stenosis of the canal.

My experience of cases I did four years ago leads me to believe that it is very necessary to adopt measures to keep the cervix dilated for a time after treatment, otherwise severe dysmenorrhoea may occur as a late sequel. Dr. Agnes Savill has called attention to another point, and that is coincident infection of the corpus. This I believe should be dealt with in the first place before the cervical condition is touched, and I adopt the extremely simple manoeuvre of intrauterine injection of glycerin and mercurochrome—a modification of Remington Hobbs's principle—if there is any clinical evidence of infection in the corporeal part of the membrane. In conclusion, I should like to take this opportunity of expressing my thanks to the council of the hospital for purchasing for me the very expensive plant, and to my colleagues on the staff of the hospital for the opportunity of enlarging my experience by the study of their cases.—I am, etc.,

London, W.1, Dec. 10th.

EVERARD WILLIAMS.

Autotransfusion in Ruptured Ectopic Gestation

SIR,—In the *Journal* of September 8th (p. 470) Dr. M. W. Renton recorded a case of traumatic rupture of the spleen in the treatment of which autotransfusion was used. Whilst agreeing heartily with him that this procedure is at times of great and life-saving value, I should like to point out that indications for its use are necessarily limited. Its employment is at present almost restricted to cases in which safe blood can be recovered from the peritoneal cavity, with the possible exception of blood aspirated from the pleural cavity in cases of trauma to the thorax—and then only if the blood is uncontaminated by alveolar air.

It is obvious that intraperitoneal blood in cases of damage to liver, kidneys, or intestinal canal is unsafe: even more so would be blood that had passed through the vagina in cases of ante-partum and post-partum haemorrhages—suggested by Dr. Renton as suitable for this procedure. Happier indications, however, are haemorrhages in conjunction with splenic damage, some gynaecological operations, and above all with ruptured ectopic pregnancies. For the treatment of the urgent secondary anaemia following ruptured extrauterine pregnancy the method has been extensively used with excellent results.

It permits of a minimum of delay (the transfusion being carried out concurrently with the operation), the technique is very simple, and the effect rapid and satisfactory. Still, it is necessary to bear in mind that disasters have been recorded, and that autotransfusion should not be made a routine procedure even in ruptured ectopic, but be employed only when indicated by the patient's condition.

As an example of its use in gynaecology, may I mention a case of extensive myomectomy with severe blood loss. This operation can be performed with little loss of blood by using either a Bonney's clamp or a diathermy knife, but if neither of these is available it is a wise precaution to preserve and citrate the blood for return to the systemic circulation if the patient's post-operative condition suggests the need.

It may be of interest to record that some years ago I made some inquiries into the state of the blood in cases of intraperitoneal bleeding from ectopic pregnancies. With the assistance of a haematologist information was obtained that indicated that: (1) Fluid blood removed from the peritoneal cavity is, before citration, in a sufficiently normal condition to be safely used for transfusion. (2) The same blood after citration undergoes a lysis amounting to about 5 per cent. of its haemoglobin content, and is still a safe fluid for transfusion purposes. (3) The results of repeated van den Bergh tests showed that there was no breakdown of the red corpuscles after their return to the systemic circulation.

Whilst thoroughly endorsing the value of autotransfusion, it is, I think, necessary to repeat that, since no transfusion, auto- or hetero-, is entirely free from risk, the procedure should be used only when definitely indicated, and not as the routine it is tending to become in cases of ruptured ectopic gestation.—I am, etc.,

J. B. DAWSON,

Professor of Obstetrics and Gynaecology,
University of Otago, New Zealand.

Dunedin, Oct. 18th.

Maternal Mortality

SIR,—The *Journal* issues of November 24th and December 1st contain matter of great interest to all who are concerned about the question of maternal mortality (and how many of us are not?). The divergence of opinion expressed only serves to increase that interest.

Mr. Aleck Bourne's plea for the abolition of the pelvimeter will not, I imagine, receive much support. It has already drawn a reply in the negative from Professor R. W. Johnstone. I always looked upon the use of the pelvimeter as the first step in my examination of the pelvis, but always with the realization that the information gained was not "accurate" in the strict sense of the word. At the same time, any marked departure from the normal served as a warning to me to observe greater care in making my internal digital estimation of the size and shape of the true pelvis. That the external measurements, as determined by the pelvimeter, were normal did not make me consider that internal examination was unnecessary. Both are surely necessary steps in the same attempt to assess the size of the pelvis, and as such are to be considered jointly in the light of the total information derived therefrom. In regard to the intertuberischial diameter, I would much prefer to rely upon that obtained by a pelvimeter than trust to the "knuckle test," if compelled to choose between them. I should be very shocked if I thought that such an operation as Caesarean section might be performed on the findings of external pelvimetry alone, nor can I think that internal examination, which takes such little time, but yields such valuable information, is as neglected as Mr. Bourne would seem to suggest. Dr. W. R. Mackenzie, in supporting Mr.

Bourne, goes to the other extreme, and condemns all pelvimetry, whether metallic or digital, external or internal, saving only that afforded by the roentgenogram. I can pay no higher tribute to the value of *x* rays than to say that from about 1923 I made it a practice, whenever possible, to have at least two radiographs, one at eight months, the other as near term as practicable. In many cases earlier radiographs were taken as well. It is impossible to exaggerate the value of such a procedure, affording as it does such a variety of information. But all this should be taken in conjunction with the knowledge gained by the other methods of pelvimetry, and should not displace them. I would go so far as to say that no ante-natal examination is complete without these two radiographs. Incidentally, may not the time come when a disgruntled husband will sue an obstetrician on the ground that he did not have an *x*-ray photograph taken? If such an action could succeed in the case of a fracture, why not in the case of a pregnancy? The possibilities are enormous.

In the *Journal* of December 1st (p. 1010), in your report of the meeting of the Royal Society of Medicine, which discussed ante-natal care and the maternal death rate, Dr. T. J. Hollins is reported as believing it possible "to tell with exact certainty the presentation, size of child, relative size of head and pelvis, and internal measurements of pelvis by the aid of *x* rays, and that *x* rays should be used in all cases of primiparae and in those cases of multiparae in which there had been trouble in a previous confinement." My own experience leads me to agree with him. Later in the same account Dr. A. J. Wrigley is reported as having "crossed swords with Dr. Hollins over the value of *x* rays in ante-natal examination. Radiology was of little help, and the radiologist himself admitted it." It would be interesting to know how many obstetricians would subscribe to this view. And does the radiologist himself admit it? How many have done so, and on what grounds? And is radiology taken advantage of in ante-natal clinics to the extent that it ought to be? I doubt it.

In the same report Professor F. J. Browne's scheme for a whole-time maternity service does not appear to have received the support it deserved. In my humble opinion it is the best solution to the problem of maternal mortality yet put forward. His statement that admission to hospital often means treatment by a house-surgeon, often without supervision, is no more than the bare fact. He might have gone further, and said that the house-surgeon often had no more experience than that gained in his "twenty cases" as midwifery clerk during his hospital training. How many times during the course of this training is a student taught how to put on forceps, with the living subject as the model?

Dr. G. W. Theobald is reported, on page 1011, as stating, "as for the toxæmias of pregnancy, there was not the slightest evidence that ante-natal care could affect the death rate." I must confess I do not understand this statement. Perhaps Dr. Theobald will kindly state what he understands by the term "toxæmia of pregnancy," and what conditions he would include under the term. Would he include "hepatic eclampsia" or "nephritic eclampsia," or the form of hyperemesis gravidarum which is accompanied by such urgent signs as jaundice, albuminuria, and great prostration, and followed, if untreated, by coma and death? In all these conditions are found (post mortem) changes in liver and kidneys, suggesting grave toxic influences. Has ante-natal care no part in the early discovery of such conditions, and has treatment no effect on their course and ultimate result? In Dr. Theobald's account of the obstetric methods at St. Mary Abbots Hospital (*Journal*, November 10th) he states that eighty patients were admitted into the ante-natal ward

because of foæmic symptoms, and that all the mothers save three went out with living infants. In his case records he gives details of a patient with eclampsia who died, the liver showing the classical lesions. This would appear to have been a case of "hepatic eclampsia." The tone of this case record seems to suggest regret that she did not come into hospital ten days before, for he says, "she did not come into hospital until ten days later, during the whole of which time she had been ill." Was this a case of toxæmic eclampsia? If so, would her admission ten days earlier have made any difference to the result, if we accept Dr. Theobald's contention that ante-natal care has no effect on the death rate? Personally, I do not accept it at all. It would be of interest to know how many obstetricians would agree with such a sweeping assertion.—I am, etc.,

RUFUS C. THOMAS, F.R.C.S. Ed., M.C.O.G.

Newton, Porthcawl, Dec. 5th.

SIR,—I think that the time is now opportune to quote some figures of a large maternity hospital. During the last few months both the medical and the lay papers have contained numerous references to the maternal mortality from childbirth, and, although statistics are not a true indication of an institution's worth, they are the only means of conveying to those outside the results of the work carried out in the hospital.

Admissions into the Leeds Maternity Hospital are divided into two types—namely "booked" and "emergency." The former class consists of all patients who have made at least two attendances at the ante-natal clinics, and thus may include many abnormal obstetrical conditions. During the year 1933 there were 1,757 such admissions, and only one mother died. (This patient was admitted with an empyema following an attack of influenzal bronchopneumonia.) The death rate of the hospital's own booked cases was thus 0.595 per 1,000 live births—nearly nine times less than that of the country as a whole. Of the emergency admissions twenty-three women died, and of these eight were admitted after delivery. In the preceding year the "booked" maternal mortality was 1.3. These figures, including as they do over 3,200 deliveries, are, I feel sure, an excellent example of the value of large maternity hospitals; they also indicate that where such an institution shows in its report a maternal death rate far in excess of the average figure it is entirely due to the emergency admissions.

Another interesting point discovered in the records of last year's deliveries is that no fewer than 1,807 out of 2,073 mothers were given a general anaesthetic for the actual delivery of the child, and that in 689 cases an attempt was made to make the whole of the labour painless.—I am, etc.,

DAVID W. CURRIE, F.R.C.S., M.C.O.G.,

Nov. 26th.

Registrar to the Leeds Maternity Hospital.

SIR,—The debate on the above subject still rages in the medical and public press, and the utmost confusion prevails. There seem to be two aspects to the problem: the one of a general survey of total results over a period of years, and the other the personal one based upon personal experience.

In the *Journal* of November 24th (p. 948) is a report of a meeting at which the subject for discussion was "Has Ante-natal Care reduced Maternal Mortality?" Dr. G. F. McCleary, after some juggling with numerators and denominators, etc., is reported to have said: "With all these allowances, however, the figure for maternal mortality is intolerably high." It is practically certain that widespread ante-natal supervision during the last fifteen

years or so has not reduced maternal mortality as a whole, and to a logical mind it has therefore failed in its purpose. Theoretically, ante-natal supervision is sound practice, and the unpleasant results of it must be due to one (or both) of two reasons. Ante-natal care has been incompetent and the forecast of labour inaccurate, or the treatment of some supposed abnormality discovered ante-natally has been unfortunate in its results—in other words, the treatment was worse than the disease. There can be no question that ante-natal care, and also the conduct of labour, require a high degree of manual dexterity and practical skill in estimation. I do not think it impertinent to ask: "Can any examination, even the M.C.O.G., decide the practical worth and ability of a candidate?" If the reply is that no examination attempts to estimate practical ability—and I am led to that conclusion—then there is no diploma which qualifies a person to undertake ante-natal care or midwifery on a large scale.

With regard to any labour *per vias naturales*, a question yet to be decided is whether it is safer in the patient's own home or in a hospital. It is significant how often the haemolytic streptococcus finds its way into hospital cases. It is amazing what can be successfully accomplished in a patient's home under very bad conditions and a paucity of facilities. Great care should be taken in apportioning blame on a fatal case which has been transferred from home to hospital. I think it is very doubtful if any confinement is ever conducted without the mother being "infected" to some degree, and I think it is prudent to ask whether it is better for her to be infected with the organisms of her own home, to which she has had some opportunity of acquiring immunity, or to be infected with the organisms of hospitals, probably of a more spartan type, to which she may have no immunity.

I believe the act of transference often weighs heavily against the patient, and I note in the *Journal* a recent discussion on placenta praevia. Without taking sides as to treatment, it is significant that W. J. Young describes a series of cases (twenty) treated at home without a fatality, and J. Stanley Coleman quotes three cases ending fatally but all transferred to hospital. When investigating personal experience it is very difficult to prove or disprove anything by statistics. I noted that E. Lawton Moss struck a bad patch with concealed accidental haemorrhage. A single "snag" can spoil the figures of a general practitioner covering a period of years. The statistics of Dr. G. W. Theobald and those mentioned by Lawton Moss are excellent, and yet their respective techniques are widely different. The suggestion that a record of a temperature of 98.4° F. in the puerperium is pathological rather staggers one, as most people look upon a temperature of 99° or so after delivery as quite physiological—or shall I say, provocatively, defensive.

Mr. Bourne suggests that the pelvimeter should be abolished, but surely, it is not the pelvimeter that is wrong; it is the conclusion that is drawn from its use that matters. I was taught twelve years ago that it should only be used as a guide. Does Mr. Bourne seriously believe that the decision to do a Caesarean section is ever made on the findings of a pelvimeter, and that alone? With regard to the value of an internal examination, "obstetric specialists" seem to contradict each other, as with several other ideas in obstetrics, and naturally the general practitioner has to make conclusions for himself. The whole matter boils down to the fact that obstetrics is not a science but an art. A doctor can only become a craftsman in this art in the usual way—experience. On the question of experience Dr. Theobald's suggestion is right, though, so far as I can see, my four years' hospital experience in midwifery is of little advantage to me in general practice.

To conclude, I suggest, in view of the diversity of opinions on ante-natal treatment and its efficacy, that all ante-natal clinics should be converted into albumin-testing centres, and let the emergencies be dealt with when they arise.—I am, etc.,

Wembley, Dec. 2nd.

J. SHIRLEY CALLCUTT.

SIR,—Is it not time that serious attention was given to the comparability of the maternal mortality statistics? Professor Johnstone in his letter (*Journal*, December 1st, p. 1014) suggests that another era of "national hysteria and panic" is upon us. It is universally agreed that crude death rates may mean nothing, yet (so far as I am aware) no serious attempt has been made to "correct" the maternal mortality rates for the purposes of comparison between one area and another. Amongst other factors crude death rates should be "corrected" for primiparity and for extreme multiparity. Furthermore, the steadily advancing age of child-bearing mothers and of primiparae especially ought to be regarded. Examination would show that there is a higher puerperal mortality among child-bearing women over 35 years of age.¹

I suggest that social changes of the last twenty years are such that we ought to expect a rising crude maternal mortality. If it is stationary, that indicates an improved obstetric service. If Sunderland shows better "crude" rates than Bournemouth, may it not be that the corrected or standardized rates for these areas would reverse the position? I imagine that primiparae and small families are as common in Bournemouth as the reverse is common in Sunderland. This is a matter of more than academic importance. It affects the morale of child-bearing women and the morale of the profession. Moreover, "blunderbuss" methods of seeking a cure are likely to be very costly and very futile. Consider, also, the effect of puerperal sepsis upon crude rates of maternal mortality. Sepsis is an infectious disease, and will not be greatly controlled by "clinics" *per se*. In some areas the maternal problem is sepsis. In that case "hospitalization" is dangerous. Puerperal sepsis rates rise and fall with the prevalence of certain streptococcal epidemics. This point may be checked statistically.

The whole matter is much too complex and too important to be dismissed lightly. Cannot a careful statistical inquiry into puerperal death rates be made and a serious effort to "standardize" them be instituted?—I am, etc.,

HOWARD E. COLLIER,

Department Industrial Hygiene and
Medicine, Birmingham University.

December 5th.

Anaesthesia in Maternity Cases

SIR,—Dr. Arthur Campbell's letter on the above subject in the *Journal* of December 1st (p. 1016) is very much to the point. For many years I used an almost precisely similar home-made apparatus. I usually started the anaesthesia, and later gave the bulb to the patient to compress by her own hand. Patients know at once when they feel the oncoming signs of uterine contraction, and by a few squeezes of the bulb procure for themselves the slight unconsciousness which tides them over their pains without in any way interfering with the progress of delivery. As soon as they have had the requisite amount of chloroform their hand automatically relaxes its hold. The practical answer to this method is that in over thirty years' experience I never had a death or a complication in any way attributable to chloroform.

What a simple and safe process this is compared with the cumbrous apparatus, even though it has been whittled

¹ "Social Changes and Maternal Mortality": H. E. Collier, *Journ. Obstet. and Gynaecol. British Empire*, 1930, xxvii, 27.

down to 15 lb. weight, that is now being brought into vogue! As Dr. Campbell says, if you begin with small doses and very gradually increase there is no danger at all. This method permits the accoucheur to give his whole attention to the perineum and the other management of delivery with only a mere glance at the patient. If she has not got enough she will very soon make it known, and if she has, her hand will be lying idly beside the uncompressed bulb.

No drug has yet been invented that will beat chloroform as a safe and efficient anaesthetic agent in midwifery, if properly administered in the way indicated by Dr. Campbell.—I am, etc.,

Edinburgh, Dec. 3rd.

G. D. G.

Medical Benevolence

SIR.—No one having questioned the fact that those lay men and women who are intimately associated with the administration of the affairs of the medical profession have a moral right—nay, duty—to give their support to the Royal Medical Benevolent Fund, it may be asked, How can this be accomplished?

It could be very successfully done by the formation of a lay associates' guild, open to those whose salaries range from £250 a year upwards. There are, I believe, some 2,000 men and women working in the hospitals, colleges, schools, and research institutes of this country who would, I am confident, be only too happy to be given an opportunity of assisting to lighten the burden of the doctor and his dependants, upon whom—such being the nature of his duties—tragic misfortune all too frequently falls. A graduated subscription from this source should produce at least £1,500 a year—a very useful addition to the revenues of the Royal Medical Benevolent Fund. Incidentally, it would mean to the subscribers only the smoking of one packet of cigarettes a week less for the men and a theatre seat or a bottle of perfume less once a month for the women.

To limit subscriptions to those who have taken the Hippocratic oath does not seem right in these days when there is so much distress about. Furthermore, the sister professions of law and theology have in recent years both opened their doors to outsiders.—I am, etc.,

London, N.W.3, Dec. 8th.

"FAIR PLAY."

Discoverer of Cortical Rhythm

SIR.—Some recent newspaper articles have given a sensational account of the investigations which we have made in Cambridge on the electrical changes taking place in the cerebral cortex. In these articles we are deeply concerned to find ourselves credited with the discovery of the rhythm which can be detected from the human brain by electrodes applied to the scalp. This is an important discovery, but it was made six or more years ago by Professor Hans Berger, director of the Psychiatric and Nerve Clinic at Jena, and has already formed the subject of eight papers by Professor Berger.

We have repeated and confirmed many of Berger's observations: our interpretation of the rhythm differs in some respects from his, but we wish to make it clear that our own work is of recent date and is in the main confirmatory, whereas Berger has already made a detailed study of the cortical rhythm in a very large number of cases, and has shown the effect of mental work, external stimuli, sleep, drugs, etc. We hope that a forthcoming paper by us, in *Brain*, will remove the impression that we are in any sense the discoverers of the Berger rhythm, and of its modification by mental processes.—We are, etc.,

E. D. ADRIAN.

BRYAN H. C. MATTHEWS.

Physiological Laboratory,
Cambridge, Dec. 3rd.

Obituary

LORD RIDDELL

Lord Riddell died on December 5th. The event has called forth an immediate volume of unqualified appreciation of his work and character, and a testimony of widespread affection such as rarely marks the passing of a public man. No doubt this manifestation is partly due to the fact that his was such an outstanding figure in the sphere of journalism and in the newspaper world. Lord Riddell's interests were, however, very varied, and none of them was superficial. Not least among them were those on the fringe of the profession of medicine—medical charities, medico-legal matters, and other subjects of a medico-sociological character. His loss will be severely felt, not merely by many members of the medical profession with whom he was on terms of individual friendship, but by numbers of others who appreciated very highly his sympathetic interest in their affairs, and who must now feel that a valuable influence and link between the profession and certain spheres of public life has been severed.

Born in 1865, Lord Riddell died in his seventieth year. It is during his last decade that his interest in these medical matters has been so definite, and that recognition of this interest has been so marked. Since 1925 he has been president of the Royal Free Hospital, and since 1930 the chairman of the London Voluntary Hospitals Committee. From 1930 to 1933 he was president of the Medico-Legal Society. In its Centenary year (1932) the British Medical Association elected him an honorary member, and about the same time he became an honorary Fellow of the British College of Obstetricians and Gynaecologists. In none of these spheres did he take his office as a sinecure, and to none of these honours was he indifferent or unappreciative. His interest was active and his work was hard as president or chairman. Especially will the Royal Free Hospital feel his removal. One evidence of his connexion with this institution was his short biography of Dame Louisa Aldrich-Blake. He is said to have himself given some £100,000 to the hospital, and it was through his influence that the late Mr. Eastman gave £220,000 for the foundation of the dental clinic associated with it. But beyond this it may be said to be his beneficent zeal and his organizing ability and business acumen which have raised the Royal Free Hospital to its present high position. He was really proud of his honorary membership and fellowship of medical associations and colleges, and used to declare (after dinner) that they brought him fame, especially as an obstetrician, and requests to take an active and responsible share in the practical daily work of his new profession. As a member of the British Medical Association he did not fail to wear his badge on appropriate occasions, and at least once he insisted on attending a meeting of the Division of which he was, by residence, a member.

There is no need to repeat here the details of Lord Riddell's achievements in other spheres. Without any of what are usually regarded as youthful advantages, his career was, almost from the beginning, an outstanding success, first as a solicitor, especially with regard to Private Bill legislation; then as a journalist and newspaper proprietor, notably in the case of the *Western Mail* and the *News of the World*; then as controller of a great publishing firm, George Newnes, Ltd.; then, both during the war, the peace negotiations, and the Washington Naval Conference, as Press liaison officer and publicity agent, performing a great national service. His work in these matters is recorded in a delightful and interesting

manner in his recent volumes the *War Diary* (1931), the *Diary of the Peace Conference and After* (1933), and *More Pages from My Diary*, dealing with the pre-war period and published this year.

Lord Riddell's was a most attractive personality—simple, shrewd, helpful, kindly. In conversation he was always interested and interesting, and became one of the most welcome after-dinner speakers. His baronetcy came to him most deservedly in 1918, and his peerage in 1920. He leaves a widow, but had no children.

ROBERT FLETCHER MOORSHEAD, M.B., B.S.

Medical Secretary, London Missionary Society

We regret to announce the death, at the age of 60, of Dr. R. F. Moorshead, who was for more than thirty years the medical secretary of the London Missionary Society. Born in Bristol in 1874, he obtained his medical education at the Bristol Medical School and at St. Bartholomew's Hospital. He graduated M.B., B.S. Durham in 1898, taking the conjoint diploma a year later, and the F.R.C.S. in 1903. We are grateful to a correspondent ("G. B. P.") for the following account of his missionary and other activities.

From the days of Livingstone the annals of medical mission work abroad have a roll of honour, increasing in length, of medical men and women. These, so well qualified to win high positions in their profession, devoted themselves and their talents to the outstanding needs of far distant races and peoples, by whom the blessings of modern medicine and surgery were almost unrealized, and whose lives still needed the moral and spiritual inspiration of the Christian faith. On such a roll Fletcher Moorshead's name should surely be placed, though the sphere of his life lay mainly in the home country. For over thirty years he spent his life on behalf of the Medical Mission Auxiliary of the Baptist Missionary Society; an auxiliary which, in association with the late Dr. Percy Lush and the late Sir Alfred Pearce Gould, he helped to found in 1902, and for the remarkable growth of which he was mainly responsible since that time. So striking has been the interest and support that Moorshead elicited throughout the Baptist community that there are now established in India, China, and Africa sixteen hospitals with 900 beds, and a staff of thirty European and eleven native qualified doctors, assisted by thirty-four European nurses and 234 native hospital assistants and nurses. Tremendously keen on his professional work, and hoping at one time to spend his life in the foreign field, he realized, shortly after qualification, the need of his Society's Home Base in the formation and development of its medical department. For this object he readily sacrificed his personal and medical ambitions, to assume the arduous, exacting, and meticulous work of medical secretary.

As already indicated, his success in this sphere has been widespread and permanent, and his life's labours and influence find a lasting record in the creation and development of hospital buildings and centres of healing in many lands. On behalf of his Society and work he visited India in 1905-6, and China in 1919-20, and many recall the inspiration which he left behind when making these tours. His writings mainly dealt with medical mission subjects. He was the author of *The Appeal of Medical Missions*; *The Way of the Doctor*; *Heal the Sick*; *25 Years of B.M. Missions*; and edited, in recent years, *Conquest by Healing*, a monthly journal. Latterly his health had given rise to anxiety, and he was expecting to retire in two years—after thirty-five years' service—but, following a recent strenuous round of public engagements in Scotland, he suddenly developed double pneumonia, and despite all remedial efforts he passed away,

after a week's illness, on December 4th, leaving a widow, with whom widespread sympathy will be felt.

Fletcher Moorshead's memory will be treasured, not merely for what he accomplished, but also for his personality. He never considered himself—generous to a fault when any effort or help was sought from him; of a friendly and sociable disposition, which secured for him friends wherever he went, he was also an effective public speaker in the cause so close to his heart. He has lived, and with success; he leaves a world strengthened by his presence, his ideals, and the memory of a life devoted to the highest ends.

ALEXANDER ARTHUR MACKEITH, M.B., C.M.

On December 5th the medical profession in Southampton lost one of its best-known and honoured members by the death, in his 69th year, and after a long illness, of Dr. A. A. MacKeith. Dr. MacKeith, who graduated M.B., C.M. at Glasgow in 1887, came of a family of doctors. He practised for some years in Exeter and Ilfracombe before he settled in 1900 in Southampton, where he conducted a successful practice for many years.

An energetic and practical man, he was always in the forefront of the most important affairs of the profession, both locally and nationally. He saw the importance of a strong, representative professional body, and devoted years of a busy life to the British Medical Association, which he served as a representative of the Southampton Division, and as president of the Southern Branch (1921-2). To his credit stands the inauguration of such important institutions as the Southampton Public Medical Service, one of the pioneer schemes and now a model for numerous similar services, and the Hospital Contributory Scheme in Southampton, for whose constitution and inception he was mainly responsible—he remained its vice-chairman until his death. He was chairman of the Committee of Management of the Free Eye Hospital for ten years, and remained on the committee till his death.

Dr. MacKeith was a surgeon major (T.), and was attached to the Heavy Brigade, R.G.A. During the war he was P.M.O. Troops, Southampton, and medical officer to the prisoner-of-war camps. It is characteristic of his energy that within a few hours of the outbreak of war he had organized and launched a medical war emergency committee, which arranged for the conduct of the practices of doctors on active service. His work in this respect was gratefully acknowledged by his fellow practitioners, who showed their recognition by presenting him with an illuminated address and a silver salver. He took a keen interest in the work of the St. John Ambulance Brigade and Association until his death. A man of logical mind, with a keen insight and the power to take the long view, MacKeith was a good and just negotiator, a man whose integrity was his most outstanding virtue, coupled with cautiousness and gentlemindedness, round which all other manly virtues fitly clustered—a friend and counsellor, whose loss is deeply felt by his patients, his colleagues, and his fellow citizens.

He leaves a widow and ten children, with whom the deepest sympathy is felt. Four of his sons are doctors, who, as they reached years of maturity, have achieved success in the profession.

THE LATE DR. STRICKLAND GOODALL

"A JUNIOR COLLEAGUE" writes: Dr. Strickland Goodall's early death must be largely due to the self-sacrificing devotion with which he worked unceasingly for the benefit of others. With all his being he gave of his best: to his profession, his patients, his colleagues, and to all and sundry, who never spared him in their anxiety to gain from him that help—for physical or mental

ills or ignorance—which was always so abundantly offered. His courage and indomitable will would not spare himself; his skill and knowledge (a generation in advance of his time), enthusiasm and sympathy made him continually and self-sacrificingly give all. We who have had the privilege of knowing him will always treasure a very blessed memory of this unassuming and most beloved physician. His contributions to medical knowledge are so well founded that they will stand the test of time. Doubtless there will also be raised some tangible memorial that shall spread farther and to future generations the benefits of his teaching.

We learn with great regret of the death, on December 5th, of Dr. EDWIN FITZGERALD O'CONNOR of Bessbrook, Co. Armagh. Born in 1889, the son of the Rev. D. Hamilton O'Connor, rector of Newbridge, Co. Kildare, he was an exhibitor of Trinity College, Dublin, and graduated B.A. in 1910 and M.B., B.Ch., B.A.O. in 1912. As an undergraduate he played hockey for his university and for Ireland. After holding house appointments in Victoria Central Hospital and Wallasey Dispensary he joined the R.A.M.C. in 1914, served with distinction in Gallipoli and France, and was awarded the Croix de Guerre by the French Government. After demobilization in 1920, he commenced practice in Bessbrook, and some two years later was appointed medical officer to Daisy Hill Hospital, Newry. Here he found the opportunity for the practice of surgery, to which he brought a natural aptitude and skill combined with a sane enthusiasm. During his all too short tenure of this office he made the hospital a surgical centre for a large district, and gained to an extraordinary extent the confidence and trust not only of his colleagues, but of the general public. Dr. O'Connor was a member of Portadown and West Down Division of the British Medical Association, and a Fellow of the Ulster Medical Society. He was an enthusiastic Freemason, and dearly loved a day with the Newry Harriers. He married in 1915 Miss Evelyn Morris of Ruabon, Denbighshire, who has nursed him with courage and devotion during a long and painful illness bravely borne. There are three daughters and one son of the marriage.

We regret to announce the death, on November 25th, in his seventy-sixth year, of Dr. P. F. STURRIDGE of Chippenham, Wilts. Dr. Sturridge was born in Jamaica, and came to school in England at the age of 14 years. He received his medical education at Middlesex Hospital, and was a contemporary of the late Sir Henry Morris, Dr. Sidney Coupland, and Sir John Bland-Sutton. He obtained his M.R.C.S.Eng. in 1881 and his L.R.C.P.Ed. in 1882, and was Prosecutor to the Royal College of Surgeons and house-physician to the Middlesex Hospital. Starting in general practice in Kendal about 1884, he remained there for nearly forty years. He specialized in surgery and ophthalmic work, and was on the staff of the county hospital. A skilful and safe surgeon, he had to tackle everything that came along—sometimes in the most out-of-the-way places. His skill with cataract operations gained him the reputation of a miracle-worker in some of the isolated hamlets among the Westmorland fells. His only contribution to medical literature was a book on the eyesight of school children, and he used to predict that electric light would put the whole nation in spectacles. He was surgeon to the North-Western Railway, and a keen lecturer and examiner to the St. John Ambulance Association. He had been a member of the British Medical Association for twenty-six years, and was the first secretary of the Kendal Division, an office he held for eleven years. During the war he was surgeon to the local war hospital. After the war he returned to Sutton Benger, near Chippenham, with a small practice, and was soon the centre of the Church and social life of the village. On the death of his wife, three years ago, he gave up his home, and spent his winters in Jamaica and his summers in Yorkshire and London. He is survived by a married daughter in Yorkshire and a son practising in London.

The Royal Society of Medicine has suffered an irreparable loss by the death, in the Brompton Hospital, on December 4th, of its esteemed librarian, Mr. H. E. POWELL, after a trying illness which lasted many months. Mr. Powell was respected and loved in a degree which few persons in his profession attain. He was a learned man, and on every occasion unstintingly placed his personal knowledge at the disposal of all workers in the great library over which he presided with such efficiency, and by his example he materially raised the standard of medical bibliography in this country. He was a man of peculiar modesty and self-effacement, disliking intensely to be in the limelight, but devoting his whole energies to the perfection of his library and to the interests of the Royal Society of Medicine, of which he was such a loyal servant. I knew Powell for twenty-seven years, first as assistant in the library then as chief librarian, and I cannot recall an instance in which we differed, either on a question of policy or practice. I have known no one more affectionately spoken of nor one whose illness aroused such sympathy from the most highly placed members of the medical profession. His life was uneventful. Hubert Edward Powell was born at Twickenham in 1881, the son of a business man well known in that town. He went to school at Malden, and early showed the habits of the student and scholar. He entered the Royal Society of Medicine as an unpaid library pupil and gradually mastered the intricacies of the business under Sir John Y. W. MacAlister, whom he ultimately succeeded as librarian in 1920. In the course of years Powell acquired a very wide knowledge of practical medical librarianship, and his help was daily sought by, and daily given to, medical authors, inexperienced or learned. Powell was a born librarian, and had all the instinct for a successful career in his chosen work. Outside his medical work he was a wide reader of history, and he had an extensive and critical knowledge of the early British dramatists. His scholarship gained his election to the Fellowship of the Society of Antiquaries. Powell was also a mechanician, and spent his lonely bachelor evenings in the harmless pursuit of horology, until he became an expert in the construction of complicated watches and clocks. Powell was a fine character. He asked for nothing, he expected little, he gained much; and he will long be remembered in medical circles as an unselfish man who never turned a deaf ear to a request and one who attained to a high position in his profession.

WILLIAM BULLOCK,
Honorary Librarian, Royal Society
of Medicine.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Faculty Board of Medicine has appointed Dr. G. S. Graham-Smith, Dr. A. N. Drury, and Mr. W. H. Bowen to be members of the M.D. Committee until September 30th, 1935.

UNIVERSITY OF LONDON

The following have been recognized as teachers of the University in the subjects indicated in parentheses:

University College: Dr. Archibald Durward and Mr. John Kirk (Anatomy).

St. Thomas's Hospital Medical School: Mr. Roland H. Beggon (Surgery).

London (R.F.H.) School of Medicine for Women: Mr. Claude W. Morris (Anaesthetics).

St. Mary's Hospital Medical School: Mr. Gerald L. M. McElligott (Venereal Diseases); Mr. William C. W. Nixon (Obstetrics and Gynaecology).

The degree of Ph.D. in pathology has been conferred on Mr. William A. Gray, F.R.C.S.

Professor W. Langdon Brown has been appointed governor of the Harpur Trust, Bedford.

At the celebration of Foundation Day, on November 22nd, the following degrees were conferred:

M.D. (*honoris causa*).—Sir Edwin Cooper Perry.

D.Sc. (*honoris causa*).—Professor Karl Pearson, F.R.S.

CONFERENCE FOR MEDICAL OFFICERS IN INDUSTRY OVER-SEAS

It has been felt for some time that sufficient opportunity has not been given to medical officers in industry over-seas to exchange views on the various problems peculiar to their particular industries and to the areas where they are practising. It is proposed to hold at the London School of Hygiene and Tropical Medicine an annual conference, lasting for two days, in order that medical officers in industry on leave from the Tropics may be able to meet their colleagues and discuss their problems. The main subject for discussion will be the prevention of disease—for example, control of malaria and epidemic diseases in the Tropics; water supplies; sewage and refuse disposal; housing; the keeping of records; and hygiene generally. It is considered that the contacts made at the annual conferences will not only be of value to medical officers attending, but will also establish contacts between these medical officers and the staff of the School. All medical officers practising on plantations, mines, railways, hydro-electric and construction schemes, and development companies generally will be welcomed. The conference each year will be held in July, and medical officers who would like to attend are invited to apply to the organizing secretary, Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1.

UNIVERSITY OF BRISTOL

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—Part I, including *Forensic Medicine and Toxicology*: Monica Hawkins, *B. Isserlin, J. S. W. Little, †N. R. Matheson, E. Philipp, L. A. Schnipelsky, E. Want, E. L. Ward. Part II: †Marion L. Tryon, R. D. Bodman, J. N. Heales, F. J. W. Lewis, A. J. Matheson, Mary G. Thomas. Group I only: H. James.

M.D.—J. C. Batt.

* Distinction in pathology.

† Distinction in materia medica, pharmacy, pharmacology, therapeutics, and forensic medicine and toxicology.

* Second-class honours.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

FINAL MEDICAL EXAMINATION, PART II.—(*Medicine*): *H. D. O'Brien D. J. Bradley, Doris E. Morton, T. D. O'C. Donelan, C. J. Vaughan, H. M. Glover, H. A. Wells, J. Sorett, P. O'Brien, R. I. Shier, A. R. S. Jessop, F. J. B. Convery. (*Old Regulations*): C. O. Greer, H. S. J. van Niekerk. (*Surgery*): *H. D. O'Brien, Doris E. Morton, Mary E. Mansfield, Marie J. S. O'Toole, A. C. Pilkington, H. A. Wells, I. A. Walsh, Sheila K. Henderson, H. S. J. van Niekerk, J. F. Q. Conolly, T. D. O'C. Donelan, A. R. S. Jessop, J. F. Harbinson, P. O'Brien, C. O. Greer, D. J. O'Shaughnessy, S. M. Freedman. (*Midwifery*): J. N. P. Moore, J. T. Wellwood, M. Marmelstein, D. G. Walker, J. C. Gaffney, R. H. Pratt, J. R. Shapiro, L. W. McCaughey, J. R. McElroy, D. P. Burkitt, H. C. Bourke, R. L. Oakes, F. J. C. Loughran, R. C. O'Grady, G. W. M. Elliott, H. Pringle, E. S. Dorman, J. R. Kellert, Muriel E. Wallace, Maureen C. E. Gore-Grimes, R. A. Bond, P. X. O'Dwyer.

M.Ch.—J. E. Ellison.

* Passed on high marks.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS
OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on December 3rd, the following were admitted Fellows of the Faculty: John Glaister, M.D., Farquhar Grace, M.B., C.M., David Lamb, M.B., C.M., William Thompson Wotherspoon Paxton, M.B., Ch.B., Horace Minton Shelley, M.R.C.S., L.R.C.P., D.T.M. and H., Hans Stubbe, M.B., B.S.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the monthly meeting, on December 7th, the following were admitted as Licentiates in Medicine and Midwifery of the College under the conjoint scheme with the Royal College of Surgeons in Ireland: G. F. Adye-Curran, J. H. Armstrong, Margaret Corbett, E. J. Crowe, A. J. Crummie, P. B. Cusack, P. O'D. Gallagher, N. B. May, J. C. McFeely, Margaret O'Connor, J. O'Leary, J. F. Sutcliffe.

The Captain Massy-Miles Prize, 1934, was not awarded, as there was no candidate eligible for such award.

The representative of the College on the General Medical Council reported on the recent proceedings of the Council.

The representative of the College on the Medical Registration Council of Saorstát Éireann reported on the recent proceedings of that Council.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The report of the Joint Select Committee on the Government of India was debated this week in both Houses of Parliament. In the House of Lords the Registration and Regulation of Osteopaths Bill was read a second time after a debate reported below.

In the House of Lords on December 5th Lord Merrivale presented the Matrimonial Causes (Procedure in Suits for Nullity) Bill and the Matrimonial Causes Amended Procedure Bill, which were read a first time. Lord Sankey, the Lord Chancellor, presented a Supreme Court of Judicature (Amendment) Bill, one of the objects of which is to provide for the hearing *in camera* of certain evidence in nullity cases.

Regulations for the relief of able-bodied unemployed, who are not entitled to unemployment insurance benefit under the Unemployment Act, and for their families were laid on the table and will be debated by the House of Commons next week. These regulations provide for exemption or partial exemption of sick pay, national health insurance benefit, maternity benefit, or wound and disability pensions as laid down by the Act. The allowances for children are graded according to the age of the child.

A Bill to confirm a Provisional Order relating to the Guisborough Joint Small-Pox Hospital District was read a first time in the House of Commons on December 11th.

On December 10th, in the House of Commons, Sir John Gilmour introduced the Metropolitan Police (Borrowing Powers) Bill. The measure extends the power of the Receiver for the metropolitan police district with respect to the borrowing of money for the provision of better accommodation for the metropolitan police force.

Registration of Osteopaths Bill

In the House of Lords, on December 11th, Viscount ELIABANK moved the second reading of the Registration and Regulation of Osteopaths Bill. The Bill, he said, was to secure the compilation of a register of osteopaths and to regulate the practice of this new system of therapeutics in this country. It also sought to impose on the practitioners of the system a prescribed standard of professional training and competence. Medical law as it now stood impeded the development of an independent system for the treatment of disease, such as osteopathy claimed to be. The prime object of the Bill was to remove the disabilities which attended the work of genuine osteopaths. Under the Bill a statutory board would be set up which would keep a register of qualified osteopaths and would supervise admission to the register. The Board would have power to prescribe a course of study which would qualify for the practice of osteopathy. The Bill contained nothing that would enable an osteopath to gain admission to the medical profession, and osteopaths did not ask to be admitted to the profession. They asked to be admitted to an osteopaths' register, and that only qualified osteopaths should be registered. He urged that the Bill should be read a second time and sent to a Select Committee.

The Medical Act and the Bill

LORD MOYNIHAN, in moving the rejection of the Bill, said that it involved the negation of all the principles embodied in the Act of 1858. That Act enabled every person to discriminate between those who had and those who had not passed through the medical curriculum, between the qualified and the unqualified practitioner. It received its inspiration from a desire for the protection of the public against certain dangerous people who had undergone no medical training in those fundamental sciences on which medicine was for ever based. The Bill would set aside all the defences erected for the protection of the public, and which had been shown to be necessary. If one particular theory of medicine were guaranteed recognition contrary to the Act of 1858 it would

not be long before other cults made appeals for recognition. If osteopaths were at last recognizing that a formal medical training was essential before they might successfully practise their art, there was nothing to prevent them from passing through the present medical curriculum. The Bill embodied an endeavour to destroy the unity of medicine and to force on the public, which was unaware of the danger, a spurious science which set aside the accumulated wisdom and expert practice of centuries. The Bill sought legislative authority for a theory of medicine which had in no country proved its validity.

Lord GAINFORD and Lord ERNLE supported the Bill, the latter remarking that at present any qualified medical practitioner who associated himself with an osteopath was placed under a ban. The Royal College of Physicians, therefore, stamped the osteopath as a quack or a charlatan almost indiscriminately.

A Question of Principle

Lord DAWSON OF PENN pointed out that the Bill raised an important question of principle. There were certain callings for which, by long custom or statute, a certain prescribed course of training was laid down. He would take three: the law, the master mariner, and medicine. The first course of training was preparatory and preliminary, for the purpose of securing that people entering those callings should have adequately trained minds before they were vocationally educated. Supposing a body of people said that it wanted to train persons for the Bar, and do it in its own way, without reference to the existing system, or another body said it had a suitable way of training captains of Atlantic liners, and asked for the same status as was given by the Board of Trade certificate, what would be the answer? He thought it would be an emphatic negative; and why should there be any difference in the case of medicine, which had a grave responsibility for human life? In the medical profession there was complete liberty of thought. Many doctors who had been trained for the medical profession practised osteopathy, and did so successfully. What the medical profession said was, that the osteopaths must go through the medical training, and then they would be free to do what they liked. There must be the background of preliminary, non-vocational training to make the trained mind, and it was only when the medical schools were satisfied with the basic training of the student that the latter were permitted to enter on the vocational part. During five years the medical student had to live laborious days, and the majority required further training afterwards. Diagnosis was the keystone of the arch of a medical training. There could be no giving way on the essential point, that knowledge of diagnosis must precede the power to direct and guide treatment. The Bill would merely give a short cut to people who wanted to acquire, through its provisions, the status of doctors. If that kind of training were to be allowed to displace the scientific training, which could only be built up by years of experience, if any short cut or backdoor entrance were allowed, the whole fabric of the efficiency of the healing art would be brought down from the level to which it had taken years to build up. Doctors were prepared to treat osteopaths as co-workers, but not to give them equality of status in the science of medicine, for which they had not had a proper training. For osteopathy to have the status of medicine without the training in pathology would be a public danger. Good as osteopathy was in the proper direction, it could be a perfect terror and a tragedy, as he himself knew. Manipulative treatment had a valuable place, but if an osteopath, as this Bill suggested, assumed the status of the highly trained doctor it would be very much against the public interest.

Lord AMPHILL said that Lord Moynihan had used language of exaggeration such as had never been heard in that House before. Midwives, dentists, and others had been registered, and no irreparable calamity had resulted. Lord MOYNIHAN replied that they had no objection to registration. Lord AMPHILL said that Lord Moynihan had been objecting all the time. The medical profession was the most jealous trade union in the world, and the General Medical Council had obstructed, resisted, and derided a great many advances in medical science. Lord Moynihan would have them believe that medical science to-day depended on some immutable principles laid down with all the force of a divine law. Every year, however, they heard of new practices which

were at first objected to by some medical men, but afterwards adopted. He hoped the House would not put itself into the false position of refusing to this profession the necessary protection, and also the necessary measure of protection to the public.

Issue of Death Certificates

Lord HEWART said that the Bill would allow an osteopath to issue death certificates. As a lawyer he was staggered by that proposal. The Bill went far beyond what any reasonable osteopath should properly desire.

Viscount GAGE, replying to the debate, suggested that they should compare the position of the ordinary member of the public to-day with what it would be under the Bill. There was nothing to-day to prevent an osteopath from treating a patient and receiving a fee for doing so. A patient might have a complaint with which an osteopath was specially competent to deal, but if he had something more deep-seated the osteopath might have no qualifications for diagnosing that. If the Bill became law the patient would be protected from the absolutely ignorant practitioner, but his complaint would still be diagnosed by somebody who possessed a good deal less than the minimum qualifications at present. That would be done under the blessing of the Ministry of Health, and if things went wrong the patient would have some grievance against the Ministry. What justification would the Ministry of Health have for putting the public in the dilemma of having to decide between two rival schools of medicine? If the House agreed to this Bill it would be countenancing the treatment of persons by partially qualified doctors.

The second reading was carried by 35 votes to 20, and the Bill was referred to a Select Committee, with full powers to call witnesses.

Health Conditions in Grenada

Replying to Mr. William John, on December 5th, Sir PHILIP CUNLIFFE-LISTER said health conditions in Grenada were, generally speaking, satisfactory. The latest reports available showed that the death rate of 13.8 per 1,000 in 1932 was the lowest on record. As regards tuberculosis, thirty-six new cases were notified in that year and forty-six deaths. The erection of a new and improved tuberculosis hospital was recommended recently by a medical commission appointed to report to the Governor of the Windward Islands on the medical services there. Sir Philip could trace no information concerning any malnutrition in the schools. As a result of school inspection 85 per cent. of the children were considered to be healthy. A Government grant of £100 to the Maternity and Child Welfare League in Grenada was deleted from the Grenada Estimates in 1933 owing to financial stringency, but in 1934 this grant, some portion of which was understood to be applied to milk distribution, was substantially restored. In accordance with the recommendations of the 1932 Poor Relief Commission, the poor asylum buildings were enlarged, a casual ward was provided in the vicinity of the Government hospital, and the nurses' quarters at the asylum and its sanitary arrangements had been improved. His approval was being given to the adoption, as from January 1st, 1935, of a simplified and more expeditious procedure for the granting of poor relief. In housing conditions there was still room for improvement.

Food and Health

Dr. J. B. ORR, director of the Rowett Institute, Aberdeen, addressed the Health and Housing Committee, at the House of Commons on December 5th, on human nutrition. Sir FRANCIS FREMANTLE took the chair. Dr. Orr said many believed that the full application of recently acquired knowledge of the effect of food on health would lead to a reduction in disease and an improvement in health and physique. Application of this new knowledge was hampered by the present world-wide unemployment and reduced purchasing power. As the latter fell total consumption decreased, and consumption moved to cheaper foodstuffs such as sugar, bread, and margarine, which satisfied hunger but were not adequate for health. There was evidence that malnutrition tended to increase in all large industrial countries, and measures were being taken to combat it. The United Kingdom had intensified measures to ensure that poverty due to unemployment did not result in deterioration of health. The number of children getting free meals at

school increased from 192,000 in 1928 to 399,000 in 1933. About three million children now took advantage of the scheme for cheap milk in schools. It was probable that further measures might be found necessary, especially in the depressed areas. Apart from the immediate economic depression there remained a long-range problem of how this new knowledge of nutrition was to be applied for the raising of the standard of health. Information was needed on the extent to which malnutrition existed, the extent to which it was due to inadequate diet, and the extent to which inadequate diet was due to poverty. If reliable information on these points were available it would be possible to evolve a national policy which would make for orderly progress, irrespective of whatever Government might be in power.

Several medical M.P.s joined in the subsequent discussion.

Maternity and Child Welfare

On December 5th Miss CAZALET asked the number of ante-natal clinics and the average attendance at each in Dewsbury, Rochdale, Huddersfield, Blackburn, Poplar, Putney, Wandsworth, Shoreditch, West Ham, and the Welsh counties, and the amount of hospital accommodation for maternity in each of these districts. Mr. SHAKESPEARE, in reply, furnished the following tabular statement relating to the year 1933. He explained that the figures did not include ante-natal clinics or maternity accommodation at voluntary institutions not subsidized by the local authority.

Local Authority	Number of Ante-natal Clinics	Average Number of Women per Clinic who Attended	Average Number of Attendances per Clinic	Number of Beds Provided at Maternity Hospitals and Homes
Dewsbury	2	212	623	13
Rochdale	1	516	2,463	51
Huddersfield	2	340	1,409	28
Blackburn	1	737	2,558	51
Poplar	4	282	964	35†
Wandsworth*	9	54	140	20
Shoreditch	3	182	527	15†
West Ham	9	2,181	5,718	141
Anglesey	—	—	—	2
Brecknockshire	—	—	—	7
Carmarvonshire	—	—	—	13
Cardiganshire	—	—	—	10
Carmarthenshire	1	67	238	6
Denbighshire	2	47	127	11
Flintshire	6	134	423	15
Glamorgan	35	76	193	53
Merionethshire	—	—	—	5
Monmouthshire	15	85	175	19
Montgomeryshire	—	—	—	13
Pembrokeshire	—	—	—	9
Radnorshire	—	—	—	3

* Separate figures for Putney (which is included in the metropolitan borough of Wandsworth) are not available.

† These beds are in hospitals provided by the London County Council.

In reply to Mrs. WARD, who asked, on December 5th, for figures of maternal mortality in the administrative areas of Cannock and Brownhills urban districts, and how the position compared with five years ago, Mr. SHAKESPEARE circulated the following:

	1923		1933	
	Deaths	Rate per 1,000 Live and Still Births	Deaths	Rate per 1,000 Live and Still Births
Cannock U.D.	3	3.75	2	3.63
Brownhills U.D.	2	4.50	1	2.93

Royal Commission on Durham University

The Royal Commission set up to inquire into Durham University and its constituent colleges is drafting its report, which it hopes to present early next year. This information was given to Mr. T. B. Martin by Mr. RAMSAY MACDONALD on December 6th.

Depressed Areas Bill

In committee of the House of Commons, on December 5th, to consider the money resolution attached to the Depressed Areas Bill, Dr. O'DONOVAN remarked that the migration of substantial numbers from these depressed areas, either voluntarily or by compulsion, gave rise to a biological problem. It affected the nerves, habits, and health of numbers who had been used to one environment. That matter should be considered closely.

The financial resolution passed through committee, and subsequently through the report stage. The committee stage of the Bill was begun by the House on December 6th, when Dr. ADDISON asked for a more exact definition of the relation between local authorities and the commissioners under the Bill. The committee stage was resumed on December 8th, when Dr. ADDISON pointed out that water supplies, drainage, and housing would be excluded from the activities of the commissioners. The report and third reading of the Bill were set down for December 13th.

Water Survey

Sir HILTON YOUNG announced in the House of Commons on December 7th that, after consultation with the Department of Scientific and Industrial Research and other Departments concerned and with their co-operation, Sir Godfrey Collins and he had decided that a comprehensive inland water survey should be undertaken for Great Britain. The information required would be obtained by the Departments from water undertakers, catchment boards, and other qualified bodies and persons. In cases where records were desirable but not now kept, measures would be undertaken to encourage the keeping of the necessary records. A water survey committee, composed of persons outside Government Departments, would be appointed to advise on the survey and on the progress of measures undertaken. In the constitution of the committee attention would be paid to the inclusion of both scientific and practical experience. It would be open to this committee to make recommendations on any further measures which it considered necessary for the purposes of the survey. He hoped to announce shortly the members of the committee.

Hospital Treatment in Workmen's Compensation Cases

Captain CROOKSHANK, on December 10th, informed Mr. Tinker that the Home Secretary was not aware of any increase in the number of cases that were taken to hospitals for treatment after accidents which came under the Workmen's Compensation Act. Proposals were considered some years ago, in correspondence with the British Hospitals Association, for requiring employers to pay for the cost of hospital treatment in workmen's compensation cases. On examination, however, it appeared that they would involve great practical difficulties, and that there were other considerations to be taken into account, including the possible effect on employers' voluntary subscriptions to the hospitals. The Home Secretary did not think that this question could usefully be taken up again except in connexion with a general review of the Acts.

Control of Infection by Aircraft in Sudan

Sir PHILIP CUNLIFFE-LISTER, replying to Sir Robert Hamilton, said he had received official information of a case of yellow fever that occurred in the Bahr-el-Ghazal Province of the Sudan in June last. Measures in excess of those obligatory under the International Sanitary Convention for aerial navigation were taken by the Government of the Anglo-Egyptian Sudan in co-operation with the Government of Uganda to stop the spread of infection to neighbouring territories. Aerial navigation from any aerodrome in the Bahr-el-Ghazal Province to such territories was prohibited, and aerodromes in the

Province were closed to all civil aircraft flying within the Sudan. Juba and Malakal were made and declared anti-malarial aerodromes, although there was no reason to believe that yellow fever existed in these districts. The sanitary staff at Wau in the Bahr-el-Ghazal Province was increased in order that every effort should be made to eliminate the mosquito vector. On arrival at any aerodrome in Mongalla Province aircraft were subjected to the measures prescribed under Article 47 of the International Sanitary Convention for aerial navigation. At the request of the Government of Uganda the Sudan Government agreed to subject all aircraft on departure from Juba to the measures prescribed under Article 43 of the Convention. No further special measures of protection on the part of the Governments of the East African territories under the control of the Colonial Office appeared to be necessary.

Conscientious Objections to Vaccination.—Mr. RALPH BEAUMONT asked Sir Hilton Young, on December 4th, the number of cases in which conscientious objection to vaccination of infants had taken place in each of the last ten years, and what percentage these figures bore to the birth rate in each of those years. Sir HILTON YOUNG gave particulars as follows:

			Number of Conscientious Objections	Percentage of Births Registered
1923	...	...	280,252	37.0
1924	...	...	271,176	37.2
1925	...	...	292,417	41.2
1926	...	...	224,122	40.9
1927	...	...	276,668	40.8
1928	...	...	280,815	42.5
1929	...	...	287,753	44.7
1930	...	...	235,792	45.6
1931	...	...	294,595	46.6
1932	...	...	291,015	47.4

Medical Services at Mexborough, Yorks.—Replying to Mr. Paling, on December 6th, Sir HILTON YOUNG said he had no information that the Montague Hospital, Mexborough, Yorkshire, had recently erected two medical wards by aid of grants from the Miners' Welfare Fund, but that these were not opened owing to the reduction of income through unemployment and bad trade in the five urban districts served by this hospital, or that, as Mr. Paling asserted, there were no medical wards at the present time and no adequate medical service. His sanction would not be required for the payment by the urban authorities, under the Public Health Act, of the product of a 1d. rate to provide a portion of the revenue required for opening the wards.

Medical News

The House of the British Medical Association, including the Library, will be closed for the Christmas holidays from 1 p.m. on Saturday, December 22nd, until 9 a.m. on Thursday, December 27th.

The House and Library of the Royal Society of Medicine will be closed from Saturday, December 22nd, to Thursday, December 27th, both days inclusive.

Sir Comyns Berkeley will open the extension of the Willesden Maternity Hospital at Honeypot Lane, Kingsbury, N.W.8, on Saturday, December 29th, at 3 p.m., with the mayor of the borough in the chair.

The next meeting of the Royal Microscopical Society will be held at B.M.A. House, Tavistock Square, W.C., on Wednesday, December 19th, at 5.30 p.m., when a paper will be read by Dr. John R. Baker, and Mr. J. H. Chivers will exhibit and describe some new types of Zeiss microscopical apparatus. Professor W. A. F. Balfour-Browne will deliver his presidential address before the Society on Wednesday, January 16th, 1935.

A joint meeting of the London Section and the Food Group of the Society of Chemical Industry will be held at Burlington House, Piccadilly, W., on Monday, January 7th, 1935, at 8 p.m., when Professor T. P. Hilditch will deliver the Jubilee Memorial Lecture on "The Fats: New Lines in an Old Chapter of Organic Chemistry."

Colonel Mervyn O'Gorman will read a short paper before the British Science Guild on "Bringing Science into the Road Traffic Problem," at the Royal Society of Arts, John Street, Adelphi, W.C., on Wednesday, December 19th, at 5 p.m. A discussion will follow. Admission tickets (for which there is no charge) are obtainable from the Guild at 6, John Street.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that a lecture-demonstration will be given at 11, Chandos Street, W., on December 18th, at 2.30 p.m. Further lecture-demonstrations, on general medicine, will be given on Fridays, at 4.30 p.m., beginning on January 11th. A series of pathological demonstrations, beginning on January 17th, will take place on Thursdays, at 3 p.m., at the Wellcome Museum of Medical Science. Clinical demonstrations will be given in 1935 on the second Saturday afternoon of each month, commencing on January 12th, at 3 p.m., at the National Hospital, Queen Square, W.C. A special series of surgical tutorial classes will be given on Tuesdays and Thursdays, at 8 p.m., at the National Temperance Hospital, beginning on January 15th. Other courses in the New Year include: cardiology, at the National Heart Hospital, January 14th to 26th; urology, at St. Peter's Hospital, January 21st to February 2nd; a week-end course on diseases of the heart and lungs, at the Royal Chest Hospital, on January 19th and 20th; and a course in manipulative surgery, at 11, Chandos Street, on four successive afternoons, at 5.15 p.m., from January 29th. Full details of all courses, etc., which, with the exception of the cardiology course, are open only to members and associates of the Fellowship, will be available shortly.

H.R.H. The Princess Royal paid a visit to the new Poole Sanatorium at Middlesbrough on December 6th. The sanatorium, which was presented to the borough by Colonel and Mrs. Gibson Poole, and was formally opened in June, 1932, has accommodation at present for thirty male adult patients and fifteen children. Under an extension scheme, it is proposed to make it the nucleus of a much larger institution, comprising 335 beds for the treatment of early and curable cases of tuberculosis from other North-East Coast local authorities. It is estimated that the extensions will cost £145,000.

The Minister of Health has approved the appointment of Dr. Thomas Williams Wade as medical member of the Welsh Board of Health, in succession to Dr. D. Llewelyn Williams, who retires from the public service on February 3rd, 1935, on attaining the age of 65. Dr. Wade has been employed as medical officer on the staff of the Welsh Board of Health since January, 1921.

The fifteenth annual dinner of the 14th Stationary Hospital was held on December 7th at the Trocadero Restaurant, with Colonel C. R. Evans, D.S.O., in the chair. The occasion was rendered unusually interesting by the number of reminiscences from various speakers relating to outstanding events in the hospital's history. It was very gratifying to find such a good attendance after so many years, and Colonel H. M. J. Perry, O.B.E., proposed a warm vote of thanks to Major H. L. Tidy for his organizing work, which had proved so consistently successful.

The issue of *Revue Médicale Française* for November is devoted to cancer.

The *Revue Sud-Américaine de Médecine et de Chirurgie*, published by Masson et Cie, Paris, will cease to appear at the end of 1934.

The second centenary of the Spanish National Academy of Medicine, founded in September, 1734, was celebrated in Madrid from December 10th to 15th.

We regret to learn as we go to press of the death of Dr. Theobald Smith, president of the Board of the Rockefeller Institute of Medical Research, whose original researches on diseases of animals and man were recognized by the Copley medal of the Royal Society and the Manson medal of the Royal Society of Tropical Medicine and Hygiene.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required; as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:
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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: Bacillus, Dublin; telephone: 62530 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: Associate, Edinburgh; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Chemistry of Fehling's Reaction

Dr. J. M. MacPHAIL (Middlesbrough) writes: Can anyone suggest what is the nature of the reducing agent or agents found so often in the urine when equal quantities of urine and Fehling's solution are boiled together? It would seem that under normal conditions this mixture when boiled remains blue, and we know that as sugar gradually disappears from the urine a green reaction appears; but what is this green reaction that is present when no trace of sugar has ever been found in the urine? It is also found with urates and phosphates. Certain signs would suggest that its presence indicates severe disturbance of liver function, as it is found very often as a "pea-soupy" green with sediment twenty-four hours or more after a long anaesthesia and severe operation. In a few days this green becomes a grass green, but it may be three to four weeks before the "normal" blue of health returns. This green colour is also found when the liver is involved in chronic heart disease with dropsy and liver engorgement; in chronic alcoholism; in "chronic debility"; in cancers, etc. The only trouble seems to be that it is found too easily to be of definite distinguishing value. If it shows a defect in liver function, what are the reducing agents that get green into the urine? and is it not possible to evolve a liver test that may be put to the proof by a fairly ordinary analysis of the urine?

Aerophagy and Meteorism

Dr. LEONARD WILLIAMS (London, S.W.1), in reply to "Perplexed" (*Journal*, November 3rd, p. 843), wonders whether this really is a case of aerophagy, whether in fact the air has really been swallowed, or whether, as seems more probable, a portion of intestine, say, ascending and transverse colon, becomes atonically dilated owing to nervous influence or fatigue, and is promptly invaded by gas from the surrounding tissues. He writes: Surgeons have known flaccid stomachs and large intestines to balloon suddenly during an operation. And, seeing that Epsom salts and other drugs are known to withdraw fluid from the intestinal canal, there is surely nothing to prevent air from being withdrawn by the same route. If this patient's flatulence were really due to swallowed air it is unlikely that there would be a complaint of meteorism, because the gas in such cases seldom goes below the stomach; very often, indeed, it goes no further than the cardiac end of the oesophagus, and the complaint is of cardiac distress, because the wind cannot be eructated. The meteorism in this patient would probably be quickly relieved by oil of caput, and, as there is usually an element of spasm somewhere, belladonna ought to be useful.

Income Tax

Cessation of Employment Earnings

"E. M." was an unestablished medical officer under the L.C.C. On May 4th the earnings ceased, owing to a serious street accident. The original notice of assessment was based on the previous year's figures, but an amended statement was rendered, when the facts were explained. Now, however, a

demand for payment of tax on the original figures has been received.

It looks as if there was some lack of co-operation between the office of the inspector who amended the assessment and the collector whose duty it is to collect the tax. Probably the best thing to do is to send the collector's demand to the inspector's office, pointing out that it does not agree with the amended statement.

LETTERS, NOTES, ETC.

Psychology and Religion

Dr. A. J. BROCK (North Queensferry, Fife) writes: I have read in your issue of November 24th an abbreviated report of an address given by Dr. David Forsyth on psychology and religion. It is difficult, owing to the conciseness of the report, to be quite sure of his point of view, but he appears to class religion as belonging to "pleasure-thinking," and therefore to something hardly desirable. He tells us that a large part of the human energy "available for social enterprise" is at present "running to waste in the interests of religion," and this he wants diverted for the purposes of science, otherwise of "objective truth," which "best serves in subduing the forces of nature in the interests of the individual." Personally, while I agree that the main object of our psychical powers is to forward social enterprise and to help the individual, I think at the same time that Dr. Forsyth is a little too hard on religion. Will he, for example, answer me one or two things? He suggests that a child's idea of God is derived from its experience of its own father. But what happens if the child has never seen its father, or if the father is not very awe-inspiring—is, for example, a hen-pecked individual? And another question. How does Dr. Forsyth explain the common and almost instinctive belief of all children in fairies? Do these not correspond to anything in "reality," or are they perhaps only the child's brothers and sisters? Next, about the soul. According to your report of Dr. Forsyth's address, psychology "had observed that the idea [of soul] arose from the implicit belief of savages in the reality of their dreams." Well, now, will Dr. Forsyth tell me what he makes of the expression often heard in these days of bureaucracy and of mechanism in general, and from people who are not by any means savages, that they "cannot call their souls their own." Dr. Forsyth is anxious to advance the cause of the individual. So I put it to him: What is the use of individuals who have no individuality? Does he tell me there is no such thing as individuality, and that, like the soul, it is only the figment of a savage's dream? On the contrary, I suggest that one's soul or individuality is the most important thing about one. At the same time, it is certainly not recognized or recognizable by "science," whose sphere is nothing more than "objective truth." If I am right, then Dr. Forsyth, in his zeal for social enterprise and for the welfare of the individual, will have to pay more attention to a lot of what is often classed as "religion," and which he tends too airily to dismiss with abusive terms drawn from the armamentarium of current psychology, such as "masochism" and "sadism."

Diaries and Calendars

We have received from Messrs. John Walker and Co. (Farringdon House, Warwick Lane, E.C.4) a selection of diaries, calendars, and appointment books for 1935, many of which would be of service to busy medical men. The diaries are attractively bound, and are obtainable at a variety of prices from 1s. 9d.

Special Plate: Correction

We much regret that, owing to an unfortunate error at the engravers, the three radiographs illustrating the article "Mediastinal and Apical Empyema," by Dr. S. J. Hartfall and Mr. L. N. Pyrah, were reproduced in the wrong order on the special photogravure plate which appeared on December 8th. An examination of the reproductions, with their accompanying legends, shows that the photograph labelled Fig. 2 is really Fig. 1, that labelled Fig. 3 is really Fig. 2, while the one appearing as Fig. 1 should actually be Fig. 3.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 43, 44, 45, 46, 47, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 48 and 49. A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 300.

BRITISH MEDICAL JOURNAL

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WEIL'S DISEASE (LEPTOSPIROSIS)

A CLINICAL AND BACTERIOLOGICAL STUDY OF NINETEEN CASES
OCCURRING CHIEFLY AMONG FISH WORKERS

BY

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The occurrence in Minorca of an epidemic of jaundice was first described by Cleghorn in 1745. The publication by Weil in 1886 of an account of four cases of infectious jaundice led to the recognition of a symptom-complex of fever, jaundice, enlargement of the liver and spleen, the occurrence of haemorrhages, and, occasionally, febrile relapses under the designation of Weil's disease. Following the discovery of the *L. icterohaemorrhagiae* in the blood of a patient suffering from the Japanese form of the disease, and the proof of its specificity by Inada and Ido in 1915, the name "spirochaetosis icterohaemorrhagica" was suggested as a substitute for the many titles applied to this disease. Stokes and Ryle¹ in 1916 obtained bacteriological evidence of the existence of the disease among the British soldiers in Flanders; similar outbreaks were reported and confirmed among the German, French, and Italian troops on the Western Front.

The occurrence of spirochaetosis in the form of an acute febrile illness, without jaundice, was recognized.² In consequence it has been the practice of European workers to revert to the non-descriptive title of "Weil's disease," in preference to its synonyms laying emphasis on jaundice. Interest in the disease has increased in recent years in Holland, where in the past decade 452 cases have been observed, with a mortality of 10.2 per cent.³ Infection occurs by bathing and by accidental or suicidal immersion in the canals; a higher occupational incidence is reported among bargemen and workers in abattoirs and other rat-infested premises.

Leptospiral Infection in Britain

Potential sources of infection in Britain are known to exist, the carrier rate in rats varying from four out of 101 rats in London⁴ to thirty out of 100 in different parts of England.⁵ Buchanan⁶ found sixty-one infected rats out of a total of 166 from various parts of Scotland. In the light of these figures the reports of leptospiral infection in man are surprisingly few, and their authenticity is undoubted only in three outbreaks. Manson-Bahr⁷ in 1922 described a case in a seaman four days after immersion in the Thames, the *L. icterohaemorrhagiae* being isolated from the blood. An outbreak of epidemic jaundice in 1923, among miners in certain wet pits in East Lothian, was described by Gulland and Buchanan,⁸ the diagnosis in eighteen cases being based on the clinical features. Investigations by Buchanan resulted in proof

of the leptospiral origin of the East Lothian epidemic, a guinea-pig inoculated from the urine of a patient dying with typical post-mortem findings and showing the *L. icterohaemorrhagiae* in its tissues. A total of thirty-one cases in all was later reported on the combined clinical and bacteriological findings.⁶ The existence of the disease in Scotland among members of the community other than coal-miners, particularly those working in rat-infested areas—for example, near refuse dumps, piggeries, and breweries—was thus proved.

In May of this year the clinical diagnosis of a fatal case of Weil's disease, in a temporary sewer worker in London, was established by the recovery of the *L. icterohaemorrhagiae* from guinea-pigs inoculated with blood on the seventh day of the disease, and by the presence of a strongly positive sero-reaction with the typical "Weil" strain on the tenth day. Consequent inquiry by Hamilton Fairley,⁹ under whose charge the case had been, showed, on clinical and serological examination of ten persons, that a hitherto unrecognized and endemic focus of Weil's disease had existed for twelve and a half years among sewer workers in London. Other reports of isolated cases or localized outbreaks have been communicated on the clinical features. In some cases spirochaetes were stated to be present in the urine, but bacteriological proof of their identity with *L. icterohaemorrhagiae* was not produced. For a full discussion of the relevant literature the reader is referred to the papers by Hindle¹⁰ and by Taylor and Goyle.¹¹

Present Investigation

Workers in rat-infested premises, both in this country and in Holland, have been recognized as specially liable to the disease. The association of leptospiral infection with water workers in Holland and wetness of the mines in East Lothian is admitted. The object of the present paper, however, is to describe a current outbreak of Weil's disease among persons employed in the handling and cleaning of fish, and to indicate the circumstances rendering them liable to infection. So far as the present authors are aware, the peculiar incidence of the disease in this industrial group has not been reported previously.

In June, 1934, two patients (Cases 3 and 5 in Table I), suffering from an acute febrile disease associated with jaundice and nephritis, were admitted to the wards in the Aberdeen Royal Infirmary under the charge of the professor of medicine. A diagnosis of Weil's disease was made on the clinical features. Inoculation of the blood and urine into guinea-pigs gave negative results. (An

* Since this paper was submitted to the *British Medical Journal* four more cases of proved Weil's disease in fish workers have been investigated, making a total of twenty-three.

explanation of these failures is discussed later.) Sera collected on the twenty-first and thirty-second days of the disease, respectively, were dispatched to Amsterdam, and Professor Schüffner, who generously agreed to test sera in these and other suspected cases, reported positive agglutination reactions in titres of 1 in 30,000 with the classical "Weil" strain. As both these patients were fish workers inquiries were instituted; these showed clearly that several additional cases had occurred in this occupational group over a period beginning in April of this year. Infective jaundice being a notifiable disease in Scotland since February, 1924, it was decided to request the medical officer of health to circularize the medical practitioners of Aberdeen and its regional area for information as to "any cases of infectious jaundice which they may at present have, or in the past have had, under their care," and to investigate the working conditions of the fish trade.

As a result of the better recognition of the clinical manifestations of Weil's disease, other than icterus, during the past decade in Holland the proportion of mild cases unassociated with jaundice has risen from 13 to 60 per cent. of the total.³ Since information was requested from the Aberdeen practitioners about cases of infectious jaundice, we claim that a reliable index of the prevalence of leptospiral infection was not produced as a result of this inquiry.

We propose to divide the cases reported in this paper into two groups. Group I consists of a series of fifteen cases investigated between June and October, 1934, in which the diagnosis has been confirmed by bacteriological or serological methods. Points of particular interest in Group I are given in Table I. Group II comprises a series of four cases of great severity, diagnosed as Weil's disease from their clinical manifestations, but lacking bacteriological or serological confirmation. The value of serological tests is of recent establishment, and accordingly had not been undertaken in these cases.

Group I

In order to save space individual case histories are omitted, and the general picture of the disease as seen in these cases is presented and compared with the clinical features reported elsewhere. Of the fifteen cases in Table I, Cases 14 and 15 occurred in Edinburgh, the remaining thirteen in Aberdeen, and all have occurred during the present year. Twelve of the thirteen patients

were connected with the fish trade. Eleven were employed in cleaning, filleting, curing, or packing fish, and one in the transport of fish from the yards to the railway station. Of the remaining cases one was a farm labourer working in fields and ditches, another was a labourer at the zoological gardens, while a third was a labourer engaged in laying water-mains. Seven out of the twelve cases in fish workers occurred in April, May, and June, and the remaining five in September and October. Males were affected in eight, females in seven instances. The ages varied from 14 to 67 years, ten being under 25. Juvenile and adolescent labour, however, is preponderant in the fishyards. The incubation period is stated to range between the limits of four and nineteen days, with an average of 10.3 days.³ In view of the continuous exposure to sources of infection it was not possible to determine the incubation period in any of our cases.

Onset and Early Symptoms

The onset can be described as sudden in fourteen out of the fifteen cases, the illness developing acutely within twenty-four hours or less. All of these patients were confined to bed from the onset. Thirteen were admitted to hospital at periods varying from the second to the fourteenth day of the disease. Several of the following symptoms were present in the first four days of the illness: severe headache; weakness and marked prostration; muscular pains; shivering; anorexia, nausea, vomiting, and constipation; sore throat; abdominal pain; epistaxis and insomnia. Diarrhoea occurred at the onset in one case, and was followed by marked constipation. Meningeal symptoms with acute pain on moving the neck led in one case to suspicions of a cerebral condition. Abdominal tenderness was generalized or localized to the epigastrium, right hypochondrium, or right iliac region. The tongue was coated, moist in the early stages, and dry later. Muscular pains and a feeling of prostration were present in practically every case. Cases 9 and 10 were exceptional in this respect, although they had been diagnosed as influenza until the sero-reactions revealed their true nature. In the severe cases muscular pain was a very prominent symptom, affecting the back, loins, shoulder-girdle, neck, thighs, or calves, and lasting as long as seven days; acute tenderness of the muscles on pressure was associated. Joint pains were present in the most severe surviving case.

TABLE I

No.	Sex and Age	Occupation	Onset	Muscular Pains	Haemorrhages	Jaundice	Nephritis	Duration (Days)
1	Male, 17	Fish worker	Sudden	++	Haemoptysis; occult blood in stools	++	Albumin, casts	58
2	Female, 18	"	"	++	Epistaxis	+++ 70	Albumin, pus cells	77
3	Female, 16	"	"	++	Epistaxis. ? Haematemesis	++ 33	Albumin, casts, pus cells. 58	87
4	Male, 18	"	"	+	None	++ 50	Albumin, casts, pus cells	(16)
5	Male, 40	"	"	+++	Epistaxis; occult blood in stools	+++ 60	Albumin, casts, pus cells. 152	(57)
6	Female, 16	"	"	++	Epistaxis	None	Albumin, casts, pus cells, red blood cells. 52	(26)
7	Male, 22	"	"	++	Occult blood in stools	++ 25	Albumin, casts, pus cells, red blood cells. 145	(42)
8	Female, 14	"	"	++	? Haematemesis	++ 35	Albumin, casts, pus cells, red cells. 45	(43)
9	Female, 18	"	"	None	None	None	None	14
10	Female, 21	"	"	+	None	None	None	(25)
11	Female, 16	"	"	+	(None)	+++ 60	Albumin	20+
12	Male, 63	Fish carter	"	Not noted	Epistaxis; petechiae	+++	Anuria	9
13	Male, 39	Labourer: pipe layer	Gradual	Not noted	Not noted	None	Albumin, casts, pus cells, red cells. 23	(56)
14	Male, 39	"Zoo" labourer	Sudden	Not noted	Not noted	+ 23	Albumin, casts, blood. 51	112
15	Male, 67	Farm labourer	"	++	Petechiae; haematemesis; melena	+++ 52	Albumin, casts, blood	14

+ = Slight. ++ = Moderate. +++ = Severe. Figures in Columns 7 and 8 apply to icterus index in Murphy units and blood urea in mg. per 100 c.c.m. respectively. Figures in Column 9 indicate total days of incapacity from work; where convalescent period is not included, figures are enclosed in parentheses. Death occurred in Cases 12 and 15; the remainder recovered.

Stress is laid by authors in the East Indies and Holland on the flushed conjunctivae ("red eyes") due to dilatation of the episcleral capillaries. "Red eyes" was not noted in any of our cases, but its absence may be explained on the grounds that the patients were admitted to hospital on the average five days after the onset of acute symptoms. Herpes labialis was seen only in one case, and was not haemorrhagic. Haemorrhage from some situation was present in nine out of thirteen cases. Epistaxes were the most frequent, occurring in five instances. Nose-bleeding was slight in degree, occurred in the first four days, and was revealed only on direct inquiry. Severe haemorrhages of multiple origin are recorded in the two fatal cases of this group.

Fever was present in ten of the patients. Case 12 was collapsed, with a subnormal temperature, while Case 13 was admitted late in the disease. The temperature varied in its maximum height from 99° to 104° F., according as admission was late or early. The highest figures were recorded on the third, fourth, and fifth days. The duration of the primary fever was six to nine days. A secondary rise in temperature in six cases followed from four to eleven days after the termination of the primary fever, and lasted from five to twenty days; a maximum figure exceeding 100° was reached in four of these. Splenic and glandular enlargement was absent in all cases, but there was liver enlargement in one. A red, measles rash was seen on the legs of one patient on the tenth day of the disease, and disappeared within two days. Jaundice was detected in eleven out of the fifteen cases, being first seen on the fourth to the tenth day; in six of the cases it was present by the sixth day. Fluctuations in the jaundice were not observed. Save in two cases where jaundice persisted until the seventh week, icterus had disappeared by the third week.

Urinary Features

These seem to be worthy of emphasis. Albumin and casts were found in nine cases, albumin alone in three, and red blood cells in six. The urinary output was not markedly diminished, except in one fatal case with anuria. There was no associated puffiness of the face or other oedema. The association of jaundice and nephritis was found of great diagnostic value. Whether the azotaemia of Weil's disease is wholly dependent on impairment of renal function or in part at least on increased urea production is an undetermined problem.¹² Figures for blood urea values are available only in four cases before the tenth day of the disease (Cases 3, 5, 7, and 8). Raised values are present in these instances. Case 7 is of interest in that a urea content of 66 mg. per 100 c.cm. was recorded on the third day of the illness, later rising to the high level of 143 mg. per 100 c.cm. on the tenth day. These high degrees of nitrogen retention suggest that the association of a sudden onset, high fever, muscular pains, nephritis, and raised blood urea values in the absence of oedema or hypertension might be of considerable diagnostic service in the early stages of severe cases. A secondary rise in the blood urea content occurred during the period of secondary fever in two cases.

Course of the Disease

While the distressing subjective features of the onset, such as headache and muscular pains, disappeared within a week, and jaundice resolved on the average by the twenty-first day, the urinary findings took considerably longer to return to normal. Even in mild cases a trace of albumin was present six weeks after the onset, while in the severe cases albumin and casts in the centrifuged deposit were detected in the eighth week of the disease. In Cases 3 and 5 blood urea values fell to normal upper limits after six weeks. In six cases loss of hair, beginning

in the third week of the disease, was marked, and led to a state of partial baldness. It has been impossible to estimate the total period of disability except by the duration of stay in hospital. Convalescence thereafter was prolonged, since many of the patients felt unable to work owing to general weakness and tiredness, and complained of vague muscular pains for several weeks after discharge from hospital. There were two fatal cases in this group, death occurring on the ninth and fourteenth days.

Group II

Group II consists of the series of four fatal cases reported on clinical grounds. They extend over a period from 1929 to 1934. The several occupations of the patients were restaurateur, farm worker, market gardener, and fish carter. Three were males and one a female, and their ages were 64, 34, 34, and 24 respectively. A typical history of one of these cases is as follows. The patient was suddenly taken ill with severe muscular pains followed by sickness, vomiting, and haemoptysis, succeeded by jaundice on the fourth day. On the sixth day he was admitted to hospital moribund, when the findings and subsequent course were: severe jaundice, albuminuria slight, hyaline granular and epithelial casts in urine, blood urea 349 mg. per 100 c.cm., gradually increasing jaundice, repeated haemorrhages; finally, anuria, coma, and death on the ninth day. It is to be noted that one of the patients in these fatal cases was a fish carter. In another a history was obtained of fatal jaundice in two younger members of the family, aged 7 and 17 years respectively. Since the premises were rat-infested it was suspected that all three deaths had a common origin.

Bacteriological Investigations

It has been the experience of Dutch and other workers that *L. icterohaemorrhagiae* can best be recovered from human cases of infection by intraperitoneal inoculation of blood, urine, and tissue emulsions into young guinea-pigs rather than by direct cultural methods. In the present series blood samples from five cases and ten specimens of urine from six cases were inoculated into guinea-pigs, 1/2 to 1 c.cm. of blood and 5 c.cm. of urine being used. The results of these tests have, however, been vitiated by the fact that for the most part the cases were recognized a considerable period after the onset of the illness. To recover the organism from the blood it is necessary to obtain a specimen in the early stage of the disease—one to six days after the onset, while the patient is yet febrile. So with the urine the most favourable time for the demonstration of the organism is the period fourteen to twenty-one days after the onset. A most important point in connexion with the examination of urinary specimens is that guinea-pigs must be inoculated within one hour, otherwise the leptospira will have died off.

So far the organism has not been recovered from any blood specimens, but has been recovered from the urine of Case 8 and from emulsions of the tissues of one fatal case (12). The urine which contained the leptospira was obtained on the sixteenth day of the patient's illness, and a further specimen, obtained on the twenty-ninth day, failed to kill the guinea-pigs. It should also be pointed out that it is not necessary to wait for the death of the animals in order to obtain positive results. Two days after inoculation the febrile reaction in the infected guinea-pig begins, and if a small quantity of fluid is withdrawn from the peritoneum from day to day by puncturing the abdominal wall with a sharp pointed glass pipette, sufficient material will be obtained for examination by dark-ground illumination methods. If the peritoneal fluid shows a positive result blood may be obtained by heart puncture and cultured, several drops being added to four or five tubes of medium.

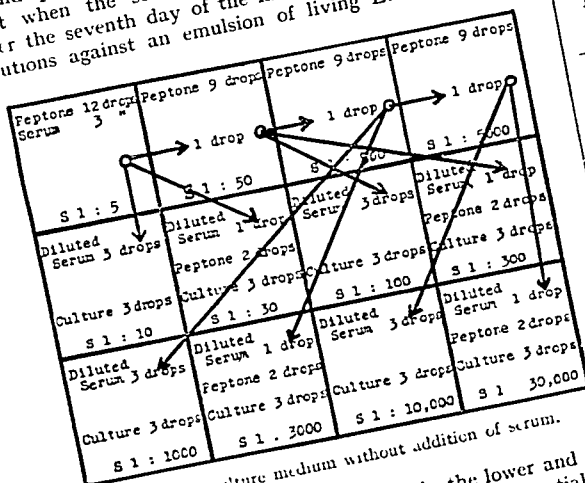
WEIL'S DISEASE

Cultural Methods

The culture medium used by the Dutch workers consists of the following: tap-water, 1,500 c.cm.; Witte's peptone, 0.15 gram; Ringer's solution, 300 c.cm.; and Sorensen's solution pH 7.2. The final reaction of this peptone medium should be between pH 6.8 and pH 7.2. Three c.cm. of the medium is placed in a small tube and sterilized. For use 0.3 c.cm. of fresh rabbit serum is added; the tubes are then heated at 56° C. for thirty minutes and incubated at 37° C. overnight. Certain rabbit sera seem to be somewhat inimical to the growth of leptospira, and, furthermore, guinea-pig serum filtered through an L5 Chamberland candle can be employed with success. Samples of horse serum have given less favourable results than rabbit or guinea-pig sera. The patient's blood can be cultured in this medium, and so also the urine if obtained free from other organisms. A point of practical interest is that since the leptospira may remain alive for days in clotted blood from human cases, the blood clot can be broken up and inoculated into guinea-pigs. To culture the leptospira the tubes are placed in an incubator at 32° C. and examined after three or four to seven days.

Sero-reactions

It is obvious that since only some 40 per cent. of cases show signs of jaundice, and since many cases recover after a febrile illness lasting four to seven days, it would be difficult to diagnose the disease on a clinical basis. If, however, the occupation of the patient is kept in mind, some indication of the possibility of a leptospiral infection should present itself. Schüffner and Mochtar¹³ showed that when the serum from human infections obtained after the seventh day of the illness was tested in various dilutions against an emulsion of living *L. icterohaemorrhagiae*.



Peptone = culture medium without addition of serum.

rhagiae, agglutination was obtained in the lower and lysis in the higher dilutions of the serum. This essential test is performed by setting up a series of dilutions of the serum in the cells of a sterile porcelain plate (painter's palette), or in small sterile test tubes 1 inch by half an inch. Figure 1 gives the details of Schüffner's method by which dilutions of the serum ranging from 1 in 5 to 1 in 15,000 can be obtained rapidly, and when three drops of the leptospiral emulsion (four days' growth at 32° C., and up to three days' growth at room temperature) are added to each the final serum dilutions range from 1 in 10 to 1 in 30,000. The tests are then incubated at 32° C. for three hours. The results are determined by examining a drop (obtained with a platinum loop from each dilution of the

serum) under the microscope by the dark-ground illumination method. For this purpose a most suitable optical equipment has been found to be the Leitz "dry" dark-ground condenser D 0.80 in conjunction with the achromatic objectives 3 (2/3 inch) and 6L (1/6 inch), the source of illumination being a 100 c.p. pointolite lamp. A $\times 20$ ocular can be used in conjunction with the 2/3 inch objective, and an $\times 8$ to $\times 10$ ocular with the 1/6 inch objective. A drop of the serum and living leptospiral emulsion is placed on a clean slide (0.9 mm. to 1.1 mm. in thickness, and examined first with the 2/3 inch objective and later with the 1/6 inch objective, no counterslip being interposed between the preparation and the objective.

TABLE II

Case No.	Day after Onset of illness on which blood was taken	Titre of Sero-reactions (aggl. and lysis) against:		
		<i>L. icterohaemorrhagiae</i> Weil	<i>L. canicola</i>	<i>L. icterohaemorrhagiae</i> Indian Strain
1	11th	1,000	300	30
2	65th	1,000	300	0
3	59th	32,000	300	300
4	61th	3,000	300	100
5	25th	20,000	300	100
6	29th	30,000	300	100
7	21st	10,000	100	0
8	9th	300	100	30
9	28th	3,000	100	0
10	8th	1,000	0	30
11	8th	1,000	100	0
12	8th	1,000	100	0
13	4th	300	0	0
14	32th	300	100	0
15	10th	1,000	100	0

By these methods agglutination and lysis are observable with ease and rapidity. The results of the sero-reactions are given in Table II, the sera being tested against the three living strains as used by the Dutch workers. It will be observed that the end titres of the reactions against *L. icterohaemorrhagiae* Weil are extremely high, the agglutination of the leptospira occurring in dilutions ranging from 1 in 10 to 1 in 300 or 1 in 1,000, and lysis occurring from 1 in 300 to 1 in 30,000, a typical result being:

	Serum Dilutions :							
	1 in 10	1 in 20	1 in 100	1 in 300	1 in 1,000	1 in 3,000	1 in 10,000	1 in 30,000
Agglutination	+++	+++	+++	++	++	++	++	++
Lysis	---	---	---	---	---	---	---	---

The reactions against *L. canicola* and *L. icterohaemorrhagiae* (Indian strain) are believed to be of the group type, *L. canicola* and *L. icterohaemorrhagiae* (Indian strain) being different serologically.¹⁴ If, however, formalized killed cultures are employed, then agglutination only is observable, the lytic action being inhibited. In one case, a fatal one, the serum failed to give any reaction on the sixth day of the illness, but when obtained two days later reacted to a titre of 1 in 1,000. The agglutinating and lytic action of the serum can be employed for the diagnosis of a recent infection, or an infection which has occurred many years previously.

Source of Infections

The industry which has grown up around the preparation of fish for human consumption cannot be said to be conducted entirely on up-to-date, hygienic principles. The patients in the present series have been employed, for the most part, in the handling of white fish. The girls are engaged as filleters and cleaners, and the men in the general handling and distribution of the raw material and offal. In this city some 250 different establishments, each employing perhaps five to six girls and two to three men, are constantly at work. These small businesses account for about 60 per cent. of the total, the remaining 40 per cent. being in the hands of larger firms, employing forty to 100 or more workers.

At the outset it may be said that for economic reasons the smaller businesses are less able to employ hygienic methods than the larger concerns, though this does not always follow. A visit to many of these establishments shows that the premises and equipment are often unsatisfactory. The fish are taken from the market in boxes; they are dumped in a corrugated iron shed in which at a wooden table five or six girls proceed to fillet and prepare the fish for sale to the retailer. The water for washing is obtained from the municipal supply, which is entirely satisfactory, but often, instead of being withdrawn from the tap, it is drawn from a tub placed underneath the tap. The latter source, the table, and the floor all rapidly become covered with slime and offal. In the evening the bulk of the dirt and offal is collected into barrels, which are not removed until the following morning. As the premises are often rudely constructed there is little protection against rats, which infest the whole area in which the business is conducted.

Some years ago one of us showed¹³ that 24 per cent. of rats, young and old, in the city harboured *L. icterohaemorrhagiae*. Recently, in July, 1934, when the disease was recognized, a visit was paid to some of the premises where the patients had been working. Six samples of water were obtained—four from floor washings and two from the tubs. To demonstrate the leptospira the technique of Applemann¹⁴ was employed. Young guinea-pigs were chosen, and the hair was depilated from the abdominal skin. The water samples to be examined were placed in buckets to a depth of two inches or so, and brought to a temperature of 32° C. The abdominal skin of the guinea-pig was then scarified, and two animals were placed in each bucket and allowed to remain there for one hour. The animals were then removed and replaced in their cages. In two instances guinea-pigs died on the tenth and eleventh day respectively after immersion in the water. Both animals showed the typical features of infection due to *L. icterohaemorrhagiae*, the organism being easily demonstrable by microscopical examination in preparations from the liver, and the disease was repeatedly reproduced in other animals by inoculation with liver emulsions.

More recently (October) six more samples have been similarly examined, with one positive result. The sample of water that produced this was obtained from the floor of the premises in which two cases of Weil's disease had occurred during the past summer. Probably the incidence and prevalence of *L. icterohaemorrhagiae* may be to some extent seasonal. Obviously, therefore, the opportunities for infection and the conditions for the survival and perhaps multiplication of *L. icterohaemorrhagiae* after being deposited by the rats are present. Persons employed in the trade have the skin on their hands frequently broken by their knives, and presumably infection occurs through the exposed flesh surfaces, or it may occur, as in Holland, by infection through the nasal mucosa and upper respiratory tract.

Discussion

In a subsequent paper it is proposed to deal with certain aspects concerning the aetiology, prevention, and treatment of Weil's disease. A short discussion regarding the importance of early diagnosis appears, however, to be desirable. Favourable results have been reported following the administration of specific antiserum in the early stages of the disease, and also in cases with commencing icterus. The best results, however, are obtained when serum is given within the first three days of the onset. Since jaundice does not appear regularly before the fifth day the clinical diagnosis depends on the recognition of such symptoms as abrupt febrile onset, muscular pain, "red eyes," and marked prostration. None of these symptoms, however, can be held to be specific for Weil's disease, since they may occur in many acute infections. This is particularly true of influenza and acute tonsillitis. A mistaken diagnosis of influenza had been made in several of our cases, and in none of the patients in Group I was Weil's disease suspected prior to our investigation. While it is true that the occurrence of a sudden acute fever in a sewer worker might suggest the possibility of leptospirosis, even in the pre-icteric stage, the problem is entirely different in workers connected with fish-curing and cleaning. For every case of Weil's disease occurring among the thousands of fish workers in Aberdeen there must be hundreds of cases of acute febrile illness of other origin with symptoms similar to those mentioned above. Weil's disease in the early stages might be suspected on the following additional grounds: a leucocytosis with a shift to the left in the polymorph series, latent icterus with a direct or biphasic van den Bergh reaction, acute nephritis unassociated with oedema or hypertension but indicated by slight albuminuria, the presence of granular and cell casts in the urine, and a raised urea or non-protein-nitrogen content in the blood. The tests required to obtain the above data, as well as guinea-pig inoculation with blood, would be impossible in view of the numbers concerned; hence it appears to us that the clinical diagnosis in the early stage, before jaundice occurs, presents almost insuperable difficulties to the practitioner in Aberdeen. Accordingly the full benefits of specific serum treatment are unlikely to be realized.

In view of the practical difficulties connected with guinea-pig inoculation of blood and urine, the sero-reaction will remain the chief method by which the diagnosis will finally be confirmed. Since a positive sero-reaction does not occur before the seventh day of the disease the information obtained is of little value in regard to treatment. It is reassuring to know that Professor Schüffner's investigations indicate that this reaction in Weil's disease is as specific as the Widal reaction in enteric fever. Our own experience is in keeping with this, since sera from 180 cases other than those of Weil's disease have been examined, and in no instance has the reaction been obtained even in a dilution of 1 in 10.

Conclusions

1. Nineteen cases of Weil's disease are reported, in fifteen of which the clinical diagnosis was confirmed by bacteriological or serological tests.
2. Thirteen of the patients were employed in the handling and cleaning of fish.
3. These findings show for the first time that workers among fish must be included in the occupational groups especially liable to Weil's disease.

It is necessary for us to express our indebtedness to Professor W. Schüffner, Director of the Tropical Disease Department of the Royal Dutch Colonial Institute at Amsterdam, for assistance in the serological diagnosis of the first cases, and for his

permission for one of us (J. S.) to visit him and to study the work carried out in connexion with the bacteriological and serological diagnosis of Weil's disease; to Major H. C. Brown of the Wellcome Bureau, for carrying out confirmatory adhesion tests; and also to the following physicians for allowing us access to the clinical material and records: Dr. W. F. Croll (Cases 1 and 7); Dr. A. G. Anderson (Cases 6 and 13); Dr. A. W. Hendry (two cases in Group II); and Drs. Edwin Matthew and J. D. S. Cameron (Cases 14 and 15).

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AN ACCOUNT OF WEIL'S DISEASE IN QUEENSLAND

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On July 7th, 1934, reference was made in the *Journal* (pp. 10 and 14) to the occurrence of Weil's disease in England. The arrival of that issue of the *Journal* in Brisbane coincided with an outbreak of the disease in Queensland. It is considered that a short review of the occurrence might be of value.

In February of this year the medical officer of health for the shire of Hinchinbrook (Dr. G. C. Morrissey) reported to the Department that during the past six months about thirty patients came under his notice displaying symptoms of a disease new to the district. The centre of this district is Ingham, a small town in one of the sugar-cane areas, situated in lat. 18° 8' S., a few miles from the coast, with an annual average rainfall of over sixty inches. The population is predominantly Italian.

Symptoms

The symptoms noted were as follows. The illness began as in influenza, with "shivers," frontal or temporal headache, generalized pains, and prostration, which was marked during the acute period and for a considerable time during convalescence. An early sign was the deep congestion of the conjunctivae. The symptoms varied in intensity. Some patients developed herpes of the lips, frequently haemorrhagic in character. Over 50 per cent. complained of upper abdominal pain of variable severity; the pulse was slow, but quickened as heart failure supervened. The temperature, initially of the febrile type, fell in a few days (six days) to normal, and in severe cases jaundice then appeared, with epistaxis and petechial haemorrhages.

The prostration became very pronounced, the spleen was enlarged and tender, and the urine was scanty and con-

tained blood. The tongue became brown, almost black, and dry. Vomiting of black vomitus tended to be persistent. In two cases there were terminal convulsions of moderate severity, preceded by delirium. One interesting feature of aetiological value was that most of the patients had enlarged axillary glands, and the hands showed evidence of old cuts and septic abrasions caused by the patient's occupation. The inguinal glands were enlarged also, but not so markedly as the former. During the occurrence of these cases the district had been experiencing exceptionally heavy and continuous rain.

Shortly after receiving this report the disease waned, but the shire council was instructed to set in motion an intensive campaign of rat destruction, as the district was heavily infested with these rodents. The Commonwealth Health Laboratory at Townsville was asked to assist by the examination of rats with the object of isolating the causative organism. The disease continued to be non-evident until the beginning of July, when it broke out again with renewed intensity. Up to the period of writing, when a further lull is in evidence, there have been 136 cases with seven deaths, and of the former a very large percentage of the patients were so seriously ill that recovery appeared doubtful. The treatment in all cases was purely symptomatic.

With the recrudescence of the disease Dr. T. J. Cotter of the Townsville Commonwealth Health Laboratory proceeded to Ingham, where he inoculated guinea-pigs direct with blood and urine taken from two patients, in accordance with the methods used by Fletcher of Malaya. Urine and emulsions of faeces from rats were also directly inoculated, but in all the results were negative.

Post-mortem Findings

Post-mortem findings reported by Dr. Cotter in one case were as follows:

"Well-developed muscular male, with marked icterus and generalized scattered skin petechiae. The liver was moderately enlarged, smooth, and congested, and finely streaked with bile. The gall-bladder was distended, with thickened walls, and contained thick dark green bile. The mucous membrane of the cystic duct appeared to be swollen. The spleen was enlarged, being about two and a half times the normal size. It was deep red in colour and very friable, tearing on removal; there was haemorrhage into the pulp. Renal system: a horse-shoe kidney was found with lower ends united across the vertebral column, the union consisting of kidney tissue, with ureters passing anteriorly. The kidney was swollen, soft, and engorged, with scattered subcapsular haemorrhages. The surface was smooth, and the capsule peeled off easily. The cortex was congested, and occasional haemorrhages were present. The pelvis and calices showed petechial haemorrhages on the mucous membrane. The heart was not dilated, and showed nothing abnormal macroscopically. There was hypostatic congestion of the bases of the lung. The bowel appeared normal."

Later, a post-mortem examination of an infected guinea-pig showed multiple small haemorrhages in all the viscera, with "butterfly" patches in the lungs.

At this time, further north, a large number of cases of "coastal fever" were occurring. This is an indeterminate fever, the cause of which is unknown, but which is probably due to a virus of the Rickettsia type conveyed in the bite of an insect. As the *L. icterohaemorrhagiae* had not been isolated in the cases at Ingham the occurrence of these cases of "coastal fever" tended to complicate the position, which became more pronounced as all the laboratory tests proved to be negative (Widal against Rawlings and Cairns strains, Weil-Felix reaction, blood examination for malarial parasites, and agglutination tests for *Br. abortus*). In addition, influenza was also present, further complicating the outbreak.

Preventive Measures Adopted

Notwithstanding these results, Drs. Morrissey and Leckie of Ingham stood to their diagnosis of Weil's disease, and the following measures, from the public health point of view, were advised: (1) an immediate supply of antiserum to be obtained by quickest route from abroad; (2) protective measures for cane-cutters—frequent disinfection of hands and feet in biniodide solution and the wearing of footwear (it is the custom among these men to work bare-footed in the cane-fields); (3) investigation of water supplies, which in the main are drawn from shallow wells; (4) closer sanitary inspection of quarters, etc.; (5) conference of various bodies interested to intensify the rat destruction campaign; (6) a research worker to be maintained in the fields.

Dr. Sawers of the School of Public Health and Tropical Medicine, Sydney, was then sent north. On August 15th Dr. Cotter was successful in isolating the *L. icterohaemorrhagiae*, thus confirming Dr. Morrissey's clinical diagnosis. Dr. Sawers corroborated this finding, and later isolated the leptospira from urine taken from rats in the Ingham district. Subsequent examinations have shown that a very high percentage of the rats are so infected there.

As the position at Ingham was fast approaching that of an industrial crisis, owing to the dread of the disease, the Commissioner of Public Health (Dr. J. Coffey) proceeded to the district to advise on preventive measures, which were embodied in the following pamphlet:

1. Avoid eating food in the fields unless the hands are thoroughly cleansed previously.
2. Avoid drinking water in the fields unless it has been boiled.
3. Avoid rolling and smoking cigarettes in the field.
4. Avoid using water lying in the field for washing hands or face; such water is liable to be infected.
5. Avoid walking through or in wet places.
6. Feet should be protected by wearing boots.
7. All cuts and abrasions should be washed immediately in a perchloride of mercury solution, one tablet to one pint of clear water.
8. All cuts and abrasions, after the above preliminary treatment, should be covered with adhesive plaster or other suitable covering.
9. All food in the barracks and elsewhere must always be protected from rats.

Remarks

From a close analysis of the situation it would appear that the disease has been introduced into the district from over-seas, as Dr. Morrissey, who has been at Ingham for twelve years, is positive that he had never seen a case in the district until October, 1933. As Weil's disease, was very prevalent in Italy during the war, and as the population of Ingham in the main is Italian, the theory that the disease has been conveyed by human carrier is highly probable; less likely is the theory that it may have been introduced direct by infected rats of foreign origin.

By plotting on a map of the district the places where the cases originated there is demonstrated a distinct tendency for infection to occur in farms in low-lying areas along the course of streams which have been shown also to be heavily infested with rats. The probable association of the disease with the rainfall is also interesting, since cases generally occur about ten days after rain. The cane-cutters work in all weathers, and it would appear that the moist conditions existing in the fields after rain have a benign influence on the life of the leptospira. After a prolonged spell of dry weather, on the other hand, the outbreak ceases. It may be, too, that the germ is left on the cane itself by infected rats, which destroy cane to about the extent of 10 per cent. In grasping the cane

preparatory to cutting, the hands become injured with abrasions, and it is possible that the leptospirae gain direct entry into the system in this manner, as witness the enlarged axillary glands in the cane-cutters suffering from the disease.

Firing the cane has been recommended as a temporary measure. By this action the cane and upper surface of the soil are sterilized, and the lower leaves, which are the principal cause of injury to the cutters' arms, are removed. Unfortunately, this action is rendered impossible during the most dangerous period, as the cane is too damp. The main problem which will tax the resources of the State, however, will be to eradicate the rat down to the irreducible minimum.

In the compilation of this review I am indebted to Dr. John Coffey, Commissioner of Public Health; Dr. F. McCallum, Chief Quarantine Officer (General); Dr. T. J. Cotter; Dr. W. Sawers of the Commonwealth Health Service; and Drs. Morrissey, Leckie, and Piscitelli of Ingham.

MODERN SANATORIUM TREATMENT*

BY

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Treatments, like diseases, come and go. So strange, indeed, is custom in this respect that the elderly practitioner sometimes rubs his eyes in astonishment on finding that his old-fashioned therapy has come round again as the newest popular form of treatment. Many forms of treatment suffer from misapplication. For a time they are discarded in favour of some newer method, instead of inquiry being made as to the reasons for their apparent failure, and as to whether their rational application cannot be utilized to embrace the new departure.

There is a tendency now among some to disparage sanatorium treatment and to regard collapse therapy as the only form of treatment of pulmonary tuberculosis. It is true that artificial pneumothorax, together with other surgical measures such as phrenic evulsion and thoracoplasty, has revolutionized the treatment of chronic pulmonary tuberculosis within the last decade. This holds especially for the intermediate case and the case which has proceeded to cavity formation. Formerly, in many instances, treatment of these types could only be palliative, and was often disheartening. It is now active, and frequently successful. But this success in selected cases does not imply, as some Continental authorities urge, that in all cases of chronic pulmonary tuberculosis an artificial pneumothorax should be induced and surgical methods employed if pneumothorax is impossible. Such an attitude ignores not only the tried and proved methods of sanatorium treatment, but fails to take cognizance of the many cases of pulmonary tuberculosis in which artificial pneumothorax is contraindicated. To this important question Dr. F. Heaf has recently drawn attention.¹

The term "sanatorium treatment" is a loose one and has been applied to the treatment in a residential institution of all forms of pulmonary tuberculosis. Unfortunately, sanatorium treatment in the true sense has been adversely affected by this lack of clear definition. To the modern physician dealing with tuberculosis the words have a special and limited meaning: they apply to institutional treatment given to a tuberculous patient who is ambulant and afebrile—that is to say, the sanatorium patient is a selected case. Lack of appreciation of this fact has led

* Read in the Section of Public Health at the Annual Meeting of the British Medical Association, Birmingham, 1934.

to sanatoria being filled with unsuitable patients who were by no means fitted to undergo ambulant treatment. The unfavourable results given by these patients have cast reflections upon sanatorium treatment. Yet it was not the sanatorium system which was faulty, but its method of use. Furthermore, an appreciable proportion of these unfavourable cases by prior treatment might have been rendered suitable for sanatorium treatment.

Classification and Selection of Patients

The residential institutions in a tuberculosis scheme for the treatment of the consumptive comprise: (a) the hospital with observation wards; (b) the sanatorium; (c) the hospital or home for advanced cases.

The best form of institution is a combined one—the hospital sanatorium—which includes an observation block, a nursing or hospital block, and sanatorium pavilions. A certain preliminary selection of patients for institutional treatment is done by the tuberculosis officer in consultation with the patient's medical attendant.

From clinical examination and experience the tuberculosis officer will mark certain patients as in need of hospital treatment, others as suitable for sanatorium treatment forthwith.

But in practically every case it is desirable that the patient should be admitted to the observation ward and put to bed for a fortnight or so. During this time he will be under intensive observation by the resident medical officer. His temperature can be charted at four-hourly intervals; the influence of rest upon it can be studied; the sputum can be examined bacteriologically and measured; the pulse rate can be charted; the psychology of the patient can be taken into account; he can be x-rayed, and so forth. If his temperature while he is in bed remains normal the effect upon it of getting him up or of gentle exercise can be tested.

At the end of the period of observation a decision can be made as to the form of treatment which is applicable to the present needs of the individual patient. The ambulant afebrile patient may be transferred to the sanatorium section. Other patients may be regarded as likely to obtain arrest of their disease and to be suitable for sanatorium treatment after an initial course of hospital treatment; another group of patients will be selected for artificial pneumothorax, phrenic evulsion, or some other form of operative treatment. Such treatment is preferably given in the hospital or surgical block of the institution, after which the patient may be found eligible for transference to the sanatorium section. A fourth group will include those patients obviously needing hospital treatment, but in which doubt is felt as to whether they will ever attain that degree of quiescence of their disease which will make them fit subjects for sanatorium treatment.

Finally, there are the advanced febrile cases in which the disease has progressed so far that only palliative treatment is indicated. When the home conditions are good and provision can be made for isolation a certain number of these patients may be advised or permitted to take their discharge, but the majority require hospital treatment either in the hospital block of the combined institution or in a special hospital or home for advanced cases. This treatment is not only in the interests of the individual patient who thus has his last days of life made comfortable by medical and nursing care, but inasmuch as he is likely to be a source of massive infection the segregation of this patient from his family is a valuable measure from the public health standpoint.

Hospital Treatment

In hospital treatment the criterion of temperature is all-important. Bearing this in mind, it follows that as a result of institutional observation the greater proportion

of patients will require a period of hospital treatment, for the early afebrile case of pulmonary tuberculosis is comparatively rare. In most early cases the disease begins with fever, and fever is also indicative of active disease in intermediate and later stages. The chief feature of the treatment in hospital is rest in bed, which should be absolute not only in name but in practice. Incidentally, the value of absolute vocal rest for patients suffering from tuberculous laryngitis cannot be over-emphasized.

In a favourable case, after the temperature curve under the influence of absolute rest remains normal and the pulse rate is steady, neither being disturbed by the patient being allowed up all day; when, concurrently, the physical signs in the chest are inactive and non-progressive and the general nutrition and physique are good, the patient is fit to be transferred to the sanatorium. But if after a month or six weeks' hospital treatment the physician finds that his patient continues febrile he must consider future treatment in relation, as always, to the individual case. For example:

(a) In a unilateral case or one chiefly unilateral he will consider the advisability of artificial pneumothorax or some other form of collapse therapy.

(b) In others he may wish to try the effect of sanocrysin or some other form of gold-salt therapy.

(c) Another case may present features of regression. The temperature is hectic, or, more ominous still, of the inverse type, being higher in the morning than in the evening. The physical signs are bilateral and are advancing. The sputum is copious, and emaciation and prostration are marked. One can only hope here to relieve the patient by attention to special symptoms, and the strict regime of absolute rest can be relaxed.

(d) Other febrile patients the physician may consider as unsuitable for collapse therapy, but inasmuch as they show general improvement as regards nutrition and the spread of disease he may advise longer treatment under absolute rest.

(e) Then there are certain chronic cases of pulmonary tuberculosis which respond to hospital treatment, but are obviously unsuitable for strict sanatorium treatment. Under this category may be grouped certain of the tuberculous asthmatics, the emphysematous, those with tuberculous laryngitis in a certain proportion of cases, those prone to complications, such as pleurisy, bronchial catarrh, bronchitis, and gastro-intestinal disorders.

A proportion of cases of this kind may live for years with tubercle bacilli in their sputum. From time to time their resisting power breaks down, and they require institutional treatment or are ordered rest at home in bed under appropriate conditions; they become afebrile, and with due precautions may resume an active life, but clinical experience teaches one that under any undue strain or climatic exposure, or intercurrent infection—for example, influenza—the chronic disease is liable to exacerbate. Such patients need medical supervision throughout the course of their lives, but they only require, as a rule, limited periods of hospital treatment.

Sanatorium Treatment

It will be seen from what has been said that the average tuberculous patient only qualifies for sanatorium treatment after a period of observation followed by hospital treatment. The early ambulant afebrile patient who is found on observation immediately suitable for the sanatorium is the exception and not the rule.

It is not intended in this paper to discuss the details of sanatorium treatment. Its essentials are that the patient should reside in a healthy situation, where he can obtain plenty of fresh air, be under close medical supervision, and adhere to a specified regime of life, including an adequate but not excessive diet. Graduated exercise and some form of occupational therapy are an integral part of the treatment. The rate at which the exercise is in-

creased and the hours of work are extended depends upon the progress of the lesion, and the patient's disposition, weight, and appetite. The utmost care must be taken in controlling graded exercises and work. If the patient's temperature rises to 99° F. or over he should be kept in bed on "absolute rest" until his temperature is persistently normal. For a limited period the patient may rest in the sanatorium ward, but whenever his temperature remains febrile for more than a few days he must no longer be regarded as a sanatorium patient. He needs transference to the hospital or nursing block of the sanatorium to undergo treatment by "absolute rest," after which, under favourable circumstances, he may re-enter the sanatorium. This alternation between hospital and sanatorium treatment is in great part the secret of successful institutional treatment of pulmonary tuberculosis. It is best done in the combined hospital-sanatorium.

As to the duration of sanatorium treatment, this depends upon the response of the individual. Some patients require longer, others shorter periods. If possible the patient should be retained in the sanatorium until his disease is quiescent and he is in a fit condition to resume an occupation. In patients falling short of this standard their sanatorium residence should have educated them in a way of life which may enable them in the future to obtain quiescence or to prolong their days.

Conclusion

An attempt has been made in this paper to indicate the principles of modern sanatorium treatment, including the selection of patients for such treatment. In brief these principles comprise:

1. The diagnosis of pulmonary tuberculosis at the early stage.
2. A proper selection of patients for sanatorium treatment.
3. Full co-ordination between the tuberculosis officer and the medical superintendent of the sanatorium.
4. Observation and hospital treatment, including collapse therapy.
5. Correct co-ordination of hospital and sanatorium treatment.
6. Study and treatment of the individual patient by the medical superintendent of the sanatorium.
7. A proper sanatorium regime.
8. Prolonged duration of stay in the sanatorium.

To these principles should be added the maintenance of the ex-sanatorium patient in whom the disease has become quiescent under medical supervision for at least five years, the injunction to seek medical advice at the first symptom of renewed ill-health, residence in a village settlement, or, if this is impracticable, suitable after-care provision by the local authority.

The sanatoria of the more progressive authorities in this country obtain favourable results by the practice of these principles. If they were generally practised throughout the country we should hear less about the failure of sanatorium treatment.

REFERENCE

- ¹ Hraf, F.: The Misapplication of Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, *Tubercle*, 1933, xv, 13.

An international post-graduate course on diseases of infants and children, with special reference to their treatment, will be held in Vienna from February 11th to 24th. A prominent feature of this course will be the clinical demonstrations and the exhibition of radiological, electrocardiographical, and other apparatus used in diagnosis and special therapy. The fee is 50 Austrian schillings, and further information is obtainable from the secretary of these international classes, Dr. A. Kronfeld, Porzellangasse 22, Vienna IX.

SEPTICAEMIA FOLLOWING TONSILLECTOMY

A RECORD OF CASES

BY

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In recent years there have been at least two interesting papers^{1, 2} showing the result of investigation into the post-operative complications following the removal of tonsils and adenoids. Clinical notes of a series of cases may therefore not be out of place.

This article makes no attempt to deal with the statistical aspect, but merely records a number of cases that resulted in certain serious sequelae. They occurred at a time when children undergoing this operation were kept in hospital for twenty-four hours. The patients were admitted on the morning of operation and discharged the following day. The total mortality during these years was 0.7 per cent. All the cases reported were operated upon by, or under the direct supervision of, the surgeons in charge of the ear, nose, and throat departments, and no patient was discharged under twenty-four hours after removal of the tonsils. All were examined immediately prior to operation by the house-surgeon.

Eleven cases of severe illness, with seven deaths, are herein recorded, all of which can be directly attributed to the operation. Streptococcal blood infection would appear to be the principal cause of the illness. In seven of the cases a streptococcal blood infection was proved by the presence of the organism either in the blood or in the pus from pyaemic abscesses, while in Cases 8, 9, 10, and 11, the probability of a streptococcal septicaemia is strong.

Although among a large number of operations the incidence of serious complications may be considered small, yet the occurrence of such accidents in connexion with what is looked upon as a minor operation is disquieting, and calls for a critical survey of method and management. Following on this unfortunate experience it is impossible to resist the obvious implications and deductions. It is significant that patients operated upon in private practice, either in their own homes or in nursing homes, seldom develop severe complications. Many of the hospital patients come from poor, overcrowded, and unhealthy environments. Their physical condition cannot therefore be considered satisfactory to undergo an operation, and their homes are certainly not suitable for their after-care. Whenever possible such cases should be taken into hospital or sent to a convalescent home for a few days prior to the operation.

As there can be little doubt that the chief source of danger is the presence of a virulent strain of streptococci in the upper respiratory passages or tonsils, it is a self-evident precaution to avoid operating upon those who have recently had, or been in contact with, infections of this nature. In this connexion it is as well to remember that the surgeon or the staff assisting him may be the source of infection, and that anyone in the throes of "a cold" should be excluded from taking part in the operation.

Since these cases occurred the period of detention in hospital has been increased to three days during the summer months and five during the winter months; complications have been greatly reduced and the mortality practically wiped out. Considerations of hospital finance and the length of the waiting list should not be entertained at the expense of the safety of the operation.

It is difficult, when one realises the vast number of patients referred for operation, to resist a sense of doubt

as to its necessity or even advisability in all cases. The beneficial results following the removal of tonsils and adenoids in selected cases are undoubtedly most striking, but operation is to be advised with deliberation after careful and, if necessary, repeated examination.

Case Records

Case 1.—A male, aged 8 years, had tonsils and adenoids removed, guillotine method, on March 4th, 1932. The temperature, which on March 5th was 99.8° , rose gradually to a maximum of 104.4° on March 13th. The throat was fairly clean; there were a few enlarged and tender cervical glands. On March 11th painful (Osler's) node was noted on right wrist, and on the same day a blood culture grew streptococci. Painful nodes were noted on the right foot and left upper arm on March 12th, similar nodes developing subsequently during the next day on the left hand and right knee. On March 14th there was fluid effusion into the left knee-joint, which cleared up without surgical measures. Three days later a fluctuating swelling appeared on the fourth finger of the left hand, and pus aspirated from this contained streptococci. The temperature then gradually settled, although it was never normal, until a sharp rise occurred on March 24th, which continued until March 27th, when a large abscess in the deep tissues below the left scapula was aspirated; this also contained streptococci. Gradual improvement followed, until the patient was discharged to a convalescent home. Anti-streptococcal (anti-scarlet) serum was administered daily throughout the illness, and blood transfusion was performed when it was at its height.

A case of streptococcal septicaemia with pyaemic abscesses, and recovery.

Case 2.—A female, aged 4 years, had tonsils and adenoids removed, guillotine method, on March 9th, 1932. The temperature was 100.4° on March 10th, reaching 102.4° on the third day, and remaining up until death took place, one week after operation. There was consolidation at the base of the right lung with generalized bronchitis. Blood culture grew streptococci.

A case of streptococcal septicaemia with bronchopneumonia and rapidly fatal termination.

Case 3.—A female, aged $7\frac{1}{2}$ years, whose tonsils and adenoids were removed, guillotine method, on July 1st, 1931, was detained in hospital for six days owing to slight pyrexia. She remained well for one week after discharge, but was put to bed at home on account of lassitude and feverishness. A slight swelling of the left knee was noticed on July 22nd, which gradually increased, the child becoming extremely ill. On August 8th she was readmitted, looking very pale, with tonsillar fossae clean, and temperature 105.2° . The left knee was swollen, tender, and flexed at 90° , and on exploration contained turbid fluid, from which streptococci were isolated in pure culture. On August 12th the right hip-joint was extremely painful, and on aspiration turbid fluid was obtained which contained streptococci. The temperature continued to range from 100° to 103° until death, on August 14th. Blood culture was not carried out.

A case of streptococcal septicaemia with pyaemic abscesses, and death.

Case 4.—In this case, that of a female aged 26 years, the tonsils and adenoids were removed by dissection method on October 16th, 1931. She was discharged on October 19th and remained well until October 23rd, when she complained of severe pain in the left ear, accompanied by fever of 105° . Owing to persistence of pain in the ear and pyrexia, the left mastoid was opened; no pus was found, and the lateral sinus was healthy. On October 27th right pleural effusion developed, blood-stained fluid being withdrawn on exploration, which on culture grew streptococci. Blood culture was sterile (one only). The pyrexia continued, and on November 26th thrombophlebitis of right femoral vein occurred. By the end of December the fever had subsided, and the signs of fluid in the right chest had disappeared. The patient was discharged well, except for slight oedema of the right foot.

A case of streptococcal septicaemia, streptococcal pleural effusion, with recovery.

Case 5.—A male, aged 5 years, whose tonsils and adenoids were removed, guillotine method, on September 16th, 1931, was discharged from hospital the following day apparently well. He was readmitted six days afterwards with a history of severe abdominal pain, vomiting, and diarrhoea for three days. On admission he was very ill, with sunken eyes and alae nasi working. The temperature was 102° , pulse rate 152, and respirations 32. The throat was clean, except for a slough still present on the right tonsil. There was generalized tenderness and rigidity over the abdomen, the signs being especially marked in the left iliac fossa. There was pneumonic consolidation over the lower lobes of both right and left lungs. It was decided that the abdominal signs were probably due to the pneumonia, but on the following day, the abdominal tenderness and rigidity persisting, laparotomy was performed under gas and oxygen anaesthesia, serous fluid with flaky pus escaping. This fluid contained streptococci on culture; blood culture was sterile. The child died two days after operation.

A case of streptococcal septicaemia, with bronchopneumonia, streptococcal peritonitis, and death.

Case 6.—A male, aged 9 years, had tonsils and adenoids removed, guillotine method, on August 8th, 1931. On the following day the child had a temperature of 100° , and was therefore detained in hospital. On the second day after operation the temperature was 102° , pulse rate 140, and respirations 22. The throat was satisfactory, and a few rhonchi were present in the lungs. The child was acutely ill and drowsy. The temperature ranged from 100° to 104° until the fourth day after operation, when it gradually subsided. A blood culture grew a few feeble colonies of streptococci.

A case of streptococcal septicaemia, with recovery.

Case 7.—A female, aged 3 years, was admitted to hospital for an indefinite febrile condition, supposed to be due to a recent tonsillitis. Ten days after admission, on June 8th, 1932, tonsils and adenoids were removed, guillotine method. Twelve hours after operation the temperature rose to 100.4° , and so continued. On June 12th there was pain with redness and swelling just below the left knee, maximum tenderness being over the head of the fibula. When the left fibula was explored on June 14th about 5 c.cm. of pus was evacuated; this contained streptococci. Blood culture was negative. The child made an uneventful recovery.

A case of streptococcal septicaemia, with streptococcal osteomyelitis of fibula.

Case 8.—The tonsils and adenoids of a female, aged 2 years and 9 months, were removed, guillotine method, on February 15th, 1932, on account of persistent nasal discharge. On February 19th the child was discharged from hospital apparently well. She was readmitted on February 24th with a temperature of 104° , pulse rate 148, and looking extremely ill and pale. No abnormal physical signs, except some post-nasal discharge and enlarged cervical glands, could be found. In spite of a blood transfusion the child died on the day following admission. Unfortunately, a blood culture was not attempted, but the clinical picture and progress of the case is highly suggestive of a septicaemia, probably streptococcal.

Case 9.—The tonsils and adenoids of a male, aged 2 years, were removed for unilateral nasal discharge, guillotine method, on May 15th, 1931. The child was discharged from hospital after twenty-four hours apparently well. Two days after operation he developed cough and dyspnoea, and became increasingly ill. He was readmitted to hospital the next day, with a temperature of 99.4° , pulse rate 160, and respirations 56; there was extreme cyanosis, and coarse rales could be heard all over both lungs. Death took place five hours after admission.

The signs in this child were suggestive of an acute streptococcal bronchopneumonia. However, the possibility of inhalation pneumonia cannot be denied, although I have not met with such in my experience of a very large number of tonsillectomies in children. Unfortunately, no post-mortem was obtained.

Case 10.—A male, aged 5 years, had tonsils and adenoids removed, guillotine method, on January 23rd, 1931. He was discharged from hospital after twenty-four hours apparently

well. Three days after operation there was a sudden onset of severe vomiting and diarrhoea. The child's condition rapidly became worse, and unconsciousness supervened the following day. On readmission (five days after operation) the temperature was 103°⁰, pulse rate 160, and respirations 32. The patient was very drowsy, but could be roused; his colour was good. There were scattered rhonchi throughout both lungs, a patch of tubular breathing, and crepitations at left base. The temperature remained at 103°⁰ to 104°⁰; delirium and unconsciousness supervened, death taking place two days after admission—that is, one week after tonsillectomy. No blood culture or post-mortem was performed, but the clinical picture was one of septicaemia.

Case 11.—A female, aged 9 years, had tonsils and adenoids removed, guillotine method, on October 7th, 1931. She was discharged from hospital after twenty-four hours apparently well. On arrival home she was seen by the family doctor, found her not at all well, with a temperature of 101°⁰. Child continued very ill; the throat was dirty, and the temperature ranged from 101°⁰ to 103°⁰. On October 10th there was severe epistaxis. The following day the patient was very ill; her expression was anxious, and her breath offensive. There was sordes on the lips and teeth, and the throat was very dirty and sloughy. The cervical glands were enlarged and tender, and blood oozed from the nasopharynx. She was admitted to a nursing home, when the temperature was 102°⁰, pulse rate 144, and respirations 28. A throat swab showed the presence of streptococci and staphylococci. In the morning of October 12th the patient's condition slightly improved, but in the evening there was another severe epistaxis, and she became semi-conscious. A post-nasal plug was introduced to control haemorrhage, and anti-streptococcal serum was given. The child died that evening. No blood culture was obtained.

Although the post-nasal haemorrhage was probably contributory, the fatal result in this case, in view of the high pyrexia and general picture, was considered to be due to septicaemia.

I desire to express my thanks to my colleagues in charge of the ear, nose, and throat departments for allowing me to see and record these cases.

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² Nesbitt, Elizabeth: *British Medical Journal*, 1934, ii, 569.

M. Gundel and F. Müller-Voigt (*Deut. med. Woch.*, November 2nd, 1934, p. 1664) give an account of a hurricane campaign of diphtheria immunization in the town of Duisburg-Hamborn. With a population of 440,000 it has suffered more and more from diphtheria since 1928. In that year there were 1,438 cases and 112 deaths. In 1933 the cases rose to 2,090 and the deaths to 126. In 1934, up to September, there were as many as 2,214 cases and 160 deaths. Artificial immunization of the children seemed, therefore, urgently indicated, and within the space of six days first injections were given to 23,000 of the 38,562 children between the ages of 1 and 5, and to 57,034 of the 64,450 school children between the ages of 6 and 14. The material used was formol-toxoid and toxin-antitoxin, and the immunization was effected by three injections. In the absence of legislative measures wherewith to enforce this undertaking, the authors achieved rapid, wholesale immunization of the town's juvenile population by means of systematic educational propaganda and a well-organized campaign, which required the co-operation of more than a hundred doctors and over 3,000 other workers, about 1,700 of whom were school teachers. The propaganda included articles in the Press, and addresses. It was found much easier to deal with the school child than with the pre-school child, as the former could be shepherded by their teachers, whereas the latter required extraction from their homes, a process which could not be achieved by simply inserting notices in the Press. The rate at which the school children were inoculated, after some practice had been acquired, was 140 to 150 per hour; the rate was considerably slower for the pre-school children.

ACUTE IODISM FOLLOWING LIPIODOL BRONCHOGRAPHY

BY

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The use of lipiodol for bronchography has now become so much a part of the routine investigation of non-tuberculous chest diseases that the occurrence of any severe complication appears worthy of record.

Lipiodol consists of poppy-seed oil in which 40 per cent. of iodine is held in chemical combination with the unsaturated fats. The possibility of the production of toxic symptoms in patients with an idiosyncrasy for iodine is obvious. However, severe symptoms from this cause appear to be rare, owing to the close chemical combination in which the iodine is held. Sicard and Forestier¹ state that they have encountered only transient iodism of benign type. A report² of the Council of the American Medical Association on the dangers of the injection of iodized oils makes no mention of the possibility of dangerous toxic symptoms. Firth³ describes a personal experience of troublesome but not serious symptoms from iodine sensitivity following endotracheal introduction of chloridized peanut oil; in addition to coryza, lachrymation, and an urticarial rash, he had a transient parotitis and severe frontal headache, all passing off within a week. Carmichael⁴ records two considerably more severe cases after lipiodol, characterized by vomiting, diarrhoea, conjunctivitis, and a haemorrhagic, urticarial, and bullous rash. Both cases improved rapidly within a week. O'Donovan⁵ reports a case in which death occurred six weeks after lipiodol injection, accelerated by the aggravation of a previously existing papulo-pustular rash.

The two cases described in this communication, one of which proved fatal, occurred recently at the Brompton Hospital. Over 2,900 lipiodol examinations have been performed at this hospital without a previous serious accident from iodine sensitivity. A transient coryza with lachrymation and possibly a mild urticarial or erythematous rash, all passing off within a few days, have been observed not infrequently. In a few cases more severe rashes—appearing rather later, up to a week or ten days after the injection—have occurred. These tend to be of an acute and irritant urticarial type. Headaches have followed the injection in rare instances, and in one case frontal headache was severe enough to cause suspicion of acute glaucoma. I have been unable to find any previous record in the literature of a fatality directly due to acute iodism consequent on the diagnostic use of lipiodol.

Case I

A man, aged 46, was admitted to the Brompton Hospital in August, 1933. He was referred from a sanatorium, where doubt about the original diagnosis of pulmonary tuberculosis had arisen on account of atypical x-ray appearances and persistently negative sputum examinations. The differential diagnosis appeared to rest between chronic lung abscess and neoplasm. His general condition was poor, and he had lost 3 st. in weight.

On August 22nd I introduced 20 c.cm. of lipiodol by the subcuticoid route. The film taken after this showed a good outline of the bronchi, with a probable chronic bronchiectatic abscess of the right upper lobe; there was no lipiodol in the stomach. Six hours later he had developed marked coryza, with nose-bleeding, salivation, and injection of the conjunctivae. The following day he was obviously weaker; the pulse was rapid and of poor volume, and the temperature was rising; the nose-bleeding continued. Scattered petechiae had appeared, especially on the dorsum of the hands and

forehead; the conjunctivae had become grossly oedematous, and haemorrhages had occurred into them; the tongue was swollen, and there was a large submucous haemorrhage in it. The submaxillary glands had become very swollen and tense.

On the next day, August 24th, all the symptoms were more severe; the blood pressure was reduced to 85/60. An urticarial element was evident in the rash, which had become more widespread; subcutaneous haemorrhages were seen over the pressure points, especially the right elbow and the sacrum. There was marked dyspnoea, and scattered moist rales were audible over both lungs. There was great difficulty in swallowing on account of the grossly swollen tongue, but no evidence of oedema of the glottis sufficient to cause obstruction. Bleeding from the nose and gums continued; the patient was unable to open the oedematous and haemorrhagic eyelids. He ultimately died, from exhaustion and pulmonary oedema, fifty-four hours after the lipidol injection.

The treatment in this case consisted of the administration of a saline purge at the onset of symptoms; adrenaline locally to the swollen tongue and fauces failed to reduce the oedema; atropine was given to check excessive bronchial secretion; and sodium thiosulphate, 0.5 gram intravenously, produced no improvement.

Post-mortem Examination.—This was performed by Sir Bernard Spilsbury, and the following is a summary of the relevant pathological changes. External appearances: numerous large petechiae in skin of face, with larger haemorrhages in skin of upper eyelids and in conjunctivae. Numerous petechiae in skin of hands and feet, a few on rest of limbs and trunk. A group of large haemorrhages with ulceration over back of right elbow and over sacrum. Raised red nodule over trachea; no septic change found on incision. Heart: pericardial cavity obliterated by fine old adhesions. Extensive haemorrhages into visceral pericardium, chiefly over left ventricle. Heart somewhat enlarged and dilated. Small haemorrhages in myocardium, and one in endocardium. Microscopically, slight fatty degeneration and some brown atrophy of the muscle. Air passages congested, large petechiae in mucosa of trachea, becoming confluent in larynx. Oedema of ary-epiglottidean folds, especially on right side. Lungs: very dense adhesions over upper part of right lung; marked bronchiectasis, with fibrosis of upper half of right upper lobe, with a large cavity in lower part of lobe. Lower parts of both lungs congested and oedematous. Liver: small haemorrhages into substance. Kidneys: cloudy swelling and congestion. Intestines: haemorrhages in mucous membrane of middle third of small intestine. Tongue: haemorrhage in left side of tip, forming a small nodule. Submaxillary glands: enlarged, with haemorrhages beneath capsule and between lobules.

Case II

The patient, a woman aged 59, had been attending the hospital for some years. In 1930 a lipidol examination was performed, and showed bilateral basal cylindrical bronchiectasis. She had been treated on frequent occasions with medicines containing potassium iodide, though the dosage did not exceed 15 grains daily; neither the lipidol nor the iodide had caused toxic symptoms. A second lipidol examination was performed on June 29th, 1934, 20 c cm. being introduced by the crico-thyroid route, the patient subsequently returning home. The x-ray film showed more advanced bilateral bronchiectasis.

She was admitted to hospital on the following evening, June 30th, acute symptoms having appeared about six hours after the injection. On admission she had an urticarial rash with large purpuric patches over both olecranon, and just below the knees. There was gross painful swelling of both forearms, round both elbows, and behind the knees, the appearances resembling those of cellulitis. The face was puffy, the conjunctivae grossly swollen, with purpuric patches in them and in the eyelids. There were a few purpuric spots on the tongue, and one on the upper lip. The chest was full of bubbling rales and rhonchi; cough was difficult. There was some dysphagia.

On July 2nd all symptoms were more severe. The brawny swellings on the forearms were extremely painful. The patient was unable to swallow even fluids, but there was no respiratory

obstruction in the larynx; adrenaline locally failed to reduce the swelling sufficiently to render swallowing possible. The pulse was of very poor volume. The urinary output was scanty, and there was a cloud of albuminuria; the patient was rapidly becoming weaker.

It was thought that the lack of circulating fluid owing to deficient intake and to withdrawal of fluid into the oedematous tissues was the chief cause of the asthenia; 25 oz. of hypertonic (1.8 per cent.) saline with 5 per cent. glucose was therefore given intravenously. In spite of a rigor, very definite improvement followed within a few hours; the patient was able to swallow fluids freely, and the pulse became stronger. During the next few days steady improvement continued. The brawny oedema of the limbs persisted for a week, and the purpuric areas on the elbows, knees, eyelids, and upper lip ulcerated and healed under scabs. A purulent infection of the oedematous conjunctivae occurred, but cleared up without complications. The patient was not fit to leave her bed for four weeks, but eventually made a good recovery.

Discussion

There can be no doubt that the toxic symptoms in these two cases were due to hypersensitivity to iodine. The fact that the second patient had already had a lipidol injection, and had been treated with potassium iodide medicinally without ill effect, shows that testing for sensitivity by a dose of potassium iodide is of little value. It also suggests the possibility of the symptoms having been due to an abnormal sensitivity to the poppy-seed oil component of the lipidol. This appears to be negated by the close similarity of the symptoms to those known to be produced by iodine sensitivity. A case presenting very similar symptoms, though without the haemorrhagic rash, after a single dose of 25 grains of potassium iodide, has been reported by Snell and Savin.⁶ There can be no question of impurities in the lipidol, as in both cases it was perfectly clear, and other injections with the same batch gave rise to no ill effects.

The accidental introduction of lipidol into the stomach is generally considered to be a necessary antecedent of toxic symptoms. In neither of these cases was there lipidol in the stomach when the x-ray film was taken, but it is possible that, in spite of instructions to the contrary, the patients swallowed some after coughing it up. Sicard and Forestier,⁷ however, have shown that, judging the rate of absorption of lipidol by the rate of elimination of iodine in the urine, the rates of absorption from the lungs and from the gut do not differ so much as might be expected. For instance, they found that if lipidol is administered in capsules by the mouth 34 per cent. of the iodine is excreted by the kidneys within five days; if introduced into the bronchi, 20 to 23 per cent. is thus excreted.

It appears, therefore, that the greatest care in testing for sensitivity to iodine and in avoiding the introduction of lipidol into the alimentary tract will not always prevent the occurrence of serious symptoms from iodism after the diagnostic use of lipidol. It is suggested that in the fortunately rare event of such symptoms being severe, the use of intravenous hypertonic saline is a theoretically rational and practically useful measure.

I am indebted to Mr. Tudor Edwards and Dr. A. L. Punch for permission to report these cases, and to Sir Bernard Spilsbury for allowing me to use his post-mortem record.

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- ¹ Sicard and Forestier: *The Use of Lipidol in Diagnosis and Treatment*, 1932, p. 111.
- ² *Journ. Amer. Med. Assoc.*, 1932, ix, 1946.
- ³ Firth: *Ibid.*, 1933, c, 110.
- ⁴ Carmichael: *Canadian Med. Assoc. Journ.*, 1932, xxvi, 319.
- ⁵ O'Donovan: *British Medical Journal*, 1927, ii, 935.
- ⁶ Snell and Savin: *Lancet*, 1927, i, 759.
- ⁷ Sicard and Forestier: *The Use of Lipidol in Diagnosis and Treatment*, 1932, p. 5.

Clinical Memoranda

A NOTE ON DRUG ADDICTION TREATMENT.

When his particular method finds a place in the text-books its author may believe that later developments should be published, even though the field covered is of restricted general interest. Addiction is rare in England, but abroad the demand for a reliable treatment is ever more insistent. It may be worth while, therefore, to describe a radical improvement and simplification of the "painless method" associated with my name, whereby the process of medical withdrawal can be carried out successfully by any careful practitioner.

First, as to rationale. Drugs of the atropine group have been employed in countless systems, but always previously in massive doses to produce delirium and confusion, under cover of which the patient is separated from his drug. All such methods constitute a serious shock to the frequently debilitated addict, with the result that convalescence is delayed and the final issue imperilled. A very different use of atropine has great advantages and no such dangers.

Atropine shows two distinct and, in some respects, opposite effects, as it is given in minute or in ordinary doses. With the latter, of course, vagal depression is constant, but such small amounts as 1/1000 to 1/500 grain occasion vagal stimulation. I have shown that this primary vago-stimulant action of small doses continues when tolerance to atropine is established. Thus a patient who has received frequent minute doses for a week will show a slowed pulse when the dose becomes 1/100 grain. This fact is used in my simplified process of withdrawal.

The morphinist or other addict is one who has become accustomed to preserve vagal preponderance and sympathetic depression by means of his drug. Less than his normal supply means sympathetic overaction, while deprivation ushers in a series of sympathetic explosions which may even endanger life. On the other hand, frequent minute doses of atropine secure for him the steady vagal tone which means a smooth passage to recovery.

The process is very simple in practice. Atropine 1/100 grain is dissolved in saline with the day's supply of morphine, "half a drachm" to be injected every two hours while the patient is awake." Obviously sleep is a measure of the patient's comfort, and the more he sleeps the fewer the doses needed. The amount of drug actually used forms the maximum for the day following, and the process is continued until less than 1/4 grain is taken in the twenty-four hours. Atropine is increased so slowly that ocular symptoms are not produced, and luminal administered in large and increasing amounts. The method is automatic and self-regulating, and the test of success is a slightly slower-than-normal heart beat, which is quite invariable with proper dosage.

The conception of the addict as sustaining by his drug an artificial vagal preponderance, and needing to have it continually sustained throughout withdrawal, is also useful when convalescence is considered. He will be safe from unpleasant sensation so long as his threshold of fatigue is not exceeded, but if he oversteps the mark sympathicotonia immediately is manifest. His physical and mental powers will rapidly improve, but their exercise must be most carefully watched, especially in the early stages, and, indeed, it may be doubted whether a completely normal day's work should be undertaken for several months.

Painless withdrawal, anxious consideration of problems of fatigue, and adequate psychological treatment are the three factors without which constant success is impossible. The neglect of one, and often of all, has made the usual prognosis in addiction unduly gloomy.

London.

G. LAUGHTON SCOTT, M.R.C.S.

RETROPERITONEAL SARCOMATOSIS

The following case should be of interest by reason of its rarity and the difficulty in diagnosis.

A woman, aged 47, was seen in the out-patient department of the Southport Infirmary on June 4th, 1934, when she complained of generalized abdominal pain and weakness. She said that she had been ill for about a month, but had rapidly become worse during the past few days, and had noticed that her abdomen was rather larger than usual. She had not vomited, her bowels were acting normally, she complained of no urinary symptoms, and the menstrual history was normal. Her past history revealed that a Caesarean section had been performed twelve years previously; she had been troubled by chronic kidney disease, resulting in albuminuria of pregnancy.

On examination she looked extremely thin, pale, and generally very ill, and gave the impression of a typical malignant cachexia. The temperature was 97°, pulse 124, and respirations 24. The tongue was dry, though not coated. There was nothing of note in the chest; the abdomen was distended, and a hard, irregular swelling was felt in the left iliac region, though it was difficult to discover anything definite on account of some free fluid. There was slight tenderness and rigidity on palpation in the left iliac fossa. The liver was apparently normal, the spleen could not be palpated, and the kidneys presented nothing abnormal. Digital pelvic examination proved negative. The urine was examined, and was found to contain albumin and pus. There was general swelling of the left lower limb.

The patient was seen by a physician, and a laparotomy was advised. She was admitted to hospital for this purpose on June 6th. The urine was subjected to a pathological examination, but no additional information was gained. The urinary tract was x-rayed, but nothing abnormal was found. The patient's condition, however, became rapidly worse. The skin was moist, and she perspired a great deal, the tongue remaining dryish. The abdomen became very much more distended, pain increased, and she vomited bile-stained fluid. Very little urine was passed during the last two or three days of the illness. The patient died suddenly on June 15th, without a diagnosis having been arrived at.

POST-MORTEM FINDINGS

On opening the abdomen a large quantity of dark, straw-coloured, apparently infected free ascitic fluid came away, and then a very unfamiliar picture presented itself. The omentum was pale, rather vascular, nodular, and fixed down to the sigmoid flexure, where there was a focus of active inflammation, due to diverticulitis. The intestines were pale, shrunken, atrophic, coated with lymph, and studded here and there with small, pale nodules. The stomach and duodenum appeared normal. There was no sign of any growth in the intestinal tract. The liver was pale in colour and normal in size, and the spleen was normal. The pelvic organs were very atrophic, and studded with the same type of nodules as the intestines. Kidneys were normal in size, but there was a pyelitis affecting each pelvis. There was a very hard extensive mass, which appeared regular on the surface, situated behind the mesenteric attachment of the intestines, extending along the vertebral column on each side, and spreading upwards towards the upper regions of the abdomen.

Sections were cut of the liver, omentum, and of a piece taken from the retroperitoneal mass, and microscopical examination revealed the liver to be in a state of toxic hepatitis, with fatty degeneration of the hepatic cells. Pieces of the thickened omental and retroperitoneal tissues showed a generalized sarcomatosis of the large round-celled variety.

One can conclude that this was a case of primary retroperitoneal sarcomatosis, possibly of lymphoid origin, and that the omentum and other parts of the abdominal cavity were affected by secondary sarcomatous deposits. The rapidity with which death took place, following a comparatively short illness, probably bears out these facts.

I should be very interested to hear other views on the subject, and of any other cases of a similar nature which have occurred recently.

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Reviews

CHILD GUIDANCE CLINICS

There are now more than two hundred child guidance clinics in the United States of America, and during the last few years their number in this country has been increasing. The name is not altogether a good one, and there are several clinics here which have never used it. The Institute of Medical Psychology in London, for instance, where one-third of the patients are children, had been doing work such as that carried out in the best American clinics for years, but has deliberately avoided the name. There are many medical men and others who still seem to have no clear idea of the work done at such clinics, and, indeed, the clinics themselves vary a good deal in character, and are conducted under diverse auspices. Those who wish to know more about their nature and activities will value a book recently published by the Commonwealth Fund, by Dr. G. S. STEVENSON and Mr. GEDDES SMITH, entitled *Child Guidance Clinics: A Quarter Century of Development*.¹ The book deals entirely with the American situation, and is based solely on American experience. This is reasonable, as the main pioneer efforts were made in that country, and it is by the help of the Commonwealth Fund that a considerable part of the work in England has been made possible. There are, however, beginning to be shown some divergencies of view and of method as the common type becomes adapted to the needs and conditions of this country.

The type is essentially an organized co-operation. The psychiatrist (in the wider American acceptance of the term), the psychologist, and the trained social worker are the essential members of the team, but with them should be associated the paediatrician, the teacher, the family doctor, and, of course, wherever possible, the parent. It offers, probably, the best example of that team-work which the modern wider outlook of medicine is rendering more and more imperative. The psychiatrist or psychotherapist should always be the leader of the team, but the exact relationship between each member and the others will vary somewhat in different clinics; and it is important to remember that "the co-operative situation demands not only participation in the study of a case but continued team-work in treatment." The children whose emotional state or difficult behaviour has led to their reference to the clinic must definitely be regarded as patients; but "diagnosis in a child guidance clinic is not a pigeon-holing word or phrase, but a reconstruction of the case." The patients come from various sources, some from the recommendation of the family doctor, some from schools, from children's courts, or from hospitals of the ordinary type; and the methods of the clinic may well vary within limits in accordance with the proportion of children coming through each of these channels. Not infrequently it is found that "treatment of the mother is an almost invariable concomitant of treatment of the child," but this should not be undertaken at the clinic unless it is the most promising way of solving the emotional difficulties of the child, and always in direct relationship thereto. In all clinics a play-centre is almost essential both for diagnosis and for treatment; for "in the use of playthings and play situations young children often reveal emotional problems which they would be unlikely to put into words," and unfettered play, or play which is not obviously directed or controlled, is frequently a valuable means of treatment.

¹ *Child Guidance Clinics: A Quarter Century of Development*. By George S. Stevenson, M.D., and Geddes Smith. New York: The Commonwealth Fund; London: H. Milford, Oxford University Press, 1934. (Pp. 186. 6s. 6d. net.)

The usual course of clinical activity, though developing on this pattern, is not yet fixed, but is proving of great service to individuals and must be regarded as definitely preventive in relation to delinquency and mental disease. The best clinics, moreover, are much more than therapeutic agencies; their educational activities, both for the medical practitioner and for the social worker, have greatly extended, and the opportunities for research which they afford are very valuable, though at present scarcely used.

BRONCHOSCOPY, OESOPHAGOSCOPY, AND GASTROSCOPY

The call for a third edition of *Bronchoscopy, Esophagoscopy and Gastroscopy*² has given Dr. CHEVALIER JACKSON the opportunity for bringing this well-known book up to date in some particulars. The chief direction in which this is required is due to the extension of endoscopic diagnosis and treatment, and some fresh coloured plates in the famous style of Dr. Jackson, showing views of the bronchi and oesophagus, even surpass the old familiar ones in vividness of colouring and artistic merit. The possibility of removing small pins from the periphery of the lung is described here, as also very fully in the recently published *Foreign Body in the Air and Food Passages, Roentgenologically Considered*. The word "possibility" is used, because it may be doubted if Dr. Jackson has laid quite enough emphasis on the fact that the number of bronchoscopists competent both by training and equipment to attempt such removals must be, and always will be, very small.

Reading the book again, it is impossible not to gain the impression that many of the problems which are of daily, or at least of frequent, occurrence in the author's bronchoscopic clinic are seldom encountered in this country, even in large clinics, and that the conditions of practice must be different in many ways. It is, however, a book with which any practitioner who claims to be a specialist in laryngology must be absolutely familiar, for in this volume the whole subject is brought to its essentials. To gain historical perspective it should be read in conjunction with the old *Peroral Endoscopy and Laryngeal Surgery*, if that is available. Dr. Jackson himself says that the bronchoscopist is likely to see things narrowly through a small tube metaphorically as well as actually, and for that the historical perspective is the proper correction.

PHYSIOLOGICAL CHEMISTRY

Turning over the first few pages of his book, which Professor McCLENDON entitles *Manual of Biochemistry*,³ one becomes immediately aware that it is no ordinary textbook on biochemistry, and that it is therefore advisable to go at once to the preface for a better idea of its scope than is conveyed in the title. The book represents in the words of the author "a condensation and rewriting of mimeographed material with considerable additions." It is essentially a catalogue of facts, the arrangement of which, so as to accommodate all his data, has obviously presented the author with considerable difficulty. Almost every conceivable subject or substance connected with animal or plant biochemistry receives mention, some at length, such as the vitamins and hormones, while others

² *Bronchoscopy, Esophagoscopy, and Gastroscopy: A Manual of Peroral Endoscopy and Laryngeal Surgery*. By Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., and Chevalier L. Jackson, A.B., M.D., M.Sc., F.A.C.S. Third edition, rev. Philadelphia and London: W. B. Saunders Company, 1934. (Pp. 485; 207 figures, 15 coloured plates. 37s. 6d. net.)

³ *A Manual of Biochemistry*. By J. F. McClelland. New York: J. Wiley and Sons, Inc.; London: Chapman and Hall, Ltd., 1934. (Pp. 381; 33 figures. 31s. net.)

are dismissed in a sentence, coupled with a single reference to the literature. This volume is certainly a storehouse of information. Little-known points of interest are jotted down concerning most substances, and many more data appear regarding the inorganic elements than can be found in any other biochemical work. Laboratory methods in condensed form find a place near the end, but those selected are not always the most recently published modifications of the authors quoted. Lastly, there is a table, printed on tinted paper, in which data concerning a thousand substances of biochemical interest are recorded. A great deal of labour must have been expended in the compilation of this work, but since access to the literature is rendered so comparatively easy nowadays, through the existence of comprehensive and efficient systems of indexing, one is left wondering in the end whether it has been quite worth while.

In preparing his *Introduction to Physiological Chemistry** Professor MEYER BODANSKY had as his chief aim the provision of a small textbook which would be sufficiently comprehensive to cover the whole field, and at the same time would aid the student to correlate biochemistry with its allied sciences. The first edition, which appeared in 1927, met with a warm welcome, and the fact that the volume under review represents the third edition provides further testimony to the skill and success with which the author has carried out his purpose. It is an attractively written book, and manages to convey in full measure to the mind of the student the fascination of a subject which has made amazing strides in recent times. Though called an introduction, its standard goes beyond the elementary, and the student is constantly referred to original sources for fuller discussions of the particular topic under consideration. It is indeed exceedingly well documented with a judicious selection of references. The present edition brings the material right up to date. Recent advances have not been merely tacked on, but the sections to which they apply have been rewritten so as to bring out the true relationship of the latest discoveries to the basic work which has preceded them, and to indicate their place on a frontier ever being extended into the unknown. Professor Bodansky is equally authoritative whether dealing, on the one hand, with the foundations built upon pure organic and physical chemistry, or, on the other, with the clinical applications of the science. It would be difficult to improve upon the manner in which he accomplishes his task within the compass of 662 pages.

THE PROBLEM OF MYOPIA

As is implied by its name, *Stretching of the Eye (Myopia) and its Treatment*,* Professor GRUNERT's monograph is a reversion to an old view of a baffling problem. The author dismisses the highly significant work of Steiger, holding that Steiger's biomathematical approach leads to therapeutic nihilism, and that its clinical value is therefore limited. Harking back to the fallacies which gave a limping justification for the use of both full correction and under-correction, atropine and eserine, and almost every other conceivable mode of treatment, the author urges that myopia is the result of the yielding of the sclerotic induced by changes in the intraocular pressure during childhood. Arguing from the fact that the posterior segment of the eye consolidates at a later period than the anterior segment, he further holds that myopia is the

result of a persistent infantilism of the sclerotic, this being sometimes hereditarily determined, but generally the consequence of an abnormality of the ciliary muscle. On this basis he advocates the use of pilocarpine in an attempt to bring the ciliary muscle to a normal state, and thus to put the eye into a position of fending for itself against the progression of myopia. So successful does he consider his results that he regards the treatment of myopia as one of the most grateful tasks in medicine. To illustrate his thesis he gives a number of case reports. To the reviewer these case reports are indeed convincing—that is to say they confirm his belief that a method which will render the treatment of myopia a "grateful task" is still to come, and that ingenuity spent in resurrecting old views on myopia is a waste of labour.

JOHNSTONE'S MIDWIFERY

The short interval that has elapsed since the previous edition of Professor R. W. JOHNSTONE's *Textbook of Midwifery* indicates that its enlargement and resetting have increased its already wide appeal. Careful revision has been a feature of past editions, and is again prominent in this issue,* including minor alterations and some of major importance. Among the former are changes in the chapter on menstruation required to meet the constant flux of opinion on the biochemical aspects, the inclusion of recent work on the changes in the foetal circulation at and after birth, and on the treatment of puerperal haemorrhages. The use of the forceps in the delivery of the after-coming head is advocated more strongly than before on account of the lessened risk of brachial palsy.

Alterations of principle include the adoption of the terminology approved by the Anatomical Society of Great Britain, and the separation from the section on the physiology of the puerperium of the portions dealing with the newborn child, which have been made into a new section. In it are three chapters giving a succinct account of the physiology and management of the infant, its diseases and birth injuries, and the methods of artificial feeding. The additional space and greater prominence thus given to this part of the subject serve to bring it into its due perspective. We have a little grumble, however, because part of the physiology of the breast is left in its former position, and the most has not been made of the valuable lessons in the direct application of physiology to clinical practice that a somewhat fuller study of mammary function can furnish.

By bringing into apposition the physiological and the pathological this new section follows a suggestion put forward in our review of the previous edition, but the author states in his preface that although he has pondered over the advice to do likewise throughout the book he prefers his original plan. There can be no argument about his decision, for every teacher must have full liberty to teach his lesson in the way he thinks best, and Professor Johnstone doubtless feels that an arrangement suitable for a short section is not equally suitable for the lengthier ones. But he will perhaps accept, in theory at any rate, the view that in training students the closer that ordered function can be contrasted with the disordered the easier it becomes to stress the importance of promoting the normal and the early detection of the passage into disordered function.

Our high opinion of the excellent instruction, scientific and practical, of Professor Johnstone's textbook is enhanced by its latest edition.

* *Introduction to Physiological Chemistry*. By Meyer Bodansky, Ph.D. Third edition, rewritten and reset. New York: John Wiley and Sons, Inc.; London: Chapman and Hall Ltd. 1934. (Pp. 662; 39 figures. 25s. net.)

* *Die Dehnung des Auges (Myopie) und ihre Behandlung*. By Professor Dr. Karl Grunert. München: J. F. Lehmann, 1934. (Pp. 161. M. 7; Lwd., M. 8.50.)

* *A Textbook of Midwifery for Students and Practitioners*. By R. W. Johnstone, M.D., F.R.C.S.Ed., F.C.O.G. Seventh edition. London: A. and C. Black, Ltd. 1934. (Pp. 463; 277 figures. 18s. net.)

THE MEDICAL DIRECTORY, 1935

Once again we welcome a new edition of the *Medical Directory*—the ninety-first annual issue—for 1935.* The title-page is now in a handier position near the front cover, and the list of contents appears in bolder and more legible type, occupying two pages instead of one. So far as can be judged from preliminary glances through this substantial volume of nearly 2,400 pages, which will be our desk companion for the next twelve months, every compliment we have paid the *Medical Directory* in former years is fully earned again. No reference book surpasses it in accuracy and finish. The numerical summary of the medical profession shows that the names now number 57,128, being 649 more than the total for 1934. The largest increases are again in the geographical sections devoted to London and the Provinces of England. The entries under "Abroad" have grown to over 10,000, and Scotland shows an increase of thirty-two names. On the other hand, in Wales there has been a decrease of six; the Services have dropped by sixteen, and Ireland by 104. The section on "British Health Resorts: Spas, Seaside, and Inland," edited by Dr. Fortescue Fox, is now the official handbook of the British Health Resorts Association, and no longer appears as part of this volume. The twenty-sixth edition will be published early next year, and a copy will be sent gratis to every subscriber to the *Medical Directory*. The "Late List" of new names, changes of addresses, etc., appears at pages 2210 to 2213.

Notes on Books

Since the second edition in 1926 Dr. HALLS DALLY's handbook on *High Blood Pressure: Its Variations and Control*^b has been largely rewritten, and now provides an up-to-date and readable review, with special reference to practice and treatment. A good account is given of the clinical methods of estimating blood pressure, in which the precautions necessary to avoid fallacies such as errors in the systolic pressure are described, and the author's graphic method of representation on squared paper of various grades of arterial pressure is illustrated. This is followed by a well-illustrated chapter on the numerous sphygmomanometers available, among which the Baumanometer ("kompak" model) is recommended as meeting the requirements of most general practitioners on the grounds of accuracy, simplicity, permanence, portability, and strength of construction. In a discussion on the mean pressure the author concludes that there is not any good reason for attributing to it the great importance that the French school under the influence of Pachon and Vaquez have done. The causes and clinical picture of raised blood pressure are systematically considered, and much attention is paid to the numerous methods of treatment. Of the organotherapeutic substances liver extract, at one time advocated, has failed to produce any lasting benefit; but in selected cases the author has had encouraging results with vagotonine and, on the whole, satisfactory improvement with acetylcholine. Bismuth subnitrate, which gives off minute quantities of nitrite ions continuously in the intestine, is recommended in patients free from advanced arteriosclerosis.

Professor H. KLEINSCHMIDT has revised his well-known "Therapeutic Vade-mecum for Paediatric Practice" for a seventh edition, and in doing so has incorporated up-to-date methods and modifications in feeding, medicaments, and physical methods. In the dietetic section Professor Kleinschmidt's own predilections are apparent, and an appendix describes the special preparations required.

* *The Medical Directory, 1935.* London: J. and A. Churchill. (66s.)

^b *High Blood Pressure: Its Variations and Control. A Manual for Practitioners.* By J. F. Halls Dally, M.A., M.D. Third edition. London: William Heinemann (Medical Books) Ltd. 1934. (Pp. xxii + 281; 47 figures. 15s. net.)

^c Berlin: S. Karger. 1935. (Pp. 224. RM. 6.00.)

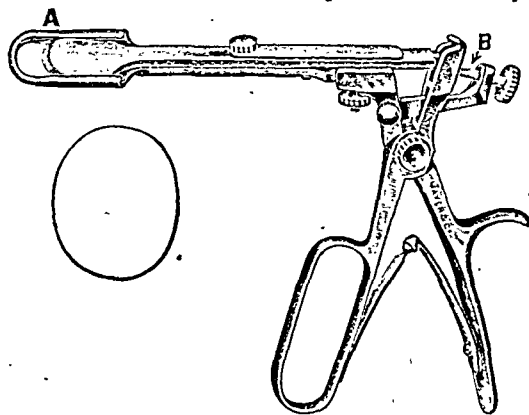
Preparations and Appliances

A TONSIL GUILLOTINE

Mr. ARTHUR MILLER, F.R.C.S. (London, W.1), writes:

The guillotine is still extensively used for the enucleation of tonsils in children. When this is done under a prolonged general anaesthesia the expert will succeed in removing the whole tonsil, conserving both anterior and posterior pillars, no matter what type of guillotine is used. Unfortunately, tonsillectomies are still performed by the short-anaesthetic method, owing to circumstances beyond the surgeon's control. He is then called upon to perform the acrobatic feat of enucleating both tonsils and adenoids in a fraction of a minute, and leaving both anterior and posterior pillars intact and unblemished. It is then that the type of guillotine used plays an important part in the efficient removal of the tonsils. The guillotine illustrated here has been used by me for some considerable time, and, it is claimed, overcomes the difficulties mentioned. The features of the instrument are as follows:

1. The fenestra is oval, and is of sufficient length to permit the longitudinal diameter of the tonsil being engaged without undue squeezing. (Any pressure required is produced by the transverse diameter of the ring with or without adjust-



ment of the blade.) This fact makes it very difficult for the upper or lower poles to escape from the ring the moment the blade is pushed home, a not uncommon occurrence when small-sized guillotines are used, particularly when enucleating flat or non-pedunculated tonsils.

2. The size of the fenestra can be regulated by the action of the screw (B). This does away with the necessity of employing different blades. The appearance of the tonsil on simple inspection is deceiving, and its actual size is often only appreciated after its dislocation from its bed, it is obviously an advantage to be able to adjust the size of the fenestra with the guillotine actually in the patient's mouth.

3. The bevelled edge of the blade prevents the anterior pillar from being drawn into the slot of the head when the blade is driven home. It is a common experience (except when using the reversed guillotine) to find the anterior pillar damaged in spite of correct application of the guillotine, particularly when dealing with flat or non-pedunculated tonsils. This is, in my opinion, due to the anterior pillar being dragged towards or into the slot of the head, where the actual damage often takes place. The bevelled blade peels the anterior pillar off the tonsil, folding the former, as it were, on itself.

4. The action of the guillotine is particularly smooth, as all the joints are of the ball-and-socket type. It is easily taken to pieces for cleaning purposes.

Messrs. Mayer and Phelps of New Cavendish Street, W.1, are the makers of this instrument.

GRAPE JUICE

Key Brand Grape Juice is a product of the Co-operative Wine Growers' Association of South Africa. After prolonged research a process has been discovered by which grape juice can be preserved without pasteurization, and its full natural qualities thus retained. The product is reported upon favourably by South African physicians. A bottle of reputed quart size, which contains the juice of 8 lb. of grapes, costs only 2s. This grape juice therefore provides the nutritive properties of grapes at a very low cost, and should be very popular.

KING EDWARD'S HOSPITAL FUND

ANNUAL DISTRIBUTION

The Prince of Wales, presiding at the annual distribution meeting of King Edward's Hospital Fund for London at the House of Lords on December 11th, read a message from the King expressing delight at hearing that the Fund would again distribute £320,000. His Majesty added that this result was a great tribute to those who supported the Fund, as well as to those who were managing its affairs.

His Royal Highness explained that this distribution was made up of £20,000 in special grants towards the pensions scheme, and an ordinary distribution of £300,000, the third successive occasion on which this figure had been reached. In 1932, when the amount had first been granted, the financial crisis had been expected to inflict serious difficulties on the hospitals. On the whole these difficulties had been successfully surmounted, but only by a great effort. More than two million pounds a year had been subscribed in London alone in voluntary gifts towards maintenance, building, and endowment, while patients had contributed last year £1,200,000, of which £365,000 had come through the Hospital Saving Association. Except in the pay wards, the patients' contributions were also voluntary, and those who could not afford to make any payment were treated free. It had, however, to be remembered that the surplus was only a small margin of income over expenditure, and there were not many hospitals which had such a surplus year after year. The expenditure was constantly increasing, because the hospitals were compelled to keep up with advances in methods of treatment, and so incurred added responsibilities in the form of extensions, improvements, and the maintenance of additional beds. In spite of the aggregate margin on the right side, there were still several hospitals with deficits, despite strenuous efforts to make both ends meet. All these reasons for continuous regular support of the hospitals were reflected in the King's Fund distribution. The grand total had been retained undiminished, but rather larger grants had been made to schemes of extension and improvement, and to hospitals which had failed to balance their expenditures. The Prince noted with pleasure that several more hospitals had adopted the waking hour of 6 o'clock for their patients, as recommended by a special committee of the King's Fund. Those which still had an earlier hour represented only 15 per cent. of all the patients in London, including those in some of the special hospitals, where earlier hours might be necessary. The question was not as easy as many people had thought, but it was hoped that the difficulties at some of these institutions might yet be overcome.

THE PROBLEM OF ROAD ACCIDENTS

The problem of road accidents continued to inflict serious embarrassment by necessitating the occupation of beds which were urgently needed for other purposes, and by entailing heavy charges on the hospital funds, which had been contributed for these other purposes. The latest amendment to the Road Traffic Acts dealt with emergency treatment rendered either by a private practitioner or by a hospital. The Parliamentary Committee of the Fund, in conjunction with the British Hospitals Association, was at present trying to discover how the partial provision that had been made by Parliament worked out in practice; it was then intended to prepare a statement of the arguments for and against the various alternative methods which had been suggested for making more complete provision. In this way it was hoped to discover how far agreement could be reached as regards the best form of remedy, since there was already general agreement that a remedy was needed. The Prince recalled the steps taken by the King's Fund in the last few years, especially in connexion with the transfer of accident patients from a hospital where there was no room to another where accommodation was available, and by the making of special grants towards the provision of beds for accident

cases out of money accruing from the Wells legacies. But the number of road accidents had increased to such an extent that sometimes, especially in outlying hospitals near the great highways, they might overflow all the accident beds, and enforce the sending elsewhere of urgent local cases of the kind for which the hospital was primarily intended.

PAY-BEDS AND OUT-PATIENTS

The Parliamentary Committee of the Fund was also co-operating with the British Hospitals Association with a view to obtaining general agreement as regards the provision of pay-beds for members of the middle and professional classes who could not otherwise obtain necessary treatment. Some hospitals, owing to the wording of their original trusts, could not legally make such provision, and the question was how best could be conferred upon all hospitals the powers now possessed by so many, while yet preserving their original objects, or, as the King's Fund Committee put it, "with due safeguards for the maintenance and extension of the ordinary beds." The Out-patient Arrangements Committee proposed to issue shortly for discussion by the hospitals a preliminary draft of a memorandum on time-saving methods at the dispensary stage where patients were supplied with medicines. This committee was also associated with the Management Committee's report on district nurses, in which it was suggested that the King's Fund, so soon as it was in a position to provide an additional £2,000 a year for the purpose, should make extra grants to enable hospitals to pay district nursing associations to look after patients in their own homes who did not require to see a medical practitioner on every occasion when they came up to the hospital for fresh supplies of medicine. This scheme would help financially in the extension of district nursing work, and would relieve some of the pressure on out-patient departments. It was decided to start it as from January 1st, 1935. The large number of recent hospital building schemes which had been appearing in such quick succession was partly the result of arrears which had accumulated during the war and the subsequent depression, and partly the sign of financial recovery. These extensions would all involve larger maintenance expenditure, and would require increased incomes.

THE YEAR'S FINANCES

Sir Edward Peacock, the honorary treasurer, said that it now seemed likely that the income for the year would be sufficient to cover the distribution. Legacies for 1934 amounted to more than £75,000; in each of the past seven years they had exceeded £58,000. A full year's income had come into the accounts from recent generous contributions to capital, notably the reversion of £136,000 under the will of the late Lord Mount-Stephen, and the gift of freehold property known as the William and Francis Radford Endowment. Lord Marshall, honorary treasurer of the League of Mercy, said that certain sources of hitherto substantial income had declined during the year, but that as the result of a special effort the league was again allotting £20,000 to the King's Fund. This made a total of £544,034 since 1899, of which £267,000 had been given since the Prince of Wales had become president of the league in 1919. At the same time the league was distributing £6,238 to extra-metropolitan hospitals, making a total since the league was founded of £167,998, and a grand total distribution of £712,032.

On December 7th an inaugural meeting of the London and Home Counties Branch of the Association of Special Libraries and Information Bureaux was held at Chatham House. Mr. H. H. Johnson was elected chairman and Miss Evelyn Atkinson honorary secretary. It was decided that the next meeting of the branch should take place at the new premises of the Royal Institute of British Architects in Portland Place towards the end of January. Further particulars may be obtained from the secretary of the association, 16, Russell Square, W.C.1.

British Medical Journal

SATURDAY, DECEMBER 22nd, 1934

RECENT RESEARCH IN BLACKWATER FEVER

Haemoglobinaemia in blackwater fever has in the past constituted a fundamental problem, not the least enigmatical aspect of which has been the small quantity of blood pigment quantitatively demonstrable. The occasional incidence of methaemoglobin has been noted by a few observers, and Ross in his recent monograph recorded it in twelve out of eighteen cases; Yorke and his colleagues found it in the plasma of two of their five cases, simultaneously demonstrating its absence from the corpuscles. Recently Fairley and Bromfield have made quantitative investigations on haemoglobinaemia in both malaria and blackwater fever, using a spectroscopic method similar to that described by Bloem. Multiple observations were recorded throughout the course of both these diseases, and, by collecting, oxalating, and centrifuging the blood in all stages under paraffin, the risk of artificial plasmolysis was reduced to a determined minimum.

In Part I of these studies¹ the blood pigments of the plasma in syphilitics experimentally infected with malaria, as well as in thirty-two natural infections of the latter disease acquired abroad, receive consideration. The conclusion reached is that blood destruction in malaria is mainly an intracellular phenomenon unaccompanied by demonstrable haemoglobinaemia, but generally associated with hyperbilirubinaemia, which varies in individual cases from 0.5 to 5.5 van den Bergh units (indirect reaction). Part II² deals with serial observations on the plasma of blackwater fever cases. Oxyhaemoglobin and methaemoglobin were invariably present, but when the corpuscles were washed free of plasma and lysed no methaemoglobin was liberated. Quantitative investigations revealed the unexpected fact that in both fatal and non-fatal cases methaemoglobin constituted the major portion of the total blood pigment, and that the oxyhaemoglobin content of the plasma decreased progressively as the methaemoglobin increased. In the three fatal cases of the series the maximal quantity of blood pigment estimated as the sum total of oxyhaemoglobin and methaemoglobin amounted to 3.6, 4.6, and 5.1 per cent.—a concentration regarded as sufficient to explain the phenomena of blackwater fever in terms of an intravascular haemolysis. Finally, it is pointed out that where methaemoglobin results from the action of drugs it has an intracorporeal location, and in the absence of corporeal haemolysis fails to appear in the urine; in this respect it differs fundamentally from

the methaemoglobinaemia of blackwater fever, where the methaemoglobin arises from oxyhaemoglobin only after its escape from the corpuscle.

In Part III³ the naked-eye characteristics of the plasma in blackwater fever are discussed: three derivatives of haemoglobin are mainly concerned—namely, oxyhaemoglobin, which imparts a red; methaemoglobin, which produces a brown; and bilirubin, which results in a bright yellow coloration. A mixture of these pigments is the rule, and the resultant colour (which is generally darkish or brownish red) depends on their relative and absolute concentrations in the plasma. Bilirubin, like the other pigments, is subject to considerable fluctuations, and varied from 7 to 88.5 van den Bergh units (indirect reaction) in individual patients. One case of blackwater fever complicated by *B. coli* cystitis proved of great interest; here the blood was chocolate-coloured and the plasma light brown. Only a small quantity of oxyhaemoglobin (0.28 per cent.) was found in the plasma, which, however, contained another pigment resembling methaemoglobin on ordinary spectroscopic examination, but differing from it in not being reduced by Stokes's reagent or ammonium sulphide; it also differed from sulphaemoglobin. It failed to appear in the urine throughout the course of the illness (though both oxyhaemoglobin and typical methaemoglobin reacting with Stokes's reagent did so) and was never found in the corpuscles, though it was demonstrated in the plasma over a period of ten days. Samples of the pigment were sent for investigation to Professor Keilin, who reported as follows: "A peculiar haemoglobin derivative with a normal prosthetic group in which the globin portion of the molecule was undoubtedly modified; the spectrum had the general appearance of methaemoglobin with the bands shifted about 60 Ångström units towards the short-wave end of the spectrum. Although it did not reduce with Stokes's reagent, the compound contained trivalent iron: it was easily reduced with sodium hyposulphite, and gave a typical haemochromogen (globinprotohaemochromogen). Apart from its spectroscopic resemblance to haemoglobin and its trivalent iron, it had no properties of methaemoglobin when tested with alkali, H_2O_2 , H_2S , azide, etc." This new pigment, the final report on which will be awaited with much interest, appears to be some modification of methaemoglobin in which the globin portion of the molecule has undergone an irreversible change.

The intensity and duration of haemolysis also received consideration. Sometimes it remained unabated until death, the patient dying of toxæmia and renal failure at a time when the red cell count was still falling, the haemobilirubin rising, and the degree of haemoglobinuria well sustained. In others a study of the secretory rate of oxyhaemoglobin and methaemoglobin in the urine confirmed the essentially fluctuating nature of the haemoglobinuria, and supported the view that several haemolytic crises, rather than one isolated

¹ Fairley, N. H., and Bromfield, R. J.: *Trans. Roy. Soc. Trop. Med. and Hyg.*, 1933, xxviii, 377.
² *Ibid.*, 1934, xxviii, 289.

³ *Ibid.*, 1934, xxviii, 367.

haemolysis, characterized blood destruction in these cases. Such fluctuations in haemolysis would not be anticipated were the haemolytic agent either a haemolysin or a drug given at the commencement of the illness, and as a result of these and other considerations Fairley and Bromfield put forward a new hypothesis regarding blackwater fever. In their opinion the haemolytic substance arises in chronic malignant tertian malaria from some cellular metabolic breakdown which is precipitated by quinine, plasmoquine, and possibly other factors such as chill, while its mode of action is, first, to lyse the corpuscles, and, secondly, to convert the liberated oxyhaemoglobin into methaemoglobin or the modified pigment described in their paper.

WEIL'S DISEASE

Evidence is steadily accumulating that leptospirosis, or Weil's disease, has a much greater incidence and a wider geographical distribution than was formerly recognized, and a progressively increasing number of sporadic cases of jaundice which have an occupational relationship that brings them in contact with water or slime contaminated by rats are being attributed to this cause. The infective organism, *Leptospira icterohaemorrhagiae*, which is known to be located in the kidneys of these rodents in most if not all countries where surveys have been made, reaches the exterior by way of the urine, and it is from this source that man is directly or indirectly infected.

In the October *Bulletin* of the Office International d'Hygiène Publique¹ the incidence of Weil's disease in their respective countries is reviewed in a series of articles by workers from Japan, the United States, France, Germany, and Sweden. In Japan, where Professor Inada originally isolated *L. icterohaemorrhagiae*, Weil's disease remains prevalent. Dr. M. Tsurumi points out that it may appear in epidemic or endemic form in river and swampy country or in coastal areas, but rarely in country which is high and dry. Coal miners in Japan are not infrequently affected by the disease. Its incidence varies in different years and different localities, and the total cases for 1933 equalled 1,636; the mortality rate was only 4.6 per cent. In the province of Ibaraki, however, the mortality during the last six years has varied between 16.9 and 29.9 per cent. In Toyama the public health authorities had been much impressed with the prophylactic value of two inoculations of a vaccine prepared from cultures of *L. icterohaemorrhagiae*, and in 1925 as many as 10,617 persons received such treatment; no troublesome reactions ensued. Mlle B. Erber presents a report of the agglutination reaction as carried out at the Pasteur Institute, Paris, on sera from suspected cases of Weil's disease. From 1932 to 1933 the laboratory received 1,232 specimens, of which 286, or 23.1 per cent., were positive. Of 1,048 specimens collected in Paris itself 215, or 20.5 per cent., were positive, and of 184 examinations undertaken for the Department of the

Seine seventy-one, or 38.6 per cent. Contact with water from rat-infested areas was the main source of infection, and certain occupations definitely involved the risk of contracting the disease. In Germany, Dr. Reiter states, occasional cases of Weil's disease have been encountered in bathers and sewer workers, and in 1933 Kister gave an account of a series of twenty-one cases from Hamburg with four deaths. Uhlenhuth and Zimmermann observed that white as well as grey rats could act as vectors. According to Dr. Olin the disease is uncommon in Sweden. It was found that 6 per cent. of rats in Stockholm harboured *L. icterohaemorrhagiae*. The report of the American delegate, Dr. H. S. Cumming, indicated that cases of infectious jaundice were rarely attributable to *L. icterohaemorrhagiae*, only ten cases having been recorded in Canada and the United States in which this organism had been demonstrated. Schüffner, who has done such outstanding work on this disease in Holland, found that during the past ten years 452 cases had occurred there, with forty-six deaths, the mortality rate being 10.2 per cent. Bathing in public baths and "water accidents," involving immersion in canals where rats abounded proved a common source of infection.

In the *British Medical Journal* of July 7th (p. 10) Hamilton Fairley described a hitherto unrecognized focus of infection among the sewer workers of London, and, by means of a clinical inquiry and serological tests undertaken by Professor Schüffner, was able to show that the disease had been endemic for at least twelve and a half years. It was discovered that labourers engaged in repairing and rebuilding old sewers were particularly affected; among other duties their work consisted in chiselling away and removing old brickwork covered with sewer slime, and this not infrequently led to abrasions of the skin of the hands and the arms. Infected rats have long been known to abound in London sewers, and contact with resulting infected slime was regarded as the source of the disease. Buchanan (1927), in an outbreak of Weil's disease among miners in East Lothian, had previously observed that the fungal slime lining the coal pits contained leptospirae pathogenic to guinea-pigs.

In our present issue two new outbreaks are described. From Aberdeen Professor Davidson and his colleagues report a series of nineteen cases of Weil's disease chiefly among fish workers. The symptomatology was typical, and the clinical diagnosis was confirmed by means of agglutination tests; using as antigen both Weil and the Dutch East Indian strains of *L. icterohaemorrhagiae*, as well as *L. canicola*, as advocated by Professor Schüffner and his colleagues in Amsterdam, where sera from the first cases of the series were tested. The source of infection in the present outbreak is of considerable importance. The patients themselves were mainly employed in handling white fish, either as filleters and cleaners or as general distributors of raw material in rat-infested premises, the floors of which become covered with slime and offal. After depilation of the abdominal hair and experimental immersion in

¹ 1934, xxvi, No. 10, pp. 1749-1767.

water collected from floor washings and tubs, three out of twelve guinea-pigs died with jaundice, and leptospirae were demonstrated. The skin of the hands was often traumatized doing this work, so all the conditions necessary for acquiring the disease exist in this trade. The other outbreak, an account of which is given by Dr. Drew at page 1142, affected mainly Italians employed as cane cutters in the Ingham district of Queensland. Jaundice first appeared in October, 1933, and by October, 1934, some thirty cases had been put on record. In August *L. icterohaemorrhagiae* was isolated from a human source, and, later, leptospirae were discovered in the urine of rats, which showed a high incidence of infection. The cane fields were heavily infested with these rodents, and apparently the moist conditions existing after rain exerted a benign influence on the life of the leptospira, for after a prolonged spell of dry weather fresh cases ceased. In grasping the cane preparatory to cutting, the hands often become injured, and it is suggested that leptospirae may thus gain access to the tissues.

The incidence of Weil's disease in coal miners, barge-men, sewer labourers, fish workers, and cane cutters clearly indicates the necessity for regarding it from the standpoint of an occupational disease, and when it is realized that less than half the cases infected with *L. icterohaemorrhagiae* actually develop jaundice its industrial significance becomes increasingly apparent.

A MARE'S NEST IN CANCER RESEARCH

Reference was recently made in these columns¹ to a test proposed by Aron² said to be diagnostic of cancer. The repeated injection of an extract of the patient's urine into a rabbit was stated by this author to be followed by partial or complete disappearance of lipoids from the cortex of the adrenal; this reaction was obtained almost constantly in cases of malignant disease and never in a numerous variety of control cases. From the fact that the serum of a treated animal or of the patient himself conferred resistance to the action of the urinary extract on the adrenal Aron concluded that the active substance in the urine was a specific antigen (a departure from his original hypothesis, which only presupposed the excretion of abnormal metabolic products), and even went so far as to suggest that the antibody whose existence he claimed to have demonstrated might be used therapeutically. These extensive and dangerous assumptions were criticized in the *Journal*, and it was suggested that the nature and mechanism of the adrenal change upon which this hypothesis was built required further investigation. Under the formidable names of Roussy, Oberling, and Guérin³ a paper has now appeared which flatly denies that the test itself has any diagnostic significance. The lipid content of the adrenal as demonstrated by Aron's method is very variable in the normal rabbit, even within the age limits specified by Aron, and in both normal and test animals the conclusions of two different

observers from sections of the adrenal frequently differed. In sixty tests with human urine negative results were frequently obtained in cases of malignant disease and positive with urine from normal subjects or sufferers from other diseases; the distribution of the results obviously bears no relation at all to the existence of malignancy. However the contradiction between Aron's and his critics' findings is to be explained, it is evident that the appearance of the rabbit's adrenal cortex is too variable to serve as a reliable index, and for the rest we may assume that it is too easy to see only what one wants to see. This incident will add to the feeling of suspicion which surrounds any new and empirical method, whether of diagnosis or of treatment, particularly in the cancer field. There are always multitudes of people who are only too eager to adopt any new method for the relief of cancer; this disease, perhaps more than others which have the reputation of being invariably fatal, produces in the patient and his relatives, and even sometimes in his medical attendant, a state which may be described as pathological credulity. Workers who value their reputation should be very sure of their ground before claiming any advance in this department of medicine which is capable of clinical application.

A PSYCHOTHERAPEUTIC FOLLOW-UP

A very interesting follow-up study from a psychological department is published in a recent issue of the *Journal of Mental Science*.¹ Mrs. D. H. Hardcastle, the social worker in the department of psychological medicine at Guy's Hospital, has investigated the condition of the first hundred patients seen at that department in 1931. Of these, sixty-seven were children and thirty-three were adults. There could be no selection of cases, since the clinic was part of a general hospital: all those sent had to be accepted for treatment. One of the first things noticed about the follow-up was that the visitor was afforded a warm welcome, except sometimes among the parents of mental defectives. The visitor inquired into the present condition of the symptoms for which the patient had sought help, into the general health, the social contacts, the sex life, the present occupation, attitude of family, and the patient's own interpretations of the treatment received. If there had been recovery the patient or the family was asked to what this recovery was attributed. The highest standard admitted is "much improved," as the word "cure" is considered too sweeping in an investigation of this kind. The other categories are: "improved," "unchanged," "worse," "in institutions," "not traced," "dead," and "referred but never attended." The first analysis shows that 39 per cent. of adults and 64 per cent. of children were found to be improved or much improved, while 34 per cent. of adults and 15 per cent. of children were unchanged. The greatest improvement was among those whose condition might be grouped as "affective changes," while there was no improvement in six classes as organic or mentally defective. There seems to be no relation between the number of visits to hospital and the degree of improvement, except in four cases, where intensive educational training was given by the psychologist. When the cases

¹ *British Medical Journal*, July 28th, 1934, p. 178.

² *Presse Méd.*, 1934, xli, 823.

³ *ibid.*, 1934, xli, 1641.

¹ July, 1934, lxxx, 526.

were grouped according to age the only striking result was the high percentage of improvement in the age group 9 to 11 (87 per cent.): the number of patients in this group was, however, very small. Success in treatment was found to be more probable with children of normal intelligence, and very unlikely when the intelligence quotient was 75 or less. The greatest number of much improved patients were found among those with scholastic difficulties (67 per cent.). There appears to be very little doubt that the work is well worth the expenditure of more time and money. As this study points out, the Guy's Hospital clinic arose out of a definite demand from the community, and is being increasingly used by many kinds of local agency as well as by other departments of the hospital.

THE PARATHYROID AND URINARY CALCULI

That the urine can in some cases hold in solution quantities of uric acid which exceed by far the amounts soluble in an equal volume of water is common knowledge, and if one considers its extraordinary solvent properties it becomes clear that it must contain some substance or substances which enable the ordinary laws of solution to be transgressed. To explain such anomalies of solution it has been necessary to suppose that the urine contains substances of the nature of colloids which prevent the precipitation of certain of the urinary constituents present in supersaturated concentrations. The action and precise significance of a "protective colloid" are well known to the physical chemist, though these are perhaps not so clearly appreciated by the clinician when discussing the possible role of such a colloid in the deposition of calculi in the various sites in which they are found. Of the two classes of colloids—emulsoids and suspensoids—the latter are much more readily precipitated by solutions of electrolytes than the former—that is, for the same concentration of colloid suspensoids are precipitated by very much more dilute solutions of electrolytes. If an emulsoid is added to a suspensoid solution it is readily shown that a much greater stability is conferred on the latter. This protective or stabilizing action was known to Faraday, who demonstrated it on colloidal gold preparations. It has an interest for the practitioner in that it explains the effect of a little egg-white in preventing a massive precipitation of casein from the milk taken by the infant. In the application of these facts to biological fluids it should be kept in mind that if a substance is to be "protected" it must be in the colloidal state. The maintenance of cholesterol or bilirubin in the gall-bladder bile in such concentrations as are normally found calls for some mechanism analogous to that of colloid protection, and it is generally considered that the formation of biliary calculi is in some way due to a diminution in quantity or potency of a hypothetical biliary protective colloid. In the case of the blood very much larger amounts of, say, uric acid or calcium phosphate can be taken up into suspension than can be accounted for by mere solubility, and this phenomenon is undoubtedly due to the presence of the protective colloids, serum albumin and globulin (emulsoids). The substances thus protected or stabilized are, it must be clearly understood, kept in colloidal suspension. Now in the case of the urine the more or less generally accepted filtration-reabsorption theory

offers a picture of the transformation of a non-protein glomerular filtrate of enormous volume into the relatively minute fraction of excreted urine. When filtered across the glomerular capsule the volume of fluid is easily adequate to keep all the constituents in ordinary solution, but this no longer obtains after concentration has taken place, so that it is presumably at this stage that the addition of the protective colloid occurs. Further, it must be at this stage that the state of simple solution of certain constituents changes to that of colloidal. As to the nature of the added substance and its source nothing is known. The possibility of some relation with vitamin A deficiency is suggested by the work of van Leersum, who found that diets deficient in this vitamin led to crystalline deposits in the urinary tract of laboratory animals, and the prevalence of stone in India and China may in part be explained by these findings. The importance of the parathyroids in the metabolism of calcium and phosphorus suggests the possibility of some endocrine factor in calculus formation. In a recent contribution F. H. Colby¹ reports that out of thirteen cases of removal of parathyroid tumours eight—that is, 61 per cent.—showed definite evidence of calcification in the urinary tract, six were cases of renal calculi, one of vesical calculus, and two of calcification of the renal parenchyma. Generalized osteitis fibrosa was not a marked feature in any of them, although some decalcification of bone was noted. In three of the cases the typical syndrome of renal calculus was easily recognized, but the true nature of the cases was established by the high serum calcium and low serum phosphorus (15.8 mg. Ca and 2.8 mg. P in one case). The identification of the parathyroid tumours and their surgical removal, together with appropriate treatment of the already formed calculi, prevented recurrence during a fairly long period of observation. It is, of course, difficult to be certain that recurrence will be permanently prevented, but there can be no doubt that the results are very suggestive. The authors are inclined to attribute the calculus formation to the increased calcium and diminished phosphorus excretion which accompany an active parathyroid tumour. However, parathyroid tumours cannot explain more than a small minority of cases of renal calculus, though it sets one wondering whether the majority of cases may not be associated with some functional hyperactivity of the parathyroid. Routine examination of serum calcium and phosphorus in a series of cases of renal and vesical calculi should be instructive.

NUTRITION AND THE PUBLIC HEALTH

The paper with this title by Dr. H. E. Magee and the subsequent discussion at the health congress of the Royal Sanitary Institute at Bristol in July, 1934, are now available in full,² and the main impression is a striking plea for a broader, physiological outlook by public health authorities. As Dr. Magee points out, bacteriology and pathology, which supplied the knowledge responsible for the most outstanding successes of public health work in the past, seemed at one time as if they would dominate and dictate the activities of the public health services. Now, especially as

¹ *Surg., Gynecol. and Obstet.*, August, 1934, p. 210.

² *Journ. Royal Sanitary Inst.*, 1934, lv.

regards nutrition, there is an urgent need for harnessing the results of physiology to public health activities. The newer knowledge of nutrition, especially concerned with the mineral elements and the vitamins, stops short at pointing out that both are essential for health. Field work by public health authorities on the minimum requirements of many of the inorganic elements and of the vitamins is regarded by Dr. Magee as of great importance. "It should be possible," he states, "by dietary and sociological studies, and by co-operation with practitioners, to obtain data which would give some information on the part played by nutrition in the aetiology of diseased conditions." Another important aspect was also touched upon concerning the well-recognized factors of ignorance and prejudice in preventing that improvement in the general state of nutrition of the people which all are agreed is desirable. Income, as several speakers urged, may well be the fundamental factor in proper nutrition, but education through the public health service could do much to interpret physiological facts into the language of everyday life.

PATENTED LENSES

Among the many admirable activities carried on by our brother society, the American Medical Association, there is one that has high value—the reports of the Committee on Standardization of Instruments and Drugs. We know the work of this committee mostly through its examination of drugs and the claim of their vendors. The committee has adopted an article by Dr. Alfred Cowan of Philadelphia on the claims made for "patented lenses."¹ There has been a recent outburst of startling claims made for what may be termed "wide-angle lenses"—that is, lenses which by their curvature give a uniform value in all their parts, notwithstanding the wide movements of the eyes behind them. The report states that those having any acquaintance with the literature of geometric optics know that practically nothing of what has been stated is new. Deeply curved or meniscus lenses were mentioned by Kepler as early as 1604 and recommended by Hertel in 1716. Toric lenses were ground by Anton Wagner in Philadelphia fifty years ago. Although the theory of wide-angle lenses has been familiar for a great many years, certain manufacturers imply in their advertisements that they have made a new discovery, and that they, and only they, have the ideal ophthalmic lenses—corrected to the very edge for both the error of marginal focal power and the astigmatism of oblique pencils, even in bifocals. No one knows better than they that these claims are without substance. What is most glaring is that while no two of the many patented forms are alike, each is claimed to be perfect. In point of fact, a lens of this kind is a compromise at best; any one is just about as good as another—and no more comfortable to the average wearer. Clinically it is known that chromatic aberration, distortion, and curvature, in ordinary ophthalmic lenses, are not noticeable enough to cause discomfort to the wearer. Reflections from the surfaces are sometimes annoying, but can usually be remedied by proper adjustment. The spherical aberration that must be corrected in a photographic lens in order to produce a clear image

to the edge of the plate does not apply to an ophthalmic lens. A clear image is distinctly seen only over an extremely small area at the fovea; and therefore it is here and nowhere else that a clear image must be formed; imaged, sharply or not, on any other part of the retina, objects appear blurred. For this narrow pencil of light, necessary to form the foveal image, only a small portion of the correcting lens is used at one time. Dr. Cowan's paper gives in detail the evidence for these conclusions, and it is clear that neither the extravagant claims made for the patented lenses nor their high prices are warranted.

NEXT YEAR'S BUDGET

In a recent speech the Chancellor of the Exchequer, Mr. Neville Chamberlain, is reported to have uttered a warning against too confident an expectation that there will be reductions of taxation next year. He pointed to new expenditures, and suggested that there would have to be "very large increases of revenue . . . before anything is left over for the relief of the taxpayer in the next Budget." A warning that new commitments of expenditure necessarily involve taxation is often salutary, and excessive optimism sometimes meets with painful disappointment. The Chancellor's admonitions can be fully justified on these grounds, but we hope they will not be justified by the event. Last year he was able to give up a substantial part of what the income tax would have yielded on the 1933-4 basis, and was faced with the choice of two alternatives, or the possibility of combining both. He could either reduce the standard rate of tax below the 5s. level, or increase the personal allowances to something like their former amounts. There was not enough margin to do both, and to divide the relief between the two would have been less spectacular than a reduction of 6d. in the standard rate, and therefore would have had less psychological effect. The result was that the standard rate was reduced and the personal allowances were not increased. We thought then, and still think, that the choice was the right one, but only on the assumption that there was a reasonable prospect of something being done in 1935 to relieve the smaller taxpayers of the burden placed on them when the old personal allowances were reduced. On the basis of a 4s. 6d. standard rate that reduction costs a married taxpayer anything up to £22 10s. in extra tax. That additional sum is the same whether his income is £500, £1,000, or £2,000, though it is an accepted principle of our income tax code that the smaller the income the greater the burden of any fixed payment. It may be too much to expect a complete return to the old scale of allowances next year, but a long step in that direction will certainly be due, if not overdue. The psychological factor has had its turn; next year it is the turn of the ordinary taxpayer, who is still bearing the burden of an addition which never applied to, or at least was not felt by, the large financial concerns and wealthy taxpayers.

Messages received from Colombo this week report a very widespread epidemic of malaria in Ceylon, which began in the North-Western Province at the beginning of October and is said to have already affected 500,000 people.

¹ *Journ. Amer. Med. Assoc.*, November 3rd, 1934, p. 1277.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

THE TREATMENT OF PNEUMONIA

BY

W. H. WYNN, M.D., M.Sc., F.R.C.P.

Pneumonia is an acute medical emergency, and the patient's fate is to a large extent decided during the first forty-eight hours; but too often a diagnosis is not made until consolidation is apparent, which may not be for two or three days. During the preconsolidation stage, when the circulation through the lung is not yet impeded and toxæmia is slight, much can be done to control the infection by the timely use of a vaccine or serum. We should think in terms of immunity: a patient recovers from pneumonia by producing sufficient immune bodies. It is not possible to pick out beforehand those who will succeed in this, and 20 to 30 per cent. fail entirely. By early specific treatment a reduction of the mortality to 5 per cent. is within the bounds of possibility.

General Measures

Poor patients in crowded homes with unskilled attendants should be removed to hospital as quickly as possible. The modern ambulance service is so efficient that this can be done with little disturbance. With patients treated at home, day and night nurses should be obtained and precise instructions written down.

From the first, absolute rest in bed must be strictly enjoined and the nurse's main duty is by thoroughness and skill to reduce the patient's exertions to a minimum and to create a calm atmosphere with an absence of fuss. The bed should be in the middle of the room and the windows widely open. Fresh air is a fine tonic, but must be used with common sense, and the patient should be guarded against icy draughts or glaring sunlight. One garment should be worn, opening down the middle to allow easy access for examination and nursing attentions. During the initial chilly stage abundant bedclothes and hot-water bottles are required, but thereafter one sheet and a blanket should be ample. Gamgee jackets are relics of the days when pneumonia was thought to be due to cold and therefore to be exorcised by heat. Sponging with lukewarm water should be done as a routine night and morning and when the temperature taken four-hourly exceeds 102.5° F.

At least four pints of water should be taken in some form during the twenty-four hours. Glucose is the most easily assimilated food, and of this half a pound should be dissolved in a quart of water flavoured with the juice of lemon or orange. It can be taken freely at any time, and many patients will consume up to one pound a day. Milk need not exceed one and a half pints taken in amounts of five ounces four-hourly, and two grains of sodium citrate should be added to each ounce. To two or three of the feeds coffee or tea can be added. If additional food is desired, it can be given as albumen water: the whites of two or three eggs in a pint of water with a little meat extract added to flavour. Meat extracts in any quantity are undesirable because of the small amount of nutritive material and the large quantity of

extractives. Water, plain or with added fruit juices, can be taken in small quantities *ad lib.*

The mouth should be wiped out after each feed with a rag moistened with a weak watery antiseptic, liq. sodii carbolatis diluted with twenty volumes of water or listerine diluted 1 in 3. Washes containing glycerin should not be employed. An occasional use of a nasal spray with liquid paraffin or chloretone inhalant is comforting. Aperients should be avoided; they increase the fluidity of the bowel contents and favour fermentation and tympanitic distension. If the patient when first seen has had no action during the previous twenty-four hours, a soap-and-water enema should be given. During the active stage no enema should be given unless there is distension or a feeling of fullness in the rectum. A simple dia-phoretic mixture should be taken every four hours:

R	Pot. cit.	...	...	...	...	gr. xx
	Liq. ammon. acetat.	...	...	...	...	5 ij
	Syrup. aurant.	...	...	...	...	5 j
	Aq.	...	...	...	...	ad 3 j

Specific Treatment

When the patient is seen within the first three days a vaccine or serum should be given. A vaccine has the great advantage that it can be carried in the bag and is immediately available. It must be an active one of known antigenic power, made as far as possible from young primary cultures. The one I use contains equal numbers of pneumococci, streptococci, and *B. influenzae* (P.S.I. vaccine). While it is desirable that it should consist of the various strains, it is more important that it should be made from virulent cultures. For an adult the dose is 200 millions of each organism—that is, 600 millions in all. Larger doses can be given at this stage, as the patient is not yet sensitized. Children should have proportionately smaller doses, but even at 12 months 20 millions of each organism should be given. The object is to stimulate the production of non-specific antibodies in adequate amount; the specific effect is not seen for some days. If the temperature does not fall after the first injection it can be repeated every twenty-four hours until three doses have been administered. When such doses are injected on the first day of the illness, in the majority of cases the temperature falls rapidly during the next twenty-four hours, with a corresponding improvement in the general condition. With each day's delay such rapid defervescence is less easily obtained. When cases are not treated until after the third day the circulation through the affected part is interrupted, and toxins are fixed in vital tissues; little can then be expected of specific treatment, whose aim is to prevent not cure toxic symptoms.

Serum Therapy

There are at present many difficulties in the way of a widespread use of serum in general practice. The employment of concentrated anti-pneumococcus serum has a similar effect to a vaccine when given early. It is effective against infections with Type I pneumococcus and to a less extent with Type II. These types cause two-thirds of lobar pneumonias, but in recent years typical lobar pneumonia has been less common than a

mixed infection bronchopneumonia; so that, roughly speaking, serum is available for only about one-third of all pneumonias. If it is to be used economically the type of infection must be determined. Typing is not easily carried out for patients treated at home, and even in well-equipped hospitals there may be a delay of twenty-four hours. Sputum for typing may be absent in the early stages. Serum must be injected intravenously, and repeated injections require considerable dexterity. The cost is considerable. It would seem wise, therefore, at present to restrict its employment in private practice for patients seen within the first three days who already have considerable toxæmia. To such cases 20,000 units (10 c.cm.) of polyvalent serum should be administered *at once*. The serum is warmed to blood heat and injected slowly through a fine needle into a vein at the elbow. Sputum should then be sent for typing, and if Type I or II is present 20,000 units of Type I or Type II serum respectively should be given every six hours up to a maximum, if necessary, of 120,000 units. Unpleasant symptoms such as rigors, anaphylactic shock, and respiratory distress may occur, but are usually relieved by the subcutaneous injection of 1 c.cm. of 1 in 1,000 adrenaline chloride solution. Serum should not be prescribed for allergic subjects or for elderly arteriosclerotics.

Symptomatic Treatment

For the relief of pleuritic pain a linseed poultice or cataplasma kaolini is generally used. It should be applied only when there is pain, and to the back or sides of the chest, not over the front. The weight of a poultice is not inconsiderable, and the exertion of raising it forty times a minute is not one a seriously ill patient should undertake. Of all methods of relieving pain the introduction of 300 or 400 c.cm. of oxygen between the layers of the pleura is the most certain, but it requires experience and the necessary apparatus. The patient not only has pain but mental anxiety and restlessness, and for these there should, in most cases, be no hesitation in giving an opiate. Ten grains of Dover's powder in one of the doses of the saline mixture will often suffice. Morphine sulphate 1/4 grain is more effective. In lobar pneumonia this dose can be repeated if necessary for three or four nights. Contraindications to its use are the presence of much bronchial secretion—as in many cases of influenzal bronchopneumonia—cyanosis, and a tendency to meteorism.

With sleeplessness without pain it is usually waste of time to give ordinary hypnotics such as medinal or dial. The following is more useful:

R.	Pot. brom. ...	...	...	...	gr. xxx
	Chloral. ...	...	...	...	gr. xv
	Syrup. aurant. ...	...	...	...	ʒ ss
	Aq. ...	...	...	...	ad ʒ j

Or paraldehyde in doses of 1 or 2 drachms by mouth, for example:

R.	Paraldehydi ...	...	...	...	ʒ ij
	Ext. glycyrrhiz. liq. ...	...	...	...	ʒ ij
	Syrup. ...	...	...	...	ʒ j
	Aq. ...	...	...	...	ad ʒ ij

The unpleasant taste can be avoided if 3 drachms are given per rectum in four ounces of starch emulsion. With active delirium morphine in repeated doses may be needed, and in the most severe cases hyoscine hydrobromide 1/100 grain in addition. This latter drug has a bad reputation, but my own experience of it has been fortunate. Paraldehyde in doses up to half an ounce may succeed when morphine has failed or is contra-indicated. Expectorants are not required in lobar

pneumonia, but in influenzal bronchopneumonia, when sputum is abundant and the tubes blocked, ammonium carbonate should be given in doses of 5 grains four-hourly, increasing if necessary to 10 grains hourly for a few doses. The requisite dose should be dissolved in two drachms of water and given in a cupful of milk to avoid nausea.

Treatment of Circulatory Failure

Circulatory failure in pneumonia is compounded of direct toxic action upon the myocardium, vasomotor failure from action upon the centre, and dilatation of capillaries. Though much can be done by early specific treatment, absolute rest, fresh air, and glucose to prevent failure, our resources are slender when it occurs. The best way of helping the heart is to feed it, and the best foods are glucose and oxygen. At the slightest sign of cyanosis oxygen should be administered continuously. It is futile to give it for so many minutes in each hour, or when the nurse thinks fit. Apart from the oxygen tent the only method of value is intranasal. A No. 10 catheter is passed through the nose until the tip touches the pharyngeal wall, when it is withdrawn slightly. If a calibrated reducing valve is on the cylinder two litres a minute should be delivered. Otherwise the oxygen should be passed through water in a Woulfe's bottle at a rate just so fast that the bubbles cannot be counted. Adrenaline is of great value. It augments and accelerates the heart's contraction, constricts blood vessels, and raises blood pressure. It is the only drug which acts upon the poisoned heart. Five to ten minims of adrenaline chloride solution (1 in 1,000) should be injected subcutaneously every four hours, increasing to two-hourly if necessary. Pilitrin stimulates and contracts the capillaries and small arterioles. It is of value in peripheral failure in doses of 1/2 to 1 c.cm. six-hourly.

Digitalis and its allies should not be prescribed, neither early with the idea of preventing heart failure nor when failure has occurred. It adds another poison to the heart, does not slow the febrile pulse, and has no action upon the peripheral failure. Carefully controlled statistics relating to hundreds of cases showed an increased mortality of 7.7 per cent. in the digitalis-treated cases. Even in cases with auricular fibrillation digitalis gave a higher mortality. Alcohol may be of service in the early stage as a sedative and to help sleep in an anxious patient, but its routine use as so much brandy or whisky every four hours or so is strongly to be deprecated. After absorption it has no direct action upon the heart, but it will cause a dilatation of the blood vessels of the skin, and therefore a smaller amount of blood will flow through the internal organs. The skin in pneumonia is already hot and flushed, and there is no obvious indication for more flushing or restriction of the internal blood supply. Alcohol is not a cardiac tonic or a stimulant, but a depressant, and if called by its right name it would not so often be employed. With alcoholic patients it is customary to give it, but I have not found an increased delirium by withholding it in such cases. Statistics reveal an increased mortality with its use. Camphor, coramine, cardiazol, and similar substances injected hypodermically act as irritants, reflexly stimulating the medullary centre. They have no direct action on the heart, and are of no great value in serious heart failure.

It must be recognized that the present high mortality from pneumonia will be reduced not by treating poisoned organs incapable of response but by early diagnosis and prompt measures to prevent intoxication. Expectant treatment in the early stages too often means harmful drugging in the later.

PHARMACOLOGY AND NERVE ENDINGS

FIRST DIXON MEMORIAL LECTURE
BY SIR HENRY DALE

The first lecture in therapeutics and pharmacology in memory of Professor Walter Ernest Dixon of Cambridge was delivered by Sir HENRY DALE, F.R.S., in the Barnes Hall of the Royal Society of Medicine on December 11th. The chair was taken by Professor J. H. BURN, president of the Section of Therapeutics and Pharmacology, and the proceedings were opened by Dr. ROBERT HUTCHISON, President of the Society, who expressed the pleasure with which the Society had accepted from the organizing committee the trusteeship of the sum collected to endow the lecture. Professor Dixon was highly esteemed in that Society, and they felt that his splendid scientific work deserved commemoration.

Sir WILLIAM WILLCOX, chairman of the organizing committee, said that Professor Dixon, who passed away on August 16th, 1931, was one of the most distinguished pharmacologists of the day. In addition to his great scientific qualities, he was extraordinarily human. The speaker had heard Cambridge undergraduates declare that they would rather go to a lecture by Dixon than to a musical comedy, but the lectures imparted scientific material of the highest kind. Dixon was altogether a most attractive personality, a true friend, loved and respected by all who knew him. After his death the examiners in pharmacology at Cambridge talked over the question of a memorial, and went to see Mrs. Dixon, who was in favour of the establishment of a memorial lecture. Eventually a fund was collected amounting to between £700 and £800, and this was handed over to the Royal Society of Medicine for the foundation of a biennial lecture on some subject in which Dixon had been interested. Therapeutics and pharmacology had been rather neglected from the point of view of lectureships, though Edinburgh had had the Cameron lectureship for some years. The subscribers to the fund included a large number of students. The Society of Apothecaries subscribed handsomely, as did the Pharmaceutical Society. The British Medical Association was not permitted under its constitution to make such donations, but it had perpetuated Dixon's memory in another way by the foundation of a scholarship. Sir William Willcox ended by introducing the first lecturer, Sir Henry Dale, whom he described as one of the greatest biochemists in this country.

THE SCIENTIFIC CAREER OF W. E. DIXON

Sir HENRY DALE began by suggesting that Dixon's memory could best be honoured by considering some new and progressive phase of activity in the field of research and teaching which received so strong an impulse from his life and work. It would be a poor tribute to the memory of any man of science merely to recall at intervals the state of knowledge during his lifetime, or even newly to assess the value of each part of the harvest of discovery which fell to his own reaping. Far better to study some new and interesting growth from the ground where he dropped the seed, or, it might have been, only prepared the soil for later sowing. But with the loss of their friend still fresh in the memory, they could not be content on this first occasion to pay only an impersonal tribute. He was still remembered among them as a vivid and inspiring personality, who, more than any other, was responsible for the awakening in England of interest in pharmacology as a progressive science. Dixon went to Cambridge in 1899, and he was still there, as reader in pharmacology, at the time of his death, thirty-two years later. Sir Henry Dale said that he himself just missed the direct contact with him there, for Dixon went to

Cambridge as he was about to leave, but from his immediate juniors he soon heard of the new life which had been breathed into pharmacology in the university, where the subject could now be studied, no longer in terms of traditional *materia medica* and empirical therapeutics, but as a living body of experimental science, closely linked with physiology.

The attraction which he had for young workers was a part of Dixon's charming and generous personality. His kindness and robust humour endeared him to students and colleagues alike. He had real gifts as a raconteur, and his simple and vivid presentation of scientific matter made him an effective popular lecturer, and gave authority to his opinions far beyond the circle of those having expert knowledge of the subject. The subjects on which he worked and wrote had a wide variety. He had an almost exuberant interest in any new line of knowledge touching on pharmacology, and a desire to share in its exploration, and his conception of the scope of pharmacology tended to expand well beyond the study of drugs and their action, and to include any procedure finding application in therapeutics.

The lecturer dwelt upon Dixon's work with Brodie on the physiology and pharmacology of the bronchioles, which seemed to have provided a starting-point for the development of one of his predominant pharmacological interests. It was this work, he thought, which first brought vividly to his notice the remarkable resemblance between the actions of certain alkaloids and those of the autonomic nerves. With Brodie he reached the conclusion that adrenaline acted on sympathetic nerve endings.

THE AUTONOMIC NERVOUS SYSTEM

The suggestion was first made by Elliott that autonomic nerves transmitted their effects by releasing at their endings specific substances which reproduced their action. This worker suggested that the resemblance between the effects of sympathetic nerves and those of adrenaline might mean that sympathetic impulses, on arriving at the nerve endings, released small quantities of adrenaline, or something like it, in immediate relation to the effector cells, which would then give the same responses as to-adrenaline artificially applied. Dixon saw that if this were a true conception an analogous mechanism would almost certainly be used by parasympathetic nerves, and he pictured the substance transmitting their effects as something like muscarine. Dr. Dale showed a slide of Dixon's, illustrating what the latter held to be experimental evidence of its release when the vagus nerve was stimulated. It was now known that the vagus transmitter was not muscarine, but an extremely unstable ester of choline, and free choline was probably the substance responsible for the effects which Dixon observed. Dixon appeared to have been discouraged by the scepticism with which his evidence was received, but there was no doubt that he had grasped a true conception, with characteristic conviction and enthusiasm, though the evidence which really established it came many years later, from a much simpler type of experiment.

It was at the annual meeting of the British Medical Association in Toronto in 1906 that Dixon made the first mention of his heart-vagus experiments, and at the same meeting Hunt and Taveau described the intense activity of acetylcholine. (Both papers appeared in the same issue of the *British Medical Journal*, 1906, ii, 1807 and 1788.) Nobody at the time suspected any thread of connexion between the observations presented in two entirely independent communications. Sir Henry Dale himself made a thorough investigation of the actions of acetylcholine in 1914, but another fifteen years had to pass before the substance was found occurring in an animal organ in such quantity as to enable its isolation and

chemical identification to be made. This was done by Dale and Dudley in 1929 (*Journ. of Physiol.*, lxviii, 97).

THE CHEMICAL TRANSMISSION OF NERVE IMPULSES

The lecturer next described the work of Otto Loewi, who established by a simple experiment the transmission of the effects of autonomic nerve impulses by the peripheral release of specific chemical stimulants, and said that it was now generally admitted that parasympathetic effects were so transmitted by release of acetylcholine and sympathetic effects by the release of a substance related to adrenaline. The detailed evidence for these two kinds of chemical transmission of autonomic effects had been frequently reviewed. More recent evidence indicated that a chemical mechanism of this kind also effected the transmission of nervous activity at the synapses in peripheral autonomic ganglia and at the motor nerve endings on voluntary muscle fibres.

Feeling the need of terms to describe nerve fibres, or their impulses, in terms of a chemical function, which could no longer be regarded as corresponding to their anatomical origin, he (Sir Henry Dale) had suggested the term "cholinergic" to describe those which transmitted their action by release of acetylcholine, and "adrenergic," those which employed a substance resembling adrenaline. He thought it no longer possible to doubt that the liberation of a small quantity of acetylcholine when a pre-ganglionic impulse arrived at a synapse played an essential part in the transmission of the excitation to the autonomic ganglion cell, and that the post-ganglionic impulse was essentially a separate physiological event. The pre-ganglionic fibres and their impulses might be classed as "cholinergic," though the process by which their effects were transmitted to the ganglion cells differed widely in detail from that by which post-ganglionic parasympathetic impulses used acetylcholine to produce their modifying actions on the spontaneous activities of plain muscle and gland cells.

Sir Henry Dale asked his audience to consider the bearing upon all this of data, long available, which displayed the functional similarities and differences between different fibres of the peripheral nervous system by the method of regeneration after artificial cross-suture of nerves. He referred in particular to a series of papers published by Langley and Anderson between 1897 and 1904. Their work could be summarized in the statement that any cholinergic fibre would functionally replace any other cholinergic fibre, and that any adrenergic fibre would replace any other adrenergic fibre, but that neither could assume the function of the other.

REVISION OF PHARMACOLOGICAL CONCEPTIONS

The general conception of the mode of transmission of the effects of nerve impulses which was even now taking shape would obviously entail some revision of pharmacological conceptions and terminology. It had no longer any scientific meaning to say that acetylcholine and adrenaline reproduced the effects of parasympathetic and true sympathetic nerves, because they acted on the respective types of nerve endings. It was truer to say that parasympathetic nerve impulses reproduced the peripheral effects of acetylcholine, because, when they arrived at the nerve endings, they liberated that substance in relation to the effector cells; and the same was true of sympathetic nerve impulses and adrenaline, with the still necessary reservation as to the chemical identity of the transmitter—namely, that it was still open to question whether it was adrenaline itself. In either case the action of the chemical substance must be on the effector cells and not on the nerve endings. When atropine or ergotamine produced its specific paralysis it did so by rendering the effector cell specifically insensitive to acetylcholine or to

adrenaline. Similar conceptions, *mutatis mutandis*, applied to the actions of acetylcholine on ganglion cells and striated muscle fibres, and to the annulment of those actions with blockage of the corresponding nervous excitations by nicotine and curare respectively. It was still necessary to account for the fact that when a substance like acetylcholine was artificially applied the effector cells responding to its action were predominantly those in relation to which it was normally liberated as the transmitter of nerve impulses. It was similarly difficult to trace more than a general chemical similarity between adrenaline and some of the substances which shared, in varying degrees, its selective action. He doubted whether the use of such terms as "myoneuronal junctions" or "receptive substances" to describe hypothetical components of the effector cells, to which their selective responses might be attributed, would serve any longer to clarify the issue.

PROBLEMS YET AWAITING SOLUTION

As to the manner in which the nerve impulse on reaching the nerve ending caused the chemical transmitter of its action to appear, the evidence was meagre as yet, and not wholly consistent. The latest results supported the view that the transmitter was not newly formed by synthesis as each impulse arrived, but held in some inactivating and protective complex from which the nerve impulse released it, and from which it was easily separated by ordinary methods of chemical extraction. In the one case yet investigated, by Engelhart (1931), this "depot" was dependent for its maintenance on the integrity of the nerve endings, and disappeared or became depleted when the nerve fibres degenerated. By the interpretations given to the earlier evidence this disappearance might be taken to mean that the "depot" belonged to the nerve ending; but it might merely mean that its maintenance was dependent on the arrival of nerve impulses at a normal rate, and that its depletion with nerve degeneration was comparable to an atrophy of disuse. On either conception it seemed possible to give a clearer interpretation to the actions of the only two specifically stimulant bases for which an action on nerve endings appeared to be really supported by evidence. One of these cases was that of eserine, in connexion with which Anderson, nearly thirty years ago, recorded certain experiments showing that the normally potent constrictor effect of eserine disappeared entirely with degeneration of the post-ganglionic fibres. To-day Sir Henry Dale thought that the effect of eserine might be more reasonably attributed to the accumulation of acetylcholine, the liberation of which, by the play of impulses in post-ganglionic fibres, was normally balanced by the destructive action of the cholinesterase, which eserine inhibited. The other case was that of tyramine, certain sympathomimetic actions of which had been found to disappear with nerve degeneration and under the action of cocaine. Tyramine might act by liberating the transmitter from the depot, cease to act when this was depleted, and act again when it was replenished; and the same might be true of ephedrine.

In conclusion, Sir Henry Dale said that no nearer approach had been made to the fundamental pharmacological problem why a particular type of chemical structure, or several unrelated types, should be associated with a specific action on particular types of reactive cell. The newer evidence merely exposed the nature of the problem and cleared the ground for eventual attack. He could picture the eager interest with which Dixon would have welcomed this clarification. As pharmacology approached one of its fundamental tasks it would sadly miss his fertility in ideas and the stimulus of his buoyant optimism.

VOTE OF THANKS

Professor J. H. BURN, in proposing a vote of thanks to Sir Henry Dale, expressed astonishment at the progress which had been made in this pharmacological field. Even within the last twelve or eighteen months a very big step forward had been taken in respect of the fundamental facts of pharmacology, and the whole terminology was being revised. Since the time of Langley and Anderson (the beginning of the century) there had been no such important development as that which began with Loewi's work in 1921, and which had made astonishing progress during the last year or two.

REGISTRATION OF OSTEOPATHS BILL

LORD MOYNIHAN'S SPEECH

In the House of Lords, on December 11th, Viscount Elibank moved the second reading of the Registration and Regulation of Osteopaths Bill. This motion was carried by 35 votes to 20, and the Bill was referred to a Select Committee, with full power to call witnesses. A report of the debate, from our Parliamentary Correspondent, appeared in the *Journal* of December 15th (p. 1132). We print below the full text of Lord Moynihan's speech in moving the rejection of the Bill.

REASONS FOR REJECTION

It is to me a matter of no little regret that I feel myself compelled to oppose a Bill introduced by my noble friend Lord Elibank. I do not forget that when, a shrinking and timorous novice, I had the audacity to introduce a Bill to your Lordships' House, the fact that the Bill passed its third reading was due in part to the invaluable help and wise counsel of the noble Lord in special Committee. But, if I may be permitted to say so, I fear that the noble Viscount has not fully perceived the implications, still less foreseen the irreparable calamity that would result if your Lordships gave your assent to this measure. My objections come from two quarters.

LEGAL ASPECTS

In the first place the Bill involves a negation of all the principles already embodied in the Medical Act of 1858. Before this Bill, if passed by Parliament, could become effective this Act would surely have to be repealed. This Bill would defeat the intention and effect of the Medical Acts, which through the *Medical Register* provide a clear line of discrimination between those who have, and those who have not, passed through the recognized medical curriculum. The relevant purpose of this Act is the protection of the public from the ignorant and dangerous attentions of those who have undergone no adequate training or any training in the sciences upon which medicine is based, who know little or nothing of the normal structure of the human body by dissection, of the morbid changes appearing in disease, of the proper or disordered functions of organs, or of that multitude of scientifically discovered and scientifically tested truths upon which the clinical work of physicians and surgeons is founded. The Medical Act of 1858 is primarily an Act for the safeguarding of the public; and this Bill seeks to set aside all the carefully constructed substantial defence which time, circumstance, and opportunity have so frequently shown to be necessary, and to substitute a very frail protection and simulacrum. If by some miracle of perversity the Legislature should accept such a Bill as this, the claim now put forward would assuredly not end with osteopaths. If one particular "theory" of medicine were granted recognition contrary to the Medical Act of 1858 (Sections 23 and 28) a precedent would be created for the official recognition of any other cults which cared to include a smattering of medical subjects in the curriculum. There is nothing in the Medical Act to prevent any man, qualified or unqualified, from practising osteopathy. Many of your Lordships are far more competent than I to express a considered opinion upon this first point I raise—namely, that acceptance

of this Bill would require that the Medical Act at present in force, by which, so far as legislation can secure it, the safety of the public is protected, should be repealed.

PROFESSIONAL ASPECTS

The second objection I venture to offer concerns not the legal, but the professional aspect of this Bill. Its acceptance would involve a denial of, and would hold up to obloquy, the whole scientific basis of medicine. If there is one country in the world which should regard itself as the custodian, protector, and guardian of scientific medicine, it is our own; for it was in this country that modern scientific medicine had birth, and it was in this country that the greatest discoveries, foundation stones, and landmarks in the history of medicine were made. The claim may justly be made that medicine is at once parent and nurse of all science. For the methods by which all science advances are those first introduced, or in their originals most successfully applied and established, by practitioners of medicine.

The inductive method of logic was created not by Aristotle, nor by Socrates, nor by any philosopher, but by Hippocrates, of whose ancient and serious diligence Bacon reminds us: the full value and right application and appreciation of the experimental method we owe to Galen. It is by these two methods, and by these alone, that all scientific advance takes place. After Galen the methods used by him and by Hippocrates were submerged in the reign of authority which lasted for over a thousand years, a dark, sterile period in which denial of the teaching of Hippocrates was not only disloyal, but heretical, and might, and not seldom did, cost a man his life, as unhappy Servetus, discoverer of the pulmonary circulation, learnt at the guilty hands of Calvin in 1553. The first gleam of light was seen in Italy, in Salerno, oldest of her universities, and so far as medicine was concerned in the wealthier University of Bologna and in Padua, famous for great teachers.

THE FOUNDATIONS OF SCIENTIFIC MEDICINE

It was the magic of Fabricius of Padua which attracted our own William Harvey to that university, where he undertook those researches which ended in his discovery of the circulation of the blood a little over three centuries ago. That discovery is the one indestructible foundation upon which all scientific medicine is based; and Harvey was empowered to make it by bringing together once again the Hippocratic and Galenic methods of inductive inquiry, comparison, generalization, and experimental proof. But until John Hunter, the patron saint of the Royal College of Surgeons of England, created with the help of Morgagni the science of pathological anatomy, little was known of those structural changes in organs which enabled men to correlate them with the symptoms of disease to which they give rise. The lot of the patient was, however, little improved, in surgical matters at least, until immortal Lister, a member of your Lordships' House, basing himself upon Pasteur (already medallist of our Royal Society) and his work on fermentation, attributed infection in wounds to the propagation of living organisms within the wound, and so made possible the immense, almost incredible, advances that have taken place not in surgery alone, but in medicine also, since the recognition of the part played in general disease by focal infection. It is chiefly upon the work of Harvey, Hunter, and Lister that the science and art of medicine have been founded: three great Englishmen. That is my reason for asserting that we in this country are in special degree the custodians of scientific medicine.

OSTEOPATHY A DENIAL OF SCIENTIFIC MEDICINE

Osteopathy has not only no connexion with the main stem of scientific medicine: it is a complete denial of the truth of scientific medicine. If there be any truth in the fanciful and fallacious basis of osteopathy, there is none in the true science of medicine. The two systems do not run side by side, they are not complementary or mutually supporting. They are in direct and hostile opposition. If one is true the other must be false. If osteopathy is true the foundations of scientific medicine are not well and truly laid; then scientific physiology created by Harvey, pathological anatomy as founded by John Hunter, our knowledge of its infection and its relation

to disease which we owe to Pasteur and Lister, are false—even contemptible. The osteopath walks by faith and not by sight. When he speaks of the "lesion" he means something that neither chemical examination, radiological examination, nor post-mortem examination reveals to those trained in the practice of these methods. In place of knowledge gained in all the world by biologists, physiologists, pathologists, and bacteriologists we are asked to accept a cult fabricated not after arduous research, but springing up spontaneously by a process of serendipity in the mind of a layman in America, where it grew apace, though denied and derided from the day of its birth to this very moment by all scientific opinion in that country.

I do not deny that the problem presented to-day may contain elements of obscurity. Some of your Lordships may have heard, or even in your own persons may have experienced, a sense of benefit from treatment at the hands of an osteopath. I do not deny that such things are possible, nor do I deny that medicine has been slow to incorporate in its methods the art of those outside the fold—even, indeed, at times of those within the fold. Medicine is always slow to accept new methods because a heavy responsibility rests upon it to ensure that, within the limits of contemporary human knowledge, only the best, well-tried, and well-proven methods shall find a place in its orthodox practice. But to-day it cannot be denied that orthopaedic surgery embraces all the sound methods hitherto employed empirically either by bonesetter, manipulative surgeon, osteopath, or other "natural" practitioner. This we owe to the genius of my late dear friend Robert Jones, the greatest orthopaedic surgeon the world has known. He was the nephew and pupil of H. O. Thomas, whose name is for ever associated with the Thomas splint, which gave such splendid service during the war. Thomas was himself the son of a bonesetter, with whom he was in partnership before the Medical Act of 1858 rendered this illegal. Thomas was indeed the descendant of generations of bonesetters who flourished in Wales and settled at last in Liverpool. All the quick-fingered skill of the bonesetter was brought into medicine by Robert Jones, and there, after trial and great improvement and more rational application, has at last found a place and haven; and robbed of those perils which to my knowledge made it (though at times apparently successful) not seldom a cause of death in the hands of the untrained and unscientific bonesetter.

MISCHIEVOUS FEATURES OF THE BILL

I do not now venture to waste your Lordships' time in detailed criticism of this Bill. If opportunity ever came I think I could make it clear to the point of conviction: that osteopathy receives no clear definition in this Bill (for to say that what an osteopath may practise connotes the meaning of osteopathy is meaningless, and has many undesirable and even dangerous repercussions); that the Bill grants to foreign osteopaths the right to practise in this country, though the standards of other countries are sometimes grotesque; that reciprocity with other countries would almost certainly be denied; that the suggested training in medical subjects is too short to give a competence at all comparable with that of the general medical practitioner to-day; that if in future there is to be a medical training it must be equal for all those who are to practise medicine; that a shorter training would surely attract an inferior type of practitioner; that the Bill would create two standards of entry into the profession of healing, debasing the standard at a time when the medical profession is taking thought to exalt it; that the right to sign death certificates or to perform operations should in the public interest on no account be granted to those who have not, after passing through the recognized medical curriculum, been licensed by the General Medical Council, whose authority is conferred through the Medical Acts by Parliament; that Clause 8 (1), if strictly interpreted, would prevent the ordinary practitioner of medicine from using his own methods, which are being annexed by the osteopath; and that this clause would confer upon osteopathy a monopoly now denied to medicine.

Finally, I may point out that if osteopaths at long last are realizing that a formal medical training is essential before they may successfully practise their art, there is nothing to prevent them from passing through the present medical curri-

culum, and supplementing it in any way considered proper. This is the method followed by ophthalmologists, laryngologists, those who practise in public health, and others within the fold of orthodox medicine.

CONCLUSION

I do not desire to deal in anything but the most cursory manner with details of this Bill. It is to its principles that I offer most serious and most confident objection. It embodies an endeavour to destroy the Hippocratic unity of medicine, to foist upon the public, unaware of the danger, a spurious science which sets aside all the accumulated wisdom and expert practice of centuries. It seeks legislative authority for a "theory" of medicine that has in no country proved its validity, and is the derision of all competent and experienced minds.

MATERNAL MORTALITY

DEPUTATION TO THE MINISTER

Sir Hilton Young, the Minister of Health, received a deputation on December 11th from the Maternal Mortality Committee. The deputation, which was introduced by Mrs. H. J. Tennant, was representative of a large number of women's organizations, and of all three political parties.

Mrs. Tennant said the deputation represented over 3,000,000 women, and was the outcome of a meeting on the question of maternal mortality held on November 6th. Its object was to urge a wider provision of first-rate medical and midwifery services and the fuller maintenance and development of the maternity and child welfare services. Mrs. Barton said that malnutrition, though not a primary cause of maternal mortality, was a contributory factor. She feared that the Exchequer's block-grant system was less effective in stimulating local authorities than the former percentage grants. Mrs. Anderson referred to the recent inquiry into the death of Mrs. Taylor in Manchester. She feared that the facts brought to light by this inquiry had shaken public confidence.

Lady Barrett dealt with the question of ante-natal care and the desirability of appointing at ante-natal centres doctors who were also practising midwifery. She made reference to the necessity of improving the training of doctors and midwives. Miss Gregory said that midwives should receive a two- or three-years' course in a first-class hospital; she emphasized the dangers of employing "handy" women. Lady Limerick welcomed the announcement by the Minister of the proposed inquiries in areas in which the maternal mortality rate was abnormally high, and called for the establishment by local authorities of more gynaecological clinics. Mrs. Alderton held that county councils should be the maternity and child welfare authorities for all areas except large urban areas. She referred to the difficulties of establishing a satisfactory service in remote rural areas. Lady Denman said that at the last Conference on Maternal Mortality there had been a marked change in the attitude of the delegates; there was evidence of growing impatience at the failure to reduce the maternal mortality rate.

THE MINISTER'S REPLY

The Minister said that the problem of maternal mortality was one giving him, as it had given his predecessors, grave concern. Despite the improvement in the general mortality rate, there had as yet been no improvement in the maternal mortality rate. He was grateful to the deputation for its co-operation, and he had listened with interest to the helpful speeches that had been made. The maternity and child welfare services of local authorities were being steadily developed. No financial check had been placed upon them, and they were not affected by the transfer from the percentage to the block-grant system. When the transfer was made an additional sum of £5,000,000 was provided by the Exchequer for the development of local authorities' services, and the maternity and child welfare service had been recognized as a first charge upon that sum.

Some of the speakers had suggested that malnutrition was a cause of the high maternal death rate. There was no evidence, however, to show that there was any close relation between malnutrition and a high maternal mortality. Of the

actual deaths examined at least one-half occurred among well-to-do people, and it was significant that the maternal death rate for 1933 in such a depressed area as Durham was no higher than the rate in the relatively prosperous county of Middlesex. Nevertheless, the conditions in the depressed areas were undoubtedly such as to give rise to anxiety, and the position was receiving the close attention of the administration. In particular local authorities had been urged to make, in appropriate cases, full use of their powers to supply milk and other foods to expectant and nursing mothers.

The Government was at present engaged in co-operation with the local authorities in a strenuous and continuous effort to improve the maternity and child welfare services throughout the country. Fresh impetus had been given in October last to the development of the maternity services by local authorities, and there would be no relaxation until the maternal mortality rate had been reduced. Particular attention was being directed to: (1) improving the ante-natal service; (2) ensuring that the services of a trained midwife were available for all confinements; (3) securing the provision of maternity beds for complicated cases and for patients with unsuitable home conditions, such beds to be associated, where practicable, with general hospitals, preferably in small units readily supervised, and for which prompt specialist services for serious cases could be made available; (4) providing facilities for the adequate isolation and separate nursing of cases of puerperal sepsis; and (5) obtaining the services of a consultant for doctors needing assistance in difficult or complicated cases. In addition to this general work special inquiries were about to be made in those areas in which the maternal mortality rate had been found to be abnormally high. Further action would be based on the result of these investigations. Careful consideration would be given to the useful and practical suggestions which had been made by the deputation.

THE MEDICO-LEGAL SOCIETY

ANNUAL DINNER

The annual dinner of the Medico-Legal Society at the Holborn Restaurant, London, on December 14th, with Sir BERNARD SPILSBURY presiding, was attended by two of H.M. judges, various other notable persons in the legal world, and the presidents of the principal medical bodies, including Dr. S. Watson Smith, President of the British Medical Association.

Mr. Justice HUMPHREYS, in proposing "Medicine and the Law," paid a noteworthy tribute to the general practitioner. His own most frequent contact with the medical profession, he said, was through the general practitioner, and "I take off my hat to him. When it comes to deciding between his evidence and that of a gentleman who may be quite eminent, but who has not seen the patient, knows nothing about the patient, is probably unacquainted with the treatment which has been administered to the patient, and tells the jury, or, less frequently, tells me that the man who has attended that patient, probably for years, is quite wrong, wrong in his diagnosis and wrong in his ideas, my inclination is to invite the jury to pay more attention to the evidence of the man who has seen and attended that particular person than to the theories of anybody else, however eminent. The general practitioner, the family doctor, is a man whom I have always regarded as immensely overworked and grossly underpaid. He is expected to—and, good fellow that he is, he does—respond to any call to get up in the night and go and see any old woman who has a stomach ache, even though he knows the patient and knows what he will find when he gets there. That is the general practitioner, and when he gives evidence I feel that he has quite sufficient knowledge of medicine and surgery to enable him to give the evidence the jury will understand and to have treated the patient in a way which gave the best possible opportunity of recovery. The man I like most among all the doctors is the general practitioner, and to him I think we owe as great a debt

as we do to the heads of the profession or to the research worker."

Lord HORDER, in responding to the toast, commented on the fact that while patients never seemed to doubt the competence and devotion of their medical advisers, the profession as a whole, or groups within it, did not occupy in public esteem anything corresponding to the esteem felt for the individual doctor. Perhaps it was so in all professions. Lord Horder went on to speak on the question of the osteopath. It was difficult for him to conceive how it was possible to erect a single therapeutic measure into a system of medicine, to eliminate the art of diagnosis, and the basis of all medicine, which was pathology, and proceed straight to treatment. He wondered what was going to happen to the British public if for diagnosis and the pathology which underlay diagnosis there was substituted one single method of treatment, however important, and if the man who had only this one method of treatment at his command was to be elevated to the position of a registered medical practitioner. Still, if the public wanted it, let it be "tried out." He did not think they, as doctors, should protest too much against this sort of thing. The more they protested the more would osteopaths consider themselves martyrs, and martyrdom was valuable propaganda. Lord Horder concluded with the remark that the time was ripe for an institute in which research and teaching in medicine and law, in so far as the two subjects interacted, could be undertaken. He hoped that the link between the two professions would shortly be rendered more effective in that respect.

Mr. Justice SWIFT, in proposing "The Medico-Legal Society," paid a tribute to Sir Bernard Spilsbury, whom he described as the ideal expert witness, a man of great knowledge, great industry, and great power of expression. "I have met in my time witnesses of all kinds and degrees, but in the class of honest expert witnesses Sir Bernard is a bright and scintillating star. No case of first-class importance has been completed without his assistance, and the public has the utmost confidence in his opinion." Mr. Justice Swift added that he had that day been speaking with Mr. Justice Avory about Sir Bernard, and his brother judge had remarked, "Some day—some day he may be found to be wrong."

Sir BERNARD SPILSBURY spoke of the loss which the society had sustained in the death of Lord Riddell, who became a member in 1922, vice-president in 1927, and president from 1930 to 1933. Lord Riddell was full of projects for making the society better known, and his contributions to the discussions were apt, witty, and informed with wide knowledge. The membership of the society now stood at about 330. All who did medico-legal work appreciated the difficulties which the present isolation imposed upon them. He welcomed the establishment by the Government of a police college, also the appointment of a specially trained medical man to carry out scientific investigation in such a college, and he hoped that there would presently appear an organization which would embrace workers in medical jurisprudence, giving them the opportunity of teaching and research.

Dr. ROBERT HUTCHISON, in replying for "The Guests," avowed his personal liking for lawyers and his early hankerings after a legal career. He recalled the remark of one indignant lady who had brought her son to him during the war, when he confessed his inability to discover any impediment to military service, "Call yourself a doctor! You look just like a lawyer." Looking at many genial faces in the present company, he felt that that must be a compliment.

The Mental After Care Association, which exists to help those who have suffered from mental trouble, earnestly appeals for funds. This year over 3,000 people have been helped, and the extension of the work to early care for incipient cases of mental disorder urgently requires financial support, the results of the work being most encouraging. Contributions should be sent to the secretary, Miss E. D. Vickers, Church House, Westminster, S.W.1.

Scotland

Edinburgh Chair of Clinical Medicine

The retirement of Professor Edwin Bramwell from the chair of clinical medicine in the University of Edinburgh has been announced. Professor Bramwell is the eldest son of the late Sir Byrom Bramwell, the distinguished neurologist, whose works on *Intracranial Tumours* and *Diseases of the Spinal Cord* contributed much to the elucidation of nervous phenomena at the end of last century. Professor Edwin Bramwell was born in 1873, and after an early education at Cheltenham studied medicine at Edinburgh University and graduated M.B., C.M. in 1896. In 1902 he was appointed assistant physician to Leith Hospital and in 1907 an assistant physician to the Royal Infirmary of Edinburgh. He joined the Royal Colleges of Physicians of Edinburgh and London as a Member in 1900, becoming a Fellow of the Edinburgh College in 1903, and of the London College in 1907. He took the M.D. of Edinburgh in 1919. He played a considerable part in the inauguration of the post-graduate courses in medicine which have been held at Edinburgh since 1906. In 1919 he was appointed lecturer on neurology in the University, and in 1922 he was made Moncrieff Arnott professor of clinical medicine. He delivered the Morison Lectures to the Royal College of Physicians of Edinburgh in 1917. His varied contributions to the literature of neurology include "Myasthenia Gravis" in the *Encyclopaedia Medica*, 1901, "Epilepsy" in the *Index of Treatment*, and "Spinal Tumours" in *Allbutt's System of Medicine*, second edition.

The chair of clinical medicine was instituted in 1913 out of the funds derived from a legacy bequeathed by James Moncrieff Arnott, a former graduate of the university. A scheme has been mooted for merging this chair with that of systematic medicine when opportunity offers. Dr. Edwin Matthew, who was due to retire from the post of physician to the Royal Infirmary at the age limit on December 12th, 1934, has meantime been continued in office in order to carry on the duties of the clinical medicine chair. Professor Matthew is a native of Aberdeen and graduated M.A. at that University in 1889. After a medical course at Edinburgh University he graduated M.B., C.M. with first-class honours in 1897, proceeding to the degree of M.D. and receiving a gold medal for his thesis in 1908. As a student he gained a Vans Dunlop and the Ettles scholarships. He joined the Royal College of Physicians of Edinburgh as a Member in 1902, and became a Fellow in 1906. For some twenty years he was assistant physician and physician at Leith Hospital, and for twenty-five years assistant physician and physician to the Royal Infirmary, Edinburgh. He has acted as examiner in medicine at the Universities of Aberdeen and St. Andrews, and since May, 1933, has been a member of the General Medical Council, representing the Royal College of Physicians of Edinburgh.

The winter graduation ceremony of Edinburgh University was held on December 14th, when Principal Sir Thomas Holland conferred the degree of Doctor of Medicine upon fourteen graduates and those of Bachelor of Medicine and Bachelor of Surgery upon twenty-nine graduands.

Maternal Mortality

Professor J. M. Munro Kerr, in addressing the annual meeting of the Scottish Branch of the Queen's Institute of District Nursing at Glasgow on December 14th, expressed the opinion that a greater measure of co-operation between the different agencies interested in the problem of maternal care was the best method for reducing the present figures

of maternal mortality. Lord Provost A. B. Swan, who presided at the meeting, spoke of the highly successful results in treatment which the Institute of District Nursing obtained. The general community should recognize that they owed much to this Institute for the improvement in the health conditions of the people. Lady Kay Muir, who submitted the report, said that since the Local Government (Scotland) Act, 1929, came into operation, there had been a tendency for some of the grants made by former parish councils in aid of nursing work to be reduced or stopped. It would be regrettable if this became general, and it was hoped that local authorities would recognize the value of the work of attending persons in receipt of public assistance. Professor Munro Kerr said that much could be accomplished to bring maternal mortality down to an irreducible minimum, and in this the Queen's Institute was setting a splendid example. Geographical and social conditions, as well as the character of the population, affected this minimum, but the chief factor was the type and organization of the maternity service in any locality. At the present time maternal mortality was much the same as it was fifty years ago, and it was a matter for question why this should be so when there were so many willing workers, and when the causes of mortality were now known. The chief reason was that agencies concerned with the maternal mortality were not fully co-ordinated. These agencies were the obstetric specialists, general practitioners, midwives, nurses, medical officers of health, health visitors, and various hospitals and ante-natal clinics. He would emphasize the necessity for greater co-operation with expectant mothers themselves, who should realize that they ought to place themselves under supervision early in pregnancy. He believed in the provision of municipal midwives in large cities, a scheme which had been tried out already in Bradford. In the rural and semi-rural areas the Queen's Institute might undertake the routine maternity services, and if the work of the institute were correlated with that of ante-natal clinics, doctors, and specialists, there would be some prospect of improvement. In the report of the institute the statement is made that out of 86,546 births registered in Scotland during 1933 Queen's nurses attended 14,211. In 2,197 of these the nurses attended as midwives, and in the remainder as maternity nurses. In the births attended generally in Scotland otherwise than by Queen's nurses the maternal death rate was 6.5 per 1,000 births, while in the cases that had been attended by Queen's nurses the death rate was 2.8 per 1,000 births. The total assets of the Scottish branch of the institute now amount to £126,598, an increase during the past year of £7,201. It was also reported that the Gardens Scheme in Scotland, inaugurated four years ago for raising funds for the institute, had for three years running realized over £5,000, and in the present year the figure was £800 higher than that of any previous year.

Edinburgh Public Medical Service

The Public Medical Service instituted in Edinburgh two months ago has met with a large measure of success. Over two-thirds of the doctors in general practice in the city have joined the service, and patients are enrolling at the rate of 500 per week. Warm support is also being received from chemists, employers of labour, prominent social organizations, and leaders of public opinion. The wives of insured persons, particularly, have been quick to realize that benefits similar to those of the National Health Insurance Scheme can be obtained by the payment of fourpence per week per member of the family, and are eager to enrol their children. Subscriptions are paid through collectors to a central office, but in all other

respects the patients deal directly with their own doctor. A similar public medical service was inaugurated in the county of Midlothian last year, and another is about to be established in Ayrshire.

Welfare of the Blind: Advisory Committee

The Department of Health for Scotland has appointed the Scottish Advisory Committee on the Welfare of the Blind for a further term of office. The committee is representative of local authorities in Scotland and of organizations and agencies for the blind, and includes a number of persons appointed directly by the department. The personnel is as follows: Mr. J. M. Rusk (chairman), Mr. Mackenzie S. Shaw (vice-chairman), Mr. C. H. W. G. Anderson, Mr. James Balfour, Mr. William Bell, Mr. William Edgar, Mr. W. R. Halliday, Mrs. A. A. Kennedy, Mr. James Leiper, Mr. C. G. Lothian, Dr. George Mackay, Mr. W. H. Blyth Martin, Lord Polwarth, Mr. Adair Robb, Mr. James Ross, and Mr. Bertram Talbot. Mr. Rusk becomes chairman in place of the late Sir William Reid, and Mr. Mackenzie Shaw assumes the office formerly held by the Rev. Dr. Thomas Burns, who is unable to accept reappointment on grounds of health.

Bangour Hospital Extension

An extension of the nurses' home at the Bangour Mental Hospital of the Edinburgh Corporation was inaugurated on December 3rd by Lady Thomson, wife of the Lord Provost of Edinburgh. The extension provides accommodation for sixty-four nurses, the home now housing the entire nursing staff of 139 members. It also includes a lecture room and rooms for practical work and for reading and writing. The extension has cost some £11,000. Lady Thomson said that a great change had come over the mental hospitals in this country during the last half-century, largely due to the increasing extent to which female nurses had been employed. With few exceptions, acute cases, male as well as female, were now under the care of female nurses, and the results had amply justified what was at first regarded as a very doubtful experiment. The influence of the trained mental nurse had done more than any other single measure to transform the mental hospital of to-day into a place of care and healing.

Ireland

Bicentenary of Mercer's Hospital, Dublin

At a meeting in connexion with the bicentenary of Mercer's Hospital the question of amalgamation of the hospital with Sir Patrick Dun's and the Royal City of Dublin Hospitals was discussed. Dr. R. J. Rowlette said it had been realized by the governors and medical staff alike that a small hospital of the size of Mercer's, containing 100 to 200 beds, was not the most suitable to give efficient results to-day. The era of the small hospital had passed, and to secure thoroughly efficient service hospitals of a larger unit must be considered. While economy was necessary, it was not an essential question. There was under discussion a scheme for the amalgamation of Mercer's, Sir Patrick Dun's, and the Royal City of Dublin Hospitals in such a way as to have a hospital unit of about 400 to 500 beds, instead of three units of 100 to 150 beds each. The project had received the warm support of the chairman of the Hospitals Commission, which advised the Minister for Local Government and Public Health as to the disposal of the funds accruing from the sweepstakes. He hoped that the details of the scheme would be such as to get the approval of the Commission, and that the Minister would consider the

scheme with the greatest sympathy when it came before him. Dr. T. P. Kirkpatrick read a paper on "The Foundation and Ancient History of the Hospital," in which he went back to the twelfth century, when there was a Chapel of St. Stephen on the site of Mercer's Hospital. They had now, he stated, nine great hospitals in Dublin, and three of these owed their foundation to women: Mary Mercer, Madame Steevens, and Mary Aikenhead. Sir John Lumsden, in an address on the recent history of the hospital, said that during the early part of the eighteenth century certain auxiliary or private medical schools existed in Dublin, the certificates of which were accepted by the licensing bodies—Kirby's (1832), the Carmichael School of Surgery (1835), and the Ledwich School (1836) in Peter Street, the property later being acquired by the Adelaide Hospital. The number of students attending at Mercer's during the 'seventies and 'eighties was considerable, as it was one of the chief teaching hospitals, and a large proportion of Ledwich School students came there. In those days Mercer's had some outstanding men on the staff: the Ledwichs, the great surgeon Butcher (of butcher-saw renown), Dr. Mason, Mr. Nixon, and Mr. Stamer O'Grady.

Poor Law Medical Officers' Salaries

The substance of a letter from Dr. T. F. Armstrong, honorary secretary to the County Wexford Poor Law Medical Officers' Society, to the County Wexford Health Board is as follows. At a special meeting of his society the establishment of a State medical service was unanimously recommended, as the Poor Law medical system, designed over eighty years ago, was not adapted to present needs. Meanwhile some amelioration of the conditions was necessary if a full satisfactory service was to be maintained for the purpose of affording medical relief on the extended scale. Applications for increases of salaries might with every justification be made, but the society, recognizing all interests, asked only for two concessions, which were admittedly most reasonable and moderate: (1) that all salaries should be placed on a scale with fair increments, the maximum being reached in not more than ten years; and (2) that a substantial contribution should be made towards travelling expenses which were incurred in performing official duties. The average dispensary medical officer's salary was subject to deductions of 50 per cent. and more for such expenses, and as they increased the real salary diminished until, during influenza epidemics, there was no real remuneration whatever. The dispensary medical officers requested: (1) that the present maximum of £300 be attained in ten years by annual increments of £10; and (2) that an allowance of £75 be granted as a contribution towards travelling expenses. The hospital medical officers applied for the following scales: county surgeon, £500, and annual increments of £30 to £800; county home medical officer, £200, increasing by £10 to £300; fever hospital medical officer, £200, increasing by £12 10s. to £300; district hospital medical officer, Gorey scale salary to remain as at present. The scale fixed by sealed order a few years ago proved most unsatisfactory in the following respects: (a) the scale was £50 lower than in the neighbouring counties; (b) the annual increments were only £5, although the Department of Local Government and Public Health had itself suggested £10 increments as being most suitable; (c) it was contrary to the usual practice of the Department to fix a scale which was lower than existing scales in the county—for example, in Gorey Union area the scale was £50 higher, and the maximum was reached in five years; and (d) the scale lowered the initial salaries in certain areas and removed the privileges conferred by transfer to these areas.

Diphtheria in Cork City

Dr. Saunders, medical officer of health, in a report on the health of Cork City in October, called attention to the continued and undue mortality from diphtheria. The fall in the fatality rate had not yet kept pace with the fall in incidence of this disease; the latter was now much less than it was four or five years ago, when immunization was begun. Two deaths occurred during the month, which brought the total for the present year up to fifteen, one more than the total for 1933. None of these deaths occurred among immunized children, yet many parents still persisted in refusing to have their children protected. While the number of cases was much fewer than it used to be, the type of the disease was more severe and the risk of death greater. If every child in the city under 10 were immunized, Dr. Saunders added, the disease would disappear completely.

County Medical Officers of Health in Leitrim and Longford

Dr. McCormack, medical inspector of the Department of Local Government and Public Health, recently attended Leitrim County Council to urge the appointment of a medical officer of health. The question had been postponed from time to time. A suggestion of the Department that Leitrim and Longford should appoint a joint medical officer of health did not find favour. The Council expressed the wish that the positions of tuberculosis medical officer and county medical officer of health should be amalgamated, and that Dr. Reynolds, tuberculosis medical officer, should be appointed to the joint position. Dr. McCormack said the resolution could not be considered, since the filling of the appointment would be for the Appointments Commission.

England and Wales

Society of Apothecaries

The ancient hall of the Society of Apothecaries of London was the scene on December 11th of the Yeomanry Dinner, when the Master, Sir George Buchanan, supported by the Senior and Junior Wardens, Sir William Willcox and Dr. J. S. Fairbairn, presided over a company of about one hundred. Among the guests were Sir E. Hilton Young, Minister of Health, Lieut.-General J. A. Hartigan, D.G. of the Army Medical Services, Lord Horder, President of the Medical Society of London, Dr. E. K. Le Fleming, Chairman of Council of the British Medical Association, the presidents of various kindred societies, and the deans of London medical schools. Sir William Willcox introduced Dr. W. Langdon Brown, Regius Professor of Physic at Cambridge University, to receive the honorary freedom of the Society, and made appropriate reference to his distinguished career in medicine. The freedom, with the scroll enclosed in a specially designed casket, was presented by the Master. Professor Langdon Brown expressed his thanks for the high honour conferred upon him, and his pleasure in being introduced by such an old friend as Sir William Willcox. He could not help feeling that the honour had come to him less on personal grounds than in recognition of the ancient office he was privileged to hold. Cambridge University and the Society of Apothecaries were both ancient foundations, but both had always shown a faculty of adapting themselves to the needs of the time. Sir Hilton Young, in proposing the health of the Society, said that it would be impossible for any occupant of his office to stand before the present company without bearing testimony to the distinguished

record of public service of the Master, Sir George Buchanan. The Society itself, after a long and comparatively obscure record as a City guild, had taken up a number of fresh activities in the public interest. It had shown a facility for rendering service where service was most needed. He referred in particular to its institution a few years ago of the diploma of Master of Midwifery, designed to assist public health authorities and others in the selection of practitioners who had made a special study of ante-natal care, obstetrics, and infant welfare. Another noteworthy achievement of recent date was the Society's register of biophysical assistants. Above all, he greeted the Society as one of those important bodies working effectively for the maintenance of the standards and traditions of the medical profession. The Master, in responding, said that the Society had two sides—that of a City guild and that of a medical corporation. As a guild it had done good service, but as a medical corporation its service to the community had been in some respects outstanding. It had initiated certain lines of action, and later had surrendered control when the work became too big for its compass. At one time there was no register of persons licensed to practise save one kept by the Society of Apothecaries. Mr. Arthur Greenwood, M.P., a former Minister of Health and an honorary freeman of the Society, proposed the health of the guests, and also acclaimed the Society as an ancient body able to adapt itself to new demands. Brief responses were made by General Hartigan and by Mr. W. Girling Ball, dean of the medical college, St. Bartholomew's Hospital.

Establishment of Nutrition Clinics for London School Children

The Education Committee of the London County Council on December 4th announced to the Council its proposals for the medical and dental treatment of school children for 1935-6. These arrangements are the first to be put forward by the Labour majority, and they include the provision of additional treatment centres, dental inspection, and nutriment for children under treatment, the establishment of nutrition clinics, and the introduction of new methods for the early treatment of ear, nose, and throat defects. It is proposed to establish five nutrition centres in London in the programme of educational developments for 1935-8. Cases will be referred to the centres by school doctors, teachers, and care committees, and each child will have a thorough medical examination to ascertain whether its physical condition may be ascribed to dietetic deficiency. If so, advice will be given to the parents, and, where possible, nutritives and tonics, such as cod-liver oil, malt, and iron, will be provided. Additional facilities are to be available in certain districts for the treatment of eye defects. Operations for the removal of enlarged tonsils or adenoids are decreasing in number, but there are a great many children with conditions of the nose and ears which, owing to lack of early care, often result in an operation becoming inevitable. One type of preventive treatment is known as diastolization, and can be undertaken by specially trained nurses under the supervision of an aurist. Arrangements are being made for fourteen such cases to be treated per week, or about 600 a year; each case will need about twelve treatments. Further provision for the care of minor ailments is to be made, together with facilities at the minor ailments centres for the administration of nutritives and tonics in special cases when ordered by the physicians. As for dental treatment, it is proposed to arrange for the extension of dental inspection and treatment facilities in order that all children in the schools shall be inspected by the dental surgeons once a year, and the consequential treatment

ENGLAND AND WALES

Dec. 22, 1934]

given at the centres. At present the general rule is for the dental surgeons to inspect all children, with the exception of entrants, children of ages 7 and 11 years, and leavers—that is, those age groups subjected to routine inspection by the school doctors. To enable all children to be inspected annually will necessitate a total of thirty-six additional inspection sessions and 105 additional treatment sessions a week. The extra cost when the full programme is established will amount to about £12,000 a year, but the development is to be gradual and spread over three years, the age groups 7 to 8 years being added to the dental inspections throughout London for the first year, 1935-6. Arrangements at three selected centres for orthodontic treatment, as an experiment for six months, have been approved; the scheme will be reviewed in March next, when it will be possible to consider its extension. Observation centres for the early discovery and treatment of children suffering from rheumatic defects have proved of considerable value, and additional provision is being made in five centres. Additional centres are also to be established for stammering children.

Vital Statistics for 1933

The principal features of Part I (Medical Tables) of the Registrar-General's statistical review for 1933, which is now on sale at H.M. Stationery Office, price 6s., are as follows: The number of births registered in the year was 580,413, giving a rate of 14.4 per 1,000 persons living. This rate is 0.9 below that for 1932, hitherto the lowest recorded, and constitutes a new low record. The death rate was 12.3 per 1,000 persons living, 0.3 above that for 1932 (the same as that for 1931) but 0.9 above that for 1930. The rate for 1930 was, however, the lowest ever recorded, this being attributed to the exceptionally mild weather in the first quarter of that year. The higher rate for 1933 is almost wholly occasioned by an excess in the first quarter of the year, the rates for other three quarters showing very little variation. Infant mortality was similarly affected, and the deaths of children under 1 year numbered 64 per 1,000 live births as against 65 in 1932, 66 in 1931, and 60 in 1930; 1930 is, however, the only year showing a lower infant mortality than 1933. The death rate from cancer was 1,526 per million persons living as against 1,510 in 1932. If, however, allowance is made for differences in the age constitution of the population the comparative mortality from cancer shows a slight decrease. Tuberculosis again furnished a new low record of 824 per million living. Puerperal sepsis caused the deaths of 1.75 women per 1,000 live and stillbirths, 0.2 more than the rate for 1932 but 0.09 less than 1930. "Other accidents of pregnancy and childbirth" showed a rate of 2.57 per 1,000 live and stillbirths, compared with 2.49 in 1932, 2.36 in 1931, and 2.38 in 1930. Road accidents due to mechanical vehicles were responsible for 5,934 deaths. The figures for the last five years were 5,193, 5,752, 6,342, 5,892, and 5,671 respectively.

Old Epsomians at Dinner

The fifty-seventh annual meeting and dinner of the Old Epsomian Club was held at the Hotel Great Central on December 13th, under the presidency of Mr. R. M. Handfield-Jones. Among the guests were Lord Leverhulme, the newly elected president of Epsom College, Sir John Broadbent, vice-chairman of the College council, the Rev. A. C. Powell, head master, Lord Horder, and Professor T. B. Johnston. The projection of a cinematograph film showing events at the College on Founder's Day formed an interesting interlude. In response to the toast of his health Mr. Handfield-Jones mentioned that in the year he left Epsom—1910—he attended his first Old Epsomian dinner, when there were forty present, and the

total club membership was 300; that evening there were 140 at the tables, and the membership had risen to 1,100. Epsom was flourishing exceedingly, thanks largely to Sir Raymond Crawford, its chairman of council, who had guided it through the years of reconstruction. But it was not going to rest on its laurels. On certain matters the friends of Epsom who had studied public school administration felt strongly. As soon as it was financially possible the College should be divorced from the benevolent side. Epsom was being hindered from taking its proper place in the scholastic world because of the millstone of benevolence around its neck. So long as there were 125 local secretaries up and down the country appealing for money it would never rid itself of that incubus. It must not be imagined for a moment that anyone was suggesting that the benevolence should cease, but only that it should be separated. The public school education of the young could not go hand in hand with a system of benevolence to the aged; such benevolence was already being carried to a large extent by invested funds, and it was important that it should be separated from the school. On an actuarial basis it would take between twelve and fifteen years to establish a fund which would carry all their foundationerships (the fifty-six scholars, sons of medical practitioners, who were boarded, educated, and clothed free of all cost), and when that became possible they had at disposal at Epsom everything a public school in England. It was purely a question of policy and the founding of a fund. The head master, in reply to the toast of "Floreat Epsomia," said that the wishes which Mr. Handfield-Jones had forcibly expressed would meet with great acclamation from all concerned for the record of the year in study and sports. Dr. A. B. Howitt, M.P., proposed the health of the guests, to which Lord Leverhulme responded. A response was also made by Professor T. B. Johnston, who said that Epsom had links with all the medical schools, and particularly with Guy's, thanks to Sir William Hale-White, the honorary treasurer at Epsom, and to the existence in the medical school of a society of Old Epsomians.

Reports of Societies

MENTAL HYGIENE: PREVENTIVE MEASURES IN CHILDHOOD

Dr. DAVID FORSYTH, the president, took the chair at a meeting of the Section of Psychiatry of the Royal Society of Medicine, held on December 11th, and Dr. SUSAN ISAACS opened a discussion on the above subject.

Dealing with the years from birth to 4 or 5, Dr. Isaacs laid stress on the necessity for preliminary study of the facts of genetic psychology, including the unconscious mental life. The advice given to mothers and nurses had, she said, too long consisted of a set of ready-made rules, chiefly emphasizing the value of training in regular habits. On the other hand, some recent American attempts to apply psycho-analytic knowledge to mental hygiene seemed to be based rather naively on the facts of infantile sexuality alone. The practical advice these offered was mostly directed to avoiding stimulation and reducing the amount of libidinal gratification which the child might get in suckling, or in being tended, or in direct expressions of affection. The advice was based on a Spartan ideal of the relation between mother and child, the aim of which was to avoid fixations. Fixations, however, were far more likely to be the outcome of anxiety resulting from the aggressive wishes connected with the particular libidinal nucleus. Each of the pregenital libidinal zones, particularly the biting phase of oral

sexuality and the successive phases of anal erotism, had characteristic aggressive wishes connected with it, involving specific modes of attack and defence and specific fantasies. The pressure of these primitive forms of desire and feeling in the child from birth onwards was enormous, and his chief task was not to acquire a series of habits, but to learn to control and express his instinctual cravings towards his parent. As a first defence against the primary anxiety of oral frustration and aggression during the first six months of life, the infant took into his psyche two distinct imagos of the mother: the good, which yielded the bliss of satisfaction in suckling and removed painful stimuli; and the bad, which was created out of the experiences of pain and frustration and the child's own aggression, did not differ in character from the primitive wish-self of the child, and was endowed with all his own sadism. This internalized "bad mother" gave rise to a vast anxiety. The child suffered fantastic terrors of being bitten, cut, wetted, or burned in talionic punishment for what he had wished to do to the mother. This anxiety led to an imperative need to project the sadistic super-ego on to an external parent. In his obstinacies and tantrums the child tested his fantasies of inner danger by real action against the external parents, so as to gain constant reassurance of their power to control him without hurting him, and of their love and willingness to protect him. In his pleasure-seeking habits, such as thumb-sucking or masturbation, the child sought proof of the goodness of those parts of his own body which had been associated with aggressive fantasies. In his learning, his manifest affections, and his growing skills he gradually built up a more stable belief in the good parents inside himself, and in his own power of creating and making good, and brought this belief closer to reality.

A REGIME OF REASSURANCE

The problem of early mental hygiene was therefore to help the child to find satisfactory ways out of the anxious emotional conflicts of the first three or four years. The most general aim should be to discover a technique for giving parents and nurses responsible knowledge without increasing their guilt and anxiety. They should have a positive understanding and a wide comparative knowledge of the various aspects of development, to give them a sense of security and a correct perspective in regard to their own children. A regular routine, together with reliable and consistent modes of handling the child, avoided undue frustration, and gave him a mild external control in a form which he could understand. A temperate and appropriate authority reassured him against the first primitive parent-self within his own mind. If, however, his elders merely gave him a doctrinaire freedom to do what he liked, they yielded him over to the severest of authorities—the primitive mother-imago made in the image of the primitive infant-self.

It was also necessary to recognize individual deviations, and the fact that children could never be made to fit an exact pattern. Moreover, one could not give a disturbed mother greater help than by assuring her that the majority of children manifested emotional difficulties in the early years, and that these as a rule passed away if the general conditions of the child's life were kept satisfactory by providing adequately for the skills, interests, and friendships normal to his age. A very important consideration was the wisdom of avoiding coincident stresses. If, for example, there was a death at the time a child was teething; if he was to have an operation just after he had been naughty; if the new baby arrived after he had been specially dirty or aggressive, his difficulties would be increased to the breaking-point. It was, for example, unhelpful to send a child without warning to a nursery school within three days of the birth of a new baby. Again, the weaning of a boy of 10 months had been started a fortnight before the family moved from one country to another, was continued over a week's journey and a sea voyage of some days, and completed within a fortnight of the arrival. The child had immediately developed a most violent anxiety and aggression, screaming for hours on end in the night. Weaning should never be allowed to coincide with any such other important

change of circumstances, and if such a coincidence was unavoidable a prophylactic analysis was highly desirable. Not only hysteria and obsession, but also psychosis and delinquency could be diagnosed in the child under 5 years, and early therapy had here to be recognized as an essential part of mental hygiene. The number of children who needed actual treatment by psycho-analysis was not small.

Dr. WILLIAM MOODIE spoke from experience at the London Child Guidance Clinic of over 2,300 cases during the last five years, amplified by the examination of about 2,000 more children committed to the Remand Home of the London County Council. The manifestations of mental breakdown had been very diverse. The child might have caused disturbance to the community by violence, habitual stealing, disobedience, temper, or bullying. He might have truanted from school or fallen into the hands of the police. The trouble might have been within himself; he might have been nervous, fearful, shy, sensitive, unable to hold his own with others, or abnormally imaginative; or he might have shown some special symptom such as nail-biting, thumb-sucking, food fads, or bed-wetting. Many of the children had been referred because of school failure in one of its many forms, such as lack of concentration, so-called "word-blindness," and inability to calculate or remember. The delinquents had all been sent to the Remand Home through the juvenile courts. Many had been committed for stealing, gang activities, house-breaking, or bag-snatching. A few had been there because they were beyond control, and some because they had been found "wandering without visible means of support and lodging in the open air." In the clinic group signs were frequently found which suggested the neuroses and psychoneuroses of adults. About 8 per cent. were mentally defective, and some children suggested early psychoses. Delinquents, on the other hand, did not give the same suggestion of neurosis, but seemed mostly to be ordinary children, somewhat dull in intelligence. (Perhaps this factor had accounted for their capture.) Whereas about 20 per cent. of the clinic children were referred on account of backwardness, about 40 per cent. more were sufficiently behind in their work to cause difficulty, but had not been recognized for lack of standardized education and intelligence tests. The term "backward" was used in relation to the child's individual capacity. Every delinquent and practically every child sent to the clinic was given tests of intelligence and also of education.

THE NEED FOR INTELLECTUAL TRAINING

Many children whose education was retarded were found to present mental signs and physical symptoms suggesting an anxiety state. On tracing the history, however, it often became clear that the trouble had begun in anxiety which the child had suffered in early life from mental and nervous tension due to dammed-up mental energy. Such a child eventually became anxious, and developed fears of animals, of the dark, or of ghosts. These were merely an exaggeration of normal and natural dreads, but were exaggerated because the affective side of his nervous system was hyperexcitable. The majority of such children also gave evidence of precocity of thought in many directions. To allow them to run wild was worse than useless. The educational situation should be adjusted as far as possible. Subjects such as handwork, biology, and games did not give the necessary outlet for intellectual energy. Only intellectual subjects would do this, and much of the instability found among school children arose from under-education. A vicious cycle began, and the child, besides becoming tense, became unable to compete. An ambitious and frustrated father might coach him and worry him at home. The home atmosphere became charged with failure, and the situation became progressively worse. The corner-stone of mental hygiene in children was early and efficient teaching in the fundamental subjects of reading, writing, and arithmetic. The remedy was more knowledge about the value of intelligence and educational tasks, and less dependence on opinion. There was a tendency to over-emphasize the importance of sex in early years. Interest in sex matters varied indirectly as the standard of educational attainment, and the child whose mind was

DEC. 22, 1934]

MENTAL HYGIENE IN CHILDHOOD

adequately employed and who was given reasonable security would give little trouble in that direction. Among the delinquent group backwardness in education was very noticeable. It was amply clear in many cases that the delinquency was a compensation for lack of success in school. In the prevention of delinquency education was also of paramount importance.

Another factor that loomed large behind many of the problems was lack of discipline—not of punishment or repression, merely of that teaching which gave the child average decent rules to tackle life merely led to insecurity and indecision. The child's relation to the adult was of the greatest importance. The adult should form the base from which the child could work; he should be ready to help when difficulties arose, and even to check him when he was running into danger. Some parents avoided their proper responsibilities under the pretence of modernity and psychological insight. The remedy was the spread of reasonable information about bringing up children. The third cause of breakdown was lack of affection and normal home surroundings. An undisturbed home life stood high in the list of preservatives of mental health. Other important factors were bad physical posture, under-nourishment, lack of sleep, and fatigue. If greater attention were given to these points the mental attitude of children would immeasurably improve.

Another great menace to the child was abstruse psychological theory in the mind of the parent. It was surely bad psychology to teach parents to inquire whether their children had death wishes for them, or were abnormally sadistic, or were showing a desire for self-punishment. Interpretations in terms of unconscious mechanism should never be given, for if, as was assumed, the disturbances were based on repressed forces, any interpretation of them could arouse only antagonism or rationalization. The most difficult parents were those who, being inherently unstable, had seized upon psychiatric heresies and had become "mental hygiene" conscious. Psychiatricists should try to express their ideas with plain language and had become "mental hygiene" conscious. Psychiatricists should try to express their ideas with plain language and had become "mental hygiene" conscious.

Dr. EMANUEL MILLER pointed out the danger of over-stressing bad physical health, which was often a result of psychic disturbance. It also was a common level due to underrate the breakdown on the conscious level due to conflict with parents and teachers over current problems. Many children were backward because of an underlying emotional embarrassment. Many cases of educational difficulty could be cured by changing the method of teaching, especially where the child gave figures a symbolic interpretation. Some children did not want to learn and some were afraid of learning, and the underlying cause must be sought. Deep therapy was, however, only necessary for cases of psychoneurosis and behaviour disorders uncomplicated by backwardness and specific educational maladaptation. Its information was too valuable to spurn, but it was difficult to apply in child guidance units. He advocated prophylactic psychotherapy for couples intending marriage. He saw a future for the therapeutic method which aimed at bringing the child back into its social group through collective play.

Miss MARY CHADWICK emphasized the great strain on an infant's mind of being born into an environment in which it was not wanted or which it might be saddled with the aggressive tendencies of parents or nurses. Dr. MILDRED CREAK pointed out the necessity for segregating children who suffered from specific reading difficulties and those suffering from general emotional inhibition, and those masquerade as either of the other two. Much which might be saved, she said, by giving these children early special treatment. Dr. MARGARET LOWENFELD pointed to the importance of suiting the apparatus of learning to the age of the child. She mentioned Dr. Charlotte Bühler's work, which had shown clearly that a child might be prevented from learning by lack of the proper scaffolding. Children would not learn unless they

had an emotional reason for doing so. It was useful to discover how a child looked at the idea that it should learn. Sometimes the provision of an emotional incentive cured the trouble. Dr. F. S. NOBLE said that much good could be done by helping parents suffering from anxiety or unconscious guilt in relation to a child's illness, especially when this had no convenient label.

Dr. LETITIA FAIRFIELD pointed to the disastrous physical and material defects of rigid habit-training, and to the child's need for the stimuli of petting and playing in order to carry out the ordinary processes of life and to gain experience to build up its mental content. Some maternity and child welfare clinics had much to learn in this direction. The educational problem might be more important in the home than in the school. A child's earliest associations with print might be the *News of the World*, which it was slapped for touching, and its earliest contact with figures was only too often the family budget, which in poor homes was nearly always a source of sorrow and anxiety.

THE THYROTOXIC HEART

At the meeting of the Medical Society of London, held at 11, Chandos Street, W., on December 10th, with Lord HORDER in the chair, a discussion took place on the thyrotoxic heart.

Dr. B. T. PARSONS-SMITH defined the term as signifying the association of thyroid toxæmia with cardiac affections. A concise pathology of thyrotoxicosis had not yet been visualized; it was therefore not surprising that the clinical manifestations of the disease were by no means uniform. For many years it had been recognized that the symptomatology might be chiefly or entirely circulatory in character, with little or no obvious evidence of thyroid enlargement. Among fifty consecutive cases he had surveyed palpitation and breathlessness were outstanding symptoms, and cardiac pain was relatively rare. The frequency of the heart-beat. Breathlessness and frequent palpitation represented overaction, both in force and degree of exercise-tolerance impairment were frequent accompaniments of the thyrotoxic heart. When cardiac pain occurred its intensity varied from a mild feeling of weight or ache to the full anginal syndrome. Varying degrees of discomfort and cardiac pain were noted in 8 per cent. of the fifty cases, and one patient was subject to attacks of typical angina. The objective signs of thyrotoxicosis were characteristic. The apex impulse was usually diffuse, extending over two or three spaces. It was more often than not palpable as a distinct shock, and murmurs, usually systolic, might be audible. In a small proportion of cases a presystolic lengthening of the first sound might not be differentiated from the somewhat similar phenomena in mitral stenosis. The systolic blood pressure was usually raised, the diastolic remaining either normal or subnormal. Signs of cardiac failure were likely to arise sooner or later, thereby complicating the general progress of the disease. As to treatment Dr. Parsons-Smith said that the modern tendency was definitely to emphasize the value of operative interference. But, although the limited scope of medical treatment in operation toxic states was recognized, it should be given a trial in the majority of cases, if only as a preliminary to operation at a later date. A prolonged period of rest, quiet, and relaxation would always form the basis of such treatment, and in the milder types might suffice to control the condition, assuming that the general nutrition could be maintained. A further consideration of toxic foci, which might be responsible for cardiac dysfunction. Among drugs he mentioned potassium iodide, bromides, opiates, and other simple sedatives, iron and arsenic if anaemia was an obvious feature, and insulin to counteract persistent hyperglycaemia, also digitalis and mercurial diuretics. These principles of medical treatment were employed in twenty-one of the fifty cases he had mentioned, with the result that there was permanent cure in four, definite improve-

ment, though still obvious signs of thyrotoxicosis, in ten, and no appreciable change in seven. It was fortunate that an alternative method—surgery—was available, in view of the limited prospects of achieving efficient cure in the average case by purely medical methods. Thyroidectomy, not long since an extremely risky proceeding, was now moderately safe in the hands of a well-practised and expert surgeon. Of the twenty-nine cases submitted to operation, and excluding two patients who could not be traced, there was complete recovery in thirteen, partial relief from symptoms in nine, and no appreciable relief in five.

Lord HORDER noted that Dr. Parsons-Smith's list of drugs did not include belladonna, which had the sanction of no less a clinician than Trousseau a hundred years ago. As a general physician Dr. Parsons-Smith's general conclusions appealed to him. On reviewing his own practice, he was quite sure that he had come to invite the co-operation of his surgical colleagues in more cases and at an earlier stage than formerly. It was a very pathetic experience to discover, after months rather than weeks of a prolonged and tedious medical programme, that ground had been lost and structural damage done, involving greater risks in the future handling of the case than if an earlier decision had been made to embark upon thyroidectomy. All the same, this form of therapeutics, like many others, was a matter of evolution, and it was still a sound thing to treat these patients on a medical programme as a preliminary to surgical treatment if and when that was decided. One of the most extraordinary experiences in clinical medicine was to see a patient with Graves's disease, in dramatic ill-health, with the whole syndrome very strikingly manifested, so ill that surgical treatment was not recommended, and then, years afterwards, on meeting the patient, to find so little residue, sometimes no residue at all. One wondered what were the factors which determined that evolution of intense illness, especially when, later in life, there was no apparent relapse, in spite of septic conditions and physical, or perhaps psychological, strain. The cases that did not completely recover underwent exacerbations and relapses, but once the cure was effected, even without thyroid extirpation, they did not seem to get into the same condition again.

Sir THOMAS DUNHILL said that it was a pleasure to see the two sides of the profession co-operating in this field. Little by little they had each learned how much better was co-operation than rivalry. Of the pathogenesis of this condition there was still much to learn, and because of that the treatment of individuals could never be classified in round numbers. One never knew what was behind the scenes. He had felt that this disease should remain in great part in the hands of the physician, and that the physician and the patient together would realize when something more had to be done. He had, however, felt rather differently lately, when operating on patients in whom auricular fibrillation had been established and irremediable damage already done. Nowadays one had rather to fight to prevent operations for which the cases were not suitable, whereas originally the difficulty was to persuade to operation the people likely to benefit. Generally his feeling was that in middle age, when the heart had lost its earlier reserves, the individual was more likely to fall a victim to a form of intoxication which, though mild, continued for a long time.

Sir WILLIAM WILCOX said that the important thing about cases of hyperthyroidism was that they varied so much, and no set rules could be laid down. In these cases of thyrotoxicosis any added infection, just as in diabetes, exaggerated the symptoms and was more likely to bring about a fatal condition. The pathogenesis was complicated, and brought in psychological and hereditary aspects. In thyrotoxic cases some of the barbituric acid drugs had a very enhancing effect. Drugs such as nambutal were contraindicated. Dr. EVAN BEDFORD said it was generally recognized that the degree of damage to the heart did not run parallel to the severity of the toxicosis as judged by the basal metabolic rate and the nervous symptoms. He did not believe that thyrotoxicosis by itself would injure the healthy and youthful heart to the extent of causing either auricular fibrillation or enlargement. He had analysed

fifty consecutive cases of damaged hearts with thyrotoxicosis on which his surgical colleagues had operated, and in only about ten was there any other heart lesion, although admittedly the patients were of such an age that the coronary arteries were likely to be normal. He had seen a number of patients who in years gone by had been cured by medical measures and had presented themselves at the appropriate age with auricular fibrillation, without the least idea that it was associated in any way with their former condition. If the two conditions—thyrotoxicosis and a damaged heart—were present the cases could not be restored to normal by removal of the thyroid. Mr. L. E. C. NORBURY put in a plea for primary ligation of the vessels in severe cases where a thyroidectomy appeared too formidable. Dr. LEVY SIMPSON mentioned that some French physicians had been working on an anti-thyrotropic hormone. The results, although producing some benefit, were by no means conclusive. Mr. HOPE CARLTON questioned the distinction between primary and secondary toxic goitre.

Dr. PARSONS-SMITH, in reply, said that he had been rather disappointed in belladonna. As for auricular fibrillation, this might be only a disturbance of function, a temporary event in toxic conditions, not necessarily indicating structural heart disease.

HODGKIN'S DISEASE WITH ERYTHEMA NODOSUM

At a meeting of the Devon and Exeter Medico-Chirurgical Society, held on November 29th, with the president, Mr. R. WAYLAND SMITH, in the chair, Dr. C. J. FULLER showed and read notes on a case of Hodgkin's disease with associated erythema nodosum.

Dr. Fuller said that the case was that of a man aged 44. There had been evidence of glandular enlargement in the neck and axilla for the past ten months, and night sweats had been an accompaniment. Some twelve months before—that is, prior to the definite establishment of Hodgkin's disease—there had been an attack of erythema nodosum. Five weeks later erythema was noted on the back of the legs coincidently with a phlyctenular ulcer on the right eye. A month or so subsequently erythema multiforme had appeared on the back of the neck and on both forearms.

When seen at the meeting the man had enlarged glands on both sides of the neck and in the left axilla: the spleen could be palpated some two fingerbreadths below the costal margin. A portion of gland removed and sectioned had placed the diagnosis beyond dispute. Dr. Fuller said that the chief interest lay in the skin manifestations, and the reflections so called to the mind on the aetiology of erythema nodosum. Recent investigations had proved that a large number of cases of erythema nodosum were associated with tuberculosis, a few with streptococcal infections, and a very few with Hodgkin's disease. The question of treatment by deep irradiation was under consideration.

Dr. R. G. MICHELMORE, who had had the man under observation and treatment before admission to hospital, stated that prior to the appearance of the erythema nodosum he had complained of rheumatism in the knee. He quoted the work of Dr. Colles, published in December of 1933, on the aetiology of erythema nodosum, where figures gave 70 per cent. of cases with a tuberculous history, 20 per cent. related to streptococcal infection, and 10 per cent. with an indefinite origin. In Scandinavia association with tuberculosis had obtained special prominence, and it seemed now that erythema nodosum would no longer merit consideration as a definite entity. Dr. W. A. ROBB, who had sectioned the gland, reported that microscopically the findings were in support of Hodgkin's disease, and that the occurrence of erythema nodosum along with tuberculosis and lymphadenoma was pathologically acceptable. The presence of a phlyctenular ulcer tended to strengthen the relationship. Dr. C. WROTH said that the reaction to x-ray therapy was almost diagnostic in lymphadenoma. The general bath x-irradiation often proved more effective than local application, but in any case the success obtained would spell tem-

porary benefit only, the glands becoming resistant after several years' treatment, with resultant gradual retrogression in the symptoms.

Mr. A. L. CANDLER read notes on a case of non-malignant stricture of the hepatic flexure occurring in a boy, aged 6 years, who was admitted to hospital on August 16th, 1934, with extreme abdominal distension unassociated with definite pain or with vomiting. A history obtained seemed to make the symptoms of one month's duration only. At operation a hard stricture was found at the hepatic flexure, together with extreme dilatation of the proximal gut. The appendix was eight inches in length and distended to a diameter of one inch, thus affording a hope for means of relief of distension by appendicostomy. The latter was opened next day and a large tube passed into the caecum, but unfortunately the bowel remained paralysed up to the boy's death some five days subsequently. Mr. Candler added that the condition necessitating operation was not unlike that found in hypertrophic stenosis of the stomach. Dr. W. A. ROBB said that the section showed a predominance of muscular tissue with a considerable amount of fibrous tissue, and that there was no suggestion of malignancy. There were certain areas in the alimentary canal in which such spasms were likely to occur, and among these the hepatic flexure was included.

CORRESPONDENCE

London University and its Medical Schools

SIR.—The letter of Sir Ernest Graham-Little in your issue of November 24th raises a question which has caused no little anxiety among those who are connected with the University of London and its medical schools, and we are indebted to him for having put forward a concrete proposal designed to solve the problem of ensuring that those who go through the course of training and examination at the University should obtain a university degree. I think Sir Ernest conveys a rather more serious impression of the position than is actually the case, though this is bad enough. The figures at my disposal suggest that some 60 per cent. of those who pass the Second Examination eventually obtain the degree.

I am not sure, however, that the remedy he suggests really solves the problem, in spite of the support so ably given to it, on sentimental grounds, by Professor Greenwood. It is quite true that students coming to London from Oxford and Cambridge have a B.A. degree, but in no university in the British Isles, so far as I know, is a degree given merely on the strength of passing the Second Examination for a medical degree. At Oxford and Cambridge the degree is given after an examination in science (or arts), usually three years after passing the First Examination and one year after passing the Second Examination for medical degrees. A similar provision already exists in London; for any student may, after passing the Second M.B. Examination, remain for another year in the anatomy or physiology departments and obtain a B.Sc. degree. Similar provision is made in most other English universities.

Sir Ernest admits that some adjustment would be necessary to give the degree he proposes a standing comparable with the other degrees of the University, but this would surely increase the difficulty and prolong the time taken for the student to obtain the M.B., B.S. degree, which is really his chief aim. There would also be a distinct element of danger in giving a degree of Bachelor of Medical Sciences to a student at that stage of his career, for the studies of human anatomy and physiology, though preliminary to the study of medicine, are not essentially medical in themselves. It is not inconceivable that the public might consider a person possessing such a degree as having a medical qualification, although he may never

have done any clinical medicine. Further, we can well imagine that the public seeing B.M.S., M.R.C.S., etc., on a doctor's plate might easily be led to believe that the former letters meant Bachelor of Medicine and Surgery, when they may really mean "failed M.B."

No, Sir, what our medical students want is the M.B., B.S. Lond., and it is up to us to see that all reasonably intelligent students who have passed their Second M.B. get it. They want to be saved the duplication of Final Examinations, and also the duplication of examination fees. There appear to me to be two ways in which this is possible: one is by combining in some way with the other licensing bodies in London, and the other is by making the Final M.B., B.S. Examination sufficiently reasonable for the average student to take in his stride. Of the two, I think the former has certain advantages, and I believe it is perfectly practicable, given good will on all sides.

This is not the time or place to discuss this matter in further detail, but I feel convinced that some scheme must be evolved before long to bring about the result we all desire.—I am, etc.,

London, W.1, Dec. 10th.

A. M. H. GRAY.

Curarine in Tetanus

SIR.—May I solicit the collaboration of your readers in a field of research? Our investigation of certain plant ingredients of curare has enabled my chemical collaborator, Dr. Harold King of the National Institute of Medical Research, to supply me with curarine in pure form. This is the alkaloid responsible for the classical action of curare in paralysing muscular activity.

During the past eighteen months the action of curarine on animals and on man has been under full investigation. There is one condition—that of severe tetanus poisoning—in which not only may curarine be an effective weapon therapeutically, but in which the drug may have to be given in large dosage. During the past year Dr. Leslie Cole of Cambridge has recorded his impression that crude curare, given in small doses, may assist cases of tetanus.¹ The advent of curarine has increased the possibility of large, accurate, and safe dosage in severe cases of the disease. But if large doses are to be given a means of artificial respiration must be available in the event of serious weakening of the respiratory muscles. In a case in Oxford which I saw and treated last April (by courtesy of Dr. Mallam) I put the patient into a Drinker respirator. I think that the efficient and portable Bragg-Paul respirator would be the present choice.

From time to time cases of tetanus, with symptoms arising within three or four days of infection, are such that a fatal prognosis can be made with little hope of error. I think curarine combined with artificial respiration may possibly save life in some of these cases. If any of your readers can assist me to see and treat such a patient I shall be most grateful. I can reach cases within 100 miles of London or Oxford within a few hours of word being received at either of the following addresses: University Department of Pharmacology, South Parks Road, Oxford (tel. 3562); Dreadnought Hospital, London, S.E.10 (tel. Greenwich 1881). I shall have with me all the apparatus necessary for treatment, which can be undertaken in either a hospital or a private house.

It should be emphasized that this treatment is still at an experimental stage. Supplies of curarine are limited, the drug requires very cautious handling, and large dosage is only safe in experienced hands and only justified in severe cases.—I am, etc.,

Oxford, Dec. 15th.

RANYARD WEST.

¹ *Lancet*, September 1st, 1934, p. 475.

Dangers of the Glass Catheter

SIR.—The following recent experience prompts me to bawail the continued existence of the glass catheter.

On December 1st a district nurse was catheterizing a woman of 46 who had had the misfortune to suffer a transection of the spinal cord twelve years before, and had since suffered from retention of urine which required instrumental relief. On this day, as the glass catheter was being withdrawn, it snapped, and a large portion was left in the bladder. The patient was admitted as an emergency to the surgical unit. Even with wide dilatation of the urethra and the use of the cystoscope it was impossible to withdraw the glass fragment through the urethra, and suprapubic cystostomy was carried out to accomplish this.

We are all acquainted with the dangers of the Higginson syringe and its hard nozzle for enemata, and in the majority of hospitals its use is rightly forbidden: should not the glass catheter be rigorously excluded also? A rubber catheter suffices in most cases; instances of special difficulty are surely dealt with more safely by a gum elastic or silver catheter than by the glass weapon. Can we not persuade all to abandon it?—I am, etc.,

A. L. D'ABREU,

Cardiff, Dec. 7th.

Surgical Unit, Welsh National
School of Medicine.

Physical Efficiency after Operations for Hernia

SIR.—In an article on the above subject published in your issue of November 17th I drew attention to the high incidence of recurrence in those policemen upon whom a double operation had been carried out at one sitting. Evidence in proof of this being a common experience was given by quotations from several large series of figures. My attention has been drawn to an omission in relation to this subject in the article in question, which in effect amounts to a misstatement. On page 898, in the first column, line 38, occurs the sentence: "In the forty-seven cases of recurrence bilateral hernia had been present and was operated on at one sitting." This reads as though all the recurrences had been observed in men in whom a double hernia had been operated on at one sitting. This is not the case. In the group of 206 policemen examined fifteen had had a double operation at one sitting, and a recurrence was noted as appearing later in eight of these. I should be glad if you would publish this correction. I do not think that the increased tendency to recurrence which has been proved after the double operation in one sitting is common knowledge. The cause of the tendency does not appear to be quite clear, but there is no doubt of its existence if any credit is to be given to statistical evidence.—I am, etc.,

London, W 1, Dec. 12th.

C. MAX PAGE.

Corpus Luteum Extract and Uterine Contraction

SIR.—A recent communication by Dr. Chassar Moir, read before the Edinburgh Obstetrical Society and reported in the *Edinburgh Medical Journal* (August, 1934), impels me to raise, through your columns, a pertinent point which ought not to go unmentioned—especially as it bears upon an apparent discrepancy between his clear-cut results and the equally clear-cut results of Professor Knaus of Graz, whose work is now widely accepted the world over. Moreover, Dr. Moir's results challenge experimental data of Dr. Willard Allen and myself, obtained under controlled experimental conditions in the unanaes-

thetized rabbit, in which we showed that potent extracts of corpora lutea exert a powerful *inhibiting* influence upon uterine contractions (*Amer. Journ. Physiol.*, 1932, cii, 39). Recent unpublished data show that crystalline progesterin is endowed with this property, 0.2 mg. being sufficient to inhibit maximal oestrin-induced contractions in five hours.

It is surprising, therefore, to learn that Dr. Moir finds evidence of spontaneous uterine contractions during the latter part of the menstrual cycle, concurrent with the existence of a corpus luteum. In the light of controlled experimental data, this circumstance should, I feel, induce one to look for other than hormonal factors as a cause of the discrepancy, and I submit, on the basis of Schultze's findings (*Zentralbl. f. Gynäk.*, 1931, xlii, 3042), that the results of this investigator as well as of Moir are explicable on the basis of purely local intrauterine factors. Schultze found that in the early interval the uterus is so irritable that it does not retain well the lipiodol which is placed in the uterine cavity, but passes it up the tubes. Later, after the mid-interval, the uterus is so sluggish that it becomes well distended with the oil. The *necessary physiological consequence* of this is that if contractions occur spontaneously, or if they be induced by sudden distension (mechanical, Schultze) or chemical (Moir) means, the length of the muscle fibres of the uterus is so increased and the intrinsic irritability of the tissue so altered that relatively feeble contractions give a net recorded effect of considerable magnitude. From this point of view the conditions in the latter phase of the cycle are not dissimilar from what one finds in the expulsive capability of a compensated heart. I have recently witnessed an example of this. After injection into a rabbit of 0.6 mg. of crystalline progesterin, which dosage in more than a dozen other rabbits effected *inhibition of motility* within two hours, the rhythmic contractions nevertheless continued with increased force and a progressive loss of tone, so that after four hours the contractions exceeded the *pre-injection motility* by more than 200 per cent.! At the end of this time, when the experiment was terminated, it was found that the balloon had become weakened on one side, giving rise to an aneurysm. As a result its capacity was increased at least fivefold. It is evident, therefore, that the hormonal influence of the progesterin was completely overridden by alterations in the *physical relationship* of the uterus to the recording system.

It seems possible, then, that a relatively high degree of tone in the early interval should minimize the possibility of intrauterine distension, and so reduce appreciably the contractions recorded at this time. This is what Dr. Chassar Moir has found. On purely physiological grounds the converse may be said to hold true while there is low tone associated with the corpus luteum, as Schultze reports.

In conclusion, I should like to refer to Dr. Pompen's excellent work (Amsterdam, Thesis, 1933), in which he shows that the action of oestrin on uterine muscle is to *co-ordinate* the otherwise uncoordinated contractions over the whole surface of the uterus. The result of this action is to induce rhythmic contractions, as I had found previously (*Amer. Journ. Physiol.*, 1931, xcvi, 706). It would appear then that the effect of progesterin is not to render the uterus *quiescent*, as I had suggested, but rather to render *uncoordinated* the rhythmic character of oestrin-sustained contractions of the uterine fistula in unanaesthetized rabbits.—I am, etc.,

SAMUEL R. M. REYNOLDS, A.M., Ph.D.,
Assistant Professor of Physiology, Llag
Island College of Medicine.

Brocklyn, Nov. 22nd.

Radiography and Pelvimetry

SIR,—I am delighted to read in your report (*Journal*, December 1st, p. 1009) of the Sections of Epidemiology and of Obstetrics of the Royal Society of Medicine that it falls to the lot of a general practitioner, Dr. T. J. Hollins, to call attention to the importance of radiographic methods in the accurate determination of the internal measurements of the pelvis. He held that "x rays should be used in all cases of primiparae, and in those cases of multiparae in which there had been trouble in a previous confinement." This exactly expresses my views, which I have held for a number of years now. In a paper I gave before the Section of Radiology at the Centenary Meeting of the British Medical Association, held in London in July, 1932, my opening paragraph was: "Every woman should have her pelvic measurements, accurately determined by radiography, engraved on the inside of her wedding-ring."

As pointed out by Dr. P. Hogan in the *Journal* of December 8th (p. 1076), "It is the minor grades of contracted pelvis which constitute the bugbear." Now it is just in these cases that radiography is so valuable, as the various diameters can be determined to a sixteenth of an inch if a proper technique, and a focus-film distance of at least four and a half feet, are used. Anyone interested can find the method I employ described in my paper published in the *British Journal of Radiology* of September, 1931. In this paper I also stated that

"It is universally recognized that accurate pelvimetry is of the utmost importance in obstetrics, and as the minor degrees of contraction are the more difficult to gauge by the ordinary clinical methods, the radiographic method should come into more general use, especially as it causes no discomfort to the patient. I believe that if radiographic pelvimetry were universally employed, maternal mortality, and even more so maternal morbidity, might be considerably reduced. In a national maternity service the cost would not be very great, as it is only necessary for it to be done once in a woman's lifetime."

In Leeds there are about 2,000 primiparae a year, and I consider that the total cost would not exceed one pound per head. I have been in communication with the Ministry of Health and the local medical officer of health concerning this matter, but up to the present no move has been made. I think it is a matter that might well be tried out in one large town for two years, and the effect be watched on the maternal death rate.—I am, etc.,

Leeds, Dec. 10th.

LEO A. ROWDEN.

Should Pelvimetry be Abolished?

SIR,—Mr. Aleck Bourne's letter on this subject raises issues of deep interest to all engaged in maternity work, and in it he asks his readers four questions. The first two are answered very perfectly and very adequately in Professor DeLee's *Principles and Practice of Obstetrics*, which reached its fourth edition ten years ago and may by now be regarded as common knowledge.

It is only with the third and fourth questions that I am concerned, and they may conveniently be taken together. Does the size and (although he does not say so, presumably it is to be included) the shape of the pelvis have much influence on the labour, and what is its importance? This, I admit, begs the question of what a normal labour is, and while no one has yet been able to define this, the gynaecological wards of the hospitals testify to what it is not. I think it will be agreed that a normal labour ought not to leave a woman on the waiting lists of a gynaecological department. In the year 1930 16 per cent. of the admissions to the Chelsea Hospital for Women were the immediate results of childbirth.

Mr. Bourne argues that "Holland and others" have shown that the vast majority of inductions of premature

labour (for contracted pelvis) are unnecessary. I make no comment on Mr. Holland's views and work, but has Mr. Bourne, I wonder, momentarily forgotten that the "and others" regard a prophylactic version in a breech case as also unnecessary, albeit a foetal mortality of 20 per cent. or more may be attendant upon it? Admittedly this necessitates some definition of what is to be regarded as "necessary." Naturally one is loath to refer to one's own work, and mention is made of it only because I do perform a good many inductions of premature labour for disproportion. As adviser, for the last eight years, to the Ilford borough I have been responsible for (in round figures) 500 deliveries a year in its maternity home, and in the last ten years the maternal mortality rate has been 0.74 per 1,000 live births (approximately one-sixth of the figure for the country as a whole). I admit that 4,000 births (in round figures) is a very small number, but I think it is enough to decide whether the methods employed are sound and safe or the reverse. I personally regard the introduction of a bougie three weeks in advance of term and the subsequent spontaneous delivery as preferable to a difficult forceps delivery at the end of many hours of labour, accompanied by a tearing of all the vaginal tissues off the ischial spines, a perineotomy perhaps as the alternative to a considerable perineal laceration, damage to the pelvic fascias and the resulting prolapse, and a foetus with intracranial haemorrhage or cerebral oedema.

In every walk of life the prudent leave a reasonable margin of safety, and it is here, I think, that Mr. Bourne answers his own questions (3 and 4). The estimate of disproportion is not, in the present state of knowledge, an exact science (even with the aid of radiology), and a reasonable working margin of safety must be allowed. Mr. Bourne is a most prudent mariner, and he would not put to sea without a spare sail in his sail locker, nor a few spare rations in the galley, nor would he regard them as unnecessary if at the end of a cruise they had not been used. I refuse to believe that he would conduct cases of labour (in which the risks are far greater) without using all the aids that civilization has to offer—including the pelvimeter—coupled with a little margin of reserve to compensate for deflection, uterine inertia, or a failure of moulding to occur. In conclusion, I submit that except in the more extreme degrees, it can never be established that an induction was unnecessary, nor the use of an instrument—even in its reversed position (when it is a little more accurate than a knuckle).—I am, etc.,

London, W.1, Dec. 12th.

EVERARD WILLIAMS.

SIR,—I am glad to see that so well known an expert in obstetric matters as Mr. Aleck Bourne has exposed the fallacy of pelvimetric measurements. As medical officer of a small ante-natal centre I have to perform these as a routine, but for some years have placed no reliance on them, for the simple reason that in numbers of cases with small measurements there has not been the slightest difficulty in labour, even with primiparae, whereas many with quite normal measurements have been found to have diminished internal conjugates or other signs of contraction. The only reliable tests I find to be the Munro Kerr method and the diminished internal (true) conjugate, as estimated with the left hand inserted into the vagina. Since this naturally involves an internal manipulation, I confine it to primiparae and those multiparae with a history of difficult labour. Obviously it is absurd to measure a woman who has already borne an 8 lb. child without difficulty for bony contraction of the pelvis.—I am, etc.,

Ryde, Isle of Wight, Dec. 15th.

L. FIRMAN-EDWARDS.

Ante-natal Care and Maternal Mortality

SIR,—May I suggest that the fault in the lack of results from our increased services, both private and public, may lie at the door of the patients themselves? I heartily agree with Dr. G. S. Swan (December 8th, p. 1074) in his outline of the ante-natal care and subsequent treatment necessary in every case; but does he find that all patients willingly submit to it? For the poorer classes he and others will agree that the clinic, followed by the midwife—plus the general practitioner (if necessary) and the hospital in special cases—must take the place of private consultations and attention, because the busy general practitioner cannot be expected to give a very great deal of time and work when no adequate payment can possibly be made. There is, then, a proved necessity for exceptional attention, whether given privately or free.

Now in either group (and I work in both) my personal experience is that it is very difficult to give really efficient ante-natal care except in a minority of cases. I find that the majority of women have not yet been educated to the importance of this branch of preventive medicine. We get a minority of sensible helpful mothers who submit to a proper course of care, and we get those who have had a fright in a previous pregnancy or in that of a relative, and those who develop some pathological condition which drives them to us; but the majority are not helpful. Continually I ask mothers of new babies why they did not come to the ante-natal clinic, and they say, "I felt all right," or "I didn't like to come." Of course, my experience may be unique; but if it is not then I must conclude that we have failed to reach the public.

Not only is there lack of co-operation by the women themselves, but there is lack of co-operation between the general practitioners and the medical officers of the clinics (here I refer to the poorer classes). If there existed a sympathetic understanding among the existing services much more might be achieved.

I would suggest, with regard to the education of the masses, that the powers that be might set afoot an advertising campaign in which our best brains and most persuasive tongues might be used to educate the mothers of Britain at meetings for mothers, and instil into them the importance of ante-natal care from the earliest possible moment, and plead for their co-operation with the medical profession in its fight against the maternal mortality rate. Much education might be done (and is done where there are facilities) among the poorer sections of the community in mothercraft classes held in connexion with child welfare centres; but I do not propose to go into specified methods of training the maternal mind, but only to suggest the need of it.—I am, etc.,

Monk-eaton, Northumberland, JANE H. THOMPSON, M.B.
Dec. 10th

Mortality from Haematemesis in Peptic Ulcer

SIR,—We much appreciate Dr. Bulmer's letter (*Journal*, November 17th, 1934, p. 920) criticizing our paper on the prognosis of haematemesis (*Journal*, November 10th, p. 858), and apologize for omitting his figures.

We agree that it would have been an advantage if the cases had been considered aetiological, but in approaching our investigation from a purely clinical aspect we decided that it was impossible, in the vast majority of cases, to state definitely the cause of haematemesis on admission, and that therefore the majority of cases were treated symptomatically. We have endeavoured to bring our figures into line with Dr. Bulmer's, and have divided our fatal cases into aetiological groups according to post-

mortem findings. It will be seen that the majority of cases in both groups are peptic ulcers, and assuming that non-fatal cases have a similar aetiological incidence, our total mortality is not seriously influenced by cases other than peptic ulcers. Our investigation was undertaken because of the unsatisfactory state of the treatment of haematemesis. There is no general agreement on the method of treatment or on the total mortality.

Considering our "moderate" group of 230 cases, the total mortality was 6.3 per cent., which appears satisfactory, but in the "severe" group of 153 cases the total mortality is 45.1 per cent. We have analysed our fatal cases of haematemesis due to peptic ulcer, have studied the post-mortem appearance of the ulcers, and have discovered that in approximately 70 to 80 per cent. of the cases a definite bleeding vessel was found. From the appearance of the vessels these cases could not be expected to respond to medical treatment. This raises an important issue. Is the method of treatment for haematemesis as now generally employed correct, and should not surgical or new medical methods be considered, especially in the "severe" group cases?

The results are summarized in the tables below.

SUMMARY OF FATAL CASES

Moderate

	Deaths			Necropsies Performed
	Total	Male	Female	
Acute ulcers	1	0	1	1
Chronic ulcers	11	10	1	11
Total ulcers	12	10	2	12
Cirrhosis of liver	2	1	1	2
Carcinoma of stomach	1	0	1	1
Various	—	—	—	—
Total cases	15	11	4	15

Severe

Acute ulcers	12	8	4	11
Chronic ulcers	50	41	9	48
Total ulcers	62	49	13	59
Cirrhosis of liver	2	2	0	2
Carcinoma of stomach	3	2	1	3
Various	2	1	1	2
Total cases	69	54	15	66

SUMMARY OF NECROPSIES ON FATAL CASES OF PEPTIC ULCER

Moderate

	Acute Ulcer		Chronic Ulcer	
	1	Per cent.	11	Per cent.
Necropsies performed	0	0	9	81.8
Bleeding vessel found	1	100	2	18.2

Severe

Necropsies performed	11	—	43	—
Bleeding vessel found	9	81.8	31	72.3
Bleeding vessel not found	2	18.2	12	27.7

—We are, etc.,

T. A. LLOYD DAVIES.
R. W. NEVIN.

London, S.E.1, Dec. 11th.

Dec. 22, 1934]

CORRESPONDENCE

A Mental Hospital Clinic

SIR.—In the matter of the milder neuroses no specialist can or should take the place of the family physician, whose good sense and scientific training should enable him to set at their proper value such subtleties as pseudo-psychology, psycho-analysis, dream symbolism, etc. The able physician understands his patient in relation to his environment as no one else can, and should take steps when he deems it necessary so that his patient may be afforded suitable rest, care, and further investigation, if desirable, away from possibly disturbing home influences. For my part I consider the principal function of a mental clinic to be the provision of a simple method whereby the practitioner is enabled to obtain another opinion as to the suitability of his patient for treatment away from home, and whereby associated with the independent practitioner; where also he can keep in touch with his patient if he so desires, and resume treatment on discharge with a full knowledge of his patient's progress and of such investigations of the case as were undertaken during the stay in hospital.

The word "authority" seems to act like a red rag to a bull in the minds of certain persons. It is surely time some protest was made. Rebellion is being fostered—rity, evolutionary order, and restraint is being fostered—and now because a doctor in the position of a medical superintendent is too accustomed to order and precision he is said to be unsuitable to have charge of a mental clinic. Surely the contrary is the fact. There is order in all natural processes. Mental activity, like every other activity, is a result of physical processes, and disease or disordered function is not possible without some underlying physical basis. Insufficient stress—practically none, in fact—is laid on the factor of variable metabolism, although it should be the first consideration. Stress and strain of varying kind and degree acting on varying metabolism is the *fons et origo* of mental disorder. Molecular processes subserving cellular metabolism—such as the balance of ions obtaining in different tissues, and even different portions of the same tissue; the conditions subserving diffusibility and the influence of hormones thereon; the factors governing oxidation and reduction, intra- and extra-cellular; chemical mediators; the physiology of the neurone; and the effect of toxins—are paid little or no attention to.

There are no two stones alike, there are no two faces alike; how much more are there no two metabolisms alike! And each epoch of development has varying physical influences. Persons with innately a given nervous metabolism are naturally affected by a given strain or stimulus in a more serious manner than are more stable individuals, and, dependent on degree of strain relative to abnormality of metabolism, the chances of ultimate recovery will necessarily vary. But it must be borne in mind that the lesion is primarily physical, and one which urgently calls for investigation, care, rest, and medicinal treatment directed towards elimination of irritants, a normal balance of ions, and restoration of disordered metabolism.

The more the true nature of the pathology of neuroses is masked by the cloudy verbiage of a pseudo-psychology and by energies directed into wrong channels, the less positive progress will be made in the direction of real ascertainment. It is quite impossible for a mental clinic to function satisfactorily if not in immediate touch with a mental hospital well equipped for full physical investigation, and with an efficient staff experienced in the many and varied forms of mental disorder.—I am, etc.,

B. H. SHAW,
Medical Superintendent, County Mental
Hospital, Stafford.

December 10th.

SIR.—The letter of "Medical Superintendent" in your issue of December 8th (p. 1078) no doubt invites a reply. The choice of words used in the annotation appearing in the *Journal* might, I think, have been a little happier: it is hardly correct to say that the visiting psychiatrist conducts the clinic.

The St. Albans Nerve Clinic consists at present of a diagnostic and sorting out-patient clinic at the general hospital, and of a treatment and investigating clinic at the mental hospital, where, in addition to the psychiatrist, a psychologist and a psychiatric social worker are available for their particular duties in the clinic work. The medical superintendent directs all these activities, and personally acts as diagnostic physician at the general hospital as a member of the honorary staff. The visiting psychiatrist undertakes the treatment of those cases which are selected, after a preliminary investigation of the case and after considering reports by the psychologist and psychiatric social worker at a conference at which they are present with the psychiatrist and the medical superintendent. Cases while under treatment may again become the subject of a conference, and will certainly become so before final disposal.

The visiting psychiatrist, it will be seen, is largely concerned with the psychotherapeutic treatment of the patient, but his activities cover more than this, so that it belittles the position to designate the practitioner as merely a psychotherapist. One of the reasons why a number of good men are lost to the service is, I believe, that there are no openings for them in it where they may confine themselves as specialists to the practice of their speciality, but as they become senior they are forced to accept administrative duties for which they may have little taste and for which they may be ill fitted. An appointment as a psychiatrist, not necessarily visiting but possibly whole-time, on some such lines as I have set out may well be a means of retaining the valuable services of such individuals and of enhancing the reputation of the service generally, so that it ill behoves anyone in the service to endeavour in any way to make the position appear less attractive.

There can be little doubt that a medical superintendent cannot carry on unless he has adequate and reliable officers to undertake the purely lay administrative work, though he must devote time to keeping in touch with them, if he is taking part in the work of the clinic on the lines set out; has ward rounds twice weekly in the hospital (where recent admissions and recovering cases are seen in consultation with the medical officer in charge and the house-physicians); has to consider the psychological aspects of the psychiatric social worker's reports after home visits, etc.; has a certain number of patients' visitors to see; and has to undertake the statutory requirements of the Acts as regards statements after admission and re-certification of patients, all of which are essentially medical duties. Your correspondent has apparently overlooked the fact that "in-patients at Hill End attend this clinic."

Few psychologists will deny, I think, that a person undertaking psychotherapy as I understand it—that is, any form of analytic treatment and readjustment—though he might do so with success if responsible for maintaining the discipline of the institution in which is the patient (who so often, as is characteristic of neurotics and psychotics, is constantly out to find objections to the routine and secure special privileges), does so at a great disadvantage, and in some cases would find it impossible.—I am, etc.,

W. J. T. KIMBER, L.R.C.P., D.P.M.,
Medical Superintendent, Hill End
Hospital.

St Albans, Dec. 11th

Corporal Punishment

A Plea for the Exemption of Girls

SIR,—I would be grateful if you would publish the attached correspondence with a view to finding out what is the opinion of the profession on the question whether the caning of girls can be justified on medical grounds. —I am, etc.,

Wetherby, Yorks, Nov. 28th.

R. L. KITCHING.

SIR,

Inglewood, Wetherby, Yorkshire.
October 14th, 1934.

About nine months ago I submitted to the Board of Education some criticisms of Corporal Punishment Regulations which seemed to me to lead to the conclusion that the caning of girls in public elementary schools should be prohibited on medical grounds. The reply was to the effect that the general policy of the Board was to leave the question of corporal punishment to the discretion of the local education authorities, and that the Board "have no reason to apprehend any abuse of this discretion which could be remedied by regulation."

It seemed to me that the policy of the Board was unsound, for the reason that it left the medical question of the effect of caning on the health of the school girl for the decision of individual county medical officers. It seemed to me that, when a county council refers a question of this sort to the county M.O., it is not a personal opinion that is wanted. I submitted this point to the Ministry of Health, and suggested that what is wanted in such a case is the opinion of the appropriate department of the Ministry of Health; and I asked if I might have an opinion from the Ministry of Health on the risks of caning girls during the menstrual period. I was informed on behalf of the Minister of Health "that the matter is not one within his jurisdiction," and that my request should be addressed to your department. I beg to submit two points:

1. The Corporal Punishment Regulations make it clear that young children must not be caned, but there is nothing in the regulations to suggest that a girl may be too old to be caned. Surely, if it is necessary to make regulations to prevent men caning young children it is just as necessary to make a regulation to prevent the caning of those girls who have developed the physique of womanhood?

2. I submit that the paramount reason for prohibiting the caning of girls in any circumstances is that it is the only certain means by which caning during the menstrual period can be prevented. There are, I suggest, two objections to caning during menstruation that are indisputable: (i) It must happen that some of the girls who are caned are suffering severe menstrual pain at the time, so that the pain inflicted must be more severe than was intended, and therefore may be more severe than is safe. (ii) Some of the girls must be suffering menstrual nervous strain, and the added strain may be more than the girl can safely bear.

It is obvious that caning is a form of punishment which involves serious risks, but it may well be that in the case of boys the risks must be accepted. The point I would submit to the Medical Department is that the risks are so much greater in the case of girls that this method of punishment cannot be justified. I would be grateful if I might be informed of the opinion of your department on this point. If your department is not prepared to advise the total abolition of corporal punishment in the case of girls, would you consider the suggestion that caning should be authorized in their case only between the ages of 8 and 10? I would be glad to know whether your department would make this suggestion to the Board.

I have the honour to be, Sir,

Your obedient Servant,

R. L. KITCHING.

The Secretary, Medical Department,
Board of Education.

SIR,

Board of Education, Whitehall, S.W.1.
October 18th, 1934.

In reply to your letter of the 14th inst., I am directed to state that the Board are not satisfied that any alteration of policy with regard to corporal punishment is necessary. The Board's views in the matter are set out in the paragraph

on discipline contained in the *Handbook of Suggestions to Teachers* (paragraph 4, page 12). Copies of this publication may be purchased directly from H.M. Stationery Office, York Street, Manchester, or through any bookseller (price 2s. net).

I am, Sir, your obedient Servant,

D. DU B. DAVIDSON.

SIR,

November 3rd, 1934.

Please accept my thanks for your letter of October 18th. Corporal punishment is not mentioned in the paragraph to which you refer me, but it is stated that "some special arrangements for disciplinary purposes . . . are undoubtedly necessary in Mixed Schools . . . and in any large Mixed Schools the head teacher will do well to delegate a considerable measure of authority to one of the assistants of the other sex . . ."

I infer from this that it is the view of the Board that girls should not be caned by men. On the other hand the county councils, in their *Corporal Punishment Regulations*, give authority to head masters to cane girls. The suggestion I have made as a family doctor is that girls should not be caned at all by anyone.

I should not have presumed to make any suggestions to the Board of Education if I had not been convinced, first, that the family doctor has far better opportunities than anyone else for judging the effects of caning, and, secondly, that the suggestion I made would be supported by an overwhelming majority of family doctors, and probably of all doctors.

In view of the fact that the Board are not satisfied that any alteration of policy with regard to corporal punishment is necessary, I have no doubt that the right course for me is to raise the matter in one of the medical journals. I propose, therefore, if you have no objection, to send a copy of the letter I sent to the Medical Department, with your reply and this letter, to the *British Medical Journal*.

I have the honour to be, Sir,

Your obedient Servant,

R. L. KITCHING.

The Secretary, Board of
Education.

Board of Education, Whitehall, S.W.1.
November 27th, 1934.

SIR,

With reference to your letter of November 23rd, I am directed to state that the Board have no objection to your taking the action proposed in your letter of November 3rd.

I am, Sir, your obedient Servant,

D. DU B. DAVIDSON.

Cervical Erosion and Discharge

SIR,—The interesting letter of Dr. Agnes Savill in the *Journal* of December 8th (p. 1077) encourages me to add something in the nature of a warning to those interested and likely to practise the treatment of uterine sepsis by zinc or copper ionization.

My father, the late Dr. Samuel Sloan, author of *Electro-Therapy in Gynaecology*, who taught me and many others the technique of this treatment, emphasized two points: (1) the fact that the ions penetrate the mucous membrane, so that the treatment is specially useful in gonorrhoeal infections; (2) that when using a Sloan's copper electrode the current must be reversed at the end of the treatment for two or three minutes to loosen the electrode, which becomes adherent to the mucous membrane through coagulation of the albumin of the tissues. We experimented with newly killed beef and new-laid eggs, and the penetration of the CuCl_2 was very interesting to observe. With regard to (2), serious, dangerous bleeding may result if the current is not reversed for a sufficient time to loosen the electrode. I advise that the first treatment should consist of eight milliamperes for eight minutes. The current should be reversed for one or two minutes. The full dose

"Applied Human Biology"

experience also.

Ionization is contraindicated in tubal infections and in most cases of ovarian inflammation. Therefore the medical electrotherapist should work in co-operation with the surgical gynaecologist.—I am, etc.,

ELIZABETH SLOAN CHESSEY, M.D.

ELIZABETH SLOAN CHESSER, M.D.

The Duodenum and the Kirby Grip

SIR,—In connexion with the recent correspondence on the above subject, the two following cases may be of interest.

Case 1.—A girl, aged 2½, swallowed a Kirby grip two inches long. Examination showed it to be held up in the stomach for three weeks. At the first time, to the

who had had persistent pyrexia in the
 was found to be due to a Kirby grip in
 who introduced it she would not say. When removed
 found to be embedded in a calculus the size of an olive.

—I am, etc.,

LIONEL LANKESTER, M.B.

LIONEL LANKESTER, M.B.

Influenza and the War

otherwise in the past was a victim of influenza. I found a case that was a victim of influenza, but I doubt if it was due, and it appears to me that the statement is caused by the war is purely conjectural.

It is to be hoped that in the next epidemic (about 1948) we shall learn its relation to minor epidemics of "so-called" influenza, or whether there is a reservoir in other genera. Apropos of the latter possibility, in 1917 there was an epidemic among the horses and mules of the field ambulance in which I was serving similar to the virulent influenza in humans of the following year. An affected animal held its head in a dejected attitude and would not feed. There was a slight injection of the conjunctiva and a little mucus in the nostrils. The animal soon got down, never again rose voluntarily, and very soon could not be made to rise. Infected animals became dyspnoeic and died within one or two days. The veterinary surgeon would give no name to the disease. Post-mortem examination showed a slight bronchopneumonia along the anterior border of the lungs after natural death, but if shot before they started to "blow" the post-mortem findings were negative. Others, no doubt, had similar experience, and could probably tell of the extent to which this epidemic prevailed generally.—I am, etc.,

"INTERESTED."

DENCE.
 "Applied Human Biology"
 SIR,—I, too, consider the Norman Lockyer Lecture of
 Professor J. B. S. Haldane "provocative," but little
 more so than the last paragraph of your article about it
 (*Journal*, December 8th, p. 1054). To applaud his state-
 ment that, unless the present fertility rate greatly alters,
 the diminution of population will rapidly become cata-
 strophic is to flout those who contend that the diminution
 will bring a progressive increase of the average income,
 which will certainly raise the birth rate to a replacement
 level within a few decades (unless people have really lost
 the desire to have at least one child of each sex). To
 applaud his view as to the uselessness of sterilizing defec-
 tives is to flout the Brock Committee. To applaud his
 statement that there is no evidence that the children of
 the poorer classes are innately inferior to those of the
 richer classes is to flout the opinion often voiced, even in
 your own columns, that the higher birth rate in the
 poorest districts is dysgenic.—I am, etc.,
 B. DUNLOP, M.B., Ch.B.
 15. Dec. 8th.

B. DUNLOP, M.B., Ch.B.

UNIVERSITY OF OXFORD
11 on December 15

D.M.—H. S. —
Lowden.
P.M.—H. N. Howells.
Sandic

M.—H. N. Howells.
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Ireland, D. J. Seward, C. K. Westropp.
 C. M. Fisher, C. K. Davies, H. N. Davies, D. H. M. Richards.
 Pathology, —D. L. Hollick, M. H. Hughes, A. H. M. Hughes.
 W. W. Gilford, J. R. Mather, R. W. Parnell, J. Walter.
 Loutin, N. J. de V. Mather, N. K. Stott, G. Ashton, R. Bevan.
 R. Roaf, C. C. Royes, and Public Health. —G. Ashton, R. Hertz.
 FORENSIC MEDICINE and Toxicology. —K. B. Dawson, N. Leitch.
 H. Burton, R. N. B. Cridland, K. B. Dawson, N. Leitch.
 C. A. Hinds Howell, B. Hollins, E. C. O. Jewesbury, N. Leitch.
 D. F. G. Moir, J. R. Nassim, J. C. Paterson, J. C. Penton, K. C. Penton.
 Royes, N. K. Stott, W. R. Trotter, J. W. A. Turner, G. M. Turner.
 Afounmado, N. E. R. Archer, E. M. Fisher.

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor has appointed Sir Daniel Hall, K.C.B., F.R.S., chief scientific adviser, Ministry of Agriculture, to be Rede Lecturer for the year 1935. The lecture will be delivered on Monday, March 4th, at 5 p.m.; the place and subject will be announced later.

The Council of the Senate has sanctioned a Grace for the conferment of the degree of Master of Arts upon Harry Norman Green of St. John's College, M.D., M.Sc. Sheffield, University Demonstrator.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

* * * E. Galinsky, * * * A. G. Hounslow, * * * Nora L. Taylor, S. H. Alavi, I. C. J. L. Taylor, S. H. Alavi, I. C. F. R. Briggs

UNIVERSITY OF TORONTO

The following candidates have been approved:

inuation indicated:

THIRD M.B., B.S.—*§E. Galinsky,*§§A. G. Hounslow,*§Nora L.
Keevil,*§M. J. F. McArdle,*§S. J. L. Taylor, S. H. Alavi, I. G.
Anderson, Alberta I. Andrews, Elsie Armer, Margaret D. Baber,
V. H. Barnett, D. M. Blomfield, H. B. Bowher, C. F. R. Briggs,
J. A. Brockelbank, E. N. Brockway, W. M. Capper, B. S. Carter,
W. H. Cartwright, Jean M. Cass, S. G. Clayton, Gladys F. Clyne,
L. W. Davies, G. W. Duncan, K. C. Eden, E. J. Gilbert, F. R. Griffin,
W. T. J. Fowler, Joan I. Franklin-Adams, J. Greenhalgh, T. F. R. Jones,
W. T. J. Grant, L. Greenfield, J. Hollingsworth, E. I. Jones,
Glover, B. S. Grant, L. M. Heggs, A. H. Kelly, J. H. Kellogg, F. R.
J. C. Harvey, F. S. M. Jones, Alice M. Kaye, J. H. Kellogg, F. R.
F. A. Jones, G. R. Kingston, C. E. Langley, Margaret W. M. MacCall,
Kilpatrick, G. G. MacDonald, A. L. McFarlane, Morton, J. T. Roden,
B. McDermid, G. G. MacDonald, C. B. Miller, Barbara G. Morton, J. T. Roden,
C. F. Mayo-Smith, C. B. Miller, Barbara G. Morton, J. T. Roden,
Musson, R. H. Purnell, A. G. Seager, Catherine L. Simmons, M. C. L.
B. F. B. Russell, K. G. Seddy, E. J. Somerset, W. H. C. Spooner,
Smith, La-lad Sobira, K. G. Seddy, E. J. Somerset, W. H. C. Spooner,
K. F. Stephens, G. L. Timms, T. G. Treaskis, R. J. Vakil,
M. E. Wigfield, E. L. Williams, Betty M. Zeal. Group 1: Mary

"INTERESTED."

Harber, R. M. Clarke, G. B. Davis, H. A. Eason, J. F. A. Forster, P. G. F. Hurvey, I. H. Jenkins, A. E. Jones, A. C. Kanaar, A. Lismick, J. B. H. McArthur, T. Miles, A. Moore, Elizabeth C. Morris, H. S. Pasmore, A. W. Probert, J. G. Sheldon, J. P. Thynne. *Group II:* Marjorie Bolton, P. R. Boucher, R. B. W. A. Cole, V. H. J. Davies, H. J. Penn, Barbara J. Fisk, E. A. Hardy, O. S. Heyns, D. M. Jones, J. G. Jones, J. A. Lewis, M. J. Lindsey, J. R. M. Martin, R. B. Morton, H. N. Perkins, J. H. Playne, Irene H. Rogers, R. Sollenberger, W. J. Stokes, F. G. St.C. Strange, W. H. Summerkill.

* Honours. † Distinguished in medicine. ‡ Distinguished in pathology. § Distinguished in forensic medicine and hygiene. ¶ Distinguished in obstetrics and gynaecology.

UNIVERSITY OF BRISTOL

The following candidate has been approved at the examination indicated:

FISKE, M.B., Ch.B.—*Part II:* R. A. Mathews (with second-class honours).

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on December 14th, the following appointments were made: Mr. J. C. Anderson, F.R.C.S., Lecturer in Applied Anatomy and Demonstrator in Anatomy; Mr. A. W. Fawcett, F.R.C.S., Lecturer in Surgical Pathology; Dr. E. F. Skinner, F.R.C.P., Lecturer in Psychology in the Faculty of Medicine.

VICTORIA UNIVERSITY OF MANCHESTER

Mr. Philip Godlee has presented to Lister House (the University medical hostel) a silver flagon, formerly the property of the late Lord Lister. This flagon was given to Lord Lister by his colleagues on the occasion of his appointment as Regius Professor of Surgery at Glasgow in 1860.

UNIVERSITY OF EDINBURGH

A graduation ceremonial was held in the Upper Library Hall on December 14th, when the following degrees and diplomas were conferred:

M.D.—Captain K. V. R. Choudari, I.M.S. (*in absentia*), R. T. Cooke, J. L. Cowan, † J. S. Faulds, † J. R. Innes, R. Y. Keers, R. M. Macfarlane, † A. C. McMaster, † A. S. Paterson, † Susanne J. Patterson, H. B. Porteous, D. C. Sutton, B. N. V. Wase-Bailey, † B. Williams.

D.Sc. (*Faculty of Medicine*)—E. B. Hendry, Dorothea M. Mowat. M.B., Ch.B.—G. L. Birnie, J. H. Bowie, B. H. Charles, A. O. Coker, S. H. Gibbs, G. R. Gunn, W. S. Harvey, R. M. Hayes, K. I. W. Klenberg, G. C. E. Laing, T. Leontsinis, J. M. N. Lockie, H. H. Lockwood, I. Macpherson, H. R. Morris, G. B. Petrie, Johanna M. Peniar, R. E. Prichard, M. A. Rifat, L. V. Roberts, G. G. Robertson, Una R. Roy, H. L. R. Sargent, F. Schwartz, G. A. Scott, I. M. Scott, G. A. M. Smith, H. Watson, H. Kai-ge Wong.

DIPLOMA IN RADIOLOGY.—A. R. Cowan.

* Highly commended for thesis.

† Commended for thesis.

NATIONAL UNIVERSITY OF IRELAND

At a meeting of the Senate on December 6th, with the Chancellor, Mr. Eamon de Valera, in the chair, Dr. Denis J. Coffey was elected a Pro-Vice-Chancellor of the University for the period January 1st, 1935, to December 31st, 1936.

A report from the President of University College, Dublin, as representative of the University on the General Medical Council, was approved.

Professor Thomas Walsh was appointed representative of the University at the Royal Institute of Public Health Congress at Harrogate in June, 1935.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A Council meeting was held on December 13th, when the President, Sir Holburt Waring, was in the chair.

Mr. R. St. Leger Brackman was elected a member of the Court of Examiners in the vacancy caused by the retirement of Mr. Ernest W. Hey Groves.

Dr. A. J. E. Cave, Senior Demonstrator in Anatomy of University College, was appointed Assistant Conservator of the Museum.

The secretary reported that at the Primary Fellowship Examination, held in Melbourne recently, forty-five candidates were examined, of whom twenty-two were approved.

A Diploma of Membership was granted to Mr. Garthowen Williams.

Diplomas of Fellowship were granted to the following forty-three candidates:

A. D. W. Jones, G. E. G. Peirce, A. N. Jones, B. Chaudhuri, J. A. Pocock, J. C. Nicholson, R. H. Franklin, Muriel H. E. Long, J. S. Butcher, J. W. S. H. Lindahl, J. Scholten, P. C. Sanyal, A. J. B. Goldsmith, H. H. Langston, G. T. Du Toit, F. J. S. Gower, A. F. Goode, F. Radcliffe, S. C. Sugat, W. G. Gill, H. M. Williams, S. C. Misra, J. A. S. Marr, G. K. Mulki, G. Qvist, J. Hardman, S. Ramshaw, J. K. Elliott, A. W. Badenoch, J. J. Brownlee, W. H. Graham, W. R. Henderson, R. J. Katrak, Hilda M. Linford, W. S. McGrath, J. A. McLauchlan, G. H. Macnab, W. H. B. Magauran, J. A. Martinez, R. Nagendran, H. K. Pacey, E. A. Rowlands, H. I. Turnbull.

Licences in Dental Surgery were granted to forty-eight candidates.

Recognition of Hospitals

The Council agreed to recognize the following first list of hospitals with the posts specified for the six months' post of resident house-surgeon, or other responsible post in charge of general surgical patients in the wards of a general hospital required of candidates before admission to the Final Examination for the Fellowship:

Dreadnought Hospital, Greenwich, S.E.—(two house-surgeons); Hampstead General and North-West London Hospital—(two house-surgeons); Prince of Wales's Hospital, Tottenham, N.—(two senior house-surgeons); Royal Northern Hospital, Holloway, N.—(one resident medical officer and three house-surgeons); Royal United Hospital, Bath—(first and second house-surgeons); Blackburn and East Lancashire Royal Infirmary—(one resident surgical officer and two house-surgeons); Royal Victoria and West Hants Hospital, Bournemouth—(three house-surgeons); Royal Devon and Exeter Hospital—(two house-surgeons); Gloucestershire Royal Infirmary and Eye Institution—(one resident surgical officer and two house-surgeons); Huddersfield Royal Infirmary—(one resident surgical officer and three house-surgeons); Hull Royal Infirmary (one resident surgical officer and three house-surgeons); Leicester Royal Infirmary—(four house-surgeons); Norfolk and Norwich Hospital—(three house-surgeons); Nottingham General Hospital—(four house-surgeons); South Devon and East Cornwall Hospital, Plymouth—(one resident surgical officer and two house-surgeons); Royal Portsmouth Hospital—(one resident surgical officer and two house-surgeons); Bolton Royal Infirmary—(one resident surgical officer and one assistant resident surgical officer); Preston and County of Lancaster Queen Victoria Royal Infirmary—(three house-surgeons); Royal Berkshire Hospital, Reading—(two house-surgeons); Salford Royal Hospital—(one resident surgical officer and three house-surgeons); Worcester Royal Infirmary—(two house-surgeons).

Primary F.R.C.S. Examination in India

The first Primary Fellowship examination to be held in India will take place in Madras on Thursday, December 27th. About eighty candidates have entered their names. The examiners appointed by the College are Professor William Wright of the London Hospital Medical School (anatomy) and Professor John Mellanby of St. Thomas's Hospital Medical School (physiology). Mr. Horace H. Rew, the director of examinations of the College, is travelling with them to supervise the arrangements. The party, returning by air, should be back in England on January 14th, 1935.

The Services

DEATHS IN THE SERVICES

Surgeon Commander Stewart Russell Johnston, R.N., died in London on December 13th. He was educated at University College Hospital, and took the M.R.C.S., L.R.C.P. Lond. in 1916, joining the Navy immediately afterwards. He became surgeon lieutenant commander on October 24th, 1922, and surgeon commander on October 24th, 1928. He served during the war of 1914-18, and had gained the Sir Gilbert Blane medal.

Lieut.-Colonel Denham Francis Franklin, R.A.M.C. (ret.), died at Bournemouth on December 1st, aged 76. He was born on February 8th, 1858, and took the L.R.C.P. and S. at Edinburgh in 1879, also subsequently the F.R.C.S. Ed. in 1888, and the D.P.H. in the same year. Entering the Army as surgeon on July 21st, 1880, he became lieutenant-colonel after twenty years' service, and retired on April 12th, 1904. He served in the South African War in 1899-1900, and took part in operations in the Transvaal and Orange River Colonies, including the actions at Paardeberg, Poplar Grove, Pretoria, Johannesburg, and Rhenoster Kop, and received the Queen's medal with three clasps. He also rejoined on February 7th, 1915, for service in the war of 1914-18.

Obituary

ELEANOR DAVIES-COLLEY, M.D., F.R.C.S.

Senior Surgeon, South London Hospital for Women

We regret to announce the death, on December 10th at the age of 60 years, of Miss Eleanor Davies-Colley, who was the first medical woman to be admitted to the Fellowship of the Royal College of Surgeons of England.

The daughter of a distinguished Guy's Hospital surgeon, the late Mr. J. N. C. Davies-Colley, and sister of Mr. R. Davies-Colley, surgeon to Guy's, she received her medical education at the London School of Medicine for Women and at the Royal Free Hospital. Soon after qualification Miss Davies-Colley was appointed house-surgeon at the new Hospital for Women in Euston Road, and, subsequently, surgical registrar at the Royal Free Hospital. She graduated M.B., B.S. Lond. in 1907, proceeded



M.D. in 1910, and in the following year obtained the F.R.C.S. As senior surgeon to the South London Hospital for Women and senior obstetrician at the Elizabeth Garrett Anderson Hospital, Miss Davies-Colley was noted for her skillful and conscientious work.

Mrs. D. C. NASMYTH, M.D., writes from Boars Hill, Oxford:

In the passing of Eleanor Davies-Colley there has left us not only a brilliant surgeon but one of the finest characters I have ever known. No one could work with her or be her patient without the realization that here indeed was a real nobility of soul. I have known her in both capacities: was of her generation as a student at the Royal Free Hospital, had the honour to be her friend, and, later, her patient in two major operations. She was, as a student, a striking figure, tall and beautiful, but never exactly popular. Her ideals were too high and too uncompromising, her sincerity too stark, perhaps. An intolerance of anything but the best, whether in work or in character, a shy manner, do not make for popularity. There was no pose of superiority—in fact, under an immense reserve a great humility of mind. Her faults were but the defects of her qualities, and as a colleague and friend she ranked among the best. In both these capacities she lived and worked with Miss Chadburn, M.S., in Harley Street, and the loss to her is irreparable. She had private means. With a cultured appreciation of all forms of art and a great feeling for real beauty in her surroundings she might have led a very different life, but something drove her to renounce all this and to live a life of austerity and self-denial and continual hard work.

She started her medical career later than most students, having already spent some years in a cheap flat in East London studying the condition of the poor. As a student she seemed to have all the makings of a really fine physician, and so much personal nervousness and a certain delicacy of constitution that I doubted her success as a surgeon and did my best to persuade her to stick to medicine. But her heart was set on surgery, and she was right. She made a splendid surgeon, and the kindness and skill of her after-care made one feel that one was also in the hands of a great physician.

I do not write only of my own experience. Our paths diverged: hers to Harley Street, mine to G.P. work in

the provinces. But I have sent her many patients from all walks of life, and they all returned with the same feelings towards her. Her everlasting kindness to many humble patients, both in and out of hospital, will live in their hearts as a constant memorial. She was a great surgeon with all the sensitiveness, intuition, and sympathy of a good physician, and above all she was a great and honourable lady.

THEOBALD SMITH, M.D.

Director Emeritus, Department of Animal Pathology, Rockefeller Institute for Medical Research

The death of Dr. Theobald Smith in New York, at the age of 75 years, removes one of the great pioneers in veterinary and medical research of our time.

Born in Albany, N.Y., in 1859, he graduated at Cornell and the Albany Medical College (1883) and subsequently held the positions of director of the pathological laboratory of the Bureau of Animal Industry under the Department of Agriculture and professor of bacteriology in the Columbian University. It was during this fruitful period that, by a series of decisive experiments undertaken in collaboration with Kilborne (1893), he made the epoch-making discovery of the transmission of red water in cattle by ticks, and demonstrated the passage of infection through the ova of one generation of ticks to the next. This was the first occasion that a protozoal parasite of mammals was proved to be disseminated by the bite of a blood-sucking arthropod, and in point of time preceded Ross's better-known discovery of the transmission of bird malaria by the mosquito by five years. That this great event in the history of medicine attracted so little attention at the time must be ascribed to the fact that it concerned cattle rather than man. He also published important work on the aetiology of blackhead in turkeys, and as early as 1895 found that scurvy supervened if guinea-pigs were placed on a diet deficient in greenstuff: he was thus one of the first experimental workers in the field of deficiency diseases.

From 1895 to 1915 Dr. Theobald Smith was professor of comparative pathology at Harvard University, and during this second phase of his career made many original contributions to the subject of animal disease in relation to man. In 1898 he investigated the problem of differentiating the bovine and human types of *B. tuberculosis*, and in 1904, in a letter to Ehrlich, wrote the original description of classical anaphylactic shock in the guinea-pig—a syndrome still known as the "Theobald Smith phenomenon."

In 1907 he actively immunized guinea-pigs by the injection of a balanced mixture of diphtheria toxin and antitoxin, and two years later suggested that the method invited further tests as to its ultimate application to human beings, thus anticipating by several years the use of toxin-antitoxin mixtures later described by von Behring and Park.

From 1915 to 1929 Theobald Smith was occupied as director of the department of animal pathology of the Rockefeller Institute for Medical Research, and subsequently became director emeritus. His work in 1915 on milk as a vehicle responsible for the distribution of streptococcal sore throat attracted much attention, and in 1922 he made another discovery of basic significance by showing that natural maternal bacterial antibodies were excreted in the colostrum of the milk of cows, and that if the calves were deprived of this colostrum they invariably died of bacterial infection.

Dr. Theobald Smith was the recipient of honorary doctorates in many universities, and, among others, was an honorary member of the Danish Royal Academy and the Swedish Medical Society, and a foreign member of the French Academy of Sciences and the Royal Society

of London, which awarded him the Copley medal. Since 1907 he had been an honorary Fellow of the Royal Society of Tropical Medicine and Hygiene and was a recipient of the Manson medal in 1932. Other awards included the Mary Kingsley, Kober, Flattery, Trudeau, and Gerhard medals. Not the least satisfactory feature of the life of this brilliant and versatile experimentalist was the world-wide recognition of the value of his work during his later years.

ANDREW BAXTER, M.D., D.P.H.

We regret to announce the death on December 8th of Dr. Andrew Baxter of Alderley Edge, Cheshire. After studying medicine at the University of Aberdeen he graduated M.B., C.M. in 1892, and proceeded M.D. five years later. In 1909 he obtained the D.P.H. of Manchester University. During the war he served as Lieut.-Colonel R.A.M.C.(T.) commanding the 2/2 East Lancs Field Ambulance, and was twice mentioned in dispatches. Dr. Baxter had been a member of the British Medical Association for the past thirty-four years.

We are indebted to Mr. WARWICK DEEPING for the following appreciation:

My friendship with Andrew Baxter began during the war. When I joined him in the 2/2 East Lancs Field Ambulance I realized that I should be serving under a very great gentleman. The war may have destroyed many illusions, but it gave us other realities, and to me my friendship with Andrew Baxter was one of them. He was the most lovable man I have ever met. I never knew him do a mean thing. He was so essentially human and so wise that he could be magnanimous and generous even under the stress of danger and difficulty. He could laugh and he could be angry, but always there was a clean rightness in his anger. It was easy for me to understand how the man I knew in the war was in peace the beloved physician. He understood so much, had such kindness. And he loved his work. He was essentially a healer. In my very last letter to him I said that if one was sick he would be one of the few people who would be more than welcome at one's bedside. This is but a small personal tribute to a man who was universally loved, and who was, as another friend says, "One of the finest types of general practitioner it will ever be our lot to know."

S. B. FENN, L.R.C.P. AND S.ED.

The death of Dr. Samuel Backwell Fenn, at the age of 71, took place in a nursing home in Southport on December 1st. He was taken ill only a few days before at his house in Settle, Yorkshire, to which he retired a few years ago. Dr. Fenn took the L.R.C.P. and S.Ed. in 1885, and shortly after went to Madagascar, where he had charge of the large medical mission hospital under the Society of Friends, and made a valuable contribution to the work there in training Malagasy medical students. After seven years he resigned this work, owing to the ill-health of Mrs. Fenn, and settled in Southport, where he built up a large general practice during thirty-three years—a proof of his devotion to his patients, whose interests he assiduously studied. He was prominent in the work of the Order of St. John of Jerusalem, as a lecturer and in forming the first nursing division in Southport. He was an honorary life member of the association and an officer of the Order. During the war Dr. Fenn took an active part in the formation and conduct of Great Britain's largest voluntary hospital, which was under the auspices of St. John in Southport. He was medical officer to the Southport Hydropathic Hospital, a branch of work that keenly interested him. He was a past president of the Southport Medical Society and in 1921 was chairman of the local Division of the British Medical Association, of which he had been a member for forty-six years. Apart from

his profession, Dr. Fenn took an active share in religious and philanthropic work. He was a wide general reader, a Fellow of the Royal Geographical Society, and a very fluent speaker and lecturer in several languages. He is survived by a daughter and three sons.

Dr. W. W. SHRUBSHALL (Burgess Hill) writes: I have no doubt others will write of the late Dr. S. Backwell Fenn's professional life; may I crave a small space for appreciation of his character and friendship? Dating back to 1883, our acquaintance continued from Edinburgh student days to his death, and though he was in Madagascar and I in the Far East for several years correspondence kept us in touch, and return to England again brought us to closer friendship. Fenn did not "wear his heart on his sleeve," but week-ends spent together in the then charming village of Aberdour on the Forth, walking tours in the Highlands, mountain climbing in Switzerland, and the domestic life of his home, revealed in heart-to-heart talks a manly character of high ideals, deep religious convictions, and a warmth of heart constantly expressed in kindly action. His friendship was firm and to be relied on, and none who experienced it can but have the sense of a very heavy loss now that he has gone.

Dr. HARRY SPURRIER died at the age of 59 at Benenden on December 8th. Born in 1876, and educated at St. Thomas's Hospital, he held several posts there after qualifying—these included casualty officer, house-physician, and obstetric house-physician. On leaving the hospital Dr. Spurrier settled in Maidenhead, where he soon built for himself a large practice. At the beginning of the war he succumbed to tuberculosis, and had to leave Maidenhead to undergo a long course of treatment, which, though it checked the disease, never enabled him to regain his full strength, and consequently prevented him from returning to general practice. Since that time Spurrier devoted his life to the treatment of tuberculosis, and held the appointment of senior assistant medical officer of the Middleton-in-Wharfedale Sanatorium. He was also at one time assistant medical officer to the Brompton Sanatorium, Frimley, and surgeon to the King Edward VII Hospital, Windsor. For the last thirteen years he had been medical superintendent of the National Sanatorium, Benenden. In spite of ill-health, which during the last few years had become steadily more marked, Spurrier never spared himself, and devoted all his energies to sanatorium work. He created a friendly atmosphere among the patients and staff, and made his sanatorium popular. He was always able to inspire hope, even in the most serious cases.

Dr. HUGH KERR, medical superintendent of the Bucks County Mental Hospital, died in a London nursing home on November 17th, after an illness lasting several months. An Ayrshire man, Dr. Kerr was educated at Glasgow University, where he took his M.A. He proceeded to study medicine, and graduated M.B., C.M. (commended) in 1892. His first appointment was that of A.M.O. at Abergavenny Mental Hospital. He stayed there until 1896, when he obtained a similar post at the Bucks County Mental Hospital. Three years later he took the Glasgow M.D. In 1908 he succeeded the late Dr. Humphry as medical superintendent—the committee offering it to him—and this appointment he held until shortly before his death. Dr. Kerr did much for the welfare of the hospital and its patients. Possessed of a quiet manner, he got through a lot of work without ostentation. He took interest in, and did much for, the welfare of the local village of Stone. He was a genial man, much liked, and very popular with the patients and staff of the hospital. He contributed several publications of interest to the medical journals. Dr. Kerr was a keen and prominent Freemason.

CORRIGENDUM

In the heading and first paragraph of Dr. R. F. Meigs-head's obituary (*Journal*, December 15th, p. 1130) he was erroneously described as secretary to the London Missionary Society. He actually held the post of medical secretary to the Baptist Missionary Society.

DEC. 22, 1934]

MEDICAL NOTES IN PARLIAMENT

THE BRITISH
MEDICAL JOURNAL 1183

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

In the House of Lords on December 17th Viscount ELIBANK moved that the Select Committee to which the Registration and Regulation of Osteopaths Bill was committed should have leave to hear counsel for and against the Bill, and to examine witnesses on oath. He said the course he suggested would facilitate the proceedings of the Select Committee and be of advantage to it in reaching a proper solution of the question. The resolution was agreed to.

Sir Francis Fremantle and Dr. Salter are appointed to the Publications and Debates Committee of the House of Commons.

The Government hopes to circulate the Housing (Scotland) Bill during the Christmas recess.

The St. Bartholomew's Hospital Bill (Superannuation) Bill will originate in the House of Lords.

The Educational Endowments (Scotland) Bill has passed through Standing Committee and was reported to the House of Commons with amendments on December 13th.

Health Services in India since 1921 Reforms

In the House of Commons, on December 10th, Sir SAMUEL HOARE moved a resolution to the effect that the House accepted the recommendations of the Joint Committee on Indian Constitutional Reform as a basis for the revision of the Indian Constitution, and considered it expedient that a Bill should be introduced on the general lines of the report. During the debate Mr. RAIKES referred to the manner in which the 1919 reforms had worked in regard to the welfare of the masses—the peasantry of India—and how the transferred Departments had worked. The money spent on education, he said, had gone up continuously in the last fifteen years, not to provide better education for the peasants, but secondary schools, colleges, and universities, into which the peasants never had a chance to go. No doubt the observation was brought before the Joint Select Committee that education had deteriorated in the villages. Turning to the medical services, he said that in almost every district of India criticisms were met not only of the amount of money spent on outwork and archaic Indian systems of medicine by the gentlemen who had taken charge, but of the fact that grants were made to the hospitals and colleges to provide those outwork systems of medicine which were simply producing the things that would have died out if Indian politicians had not debilitated matters. The peasant had to pay for that. It was also generally admitted that political wire-pulling was not unknown in the medical services since transfer. He put it no higher than that.

When the debate was continued on December 11th the DUCHESS OF ARHOLL spoke of the deterioration in the work of the local authorities in India and its prejudice to the welfare of the masses. She said an ex-director of public health had stated in a recent review that many local authorities had brought to an end the extension of schemes of drainage and water supply which had been steadily increasing before the reforms of 1921. In many cases, he said, they had got into such financial difficulties that they had not even been able to maintain the services of the kind which had been provided before. Let the House imagine what danger that meant to public health in a country such as India, with all its many epidemic diseases. An inspector-general of civil hospitals told the Joint Committee of grave deterioration in the health services due not merely to the deficiencies of local authorities but to the administration of the Minister himself and his constant interference in medical appointments. Most unsuitable men had been appointed. A professor of physiology was appointed, the Joint Committee was told, who admitted to the principal of a medical college that he had never lectured, never demonstrated, and had done no physiology since his student days. An ex-inspector-general of hospitals spoke of the thousands of eyes that were blinded every year in India through operations for cataract performed by unqualified quacks, who were trained in institutes which were now

receiving grants from public funds owing to the political pressure put on Ministers by provincial councils, which they had not been able to withstand. When they learned of facts such as those, was it not inevitable that members should feel that the greatest caution was necessary in giving further powers?

Miss RATHBONE asked the Secretary of State for India what was the position of the Women's Medical Service in the new arrangements, and was it not time that this service should be given a more stable and recognized position, possibly by setting it up as a definite branch of the Indian Medical Service? Since the women's service was already subsidized by the Government the change would not necessarily cost more money.

The resolution approving the recommendations of the Joint Select Committee was carried by 410 to 127.

Safety in Mines

Replying to Mr. David Davies, on December 11th, Mr. E. BROWN said he could not make any statement at present regarding the introduction of amending legislation to increase the safety of mine workers. A few months ago new regulations were made to secure improved lighting. Proposed regulations for the provision of fire-damp detectors were about to be published.

On December 11th Mr. FINKER asked the Secretary for Mines the name of the colliery where the ascertained depth was 3,800 feet and the temperature 103° dry bulb and 80° wet bulb. Mr. BROWN replied that these particulars applied to one district in the Arley Seam at Parsonage Colliery, Lancashire.

Punishment by Flogging

On the motion for the adjournment of the House of Commons, on December 11th, Mr. BERNAYS raised the question of the advisability of an inquiry into the punishment of flogging, which arose out of the case of the Dartmoor convict, Collins. Collins was condemned to twelve strokes with the "cat" and three years' penal servitude for an act of violence while trying to escape from Dartmoor prison, and he committed suicide in gaol on November 29th. Mr. Bernays stated that in a letter Collins left in his cell he said that he was being slowly murdered, and every night he was lashed with the "cat." His head was awful with all the worry, and he thought it might go back on him at any minute. He had tried to hide what was really the matter with him from the doctor, and did not tell him all. Mr. Bernays added that he was sure the officials at Dartmoor were humane men, and that nothing they did caused this terrible suffering. He asked for an inquiry to discover whether flogging was really a deterrent, whether it was not too brutally administered, and whether, if it was really necessary in the last resort, its use ought not to be more seriously restricted than at present. He called attention to a letter written to the *Daily Telegraph* on December 7th by a medical officer in a convict prison.

Mr. ISAAC FOOR said the evidence showed that the officials of the prison did all in their power in this case, and there certainly was no criticism of the medical officer. Mr. O'CONNOR said it was easy to work up hysteria. When he himself read the letter from the prison doctor which Mr. Bernays had quoted he thought that the doctor was making an unfair reflection on the men who had to perform the duty of flogging. He was sure, however, that the people who performed those sentences were scrupulously impersonal. Sir JOHN GILMOUR pointed out that, on the one hand, this form of punishment was ordered by the court after very careful consideration, and on the other, it could only take place after an inquiry by magistrates on the spot in the prison. It was subsequently brought to the Home Secretary, and it was on every occasion most carefully and meticulously supervised by the medical officer. If there was any doubt in the mind of the medical officer, his view was paramount in the matter, and, even when the punishment was being carried out, if there was the slightest sign that would lead the medical officer to suppose any serious and permanent injury was likely to be inflicted on the individual, on his word that punishment ceased, and was not continued. It was carried out with the greatest care and circumspection, and he trusted that the House would not ask for an inquiry of this kind.

The discussion then ended.

Disinfectant Mistaken for Shark Oil

In reply to Mr. Paling on December 12th, Sir PHILIP CUNLIFFE-LISTER said he regretted the occurrence by which doses of what was thought to be shark oil, which had been used with success at hospitals in Tanganyika as a substitute for cod-liver oil, were issued on the instructions of the head mistress, herself a doctor, to the native pupils at Malangali girls' school, Tanganyika. It had now been established that the liquid used was not shark oil, but some form of disinfectant resembling it in appearance but containing arsenic, with the result that all who had taken doses, including the head mistress herself, became ill, and thirty-five of the girls died. It was not yet known how the mistake occurred. Orders were issued immediately to every Government station and to all hospitals, tribal dressing stations, dispensaries, and mission stations to the effect that the use of shark's oil must be discontinued at once until after the matter had been investigated. The question of further action must depend on the investigation.

Working Conditions of Seamen

In the House of Commons, on December 14th, Dr. BURGIN moved the second reading of the British Shipping (Assistance) Bill.

Dr. ADDISON moved its rejection in a reasoned amendment, which regretted that the Bill was not accompanied by measures to ensure good working conditions on board ship. He remarked that Dr. Burgin had said nothing about the accommodation of the seamen. In 1906 a special committee of the Port of London Sanitary Authority specified nine conditions which should apply to accommodation aboard ship. These related to living quarters, ventilation, accommodation for food, and so forth. The only suggestion fully carried out was the provision about the cubic space per man. Two others, relating to a separate room for messing and to crews being berthed aft, were included in the standard ship which Lord MacLay encouraged. The rest of the provisions had not been adopted. Defective accommodation affected the health of the crews. The statistics of mortality issued by the Board of Trade in 1932 showed that 3,166 seamen died in that year. Only 642 were occupied seamen. Of the rest, 625 died within twelve months of leaving the service, 295 within three months of retirement. They left to die. Out of 3,000, 611 died from tuberculosis and other respiratory diseases. Parliament when giving a subsidy of £10,000,000 for building more ships was entitled to secure that men were not subject to accommodation which gave such results.

Mr. RUNCIMAN, in reply, cited the same report of 1932 on mortality in the mercantile marine as saying that "apart from drowning and injury, service in the mercantile marine is no more inimical to life and health than are many occupations ashore frequently regarded as healthful. Dr. Addison said the statistics showed large numbers of men retired from the service to die. Mr. Runciman stated that the report already cited declared that each such case required to be decided on its merits. He himself was anxious that seamen should have good ships in which to work. Employment of foreign seamen was largely a matter of climate, and to substitute white labour for lascar labour would be an expenditure in human life and health.

The Bill was read a second time by 384 to 121.

Boarding-out of Mental Patients.—Sir HILTON YOUNG told Dr. O'Donovan, on December 5th, that the boarding-out of rate-aided mental patients was receiving the attention of the Board of Control, particularly in view of schemes which were being put into operation experimentally by certain local authorities. The practice in England could not be accurately compared with that in Scotland, where conditions and the statutory provisions differed.

Corporal Punishment.—Sir JOHN GILMOUR told Mr. Bernays, on December 6th, that the experience of the prison medical authorities afforded no ground for the suggestion that corporal punishment was liable to result in serious physical injury. A prisoner had seldom to be admitted to hospital at all after undergoing such punishment. He knew of only one recent case in which a prisoner's suicide was attributable to the prospect of corporal punishment. He could not regard this case as furnishing grounds for an inquiry into the question.

Small-pox Isolation in India.—Sir SAMUEL HOARE told Mr. Groves, on December 6th, that the treatment of small-pox cases in isolation hospitals in India was rare, and, so far as he knew, was nowhere compulsory. The number of small-pox patients so treated in British India during the years 1928 to 1932 was: 1928, 3,784; 1929, 1,542; 1930, 2,126; 1931, 1,350; 1932, 4,493.

Model Diets for School Children.—On December 10th Mr. SALT asked whether, to avoid malnutrition in children of school age, the Minister of Health would consider drawing up and publication of model diets, to serve as a guide to parents. Mr. SHAKESPEARE said the preparation of diet schedules was a matter in which account had to be taken of local food customs and other circumstances. It would be impracticable to produce any schedule of universal application. Most of the information required for the construction of suitable diets for any groups of persons would be found in the published reports on the "Criticism and Improvement of Diets" and on "Diets in Poor Law Children's Homes," by the Advisory Committee on Nutrition, appointed by the Minister of Health.

Methylated Spirit Drinking in Scotland.—On December 11th Miss HORSBROUGH asked which local authorities in Scotland had reiterated their appeals for further regulations to deal with the drinking of methylated spirits. Sir GODFREY COLLINS said that he had received a representation on the subject from a conference of the burghs of Aberdeen, Clydebank, Edinburgh, Falkirk, Glasgow, Greenock, Inverness, Paisley, Perth, and Stirling. He was willing to receive a deputation at an early date.

Stone-dust on Colliery Roads.—Mr. ERNEST BROWN, replying to Mr. Tinker on December 11th, said that the stone-dusting of colliery roadways had been enforced for nearly fourteen years. He had no evidence that the practice had been injurious to health. The suitability of the dusts used was constantly watched by H.M. inspectors of mines, and steps were taken to prevent the use of unsuitable materials. If Mr. Tinker would give him particulars of cases where harmful effects were alleged he would have them investigated.

Improved Conditions in Hopfields.—Mr. SHAKESPEARE, on December 11th, informed Mr. Todd that the conditions found by the medical officer of the Ministry of Health who visited Worcestershire and Herefordshire during the recent hop-picking season showed noticeable improvement compared with the conditions found on the last occasion on which the areas in question were visited. There were still matters which the Minister proposed to bring to the notice of the responsible local authorities.

Thefts from Doctors' Cars.—On December 12th Mr. THORNTON asked whether Sir John Gilmour was aware of the increase of thefts from unattended cars of doctors' bags containing drugs, and if he intended taking any action in the matter. Sir JOHN GILMOUR replied that there had been a few such thefts, but he had no grounds for thinking that they were other than ordinary cases of petty larceny. He did not think there was any action he could usefully take in the matter. The remedy was for medical practitioners and others who had drugs in their possession to take reasonable steps to avoid the risk of their being stolen. He hoped the publicity now given to the matter would lead to greater care being taken.

Public Health in Sunderland and Seaham.—Replying to Mr. Storey on December 13th, Sir HILTON YOUNG said the statements concerning public health in Sunderland and Seaham, contained in a letter signed by Dr. G. F. Walker of Sunderland, and which had appeared in the Press, required investigation. The President of the Board of Education and he had jointly instructed qualified officers of the Board of Education and Ministry of Health to visit this area for that purpose. He had also communicated with the local health authorities concerned, and with Dr. Walker, asking the latter to put all his information at the disposal of the officers.

Removal of Mother after Childbirth.—Sir HILTON YOUNG told Mr. Macmillan on December 13th that the commissioners inquiring into the death of Mrs. Molly Taylor of Manchester had suggested a minimum, not a standard, in stating that at least an hour should elapse before the transfer of a newly confined mother to an ambulance unless the doctor in charge decided otherwise. It was highly desirable that a longer period than one hour should elapse before the removal of a maternity patient after delivery.

Medical News

The Food Education Society has arranged a symposium on "Problems of School and University Diet" at University College, Gower Street, W.C., on Tuesday, January 1st, at 11 a.m., when the speakers will include Dr. G. E. Friend.

The British Red Cross Society will hold a course of seven lectures and demonstrations on tropical hygiene, on Mondays, Wednesdays, and Fridays, commencing on January 4th, at 9, Chesham Street, Belgrave Square, S.W.1, at 5.30 p.m. The course will cover such questions as food, clothing, and medical and sanitary precautions necessary for health in hot countries. The examination for the society's certificate in tropical hygiene will be held on January 21st. Fees for the course are 5s. for members of the Red Cross Society and 7s. 6d. for non-members.

The twenty-fifth annual exhibition of scientific instruments and apparatus arranged by the Physical Society will be held at the Imperial College of Science and Technology, South Kensington, on January 1st, 2nd, and 3rd, 1935.

The Colyer prize was founded in June, 1926, to commemorate the twenty-five years' service of Sir Frank Colyer as honorary curator of the Odontological Museum. The accumulated income of this fund may be used every third year for the purpose of awarding a prize for the best original work in dental science completed during the previous five years by a dental surgeon educated at any duly recognized dental school in Great Britain or Northern Ireland who has not been qualified to practise more than five years at the date of the award. Applications from candidates for the second award (to be made in July, 1935) should be submitted to the Royal Society of Medicine, 1, Wimpole Street, W.1, not later than March 31st, 1935, together with a general account of their researches, both completed and in progress. A document declaratory of the award will be presented with the prize. If no work of sufficient merit be submitted the prize will not be awarded.

The fifteenth medical salon for the exhibition of works of art by doctors, dentists, pharmacists, and veterinarians will be held at the Galerie des Beaux Arts, 140, Faubourg Saint-Honoré, Paris, from January 17th to February 3rd, 1935. A section of photographic art will be a new feature of the exhibition. Further information can be obtained from the organizing secretary, P. B. Malet, 46, Rue Lecourbe, Paris XV.

The 150th year of the Vienna General Hospitals will be celebrated next year. On May 18th the Chancellor will unveil a memorial to the first director of these institutions—Johann Peter Frank—and Professor Wagner-Jauregg will deliver the official address. From May 13th to 25th will be held a series of medical celebrations, festivities, and meetings of societies. In the mornings there will be the sessions of the fifty-fifth international post-graduate course of the Vienna Medical Faculty, and in the afternoons speeches will be given by the leading members of the profession in that city and elsewhere. In the afternoons also there will be visits to places of medical interest in the city and its environs. A medico-historical exhibition will be on view in the Natural History Museum, where there will be displayed illustrations of the growth in medical technique and the development of the great pharmaceutical industry, giving some conception of the range of the discoveries that have been made. The evenings will be given over to banquets, receptions, and performances in the State theatres. Detailed information can now be obtained free from the offices of the Vienna Medical Faculty, Alserstrasse 4, Vienna IX.

The tenth International Congress of the History of Medicine will be held at Madrid from September 23rd to 29th, 1935, under the presidency of Professor Gregor Marañón.

Laws relating to sterilization resembling in their essential points the German law on the prevention of morbid offspring have recently been passed in Norway and Sweden, and will come into force on January 1st, 1935.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

Post-Herpetic Pain

Dr. H. LEWIS-PHILIPPS (Whitland) writes: A male patient, 70 years old, had a very severe attack of shingles some five weeks ago. He developed a severe rash over the left chest, the left axilla, and over the upper and mid-thoracic region of the back. The rash has greatly improved, and all that now remains is a brownish staining of the skin. Pain is very severe, and comes on in spasms, lasting for a few minutes at a time. The following drugs have been tried: (1) an aspirin, phenacetin, and caffeine citrate mixture; (2) allonal; (3) phanodorm; (4) nepenthe and paraldehyde (at night for sleep); and (5) omnopon, grain 1/3 has had to be given once. Nepenthe seems to constipate him severely; paraldehyde suits him best, and he gets rest at night, but has to be given two drachm doses. He is a left-sided hemiplegic of some five years' standing, and some two years ago suffered from a fairly severe pyelitis, which has since cleared up. I should be grateful for any suggestions as to treatment and relief of the pain.

Aural Diphtheria

Dr. W. A. MAYNE (Taunton) writes: I was called to see a child because she had a cold. The nasal discharge being unilateral I took a swab. The mother had a slight sore throat, and so I took another swab. Both swabs were returned positive to diphtheria. I then found that another child had a long-standing discharge from one ear. I took a swab, and this, too, was returned positive to diphtheria. The father remains perfectly healthy. I have not before come across a case of aural diphtheria; and I wonder whether one should swab more frequently cases of aural discharge which do not clear up with ordinary treatment.

White and Brown Sugar

A CORRESPONDENT (London, S.W.) writes: Lest it should be thought that there is no satisfactory answer to the very pertinent questions about sugar asked by "A. F. S." in the *Journal* of November 17th (p. 928), may I be permitted to try my hand at a brief exposition of the situation? The substances intended for man's consumption—the proteins, carbohydrates, fats, vitamins, salts, and catalysts—are in Nature associated with each other and with other substances in such a way as to render them readily acceptable to the human economy. If, in his presumptuous ignorance, man tampers with these substances by cooking them, concentrating them, and refining them, he may retain the main proximate principle, but he deprives it of the associates which render it tolerable to the human digestive organs. If, for example, he concentrates a bison into a beaker he may get the major portion of the protein, but he will get very little else, save perchance a stomach-ache. That is an extreme case. That of sugar is almost as extreme, though not quite. Pure sugar ($C_6H_{12}O_{11}$) is a very irritating substance, as may be seen from the eczema which is so apt to trouble the hands and arms of grocers who handle it. In its natural state, as in the cane or in fruit, sugar is associated with various substances which dilute and mitigate

the irritant properties of the pure chemical. The reason why brown soft sugar is more digestible than the white is that the brown is much less refined than the white; the browner it is the cruder and the more digestible.

European Children in the Tropics

Dr. NICOL (Carshalton), in reply to Dr. James Gardner (*Journal*, December 1st, p. 1025), writes: Dutch women can stand the climate in Java no better than can English women. The first Dutch settlers married native women. Later settlers married, resulting in half- and quarter-casts. At present the "casts" approximating to European type are much sought after by thrifty Dutchmen as being wives who can stand the climate and produce children who can do the same. A Javanese half-cast woman of European type has a high opinion of herself, and rates herself equal to a white woman. This policy was encouraged by the Dutch Government, and is now reaping its own reward in the form of a mixed Dutch-Javanese population outnumbering the pure Dutch and only too anxious to govern itself. This problem is outside Dr. Gardner's inquiry, but I trust my explanation will be of help.

Dr. MAUD C. CAIRNEY writes from Bordighera: The Dutch women and children in Java and Sumatra struck me as looking healthier than their British neighbours in the Federated Malay States. They don't, however, stay in the coast towns all the year round, but go up for a change of climate to the excellent hill stations which are to be found at a height of 5,000 to 6,000 feet in both Java and Sumatra. In the F.M.S. the hill stations are lower and wetter, and the accommodation available cannot be compared with the efficiently run Dutch hotels. That difference alone has a lot to do with the maintenance or loss of health. Both in Java and Sumatra there are schools in these hill stations where children can be sent. The Dutch also live more comfortably than the British in Malaya when they are in the coast towns. Their houses are screened to keep out mosquitos, whereas in the F.M.S. screened houses are rare. They have a great variety of vegetables, grown on their hills, in Malaya it was impossible up to 1932, when I left, to get any variety in vegetables.

Solution of Bismuth Salts in Oil

"WANG" (London, S.E.20) writes: Bismuth sodium potassium tartrate is used for intramuscular injection in oil. The oil must be sterilized at 115° C. for a certain time. But how is this substance dissolved in the oil? It does not dissolve hot, cold, or ground in bit by bit. Is there any book which tells how it is dissolved? The injection is very painful when given in water.

LETTERS, NOTES, ETC.

Antitoxin for Puerperal Sepsis

Dr. HENRY J. THOMSON (physician-superintendent, County Maternity Hospital, Bellshill) writes: I have just observed that in Professor Munro Kerr's book, *Maternal Mortality and Morbidity*, 1933, the County Maternity Hospital, Bellshill, is referred to on page 226, stating that "masks and gloves as well as antitoxin are employed in Bellshill," and a footnote stating that an outbreak of sepsis occurred in this institution in 1932. These statements are not accurate, and may be misleading to those who desire to prove the usefulness of antitoxin. The first case of the epidemic occurred on November 4th, 1932, and the administration of antitoxin was suspended from September 7th of the same year. I shall be pleased if you will kindly allow space for this correction in your next issue.

The Microscope in Modern Life

The microscope slide has evidently not lost its fascination, even for a generation accustomed to spectacular displays in picture theatres. witness the queues of interested people who followed one another on a round of a hundred microscopes throughout last week at the Central Hall, Westminster. John Milton, in *Paradise Regained*, wrote of the fair children to be seen in the "acry microscope"—surely almost the first reference to the microscope in literature (1633)—and certainly in such an assemblage of instruments there were "fair children" in plenty, which it was hard to believe were only the spinneret or the spider or the plumed palpi of the gnat. The exhibition was designed to illustrate the value of the microscope in research and education, and its indispensable role in research and industry. The industrial applications are manifold, and the microscope plays an essential part in the production of most fair children, the testing of steels and the analysis of rocks. A section of the exhibition was given up to specimens of medical or bacteriological interest, such as

the small fibres of asbestos in the lung of a mine worker, a section of kidney showing anthrax infection, and so forth. The exhibition was arranged by Messrs. W. Watson and Sons, Ltd., assisted by the Quekett Microscopical Club—the largest amateur microscopical society in the world—the Photomicrographic Society, and Kodak Limited. For those interested in the microscope itself, apart from what it reveals, there were demonstrations of the methods of illumination and the manufacture of lenses.

Science and Religion

Dr. H. G. BAYNES (London, N.W.1) writes: The chorus of protest that has been aroused by Dr. David Forsyth's presidential address at the Psychiatric Section of the Royal Society of Medicine is not untimely. The psycho-analytical attack on religion can claim no kinship with the genuine spirit of scientific scepticism. It is a kind of fascism of the intellect that is shielded from its own doubts by a certain primitive naiveté. For primitive mentality is likewise peculiarly prone to assume that analogous things are, *ipso facto*, identical. The use of analogy in psychological investigation has exactly the same technical justification as the use of dye stains in histology. For, without the application of appropriate mythological stains and associative analogies, many of the products of unconscious mental activity would be indecipherable. But Freud himself, in company with most of his followers, has regularly taken the symptom or dream material thus treated as being, thereby, proved to be identical with the mythic analogue. Certain features of the parent-child constellation suggested the application of the famous Oedipus stain, while certain characters of religious feeling were obviously inspired by the archetype of the human family. In the former case the analogy of the infantile attitude to the parents with the antique mythic pattern is held to prove that every child is caught in the fatal pit of incest, while in the latter the continuity of the primal condition of infancy with the deepest sources of religious feeling is taken to prove that religious experience is nothing but reproduced infantile fantasy. A primitive, idiomatic mode of expression can never be understood by minds that mistake analogy for concrete fact. The complacency which accompanies this type of rationalization is particularly infuriating, because although the reasoning purports to be the modest voice of scientific agnosticism it is at bottom the expression of a primitive belief in the infallibility of the deductive scientific method as such. The Freudian method is certainly deductive, but are the deductions made in the spirit of science? The misuse of method is a matter of real scientific concern. It can be unwitting, like the case of the examination candidate who was perfectly certain that the tubercle bacillus was a red microbe because he had actually seen it under the microscope. The fallacy, then, does not lie in the use of the analogical method, but rather in a superstitious adherence to the deductive technique, as though the employment of a certain style of reasoning absolved one from all inquiry into the validity of one's premisses. This characteristic Freudian fallacy has done incalculable injury, even though medical psychology owes an immense debt to Freud for his invaluable clinical discoveries. Psychological research would undoubtedly gain a new and vigorous impetus in this country if a fully equipped scientific survey could be carried out with the aim of salvaging the valuable grains of fact from the welter of fallacious inference.

Ingrowing Toe-nail

A Correction

Dr. P. F. CHAPMAN (Taynuilt) writes: In my letter on the above subject in the *Journal* of December 8th (p. 1073), the words "treated by this method" in the last paragraph should be omitted. The method of treatment is not the cause of the suppuration, but is the quickest way of curing it.

Fourteen British teachers of cookery have written a booklet for the housewife called "Christmas Fare." Over fifty recipes are given, and the preparation of every dish is described in detail. Copies may be obtained gratis from almost every gas undertaking or direct from the British Commercial Gas Association, 28, Grosvenor Gardens, S.W.1.

Vacancies

Advertisements of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 35 and 38 of our advertisement columns and advertisements as to partnership, consultancy, and locumtenencies at pages 36 and 37.

A short summary of vacant posts noticed in the advertisement columns appears in the *Supplement* at page 101.

BRITISH MEDICAL JOURNAL

LONDON: SATURDAY, DECEMBER 29th, 1934

OESTRUS-PRODUCING HORMONES*

BY

E. C. DODDS, M.D., D.Sc., F.R.C.P.

(From the Courtauld Institute of Biochemistry, Middlesex Hospital)

I propose in this introduction to give a general outline of our present knowledge concerning the oestrus-producing hormones, so that with this background it will be possible for subsequent speakers to develop their own particular views in the various fields in which they work. No detailed account can be given owing to the lack of time and space. Those who require fuller descriptions are advised to consult the general references given at the end of this communication.

It will be noted that the title is in the plural, and refers to the oestrus-producing hormones. Presumably we are required to consider all the naturally occurring oestrus-producing substances. It will not be out of place to refer to oestrus-producing substances from other sources, since the knowledge of these helps us to understand the chemical relations of the naturally occurring substances.

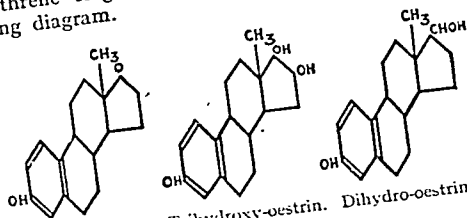
The phenomenon of oestrus has been described on so many occasions that I do not think it is necessary to consider it fully here. To summarize we may say that oestrus is the outward and physical sign of the sexual cycle of animals, passing as it does from a stage of quiescence or rest to conditions of intense activity, during which time the animal is capable of impregnation. The biological changes connected with oestrus differ very considerably in the different animals. For the purpose of studying the hormones responsible for these changes the rat and mouse have been found most convenient. It is possible to keep large numbers of these animals relatively cheaply, and, at the same time, the progress of the oestrous cycle may be judged very readily by a study of the vaginal smear. It is for this reason, and for this alone, that the rat and mouse have been used. In many ways it is perhaps a little unfortunate, since in the minds of many people—particularly clinicians—any talk of oestrus-producing hormones automatically calls up a picture of rats and mice. Again, it is perhaps unfortunate that we have come to think in terms of these small rodents when we consider the necessity of associating the corpus luteum hormone with the cycle. Removal of the ovaries causes cessation of the oestrous cycle, and consequently these castrated animals are suitable for a study of the chemistry and biological activities of oestrus-producing substances.

Nature of the Hormones

In the first place active material was prepared from ovaries by extraction with volatile solvents. Later the active material was demonstrated in the placenta, and this was used as a valuable source of the substance. By the application of the most refined chemical methods it

is possible to show that the material contains only carbon, hydrogen, and oxygen, but as to the group of bodies to which it belongs there was until recently no indication. The brilliant researches of Aschheim and Zondek revealed the presence of an oestrus-producing substance in the urine of pregnant women. Here the material was relatively uncontaminated, and it was possible for organic chemists to study the constitution of the compound with much greater certainty.

Again it will be quite impossible to summarize the various stages leading to the generally accepted constitution of to-day. In general terms it may be stated that we are fairly certain that the oestrus-producing hormones in the urine of pregnant women belong to the group of sterols, and have in common a partially hydrogenated phenanthrene ring. Their relationship is shown in the following diagram.



Ketohydroxy-oestrin. Trihydroxy-oestrin. Dihydro-oestrin.

The Chemistry of the Hormones

It can be seen that in the urine of pregnancy ketohydroxy-oestrin and trihydroxy-oestrin are found, the former being considerably more active than the latter. It has been shown that trihydroxy-oestrin can be converted into ketohydroxy-oestrin by vacuum distillation with potassium bisulphate. Further interesting chemical compounds may be obtained by hydrogenating ketohydroxy-oestrin. The first of these, obtained by Schwenk and Hildebrandt,¹ is dihydro-folliculin. This compound is many times more potent than ketohydroxy-oestrin. If it be further hydrogenated by continuing this treatment the compound takes on the properties of the male sex hormone and passes out of the range of our discussion.

Up to the present, therefore, we have three oestrus-producing hormones—namely, trihydroxy-, ketohydroxy-, and dihydro-oestrin, of which the latter is by far the most powerful. At the present time we have no knowledge of the type of oestrin which is present in either the circulating blood, the ovary, or the placenta. There are certain other oestrus-producing substances to be found in nature. Plants contain a compound capable of producing oestrus. This has been shown to have the same kind of structure as oestrin, and has been called tokokin.

* Read in opening a discussion in the Section of Pathology, Bacteriology, and Biochemistry at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

A very interesting observation was made by Aschheim and Hohlweg,² who showed that extracts of coal and mineral fuel oil were capable of producing oestrus. They attributed this interesting phenomenon to the tokokinin of buried prehistoric forests which had resisted the process of carbonization.

Attempts to synthesize ketohydroxy-oestrin have not as yet met with success, and the failure may be due to the extremely complicated nature of the processes involved. But certain interesting results have developed out of the applications of synthetic organic chemistry to the study of oestrus-producing compounds. We³ have been able to show that a series of compounds obtained in the organic chemistry laboratory are capable of producing all the known phenomena of oestrus. In the main these compounds can be divided into two classes, derivatives of phenanthrene and dibenzanthracene. As an example of the former 1-keto-1:2:3:4-tetrahydro-phenanthrene, and of the latter 9:10-dihydro-9:10-dialkyl-1:2:5:6-dibenzanthracene may be cited. It is very interesting to note that the order of activity varies with the alkyl group, the maximum being at the three carbon atom stage. When the dipropyl compound is made it is more active than trihydroxy-oestrin. It has also been shown that two of the carcinogenic hydrocarbons are oestrogenic,⁴ whilst vitamin D in very large doses is capable of producing oestrus. From these observations it can be seen that the naturally occurring oestrus-producing hormones are linked on the one hand with carcinogenic substances and on the other hand with the vitamins and certain plant sterols. It must be noted that these compounds which produce oestrus in the rodent will also produce various of the secondary sexual characteristics in larger animals.

The specificity of the oestrus-producing hormones is not restricted to any one group of animals. Thus, by injecting oestrin into cocks or capons, it is possible to produce an alteration in the plumage from the male to the female type. It is also interesting to note that a synthetic compound can also do this. [Professor Dodds then showed a slide demonstrating the effect of 1-keto-1:2:3:4-tetrahydro-phenanthrene on the plumage of the capon, in that, following injection, an immediate change took place from the male to the female type of feather.]

Kaufmann's Work on Human Subjects

A long and elaborate series of researches have shown that all female animals respond to injections of these oestrus-producing hormones, provided sufficient quantities are given. Dr. Parkes will, I hope, describe to us his experiments with the baboon, since this work indicates the importance of dosage. Dr. Parkes's experiments prove successfully that the response to oestrin varies with the body weight. In other words, the amount required to produce oestrus is in direct proportion to the body weight. This has also been shown by Schoeller.

From the baboon we pass to the most recent and interesting development of this work—namely, that of Kaufmann.¹ This worker has shown that, provided sufficient of the hormone be given together with the corpus luteum hormone, it is then possible to produce menstrual changes in the uterus even in ovariectomized women. These results have been checked very carefully by currtage and careful microscopical examination, ovariectomized women being, of course, the subjects of the investigation. Kaufmann has shown that if on the first day of the treatment 250,000 mouse units be given, and this be followed by similar doses on the fourth, eighth, eleventh, and fifteenth days, and that if on the nineteenth, twentieth, twenty-first, twenty-second, and twenty-third days seven rabbit units of the corpus luteum

be given, the full menstrual period will commence on the twenty-fifth day. The great point of Kaufmann's work is that it is always possible to induce menstruation by this method, and I think this is the first occasion that it has been possible to state definitely that this natural phenomenon can be produced at will in castrated women.

I myself have fully confirmed Kaufmann's work, and I believe that others who will speak after me will describe their own experiments, which are also of a confirmatory nature. It must be noted that these results can only be obtained in ovariectomized women when enormous doses are used. It would be very interesting to know whether it would always be necessary to use these doses even in castrated women, since experience with animals shows that once a series of regular cycles have been induced in castrated animals the amount required is nothing like so great as that necessary to initiate the first changes after castration. There can be no doubt that if the ovaries are present very much smaller quantities are required to produce these effects, and in some cases it has been possible to produce them without the use of corpus luteum hormone.

Kaufmann also brings out another interesting point, which makes plain the pathology of certain gynaecological conditions. In some cases he demonstrated with large doses, using over 5 million international units, spread over several weeks, the development of a pathological and clinical picture of cystic hyperplasia of the endometrium. As he points out, however, there is very little fear of developing this condition with the doses used in the treatment of ordinary conditions. These results have the utmost value, and for the first time they prove successfully that these hormones have a definite place in therapeutics.

Practical Applications

Having once established the fact that menstruation may be initiated at will, it is necessary to consider the practical applications of these new weapons. Judging from the fact that it is possible to produce menstruation in women long past the time of menopause, it would appear that the menses can be induced in persons suffering from both primary and secondary amenorrhoea. It has always been felt that some other hormone would be required for the treatment of primary amenorrhoea, but in view of Kaufmann's results this would not appear to be true, provided that sufficient oestrus-producing hormone and corpus luteum be administered.

In menopausal cases very good results have been reported with doses of 50,000 mouse units twice per week, with alleviation of the psychic symptoms. In a private communication to me recently Kaufmann has described very successful treatment of chronic conditions of inflammation of the vulva associated with the menopause and senility. It would appear that there is a very valuable field of application for the hormones in these conditions. Again, the use of the corpus luteum hormone has resulted in the controlling of certain types of menorrhagia, and also patients suffering from successive abortions have been successfully brought to term.

In conclusion, only the barest outline of the clinical possibilities of these substances has been given, but I hope that those who will follow me will give their own experiences. It is perhaps not going too far to say that the biochemist and biologist have placed an entirely new set of weapons in the hands of the practitioner and physician, and many gynaecological conditions which we have hitherto considered would only respond to surgical intervention will now be able to be treated with injections of the hormones.

PROBLEM OF THE SEPTIC HAND

REFERENCES

- ¹ Schwenk, E., and Hildebrandt, F.: *Naturwiss.*, 1933, xxi, 177.
² Aschheim, S., and Hohlweg, W.: *Deut. med. Woch.*, 1933, lix, 12.
³ Cook, J. W., Dodds, E. C., Hewett, C., and Lawson, W.: *Proc. Roy. Soc.*, B, 1934, cxiv, 288.
⁴ Cook, J. W., and Dodds, E. C.: *Nature*, 1933, cxxx, 203.
⁵ Kaufmann, C.: *Proc. Roy. Soc. Med.*, May, 1934, xxvii, 849.
- The following works have been employed for general reference throughout.
- Allen, E.: *Sex and Internal Secretions*, London, 1932.
 Dodds, E. C.: *The Goulstonian Lectures for 1934*, *Lancet*, 1934, i, 931, 987, and 1048.
 Dodds, E. C., and Dickens, F.: *The Chemical and Physiological Properties of the Internal Secretions of the Ovary*, London, 1929.
 Parkes, A. S.: *The Internal Secretions of the Ovary*, London, 1929.

THE PROBLEM OF THE SEPTIC HAND *

BY
R. KENNON, M.D., F.R.C.S.,

HONORARY SURGEON, LIVERPOOL ROYAL INFIRMARY

The problem of the septic hand is of interest to all. The public should be warned not to suck or squeeze minor injuries and to seek medical advice more frequently. Nurses should be forbidden to hand instruments, especially knives and needles, to the operator. The surgeon should always sew towards himself and pull out the thread horizontally, not vertically, if the hand and eye of the assistant are not to be endangered.

Most septic hands arise from puncture wounds. The thorn, needle, and safety-pin, however contaminated as they enter the tissues, are cleansed as they penetrate, by the glove in the case of the surgeon and American artisans who often work in gloves, and by the horny hand of toil; yet beneath the thickened epithelium over the heads of the metacarpal bones, known in the North of England as

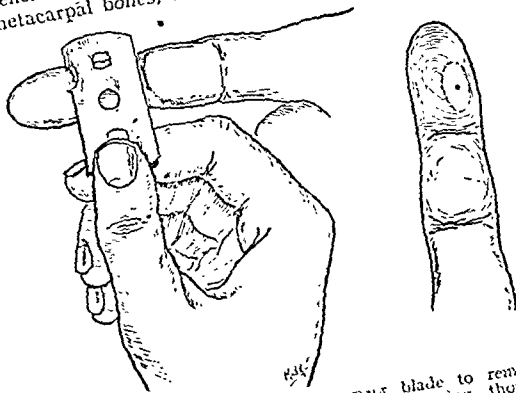


FIG. 1.—The horizontal use of a razor blade to remove the epithelium in pricked fingers, thereby extracting thorns and relieving tension.

a "seg." infection may occur, which, if not relieved of tension, macerates and infects the underlying tissues, leading to palmar abscess. Realizing, therefore, that in the superficial layers of the epithelium the penetrating object has left most of its infecting organisms, it is our duty to remove with a razor blade the surface epithelium over the punctured area (Fig. 1), thereby relieving tension during the inflammatory reaction which must follow all trauma, whether infection is present or not. Through this weak spot serum will ooze, carrying to the surface products of the inflammation.

All pricked fingers should be kept dry, or dressed with spirit, and never until infection is established should they be subjected to fomentations, hot or cold. A splint should be applied to prevent the patient squeezing the wound and to ease the pain of muscle spasm.

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

If the septic hand is to be prevented more consideration should be given to trivial conditions involving the fingers, especially the nails. The nail is often the source of mechanical irritation which is delaying recovery. Conservative treatment of the nail is essential; if it must be sacrificed then it should be dissected off, and not wrenched from its bed, but, wherever possible, it should be preserved to splint the nail bed and to keep for the soft regenerating nail an area of adequate width to avoid irregular nail formation. When the nail bed requires removal for recurring deformity of the nail the distal half of the phalanx should be excised to relieve tension on sutures. The crushed finger or subungual haematoma, if associated with fluid beneath the cuticle, should be drained by insertion of a sharp hook, tenotomy knife, or needle beneath the cuticle—the first step in the treatment of paronychia—to avoid maceration and diminish the tendency to infection.

The Congealed Hand or Finger

Imagine the healthy hand or finger plunged into boiling water; the result would be that all avascular structure would undergo aseptic necrosis, the palmar fascia, the dorsal expansion of the fingers, and the deep fascia on the back of the hand suffering most. In 1929, under the title of "Sore Fingers and Such Trivialities," I published in the *Lancet* an attack on this brutal method of treating injured tissues, and pointed out how it was possible to recognize the severity of previous hot-water treatment by the fact that the nail bed of other fingers, which must be simultaneously plunged into the bowl of hot water, became tender and even developed paronychia; also the annular nature of the swelling so characteristic of the carbolic finger and so different from the irregular edge of a spreading infection. The effect of treatment is dramatic, and many must have observed the immediate improvement that has followed the change to a dry dressing or cold compress: pain ceases and sleep follows. If the possibility of a congealed finger or hand is recognized and improvement has followed a change in the treatment, it becomes urgently necessary to get these fingers moving to prevent stiffness. With the institution of active movement there may be complete recovery; not infrequently, however, small areas of fascia contract, giving rise to a Dupuytren's contracture, or these areas soften, and at the end of two or three weeks liquefaction of the fascia occurs and abscesses form about the base and dorsum of the finger or below the styloid processes of the radius and ulna, sites which have been subjected to greatest pressure as the finger or hand was held in scalding water.

The Septic Hand

Boils usually form on the dorsal surface of the index and middle fingers at their base, and may involve the opposite hand about the same time, so that coap and the nailbrush become a factor in the causation. When boils are present the finger should be splinted and painted with iodine. If the follicle shows signs of sloughing, denude the area with a razor blade and apply a thick paste of glycerin and magnesium oxide or sulphate. This will save many fingers from an incision. If a localized cellulitis forms round the boil, then an incision stretched widely open by a pair of Spencer Wells or the crucial incision is necessary; but these should never be made under ethyl chloride, otherwise an extensive slough of the avascular fibrous tissue beneath will delay healing and render the graver forms of septic finger possible. Minor degrees of paronychia have already been considered. If pus develops at the base of the nail, the nail bed should be exposed by lateral incisions and the reflection of the tissues, dissecting off the nail and removing its proximal portion.

Streptococcal Fingers

The pulsating fingers of nurses, dressers, and doctors will always be our gravest problem. Within a few hours the site of infection is pink, slightly swollen, and throbbing, and from it red lines of lymphatic infection spread to the nearest gland. With an injury in the zone of the ulnar nerve distribution the epicondylar gland is enlarged. Infection from the thumb and outer two and a half fingers spreads to the axilla. If, when seen, these lines are broken, a good prognosis may be given. The case must be watched from two equally dangerous foci—the finger and the glands; and absolute rest must be given to both areas. Incisions at the site of the injury have been condemned, yet many patients owe their lives to them. I think a compromise is necessary, and that it can be found in the manoeuvre already described, in which the surface epithelium is removed and the area subsequently dressed with a hypertonic saline dressing or glycerin and magnesia, in order to establish a flow of serum from the wound into the dressing.

For lymphangitis heavy moist towelling, ichthyol ointment, or kaolin paste may be employed, because these are heavy enough to splint the tissues. Bier's treatment has its advocates, but it should only be applied on healthy tissues. On occasion it will be found that with a rigor on the third day after infection, the glands empty themselves into the general circulatory system with a variety of interesting sequelae—bacilluria, albuminuria, haematuria, erythema nodosum, synovitis, or septicaemia. Those who fear the effect of protein shock to the body developing a resistance against infection may withhold the administration of antistreptococcal serum, but it must be administered if toxæmia is intense or rigors have occurred.

Returning to the site of injury, in three or four days pus will have formed, and the case now falls into line with other less fulminating conditions of the fingers and hands. The glands, however, may persist. If they suppurate they should be opened. If they do not suppurate they may remain enlarged for many months, and care should be taken not to remove them under the mistaken diagnosis of tuberculosis. At least three months should elapse after infection before these glands are removed, otherwise local erysipelas, cellulitis, and septicaemia may develop. Many manual workers have bilateral axillary glands, which, without any recognizable injury or infection of the hand, may undergo spontaneous suppuration and involve the patient in a claim for compensation.

Suppuration of Finger or Hand

My interest in septic fingers was stimulated by the remarkable researches of A. B. Kanavel, whose book *Infections of the Hand* should be in the library of all medical practitioners. Most of us will have learned to classify whitlows as the subcuticular, the subcutaneous, the subtheal, and the subperiosteal. A subcuticular whitlow readily yields to treatment if the cuticle is sufficiently removed to prevent maceration. Yet it penetrates to deeper layers in the case of the "seg," and often leads to useless incisions on the back of the hand by those who do not realize the backward drainage of all lymphatics from the fingers and hand, so that, with pus in the palm, the greatest swelling is on the dorsum. The subcutaneous whitlow (or pulp infection) was at one time opened through the centre of the finger, resulting in a fibrous scar which subsequently interfered with delicacy of touch. Then it was attacked by means of the "cod-mouth" incision, which left the finger with a hideous deformity; this method cannot be too severely condemned. Now, I hope, it is only approached from the side. Frequently the operator is

puzzled to make the finger fit the incision, and often he must wish to follow in the line of infection; if such be imperative, again the horizontal line of attack with a lateral incision will help.

The Subtheal and Subperiosteal Whitlow

Difficulty appears to arise in the recognition of tendon sheath infection. We are told that movement of the finger

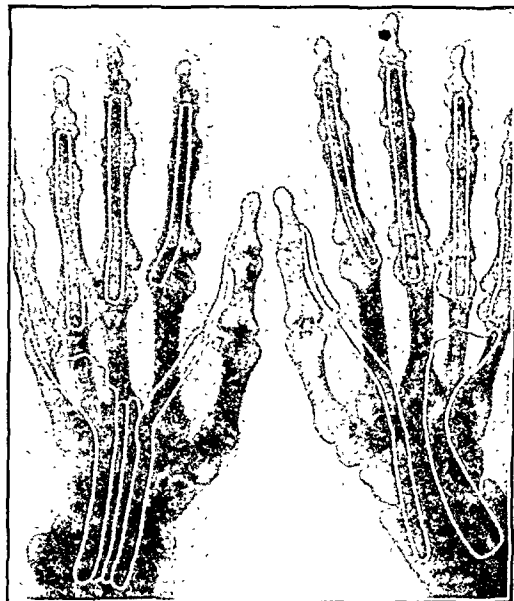


FIG. 2.—An illustration from Kanavel's book *Infections of the Hand*, showing points of termination or narrowing of tendon sheaths.

is painful and limited, and that on bending the finger backwards if pain is experienced the tendon sheath is involved. But I think careful study of these cases and of the diagrams of tendon sheaths, as revealed by the researches of Kanavel (Fig. 2), will show that where the tendon narrows or terminates, there, in the presence of infection, will be a maximal point of tenderness in the swollen finger or hand (Fig. 3). The tendon sheath must then be opened by a short central incision, if its contents are to be evacuated and the tendon saved. These are also the points at which, by ulceration, the dead tendon will separate as a slough. Full movement is possible with a dead tendon. It must be appreciated that tendons require ten to fourteen days to separate, and that any force used to pull away the tendon before it has completely separated can only spread the infection into the palm and give rise to palmar abscess.

If the infecting agent pierces the bone and still carries organisms with it osteomyelitis may be expected, but osteomyelitis is not present as often as is supposed, especially by those who persist in probing wounds in pulp infection. For bare bone is not dead bone, and we should be very chary of acting upon an x-ray report describ-

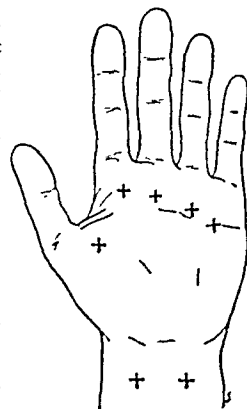


FIG. 3.—Maximum points of tenderness present in tendon sheath infections; of importance in early diagnosis and treatment. They are also the points at which a sloughing tendon separates.

ing decalcification of a terminal phalanx and half the adjacent bone. This decalcification will also be seen in the small bones of the hand in palmar infection; it is as natural as the disappearance of fat in all wounds—hence the depressed scar. It is the result of active hyperaemia. When this passes calcium will return to the bones. Amputations should not be performed for such decalcification.

With osteomyelitis of the terminal phalanx spontaneous fracture is common, and if appreciated may then perhaps be prevented by splinting the whole of the forearm. That a sequestrum occasionally forms is not unnatural; it will make its presence felt clinically by a copious discharge of pus, and radiologically it will be seen as a piece of bone still loaded with calcium. It is useless to squeeze the finger or probe it daily in order to obtain this sequestrum; at the end of three weeks it will be loose and may then be picked out.

Palmar Abscess

Palmar abscess may be prevented if the tendon sheaths are opened early, especially those of the thumb and little finger, which, when completely distended, give rise to points of maximal tenderness half an inch above the wrist. With regard to the little finger and common flexor sheath I should like to direct attention to the following words of Kanavel: "I wish to emphasize that it is upon the ulnar incision that I depend for drainage of the upper end of the bursa," and with him to advocate that this incision be made whenever the bursa has been under tension for forty-eight hours. The terms "radial" and "ulnar" bursa have been applied by this author to the tendon sheaths of the flexor longus pollicis, and the flexor minimi digiti and common flexor expansion respectively. If tension within these sheaths or bursae is great they will burst beneath the palmar fascia.

Kanavel's researches show how the palm may be divided into three spaces: (1) the thenar, stretching from the thumb to the third metacarpal bone; (2) the middle palmar space from the centre of this bone toward the fifth metacarpal bone; and (3) an unimportant hypothenar space in direct contact with the fifth metacarpal bone. From these spaces pus may track forward along lumbrical muscles to the base of the fingers and upwards under the annular ligament to accumulate in front of the pronator quadratus muscle, or, in the case of the thenar abscess, backwards between the adductor transversus and adductor obliquus to the back of the first interosseous space. His incisions should be followed, and his warning observed concerning the motor branch of the median nerve as it crosses the ridge on the trapezium.

Treatment of a Septic Hand

With a working knowledge of Kanavel's incisions the operator will proceed under a general anaesthetic and a tourniquet to establish adequate drainage of the finger or hand, using a breast knife to avoid carrying infection into deeper parts, as may happen with a pointed knife employed in the dissecting position. No drainage material should be used across the fingers; but for palmar and forearm abscesses it should be rubber dam or corrugated rubber, never gauze, which can only plug a wound and prevent the escape of pus.

The dressing immediately after operation and throughout the greater part of healing should be a moist one, and it is here that hot fomentations become the most important of all dressings—not that it is necessary to apply them at anything greater than body temperature. By its dead weight the moist dressing splints the tissues, moist gauze absorbs blood and serum more quickly than dry gauze, and it can be changed without damaging the tissues. All dressings should be moistened to remove them without haemorrhage, which reopens tissues to

further infection. A dressing may be kept moist by the further addition of saline, etc., every two hours during the day; this will disturb the parts less than the hourly or two-hourly fomentations of the past.

Oiled silk, etc., should be used to protect the surrounding clothes from being soaked, not to prevent evaporation from the dressing. It is sometimes used so closely to the wound that the pink dye of boric lint can be seen upon the skin. Such a dressing is physically wrong; if particles of dye are passing from the dressing into the wound, then poisons cannot leave the wound.

The idea that antiseptics can kill organisms in human tissue without destroying the tissues themselves dies hard; any antiseptic we may employ should be used to keep the dressings from becoming in themselves a hotbed of bacterial activity, as seen in a poultice.

The Stiff Finger

Every effort should be made to prevent any stiffness developing in the diseased or adjacent fingers; this can only be done by very careful timing of the removal of the splint and the institution of voluntary movement in the adjacent fingers. The sooner the swelling of the fingers is dispersed the better for the patient. In the beginning all fingers should be kept straight, but after three or four weeks, when it becomes obvious that stiffness is likely to follow, they should be allowed to become slightly flexed at all joints. It is difficult to apply extension to the diseased finger, but there is no reason why adjacent fingers threatened with stiffness should not be extended and their joint surfaces kept separate by means of a splint, taking its bearing from the front of the arm.

Imbert³ protests against the low assessment sometimes given for ankylosis at the metacarpo-phalangeal joint, the interphalangeal joints being free. For the right thumb he allows 15 per cent., and 10 per cent. for the left; 12 per cent. for the index finger, and 7 per cent. for the others, slightly less on the left hand. In spite of the grave possibility of a finger showing ankylosis or limited movement, I think it is our duty to allow three months to elapse after healing has been completed before urging an amputation. During this time a willing patient may have learned to adapt himself to his disability, so that he may be quite unwilling to face an amputation. A patient can play the piano with both interphalangeal joints ankylosed. During this three months recovery, often surprisingly good, will be helped by stretching and rocking the fingers several times a day after they have been vascularized by radiant heat or immersion in warm water, paraffin, etc., strict attention being paid to the acquired Dupuytren's contraction, due to shortening of the palmar fascia.

Amputations

Apart from suppurative arthritis or loss of the tendon, amputations should not take place at an early date. If the tendon is not loose at the time of operation it should not be cut short, since by its retraction it will infect the palm. It should be brought to the surface between the loose stitches necessary in such cases, and in a few days it will separate naturally. Three months after healing it will be possible to discuss with the patient how much of a finger it will be best to sacrifice for his particular type of work, pleasure, and social status. All amputations of the fingers should be as conservative as possible, and leave a patient with a scar free from pressure and neuromata.

Knowing how well patients in sheltered occupations can manage with considerable finger loss, as, for instance, after the roller or calender accidents in laundries, it is necessary to remind ourselves that the assessments are high, and reach for the loss of the terminal phalanx of the thumb 15 per cent. for the right hand, 10 per cent. for the left,

and about 5 per cent. for the other fingers. Amputations at the proximal interphalangeal joint are best performed by a steam hammer, for then the balance between the flexors and the extensors is maintained from the outset by these tissues being crushed into the bone. Surgically we do not obtain such good results, and a lagging finger stump, especially of the middle finger, is a serious disability demanding re-amputation.

In performing amputations at the proximal interphalangeal joint a towel clip should be forced through the



FIG. 4.—Use for a towel clip to prevent retraction of the flexor tendon during amputation of a finger at the interphalangeal joint.

flexor and extensor tendons down to the bone with the finger held in a position of rest—that is, 45 degrees flexed at the metacarpo-interphalangeal joint. This will prevent retraction of the flexor tendon during the amputation, and enable the operator to suture the tendons over the bone end in a correctly

balanced posture (Fig. 4). The advantage of a successful proximal interphalangeal amputation to the patient is great, for with the hand at rest he can successfully hide his deformity.

To the writers of textbooks, especially those dealing with practical surgery, I would appeal for more careful illustrations of finger amputations (Fig. 5). The incision should start at the metacarpo-phalangeal joint, which is half an inch above the web of the finger, and not, as so often illustrated, somewhere near the base of the metacarpal bone. It should be carried in the axis of the finger as far as the middle of the proximal phalanx; it may, with advantage, be placed nearer the mid-line of the hand in the case of the index or little fingers. From the middle of the phalanx the incision should pass horizontally round the finger almost at right angles to the vertical incision, and never so obliquely that it skirts the web, and would, in the case of the index finger, thus give rise to difficulty in covering

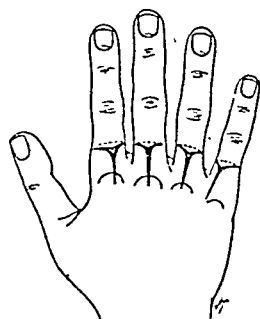


FIG. 5.—Incisions for amputation of a finger at the metacarpo-phalangeal joint, by the Racquet method.

the bone end, and, on occasion, to the serious mistake of removing the head of the first metacarpal bone, which ruins the grip.

Summary

The problem of the septic hand involves careful consideration of the mechanical, chemical, and thermal factors in treatment, which may delay healing of a non-infected wound. Adequate incisions under a tourniquet and general anaesthetic are necessary. Uninfected wounds should be splinted and kept dry; infected wounds require moist dressings. No drainage material should be used on the fingers. Stiffness may be minimized by careful judgement in each case of the time when movement or finger extension may be allowed. Amputations are necessary in only 2 per cent. of cases, and, wherever possible, should be designed to suit the work and social status of the patient.

My thanks are due to Mr. Douglas Kidd for the drawings he has made.

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TROPICAL SPRUE AND ITS MODERN TREATMENT*

BY

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Tropical sprue in its typical form is characterized by apyrexial morning diarrhoea with pale, gaseous, bulky, fatty stools, sore tongue, buccal aphthae, intestinal flatulence, megalocytic anaemia, marked wasting, and profound asthenia associated with a low blood pressure. The abdomen is distended, and its thinned parietal wall but scantily covers the coils of gas-distended bowel beneath. Definite skin pigmentation, cramp, tetany, and oedema may be superadded. At times the stools do not conform to the classical type, in other cases intestinal symptoms, characterized by fatty diarrhoea and abnormal carbohydrate fermentation, may occur unaccompanied by anaemia, while occasionally—especially in relapses following respiratory infections—severe megalocytic anaemia may develop in the absence of intestinal features. I have never observed subacute combined degeneration in sprue, though neuritic manifestations are common enough.

The syndrome itself is explicable in terms of a dysfunction of the gastro-intestine, characterized by defective gastric secretion and malabsorption of fat, glucose, calcium—and probably the p.a. factor—in the small bowel. Three cases recently examined within one hour of death by Mackie and the writer failed, as in Thaysen's case (1931), to reveal specific atrophy or inflammatory lesions in the gastro-intestine, and we now regard the intestinal and visceral atrophy, the small heart with its characteristic brown atrophy, and the megaloblastic red marrow as secondary to a gastro-intestinal derangement, the essential cause of which is still under investigation. The absence of a demonstrable parasitic agent such as a virus, bacterium, or fungus, the apyrexial course of the illness, and the essentially non-inflammatory nature of the tissue changes are against an infective origin.

Aetiological Considerations

Sprue generally affects adult Europeans or those of mixed European stock after some years of residence in an endemic area: it may directly follow hill diarrhoea, as emphasized by Rogers (1921), and is not infrequently preceded by a history of dysentery or chronic malaria necessitating prolonged quinine administration. Except in Porto Rico native populations are rarely affected, while damp coastal climates favour its development. Peculiar features are its rarity in Africa and its occasional onset in tropical patients after many years' residence in Europe.

Various theories regarding its causation have been put forward. Ashford (1915) regarded it as a moniliasis of the digestive tract, and later considered the yeast infection to be engrafted on an unbalanced dietary. Elders (1919) regarded it as a primary deficiency disease due to lack of vitamin A and B and amino-acids. Scott (1923) postulated parathyroid deficiency as the aetiological factor. Strauss and Castle (1932) suggested that pernicious anaemia, sprue, tropical macrocytic anaemia, and coeliac disease were conditional deficiencies caused by a lack of a specific reaction between the extrinsic factor taken in the food and the intrinsic factor secreted by the gastric juice; they regarded vitamin B₁₂ as the source of extrinsic factor.

My own view is that sprue arises as a functional breakdown in the gastro-intestine, and that any factor or factors depressing its secretory or absorptive function will predispose. It is known, for example, that certain tropical infections such as malaria and dysentery may depress

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TROPICAL SPRUE

DEC. 29, 1934]

gastric secretion, while residence in a humid climate involves an increased distribution of blood to the skin at the expense of the splanchnic vessels—a state of affairs which, if unduly prolonged, appears likely to depress alimentary function. Again, a diet rich in fat and carbohydrate and poor in first-class protein, which is the main source of extrinsic factor, is the one known to precipitate relapses in sprue, and is probably the most potent single factor in the initiation of the disease in the first instance. From this viewpoint a careful analysis and comparison of the dietaries of Europeans resident in Africa and endemic areas of sprue in India respectively would prove of great interest.

Laboratory Findings

Laboratory investigations—especially those carried out at the Hospital for Tropical Diseases, London—have revealed a biochemical background to sprue which, though not invariably complete in every patient, is very characteristic of the severer cases, and often affords valuable information in recognizing atypical types. Thus well-established cases generally show an excess of adequately split fat, the total fat constituting 25 to 70 per cent. of the dried faeces, a glucose-tolerance curve with a delayed or low maximal rise rarely exceeding 40 mg. per 100 c.cm., a decreased serum calcium associated with a normal serum phosphorus, a blood cholesterol below 100 mg. per 100 c.cm., and a decreased or absent secretion of HCl as revealed by the fractional test meal curve. Acid secretion follows histamine injection in approximately 70 per cent. of sprue cases, a finding which helps to differentiate it from true Addisonian anaemia. The plasma bilirubin rarely exceeds two van den Bergh units, and not infrequently it is normal.

Following appropriate treatment, as outlined below, the percentage of faecal fat is markedly reduced in quantity, the blood calcium and cholesterol increase, the glucose-tolerance curve returns to normal, and the original curve of acid secretion becomes gradually re-established, though this may take many months or even years to accomplish. Haematological investigation generally reveals a megalocytic anaemia of moderate or severe degree, which in advanced cases may be indistinguishable from Addisonian anaemia; the Price-Jones curves in the two diseases are also similar.

Differential Diagnosis and General Treatment

Other megalocytic anaemias—especially those associated with Addisonian pernicious anaemia, gastro-jejunal fistula, intestinal ulceration with stricture, and tuberculous ulceration with fistulae—may lead to confusion, while diseases giving rise to fatty diarrhoea, such as idiopathic steatorrhoea, abdominal Hodgkin's disease, and tuberculous adenitis of the mesenteric glands with lymphatic obstruction and interstitial pancreatitis, may occasionally need differentiation. In the diagnosis of atypical cases of sprue clinical experience combined with a careful case history, physical examination, and detailed laboratory and x-ray investigation are essential.

The patient with sprue must be put to bed on an appropriate diet for a period of five to eight weeks, and must receive liver extract, per os, in adequate dosage if the anorectic requirements of the patient and permits alimentary rest, which is of fundamental importance in recovery.

Diarrhoea and Flatulence.—On admission the patient should be given oleum ricini (2 drachms). When the diarrhoea is severe, pulv. bataviae co. (1/2 to 1 drachm t.d.s.) is useful. Several different diets have been advocated empirically, including the fruit diet of van den Bergh, the milk diet of Manson, and the red meat diet of Canthel. On the basis of the biochemical findings Fairley (1930) successfully employed a series of five graded

high protein, low fat, and low carbohydrate diets, with an energy value varying from 700 to 3,000 calories, and possessing a protein : fat : carbohydrate ratio of 1.0 : 0.3 : 1.3 instead of the usual 1.0 : 1.0 : 4.0. The source of protein was lean red meat, and more recently a defatted high protein milk powder (sprulac) has been introduced by the writer (1932). As the intestinal features subside and the stools become more normal diets of increasing caloric value are gradually substituted, a convalescent high protein diet including fruit and vegetables being generally permitted about the fifth or seventh week.

Anaemia.—Bloomfield and Wyckoff (1927) noted great improvement in a case of sprue given the high liver diet of Minot and Murphy. Ashford (1928) and Fairley (1930) confirmed this result in a larger series of cases, employing liver extract (Lilly No. 343). Almost invariably the anaemia is megalocytic and often hyperchromic in type, and, provided the diarrhoea be controlled by suitable dietary as outlined above, the administration of commercial liver extract in adequate dosage is followed, as in pernicious anaemia, by a maximum reticulocytosis inversely proportional to the red cell count and by rapid blood regeneration. In a severe case I employ liver extract, per os, in a dosage equal to 1½ lb. whole liver for the first month and 1 lb. for the second month, or until such time as the blood has returned to normal. Thereafter a maintenance dose equal to 1/2 lb. whole liver daily may be employed for another month or two, but in the ordinary case a maintenance dose is not necessary over a longer period.

Results of Treatment

The haematological findings on admission and discharge in a recent series of thirty-three cases of sprue treated with high protein (meat), low fat, low carbohydrate diet and liver extract are included in Table I. The haematological findings in another series treated by liver extract, per os, and sprulac are included in Table II.

TABLE I.—Average Haematological Findings in Cases of Sprue Treated with Liver Extract and High Protein (Meat), Low Fat, Low Carbohydrate Diet.
(Average stay in hospital = 42.5 days)

Time of Observation	R.B.C.s. per c.mm.	Haemoglobin per cent.	Colour Index	Average Diameter of R.B.C.s (microns)
Admission ...	2,660,000	57	1.0	8.1
Discharge ...	4,520,000	77	0.85	7.8
Improvement ...	1,660,000	20	0.15	0.3

The total cases numbered thirty-three; the reticulocyte response was investigated in nineteen, the maximum figure averaging 17.1 per cent.

TABLE II.—Average Haematological Findings in Cases of Sprue Treated with Liver Extract and Sprulac
(Average stay in hospital = 43 days.)

Time of Observation	R.B.C.s. per c.mm.	Haemoglobin per cent.	Colour Index	Average Diameter of R.B.C.s (microns)
Admission ...	2,589,000	57.0	1.12	8.0
Discharge ...	4,321,000	76.5	0.83	7.7
Improvement ...	1,735,000	19.5	0.24	0.3

The total cases numbered ten.

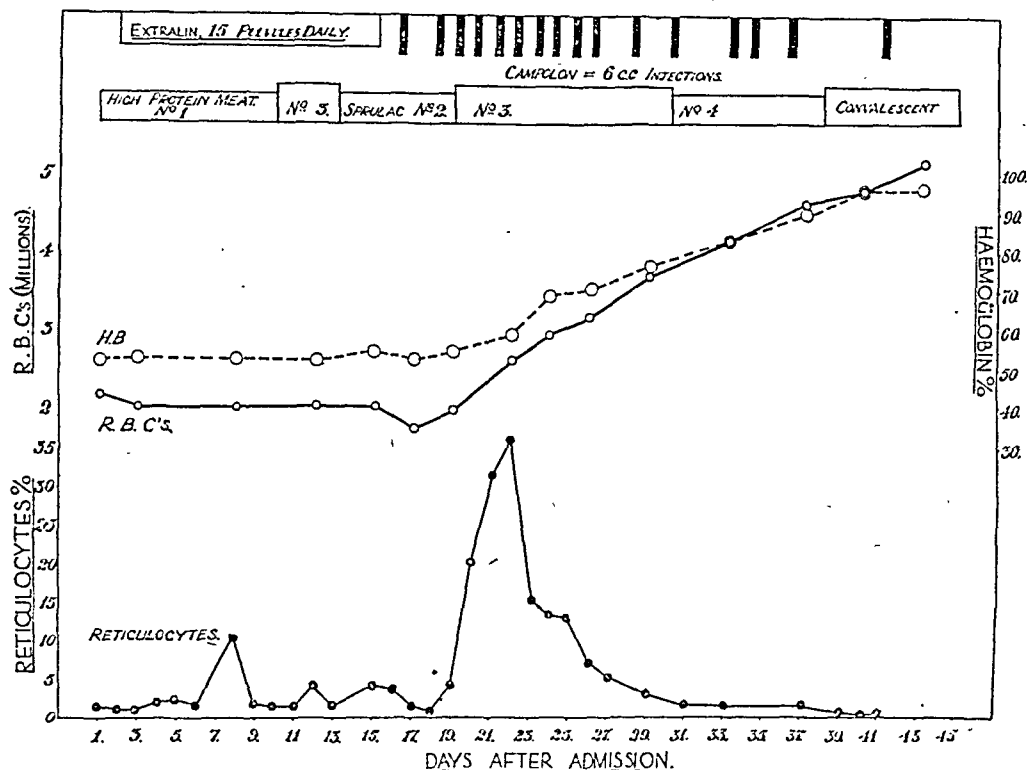
It will be seen that the results obtained in these two series were very similar, and from both a clinical and a haematological viewpoint it appears immaterial whether meat or milk protein be utilized provided liver extract in adequate amount is administered.

One of the unexpected features of sprue is the satisfactory haematological response to the oral administration of

liver extract, and only rarely, in my experience, has it been necessary to resort to parenteral injections. Occasionally, however, intractable cases are encountered, and here absorption is either defective or a dosage of liver extract greatly in excess of the normal is required to initiate an effective marrow response. The chart of Case I illustrates this feature. The patient, a woman aged 60, had contracted sprue in Shillong in 1924, and had never satisfactorily responded to liver therapy per os. Extralin in full dosage was given for a fortnight without benefit. Following a series of intramuscular injections of campolon (6 c.cm.) there was a remarkably rapid blood regeneration, a reticulocytosis of 35 per cent. being noted on the seventh

1 drachm) may be given thrice daily after meals with benefit when acid secretion has been found defective. Blood transfusion should be employed only as an emergency measure to tide a 'gravely anaemic patient over the few days which liver extract takes to exert its action on the megaloblastic marrow. Marmite is only occasionally effective, and, in my experience, neither it nor ventriculin is as satisfactory as liver extract in sprue.

Provided the patient is on a diet low in fat the complication of tetany only calls for the administration of calcium lactate (40 grains) thrice daily; the hypocalcaemia rapidly decreases under this regime, and the blood calcium is restored to 9-10 mg.-per 100 c.cm. within three weeks.



Chronic sprue showing lack of blood regeneration with extralin per os and rapid haematological response with intramuscular injections of campolon.

day and an increase of 3,400,000 corpuscles occurring in twenty-four days. Complete recovery ensued. In my experience parenteral injections of liver extract in the ordinary dosage advocated have proved disappointing in sprue, and for this reason I always inject excessively large doses parenterally or administer, in addition, liver extract per os.

As blood regeneration proceeds the rate of red cell production generally exceeds the percentage increase of haemoglobin, so that by the time normal counts are reached the colour index approximates to 0.9. There is a simultaneous decrease in the average diameter of the corpuscles, anisocytosis gradually disappears, and the Price-Jones curve, which generally shows a well-defined displacement to the right and broadening of the base at first, returns to its normal position and symmetry. Sometimes a lag in the production of haemoglobin occurs, cells appear hypochromic, and the colour index approaches 0.7; in these circumstances iron in full dosage is indicated (ferri et ammon. cit. 30 grains t.d.s., p.c.). This is not often necessary, and, when it is, intercurrent disease or some complication such as intestinal ulceration should be suspected. Acid. hydrochlor. dil. (B.P.) (1/2 to

After-care

Once recovered, the sprue case should continue with a well-balanced diet, adequate in protein and vitamins, avoiding fat and carbohydrate excess, rich spiced foods, and condiments. Aperients should be taken with caution, and worry, chill, and respiratory infections avoided so far as possible. Though it is impossible to say definitely that a given case of sprue will never relapse, patients under 55 years of age may be permitted to return to the Tropics, provided there have been no alimentary symptoms and the blood picture has been normal for six months following cessation of treatment, and provided they are otherwise healthy.

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A FATAL CASE OF SUBACUTE YELLOW ATROPHY OF THE LIVER AFTER CINCHOPHEN

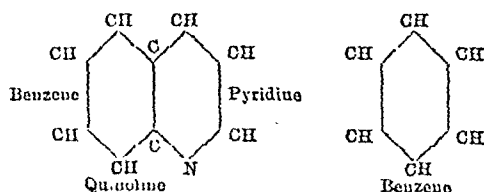
BY

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Cases of toxic cirrhosis with jaundice following the use of cinchophen (atophan), whether fatal or non-fatal, are very infrequently met with in this country or reported in our literature. Most of our knowledge on the subject is obtained from cases reported in the American clinics. The case to be recorded is of interest owing to the fact that toxic symptoms appeared after a dose of only 37½ grains had been taken during a period of five days.

Weir and Comfort¹ published an account of 117 cases of toxic cirrhosis due to cinchophen; nineteen of the cases were seen at the Mayo Clinic, and ninety-eight were collected from the literature on this subject: of the 117 sixty-one were fatal. According to Weir and Comfort the toxic symptoms arose after doses ranging from 54 grains in five weeks to 7,200 grains in four months; but they mentioned that fatal results have also occurred with relatively small doses.

Various explanations have been given as to the action of this drug, and as to why it has such profound toxic properties in some cases. Its use in rheumatic affections has been based on the property which it exerts as an eliminating agent of uric acid, and on this its efficiency principally depends. To the property which the liver has for the breaking up of such chemical agents may be attributed the toxic action of the drug. This view was propounded by Rake.² The chemical formula of cinchophen shows it to be a combination of benzene and pyridine, as follows:



Under liver influence the compound becomes broken up and the benzene ring element separated off. The benzene element is then considered to attach itself to or combine with the liver cells, in which destruction and atrophy is produced, with general toxic characters. Similar behaviour had been noted in connexion with cases of trinitrotoluol poisoning, which occurred during the war.

In cases of jaundice associated with a gastro-duodenal catarrh it has been put forward that certain toxic substances can give rise to a phlegmonous gastro-enteritis, and this condition is regarded as responsible for the obstructive or intense character of the jaundice. This view has been prominently held by Perman and Goehring³ in connexion with the two cases they have reported.

History of Case

The patient, a female aged 38, saw her doctor at the beginning of April, 1934, and complained of sore throat and acute pains in the joints. She was given aspirin and methyl salicylate applications on account of a previous rheumatic history. After a few days this treatment was changed, and sodium salicylate (15 grains) and sodium bicarbonate (20 grains) were administered four times a day. She made a fairly good recovery, the temperature settling and the pain disappearing from her joints, which, however, still remained stiff. She went back to work against her doctor's orders.

About three weeks later she again saw her doctor, who gave her twelve tablets of cinchophen (7½ grains each), with

instructions to take one nightly and to stop immediately if any gastric symptoms should appear. After five days she visited him again, when he noticed very faint jaundice. He stopped the cinchophen and prescribed *mistura alba*. Altogether she had taken only five tablets of the drug. The jaundice progressed slowly, but the patient continued at her work until May 25th, 1934—that is, twenty-five days after the onset of jaundice—when, owing to weakness, she had to take to bed. Four days later she became partially comatose, and was removed to hospital.

She was admitted on May 30th, and her condition then was as follows. She was deeply comatose and continually spitting, yawning, and rubbing her nose. The skin and eyes were intensely jaundiced, and she vomited several times. Some paresis of the right side of the face was present. Temperature was 99.2° F., and the pulse 104. The urine contained bile. The liver dullness did not appear to be altered. The following day she developed a cerebral cry, the right knee-jerk became very brisk, both plantar responses were extensor, and bilateral ankle-clonus was elicited. The temperature rapidly rose to 104.7° F., and the pulse and respirations to 144 and 40 respectively. The patient never regained consciousness, and died that evening.

Post-mortem Findings

Necropsy revealed the following points: lividity of the face and lips, a condition of intense generalized jaundice, and a number of petechial haemorrhages in the skin.

Some bile-stained fluid was present in the pericardial, pleural, and abdominal cavities. The heart was normal, but a number of small areas of extravasated blood were seen in the endocardium of the left ventricle at the septum. The lungs were congested and oedematous, and petechial haemorrhages were present on their surface, while the bronchi contained blood and bile-stained mucus. The stomach was normal. There was no evidence of gastritis. There were a few haemorrhages in the serous coat of the intestines, but no lesion of the mucosa.

The liver was reduced in size and weighed 36 oz. Although it felt somewhat soft and was finely nodular on surface, it appeared firm on section. It had a yellowish brown coloration, with areas of congestion, but the softened yellow areas of acute yellow atrophy were not a feature. The bile ducts on section were dilated. The gall-bladder was normal; no stones. The spleen was slightly enlarged, firm, and congested. The kidneys were bile-stained, and there was evidence of cloudy swelling; there were a few small haemorrhages in the pelves. The bladder was slightly distended, and there were several small haemorrhages on the mucosa and some degree of cystitis. The brain was congested and oedematous, and a few small haemorrhages were observed at the base and over the cerebellum.

Histology.—Sections of the liver revealed a generalized necrosis of liver cells with an increase of the fibrous tissue between areas of necrotic cells. In places the fibrosis was more apparent, and a large number of bile ducts were recognized. Small aggregations of round cells were noted in different parts of the section. The appearances were those of a case of subacute liver atrophy. There was a marked degree of cloudy swelling of the epithelium of the convoluted tubules of the kidneys: a similar condition, but of less degree, was observed in the straight tubules. The glomeruli were only slightly affected, and for the most part seemed normal. Congestion and minute extravasations of blood were also a feature. In the spleen there was some proliferation of the stroma cells and well-marked congestion. The heart muscle was unaffected.

Summary

1. This was a case of acute rheumatism which failed to respond properly to the usual remedies, and was then treated with cinchophen.
2. The total amount of cinchophen taken was only 37½ grains, at the rate of one tablet on five successive days.
3. The early appearance of jaundice—namely, five days after the beginning of treatment—is worthy of note.
4. The question of idiosyncrasy has been raised by some authorities (Rabinowitz,⁴ Weir and Comfort), and

probably had some connexion in this case on account of the small dose of the drug that was taken.

5. The pathological features are quite classical and are similar to those of other reported cases; they are of interest from the close resemblance to the condition met with in cases of trinitrotoluol poisoning.

6. The advisability of the abandonment, or at least better control, of the administration of cinchophen should be considered.

I should like to thank Dr. Buchanan for notes of the case prior to admission, Dr. Mackenzie for permission to record the case, and Dr. Anderson for notes on the post-mortem report and histological findings.

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THE ADVANTAGES OF NITROUS OXIDE AND AIR ANALGESIA IN THE MIDWIFERY OF GENERAL AND HOSPITAL PRACTICE

BY

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The value of nitrous oxide and oxygen anaesthesia and analgesia in maternity has been recognized for some years, and yet because of certain technical difficulties this relief could never become available for all women in their confinements. But by making use of air instead of oxygen Dr. Minnitt of Liverpool has devised an apparatus which appears to fulfil all the necessary requirements.

The apparatus is an adaptation of a McKesson oxygen therapy apparatus.¹ Gas flows from the cylinder through a reducing valve into a bag contained in a metal drum. The flow of gas is controlled by an automatic valve so that it stops when the patient ceases to inhale.

A mixture of approximately 35 per cent. nitrous oxide in air is delivered to the patient. The method of administration is simply to turn on the gas, give the face-piece to the patient, and tell her to breathe in and out when a pain comes on, ceasing to make use of the apparatus when the pain goes away.

The Minnitt gas and air apparatus has been in use at the Wellhouse Hospital, Barnet, for the past eleven months, where I have been privileged to observe its use, and from personal observation of some 250 cases, both in this hospital and in private maternity work, I feel convinced that we have now come to the time when there can be no reasonable objection to all women enjoying the relief which gas and air can give.

Any method which is to be of general value for relieving the pain of maternity must fulfil certain requirements. These may be briefly enumerated as follows: (1) There must be satisfactory relief to the patient. (2) The normal process of labour must not be interfered with. (3) There must be no danger to mother or child. (4) The technique of administration must be one that can be used by midwives and nurses without constant medical supervision, and must be one which will assist the nurses in their work. (5) The apparatus must be readily portable, and not too expensive either to buy or to use. Let us now consider these requirements, and see how far they are fulfilled.

Relief from Pain in Normal Labour

The first 200 patients to receive gas and air at the Wellhouse Hospital were asked to give their own opinion of the method. Eighty-eight stated that they felt no pain whatsoever, 106 that they found great relief, and six that they found some relief. The almost complete silence that reigned in the ward while patients were having gas and air in the second stage of labour was most noticeable. This in itself was an eloquent testimony to the value of this form of analgesia.

In both hospital and private cases there was no evidence that labour was in any way prolonged. Patients being relieved of all, or much, of their pain were enabled to make great use of their voluntary muscles, thus helping delivery. Instead of an excited hysterical woman we found that we had a patient silent and contented, doing her utmost to assist. In 250 cases, some 60 per cent. of which were first confinements, there were nineteen forceps deliveries.

Safety of Mother and Child

Scientific work at Liverpool has shown that there is no danger to mother or child by the use of gas and air.^{2,3} Electrocardiograms for series of patients showed that they did not appear to be influenced to any significant extent as a result of their experiences. The alteration in the mother's pulse and the foetal heart rates estimated at approximately equal intervals during analgesia were within normal limits.

A biochemical study was made of the blood taken from a maternal vein and the umbilical cord in a number of patients immediately after delivery with and without analgesia, and conclusions were drawn that although the administration of gas and air reduced the oxygen content of the mother's blood that of the umbilical cord did not show any marked alteration. Clinically it was observed at the Wellhouse Hospital that with all five air ports of the machine open it was not possible to obtain full surgical anaesthesia in a normal healthy woman. Further, when the patient was breathing regularly in and out cyanosis did not occur, but when she held her breath and pushed down in the second stage of labour cyanosis did occur in a few cases, although this was not of a dangerous degree.

In the first 200 cases at this hospital there were four stillbirths; these were in no way due to the administration of the gas and air.

Is the Method a Help to the Nurse or Midwife?

We now come to a most important consideration, and one which, in my opinion, makes the gas and air technique of Dr. Minnitt superior to any other method.

At the Wellhouse Hospital for the first fifty cases a medical officer was present during the entire time gas and air was being administered. Gradually, however, as time went on and greater confidence was felt in the safety of the method the nurses took more charge, until it became evident that they were perfectly capable of managing a case on their own responsibility. The nursing staff now administers the gas and air to the patients after receiving instruction in its use, so that there is no need for the medical man or woman to be constantly present at the bedside of the patient.

According to the present rules of the Central Midwives Board there must be medical supervision when a nurse or midwife administers any form of anaesthesia or analgesia, but with gas and air the supervision can be very much reduced, thus assisting greatly in the administrative problems of a medical superintendent of a municipal hospital. Without this assistance it would be impossible for the general use of analgesia in labour in these hospitals.

DEC. 29, 1934]

NITROUS OXIDE AND AIR ANALGESIA IN MIDWIFERY

The immense benefit of being able to leave the administration of the gas and air to a nurse is even more noticeable in general practice.

At the Wellhouse Hospital the sisters and nurses are enthusiastic supporters of the use of gas and air, since they find it helps them in their work and makes the patients more easy to manage. The superintending sister-midwife of Wellhouse Hospital states:

"(1) Unlike my experience with other anaesthetics gas and air rather tends to increase the contractions. (2) Even after long labours, there is no evidence of any harm to the child. (3) The patients are enthusiastic. (4) The patient is happier, less excitable, and more controllable. (5) I would prefer my patients to have gas and air in future. They can manage it quite well themselves after a little help and advice."

Expense

The cost of the complete machine fitted into a convenient carrying case is at present 17 guineas, but there does not appear to be any reason why this cost should not be very much reduced should the demand justify the manufacture of the apparatus on a large scale. It is readily portable, and the consumption of gas is about forty gallons an hour, intermittent flow. The actual cost in hospital practice has worked out at about 2s. per case. In private practice the cost is a little higher.

Comparison with Gas and Oxygen

Lastly it would be well to consider how gas and air compares with gas and oxygen for everyday midwifery.

1. The gas and oxygen apparatus at present on the market is rather expensive, and because one must carry oxygen cylinders as well as gas cylinders it is heavier to carry.

2. To administer gas and oxygen in maternity work with satisfactory results does require considerable experience and skill in anaesthetic technique. For the use of gas and air very little skill is required. The method is self-administrative: the patient is given the face-piece and simply told to breathe in and out when a pain comes on. The only requirements are a well-fitting face-piece and a patient who will co-operate.

3. With gas and air this vomiting frequently occurs; with gas and oxygen vomiting is but rarely seen. Patients can, and do, take fluids freely during their confinements.

4. Excitement and cyanosis of the mother can readily occur when gas and oxygen is used, but these troubles are not found to any marked degree with gas and air. The absence of excitement is indeed an important and pronounced feature.

5. With gas and oxygen we can certainly guarantee absolute relief from pain in 100 per cent. of cases, but to do this we must again have a really expert anaesthetist. Our experience is that with gas and air we get 44 per cent. of patients who, without any premedication, have no pain whatsoever; 53 per cent. experience great relief; and 3 per cent. some relief. With premedication a much higher percentage of patients have no pain, and no expert anaesthetist is required.

The nursing staff at the Wellhouse Hospital has assisted us to its utmost to make the investigation a success, and the patients themselves have co-operated. Our sincere thanks are due to Mr. Rutherford, chairman of the Hertfordshire Public Assistance Committee, and to Lord Knutsford, a member of the Hertfordshire County Council, for their unflinching assistance and support.

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THE POST-OPERATIVE MANAGEMENT OF ACUTE EMPYEMA THORACIS*

BY

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Acute empyema thoracis is a common disease, for which operations are frequently performed, yet the importance of careful post-operative care does not appear to be generally appreciated. Operation usually consists of some form of drainage, either open or closed. Blockage of, or ulceration around, the tube often necessitates the conversion of a closed drainage into an open one. The tube is less likely to become obstructed if all visible masses of lymph have been removed through a relatively wide thoracotomy incision when establishing drainage, provided that the condition of the patient permits. It is not intended to embark upon a discussion of the relative values of these operations—each having its own uses—but it is obvious that while open operation would be disastrous in certain cases, it is quite possible that some of the bad results attributed to this method may be partly due to faulty after-treatment.

General Treatment

The patient should be placed in the sitting position as soon as possible after returning to bed from the theatre. These cases are best nursed in the open air. Opiates may be given, if needed, during the early post-operative period to facilitate sleeping and to relieve pain. Fluids should be imbibed freely until the temperature has fallen to normal. Appetite returns as toxæmia diminishes, and full diet is permitted as soon as desired. Purgatives are administered as required. Massage should be given to the arms and legs to improve the general muscle tone, and the patient should be encouraged to move about the bed as much as possible. If the haemoglobin index is low, iron is beneficial. If the general condition has sufficiently improved, and the temperature has been normal for a fortnight, improvement is often accelerated by allowing the patient to get up.

Care of the Wound

Where a "closed" or, as I prefer to call it, a "siphon" system of drainage is used, the wound may be smeared with bipp and covered with a layer of sterilized dry dressing arranged round the tube fastened by adhesive strapping or elastoplast. Usually such a wound need not be disturbed for several days, the sutures being removed about the eighth or tenth day. The tube should be long enough to enable the patient to move about the bed without pulling it off or upsetting the bottle. Redundant coils of tubing are undesirable: lying on the floor, they are apt to become occupied with stagnant discharge.

It is advisable to have the drainage tube connected to a glass tube passing through the cork to the bottom of a bottle containing coloured antiseptic fluid (flavine), rather than to allow the rubber tube itself to be freely beneath the surface of the fluid. In the latter case the tube is only too often found gaily suspended above the level of the liquid. The attendants should, of course, be warned that the tube must be first clamped before it is

*Read in the Section of Surgery at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

disconnected from the bottle for any purpose. Movement of the coloured fluid up and down in the glass tube in the bottle is evidence that the siphon system is working satisfactorily. In unfavourable cases, infection of the wound or blockage of the tube may make continuance of the siphonage undesirable or impossible in such circumstances, and later, in the more favourable cases, where only a small residual cavity remains, the tube should be withdrawn and a shorter clean one inserted—that is, the system of drainage should be changed to the ordinary "open" method.

Where "open" drainage is employed, frequent anti-septic dressings are required, one of the most satisfactory being gauze wrung out in corrosive sublimate (1 in 1,000), unless the discharge is fetid or the wound foul, when eusol should be used. Dressings should be changed as soon as there is any evidence that they are saturated with discharge, or at least once a day. Tubes should be changed at least every second or third day, or more frequently if blockage occurs. To secure and facilitate this, it is my custom to suture a safety-pin, attached to the tube, by its two ends to the edges of the wound. After opening the pin, the dirty tube can be easily detached, removed, and replaced by a new one.

In foul infections, gross thickening of the pleura, or loculation, it is advisable to irrigate the cavity with eusol. The eusol should be warmed by the addition of a little hot water, actually at the bedside, so that it does not disintegrate before entering the chest. A convenient way of avoiding excessive intrapleural pressure during irrigation is to keep two tubes, of different sizes, in the wound, connecting the smaller by means of a catheter to a funnel; fluid can thus escape both around the tubes and along the larger one. Syringing should be avoided.

Persistence or recurrence of temperature after drainage, in the absence of other explanations, is another indication for irrigation, and under these circumstances warm flavine (1 in 1,000) is useful and safe. Rather too much has been made of the supposed dangers of irrigation. If the simple precautions already mentioned of warming the fluid and avoiding undue increase of pressure are adopted, reflex collapse and air embolism are unlikely to occur. There has been cerebral abscess in only two of my cases, and in neither had irrigation been employed. The presence of a bronchial fistula, unless minute, is a definite contraindication to irrigation.

Re-expansion of Lung

The degree of lung collapse found after evacuation of an empyema varies, complete collapse being associated with the large diffuse type, and partial collapse with small and more localized collections. In the latter case, collapse is limited by adhesions between the parietes and the lung at the periphery of the cavity.

Natural obliteration of pleural cavities by re-expansion of the lung follows the establishment of adequate drainage if the general health improves and infection subsides. Raising the intrabronchial pressure causes the lung to expand. As it expands it comes into contact with, and becomes adherent to, the chest wall. Further expansion facilitates the formation of more adhesions around the periphery of the cavity, and so the expanding lung steadily creeps outwards. To assist these processes, within a day or two of the operation, unless the general condition is too poor, the patient is instructed to blow fluid from one Woulfe's bottle to another. Small bottles of about a pint capacity are used; later a larger size may be substituted. Five minutes' blowing during each waking hour is not too exhausting, and suffices. Children prefer to blow up balloons. If the services of a masseuse are available, carefully graduated breathing exercises undoubtedly hasten

re-expansion, and minimize the risk of flattening deformity of the thorax and scoliosis. The "pull" of the sub-atmospheric intrapleural pressure present where siphon drainage is employed is an additional help to re-expansion. Continuous suction by a water vacuum pump is used in some clinics for the same purpose, but of this I have no personal experience.

Drainage is sometimes abandoned when the discharge is no longer profuse, or is thin, or if the temperature has been normal for a number of days, irrespective of whether there is any evidence of complete re-expansion of the lung or not. This rule-of-thumb method leaves too much to chance; it may succeed—probably in the majority of instances it does—but where it is adopted a number of patients are certain to develop a chronic empyema sinus. Drainage must be maintained until the lung has expanded to the parietes and completely obliterated the empyema cavity. If the parietal wound is permitted to close earlier, a residual cavity is left in which pus is almost certain to accumulate; this gives rise to toxæmia, evidenced by wasting, muddy anaemia, sweating, pyrexia, loss of appetite, and ultimately lardaceous disease. There is no constant rate of re-expansion of the lung; that is why there can be no constant interval after which it is safe to abandon drainage. It is sometimes stated that prolonged retention of a drainage tube gives rise to a chronic empyema. A chronic empyema due to this is speedily and simply avoided by removal of the tube, but if it is due to premature stoppage of drainage it is often only cured, if at all, by serious operative procedures.

Breath sounds and vocal fremitus in the vicinity of the wound show that the lung is in contact there with the chest wall. An x-ray picture is the best way of showing the degree of lung expansion that has occurred. If there is a cavity between the lateral chest wall and the lung it will be clearly shown in the film; if, however, the cavity is behind or in front of the lung its extent can be more accurately demonstrated by inserting a length of fine rubber tubing through the wound, the coils of tubing being easily seen through the lung substance. Lipiodol may be used for the same purpose. There need be no hesitation in retaining the tube for prolonged periods; apart from slight discomfort it need be the cause of little disability, and patients can even follow their employment while waiting for obliteration of their cavities. Actually at present a patient of mine, with a tube in a thoracic cavity, is working in a coal mine, and has even played in a game of football!

In a few cases expansion of the lung may come to a standstill before the cavity is completely obliterated. The lung may remain completely collapsed in very rare cases. If drainage is adequate and there is no foreign body in the cavity, failure to re-expand is probably due to thickening of the pleura. Occasionally a bronchial fistula may be the cause, but in my experience, unless the fistula is large, it usually has little, if any, adverse effect on expansion. Repeated irrigations with Dakin's solution or eusol apparently dissolve the layers of fibrin—pleural rind—which, thickening the visceral pleura, imprison the lung. Failure of this chemical decortication necessitates either the surgical removal of this rind or an extensive thoracoplasty.

Operations for acute empyemata, being simple and easy to perform, are often done by relatively inexperienced surgeons in small hospitals or even in the patient's own home. Similarly, in the larger hospitals their performance is often left to the residents. If the principle is recognized of maintaining drainage until the cavity is obliterated by expansion of the lung, no matter how slow the process is, the incidence of chronic empyema will be much less.

CLINICAL MEMORANDA

Clinical Memoranda

A COLLODION-GAUZE SPLINT

Of any two effective treatments for a given condition the simpler and easier will yield consistently better results. This may be because the easier treatment does less damage to important tissues, and/or causes less shock, or because the surgeon, having to devote less thought to the simpler *modus operandi*, can pay more attention to the effect of his manipulations and to the position of parts, splints, bandages, etc. Simple and easy methods also relieve him of much mental and physical fatigue—of importance when there is a long "list" to be got through or many patients to be seen.

Particularly when carrying out orthopaedic treatment does one notice these facts, and it is for this reason that I describe the following simple yet little-known form of treatment. The method is not original. I do not claim this. But I ask the reader to note that the materials are always at hand, of slight cost, and very easy to use. Nearly four years' experience has convinced me, and others to whom they have been demonstrated, of the effectiveness of the splints.

FOR FRACTURED PHALANGES

Whether of hand or foot, the commonest of these fractures have no displacement of the fragments. The only necessary treatment is to immobilize the fracture for the requisite period of time in the correct position. Finger splints can be applied in the correct position, though far too often the anterior concavity of the phalanges and the necessity for slight flexion of the joints is forgotten. Sometimes the splint was correctly applied, but so inefficiently that within a few days it has slipped down the finger, or around to the side, or has even come right off. Owing to their shape it is notoriously difficult to splint the toes effectively. Fortunately, strapping is usually all that is required, but even this has a marked tendency to slip off, being softened and rendered slippery by heat and perspiration. At best one finds on its removal that the skin is sodden and may be abraded.

A simple solution of these difficulties is to use a splint made on the phalanx from collodion and ribbon gauze. Using the convenient width of one inch, from three to six layers of the gauze are wrapped evenly and firmly round the phalanx, interlaying them with a liberal amount of collodion flexible, much in the manner that the old Unna's paste bandages were applied. Cuts and abrasions are painted with liquor iodidi mitis. They require nothing else. While the "splint" is drying any desired position is obtained by digital pressure.

ACCIDENTAL CUTS OF FINGER

Any treatment almost will do for these. But a deep cut heals better if splinted so that the skin edges do not move on each other. Collodion and ribbon gauze provides this so effectively that sutures may be omitted. There is a further advantage, which is that it is waterproof and undamaged by cold water. The patient is able to wash his hands easily and frequently without assistance and without danger to the wound. And the bulk is so small that the hand is hardly crippled, while if applied to a foot a shoe can easily be worn. Surgeons in particular will appreciate the advantage of being able to do most, if not all, of their work during the period of healing. From personal experience I can say that after a deep cut I was able to carry out all the manipulations and apply all the plasters I wanted, and that on the nineteenth day the wound stood up to the trauma of ten minutes' "scrub up" prior to operating.

STIFF FINGERS

When these require traction on the tennis racket principle of Baldwin (modifications Sinclair, Bohler), or for difficult fractures of the phalanges where extension is required, it has been usual to insert a small pin or needle through the pulp of the finger to ensure that the tapes did not slip. Using collodion and ribbon gauze, even when applied only to the terminal phalanx, one obtains a very effective adherence, so that there is no need to perform an "operation" requiring asepsis and its attendant complexities. It is advisable to allow several hours to elapse before actual traction is applied, or else the tapes slip out.

Everyone knows that ordinary wounds are frequently dressed by this method, and many know that it is a useful form of splintage on the face in facial paresis. One hopes that the general practitioner will find the second of the above suggestions useful, and that surgeons will not have cause to regret using all three.

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A CASE OF BOTULISM: RECOVERY

In the *Journal* of November 26th, 1932, two cases of botulism were published, one of which was under my care. I have recently treated a man with similar, but milder, symptoms. The case is recorded below.

H. P., aged 60, a strong, healthy man with very temperate habits, went beagling on October 16th, 1934, which was a very cold day. I mention this as when I saw him on October 18th I thought a chill might have caused the sickness and diarrhoea. On October 17th he ate some jugged hare at supper. Next morning, about 10 o'clock, he began to vomit, and during the day his bowels acted three or four times. I saw him in bed at 6 p.m., on account of frequent vomiting. His pulse and temperature were normal. On October 19th he had double vision, dryness of mouth, and great dizziness and weakness. He could not stand. There was no headache. The systolic blood pressure was 125, and the diastolic 65. The symptoms suggested botulism, and on inquiry suspicion fell on the jugged hare. The hare was bought on October 11th, and the next day was skinned and cooked. On the 14th it was jugged with the lid on, boiled, and left until the 17th, when it was reheated and eaten by three persons, including my patient, who had the largest helping. No one else suffered any discomfort.

On October 21st the patient's bowels acted with aperients after three days' constipation. The bladder was sluggish in action and the urine deficient in quantity. There was no albuminuria, but there was still dislike of light and vision was improving, but there was still double vision. The pupils were contracted and did not react to light. The knee-jerks were active. On October 25th the diplopia had gone. On October 27th the throat and tongue were normal, the pupils sluggish, and the appetite improving. He was still very giddy.

On October 30th he could walk a few yards with difficulty, and was still giddy. After this he made continuous progress, and on November 19th went to Bournemouth. The treatment was complete rest for a fortnight, strychnine, and mild stimulants. On October 31st I sent a specimen of his blood to the Ministry of Health, where Dr. Scott tested it with eight strains of *Salmonella*, with a negative result.

Dr. W. A. Lethem, medical officer to the Ministry of Health, has taken great interest in the case, and suggests, if it is a case of botulism, its mildness may be due to the cause being *B. botulinus*, Type B, which is found in English soil. He suggested publication of the case, in order that attention be drawn to the possibility of similar mild cases occurring and passing unrecognized.

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Reviews

A PAEDIATRIC BAEDEKER

With a charming adaptation of the title-page of Izaak Walton's classic Dr. W. C. DAVISON begins his unique new book, *The Compleat Pediatrician*,¹ in a way that might be calculated to disarm criticism. The subtitle, "Practical, Diagnostic, Therapeutic, and Preventive Pediatrics," strikes an ambitious note, while a preface and introduction explain the purpose and mode of using this book. It is essentially a record of practical facts, arranged and tabulated in seven main chapters. The basis of the book consists of the following arguments: there are 307 distinct diseases or conditions in paediatrics, of which 158 are common and 149 rare, separated into ten groups; there are seventy-nine most important symptoms and signs with 214 variations; there are thirty-seven preventable diseases (causing 56 per cent. of deaths in childhood) and sixty-three (causing 21 per cent. of deaths) which should respond to adequate therapy; in the remainder the patients usually recover, or succumb regardless of therapy. The result of systematizing these facts is not unlike a telephone directory or a Baedeker's guide, especially as paragraph numbers rather than page numbers are used to facilitate reference, and certain diseases are marked with asterisks, etc., to designate those which are "very common," "common," "rare," and "very rare." Therapeutic procedures (including dietetic measures) are dealt with in much the same way, and there is a chapter on laboratory methods. Three appendices contain details of history-taking, physical examination, and, lastly, the contents of a "paediatrician's bag."

The amount of work which Dr. Davison has put into this production can only command admiration and respect, and it is impossible to judge of its value by existing standards. The information tested by random sampling appears to be sound (allowing for differences in American practice, such as that which makes malaria a common cause of unexplained fever); and once the principles are grasped it forms an amazing work of reference. As a guide to the difficulties of paediatric practice Dr. Davison's book can be made to serve a useful purpose.

SCIENCE AND PRACTICE OF SURGERY

In the case of ROMANIS and MITCHNER'S *Science and Practice of Surgery*² edition follows edition as regularly and almost as rapidly as one year follows another. To attain the seniority of a fifth edition in 1934, when the first only appeared in 1927, must assuredly indicate the high-water mark of popularity for a large book of this kind. It must be so well known now to students and practitioners that no useful purpose would be served by more than a brief notice of the principal changes incorporated in the latest edition. The paragraphs on the treatment of peritonitis, fractures, burns, and varicose veins have been rewritten. Mr. C. L. Gimblett has rewritten the chapter on diseases of the eye, and added an article on retinoscopy and the prescription of glasses. Mr. F. A. Neilson has revised the chapter on diseases of the ear, nose, and throat; and Dr. A. F. Potter has re-

edited that on anaesthetics. Throughout both volumes all descriptions of operations and operative procedures have been put into small type; this has been done to save space and also to keep the technical details separate from the general clinical and pathological text. By this means, although additional subject-matter has been included, the total extent of the two volumes has been reduced by about twelve pages. We have no doubt that this edition will prove every bit as acceptable as the previous ones have been, and that before very long urgent calls for another will be heard.

PSYCHO-ANALYSIS

*Outline of Clinical Psychoanalysis*³ is a translation from the German of a monograph by Dr. OTTO FENICHEL, who has been for some time editor of the *Internationale Zeitschrift für Psychoanalyse*, the official journal of the psycho-analytic movement. It is the aim of the author to provide in his book a systematized presentation of clinical data which psycho-analysis has collected in the course of forty years. In successive chapters the psychopathology of the hysterics, the compulsion neuroses, the sexual perversions, the neuroses related to perversions, the schizophrenias, the manic-depressive group, and the character disorders is discussed from the standpoint of psycho-analytic theory. In addition, both the possibilities and the limitations of psychotherapy in the various morbid reaction types are fully set forth. As might be expected, a knowledge of the mechanisms of mental disease does not necessarily enable the psychotherapist to bring about a healthy state of mind. Dr. Fenichel finds especially that manic-depressions, schizophrenic states, and character disorders are particularly resistant to psycho-analytical treatment. It is his view that the biogenetic psychoses require modification of the psycho-analytical technique, and that these cases are most suitably dealt with in mental hospitals. This book would seem to be the most comprehensive monograph on clinical psychiatry that has hitherto been written from the standpoint of psycho-analytical theory and practice. It will be read with advantage by those who are engaged in the study of the obscure problems of mental disease.

In a book entitled *Facts and Theories of Psychoanalysis*⁴ Dr. IVES HENDRICK aims to give, as completely as brevity allows, an epitome of psycho-analysis, a survey of the whole science as it is understood by the specialist practising it to-day. The book is oriented especially by the desire to make a clear distinction between the facts which are observed by all who practise psycho-analysis, and the theories. The subject-matter is divided into four parts, dealing respectively with the facts, theories, therapy, and the present status of psycho-analysis. A useful table is included which shows the results of psycho-analytical treatment at the Berlin Psycho-analytic Clinic. This table is an abbreviation of the reports compiled by Dr. Otto Fenichel. The author rightly observes that a logic-tight demonstration of the therapeutic results of analysis is utterly impossible, and he points out that even in medical therapies the smaller number of variables and the questionable reliability of some data present an onerous and often impossible task to the scientific statistician. As might be anticipated, the favourable results of treatment of the psychoses are almost negligible. In respect of the manic-depressive group it would seem that only those cases which are preceded by definite psychological trauma are

¹ *The Compleat Pediatrician. Practical, Diagnostic, Therapeutic, and Preventive Pediatrics.* By Wilbert C. Davison, M.A., D.Sc., M.D. (U.S.A.). Duke University Press, London. Cambridge University Press, 1934. (18s. net.)

² *The Science and Practice of Surgery. Vol. I, General Surgery; Vol. II, Regional Surgery.* By W. H. C. Romanis, M.Ch., F.R.C.S., and Philip H. Mitchner, M.D., M.S., F.R.C.S. Fifth edition. London: J. and A. Churchill, Ltd. 1934. (Pp. 1751. 778 figures. 2s. the two volumes.)

³ *Outline of Clinical Psychoanalysis.* By Otto Fenichel, M.D. Translated by Bertram D. Lewin, M.D., and Gregory Zilboorg, M.D. London: Kegan Paul and Co., Ltd. 1934. (Pp. 492. 1s. net.)

⁴ *Facts and Theories of Psychoanalysis.* By Ives Hendrick, M.D. London: Kegan Paul and Co., Ltd. 1934. (Pp. 238. 10s. 6d. net.)

REVIEWS

likely to be helped by psycho-analysis, and those in which the biochemical constitution of the individual is the dominant causal factor psycho-analysis is of no therapeutic value.

DISEASES OF THE HEART

The method usually adopted in textbooks is the classification of diseases and the description of each one in terms of aetiology, pathology, symptomatology, and so forth. In his small manual on *Diseases of the Heart* Dr. WILLIAM D. REID has made a fresh approach. The problem of cardiologists is presented initially as the determination of the presence or absence of organic disease. Given the existence of a cardiopathy, what is its nature and degree, remedy and outlook? There follows a consideration of the history and an assessment of the important factors of age, symptoms, and predisposing diseases. In this vein the author has pursued the routine and orthodox technique of physical and special examinations, and has explained the principles of prognosis and treatment. We need scarcely say that one hundred pages suffice to give only a bare outline of facts, methods, and accumulated experience, but a manual of this kind must be short if it is to achieve its object and preserve perspective. Cardiologists reading this book will appreciate the sensible exposition and the stress laid upon fundamental facts. It may be said that the only unorthodox features of the work are the somewhat colloquial style, and the marginal lines indicating salient paragraphs and sentences.

This is a book which could greatly profit those general clinicians who find difficulty in the diagnosis and treatment of cardiovascular disease. Among other things, it would help to prevent the commonest error of cardiologists—namely, the discovery of organic disease which does not exist. It would also make clear to many the relative unimportance of percussion of the heart, the fallacies attaching to the discovery of "weak heart sounds," the significance of murmurs, and a hundred and one other points of which clinicians seem still too often unaware. This is a little book, but one that is careful and valuable within its own sphere.

FABRICIUS AB AQUAPENDENTE

Fabricius *stat nominis umbra* for most medical men; for the mere anatomist he is an Italian teacher who shares with Canano the honour of calling attention to the valves in the veins of men and animals; for physiologists he was the first of those who begat Harvey and Lower and Hales and the experimental school which still flourishes amongst us. Dr. K. J. FRANKLIN, the university demonstrator of pharmacology at Oxford, has reproduced in facsimile with an English translation the *De Venarum Ostiis*, a little pamphlet of twenty-three folio pages published by Fabricius late in his life, which set Harvey thinking and experimenting until some eighteen years later he lectured and taught that the blood moves in a circle. Dr. Franklin, as an introduction, has written a very charming little biography of Fabricius, bringing him back from the shades and showing him as a man with like passions as ourselves. A teacher of renown, for it is said that he had ten thousand

pupils; no lecturer but a good demonstrator of practical anatomy; more a man of research than of theory; so highly respected that his fellow citizens at Venice and Padua gradually increased his salary as professor of anatomy from a beggarly 100 florins, perhaps £5, a year until it reached 1,100 florins, and he retired on an allowance of a thousand scudi. But anatomy was only a part of the life work of Fabricius. He was well known and equally respected as a surgeon; Galileo was more than once among his patients. All this and much more that is interesting about Fabricius has been collected by Dr. Franklin, who adds plans of the Anatomical Theatre at Padua made by Professor Castiglioni at the suggestion of Dr. Charles Singer. As a good historian, too, Dr. Franklin has been at pains to work out the somewhat difficult bibliography of the various publications issued by Fabricius, and he adds reduced copies of the illustrative plates, being careful to give the exact measurements of the originals. Altogether a most satisfactory piece of work, creditable alike to the author, to the Carnegie Corporation, who appropriated a sum of money to the History of Science to defray the cost of production, and to the publisher, Charles C. Thomas, who adds, as a colophon, an account of the printing and binding. The book is appropriately dedicated to Dr. J. F. Fulton, a fellow Oxonian, now Sterling professor of physiology at the Yale University School of Medicine.

ORTHOPAEDIC SURGERY

The Vienna school of orthopaedic surgery, with which the name of Adolf Lorenz was for so long and so honourably associated, is now well represented by Professor JULIUS HASS, whose book on *Conservative and Operative Orthopaedics* is now before us. It is not possible in the limits allowable to a review to discuss critically all the subjects treated of in the 360 pages of this textbook. Briefly, we would say, that Professor Hass's work may be taken as a representative treatise, fulfilling the professions with which the author set out. In particular it may be noted that operations on tendons are much favoured and consequently fully described, while the treatment of paralytic affections by such means is fully discussed and illustrated. In this connexion the 333 figures reproduced from original drawings should not be allowed to pass without notice and commendation.

The first forty-eight pages are concerned with orthopaedic technique, and are followed by sections on the general consideration of orthopaedic treatment of a conservative nature. Other sections of the work deal seriatim with various regions of the body and their maladies. Tuberculosis, which looms so large in some modern works on orthopaedics, does not occupy a great deal of Professor Hass's pages. Congenital deformities and paralytic affections are allotted much more space. As might be expected of the school of Lorenz, the treatment of congenital dislocation of the hip receives a due, but not too full, amount of attention.

We anticipated that, with the increase of athletic sports on the Continent, the subject of internal derangement of the knee-joint and other sprains would receive full attention, but a search of the index as well as the pages of the book has not revealed any reference to the semilunar cartilages. Possibly this is intentional, and as recent fractures are also unmentioned it may be that they are not covered by the term "Orthopaedic" as used by Dr. Hass. An appendix deals with artificial limbs in a rather perfunctory manner.

Diseases of the Heart. The Methods of Their Diagnosis, Progression, and Treatment. By WILLIAM D. REID, M.D., F.A.C.P., Boston, Mass. W. D. Reid, 510, Commonwealth Avenue. (Pp. 105. 6s. 6d.)

De Venarum Ostiis. 1639. *Facsimile edition with introduction and translation* by K. J. FRANKLIN, D.M. Springfield and Baltimore, Charles C. Thomas, London: Pauline, Tinsall and Co., 1934. (Pp. 104. 7 figures, 8 plates. 15s. 6d.)

Conservative and Operative Orthopaedics. By JULIUS HASS, M.D. J. F. Fulton, 1934. (Pp. 363. 33s. 6d.)

Notes on Books

The July issue of *Arquivos de Medicina Legal e Identificação*,⁴ the official organ of the Institute of Identification at Rio de Janeiro, founded in 1931, contains, among others, original papers and clinical lectures on the following subjects: the state of criminality at the present day; the evolution of criminology in Cuba; hymenolatry; prison psychoses; the mental character in epilepsy; dactyloscopic identification of corpses; epileptiform convulsions and mythomania; and the psychopathology of passion and its medico-legal aspects.

Under the stimulating title of *Real Adventure*⁵ is gathered together eleven travel tales from various parts of the world. Contributors include Sir Ernest Shackleton, Sir Francis Younghusband, A. J. Evans ("We Escape"), Mary Kingsley and F. S. Smythe. An attempt has been made to select accounts of personal adventure which will be recognized as the real thing by anyone who has encountered similar perils. It may well succeed.

The eighty-seventh annual issue of *Who's Who* includes over forty thousand brief biographies, and is arranged on the plan that must by now be familiar to all our readers. More than a thousand entries have been deleted on account of death since the publication of the 1934 edition, and approximately fifteen hundred new names appear. Every entry in the book has been submitted to its subject for revision during the past few months, and details for nearly all the new biographies have been supplied direct. As a work of reference *Who's Who* is indispensable in modern life. The 1935 edition contains nearly 3,700 pages, but the price remains at 60s. in buckram, or 63s. in leather-backed binding. It is published by A. and C. Black, Ltd., Soho Square, W.1, and is obtainable at all booksellers.

⁴ *Arquivos de Medicina Legal e Identificação*. Edited by Leonidio Ribeiro. Rio de Janeiro: Imprensa Nacional. 1934. (Pp. xvi + 415; illustrated.)

⁵ *Real Adventure*. Selected by E. W. Parker, M.C. Edited by W. F. Hutchins, M.A. London, New York, and Toronto: Longmans, Green and Co. 1934. (Pp. 175; illustrated. 2s. 6d. net.)

Preparations and Appliances

AN IMPROVED HEADLAMP

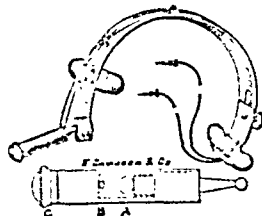
Mr. B. H. Pincock, F.R.C.S. (Winchester), writes:

Notwithstanding the convenience of modern self-illuminating instruments, an efficient headlamp still holds an important place in the surgeon's armamentarium.

In the vast majority of cases the part requiring intensive illumination is small in area, whether it be a vessel in the tonsillar fossa or part of a cavity from which the prostate has been removed. Any extraneous illumination not only

detracts from the concentration of light on the required spot, but is likely to be reflected by specula or other instruments, to the discomfort of the surgeon.

The ideal headlamp should be light and comfortable, and must not slip on the head held in any position. It must throw a powerful beam of even illumination over a field of approximately half an inch, at a distance



of one foot from the projector lens. The projector should be mounted on a ball joint in the same horizontal plane as the surgeon's eyes, the beam thus almost coinciding with his line of sight. The projector must be kept within reasonable dimensions.

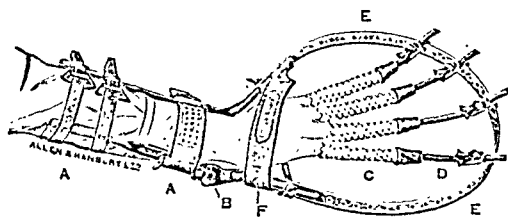
Having failed to find a headlamp on the market fulfilling these conditions, Messrs. F. Davidson and Co., 143, Great Portland Street, have made one for me complying with the above requirements, and I have found it ideal in examinations of and operations on the ear, nose, and throat, as well as in all cases where a powerful local illumination is necessary.

APPLIANCE FOR RHEUMATOID ARTHRITIS

Dr. FRANK HOWITT (London) writes:

The apparatus depicted below is a modification of one designed by Dr. Gunnar Kahlmeter of Stockholm, and fully described by him in *Acta Rheumatologica* (No. 18, September, 1933). Its purpose is to correct the deformities characteristic of atrophic arthritis of either primary (rheumatoid) or secondary (infective) forms, which occur in the wrist and hands. These deformities consist of a flexion-fixation of the wrist, and of the metacarpo-phalangeal joints with ulnar deviation of the fingers.

It is important that correction should be gradual, but this is difficult to obtain in these cases by ordinary splinting,



because the individual joints may be involved in varying degree, and must therefore be treated separately. On the other hand, forcible manipulation of contractures in atrophic arthritis is contraindicated on the following grounds:

1. Because not only are the intra- and peri-articular adhesions in these cases extremely firm, but the bones are decalcified, and there is a consequent risk of fracture.
2. Considerable reaction follows manipulation of joints the subject of atrophic arthritis, resulting in pain and increased stiffness.
3. Improvement in alignment obtained by force is always gained at the expense of loss of strength. A misshapen but strong hand is more useful than a straight but weakened one.

This apparatus is held by the forearm, both below the elbow and above the wrist, by wide leather straps (A). Gradual extension of the wrist is obtained by means of the ratchet screw (B). The fingers are held in extension by plated finger-stalls (C), which can be easily applied, and are stretched by means of rubber tubes (D). The latter are fitted with hooks which can be inserted into a series of slots in the aluminium frame (E). In this way the fingers can gradually be pulled towards the radial side, thus correcting the ulnar deviation. Pressure is meanwhile maintained on the metacarpo-phalangeal joints by means of a padded strap (F), in order to correct the flexion-fixation of these joints.

The apparatus is light, and can be held in any position. It should be applied daily, at first for short intervals, according to the tolerance of the patient. Later the length of application can be increased, and the apparatus adjusted to meet the response of the individual joints. It is made by Messrs. Allen and Hanburys Ltd., 48, Wigmore Street, W.1.

NASAL DROPS

Anaquinine nasal drops contain ephedrine, volatile oils, and benzoates dissolved in oil. The drops have a decongestive and antiseptic action. A profuse watery secretion also is produced for a short time, and this washes the nasal mucous membrane. The drops are recommended for coryza, etc. They are marketed in this country by the Anglo-French Drug Company, 11, Guilford Street, W.C.1.

DALTOSE

Daltose (Cow and Gate Ltd., Guildford) is a mixture of carbohydrates which has been worked out on scientific principles to provide a satisfactory carbohydrate reinforcement of milk in infant feeding. The mixture contains maltose, dextrose, and dextrins, with calcium lactate and vitamin D in addition. The rationale of the mixture is to provide carbohydrates which will be absorbed at a uniform and suitable rate by the infant, thus minimizing the danger of microbial fermentation of sugar. The mixture is designed according to sound physiological principles, and represents the intelligent application of modern knowledge of infant dietetics.

DEC. 29, 1934]

FAMILY ALLOWANCES

FAMILY ALLOWANCES

MEMORANDUM BY THE CHILDREN'S MINIMUM COMMITTEE

The following comments on the proposed regulations of the Unemployment Assistance Board have been received for publication from the Children's Minimum Committee (116, Thames House, Milbank, S.W.1):

The scale on which the Unemployment Assistance Board proposes to base its grants in respect of dependent children will be welcomed as a considerable advance on the practice of most public assistance committees. The Children's Minimum Committee for adults the total income under the proposed scales for families with two or more children will be appreciably larger than the notoriously inadequate amounts previously allowed to such families under transitional or statutory regulations which appreciate also the elasticity of the high rents will permit additional allowances to cover the high rents with two or more children the proposed scale will not even now permit an expenditure sufficient to satisfy the standards laid down for food by the British Medical Association Committee on Nutrition, and for clothing and other necessities. The following table (A) compares the children's allowances at different ages with the estimated cost of food on the B.M.A. standard plus the bare minimum of 1s. 2d. per child for clothing, cleaning, and light allowed in the Merseyside survey.

Age of Child	U.A.B. Scale	B.M.A. Food, plus 12d. for Clothing, Cleaning, and Light.	Deficit
2	3/-	4/3d.	1/3d.
4	3/-	4/7d.	1/7d.
6	3/6d.	5/1d.	1/5d.
8	4/-	5/12d.	1/12d.
10	4/-	6/6d.	2/6d.
11	4/6d.		

Table B compares the scale for families of various composition with estimated minimum needs, taking the B.M.A. scale for food and the Merseyside estimates for clothing, cleaning, light, and fuel.

Scale	Man and Wife	1 Child, 2 Years	2 Children, 4-9 Years	3 Children, 10-14 Years	5 Children, 14-17 Years
B.M.A. and Merseyside Unemployment Ass. Board	21/3d.	27/3d.	31/3d.	43/3d.	51/3d.
Both the above scales assuming the following "basic rents" allowed by the Board are the actual rents:	7/3d.	7/3d.	7/3d.	7/3d.	7/3d.
Unemployment Benefit	15/-	22/-	25/-	32/-	37/-

The physiological estimate of "needs" allows nothing for any expenditure above the bare necessities of living, nothing for fares, clubs, trade union subscriptions, or personal and household sundries. Even so, it will be seen that the margin between the minimum needs scale and unemployment assistance widens in the table from 3s. 5d. where there are two children to 10s. 10d. where there are five. If higher ages had been taken for children the deficit would have been still greater. It has been suggested that the Board, in failing to lay down a scale which would be adequate for the larger families,

may have been influenced by two considerations: (1) that the scale should not exceed the normal rate of wages; and (2) that the cost of more generous allowances would be too heavy a burden on the Exchequer. As to point (1) the committee recognizes the difficulty of giving assistance on a needs basis which would in the case of large families exceed the rate of wages in agricultural and other low-paid occupations; but it submits that, if the intention of the Board is that assistance to the individual applicant should not exceed his normal rate of wages, that point is already definitely stipulated in the regulations. If, however, it is meant that the individual should never receive more than employed workers in some of the worst-paid occupations, since they already exceed wage rates in some of the worst-paid occupations, the other hand, they fall far below the earnings of the mass of industrial workers. Special investigations by the Ministry of Labour, covering 2,759,548 adult males—less than 2 per cent. of the total number of workers covered. To fix the average earnings of adult males in a very large number of industries in 1931, showed that the industries in which employed only 45,794 adult males were less than 45s. of the total number of workers covered. To fix the scales at their present level is therefore neither logical nor compatible with the assurances given by the Government before the Act was passed, that the whole needs (excluding medical needs) of applicants and their dependants should be met. As to point (2), the additional cost of a more generous assessment in the case of the larger families is easily exaggerated. Although a considerable proportion of families have at some time or other more than three dependent children the number of such families at any one time is relatively small. In the 1921 Census only 6.7 per cent. of adult males had more than three children under 14 years, and it is probable that with the fall in the birth rate the percentage to-day is even smaller.

THE COMMITTEE'S RECOMMENDATION.

The committee would therefore urge that the upward revision of the scales should be considered at the earliest possible date. It notes that where there is only one child the children's allowance is to be 4s., and that where a household consists of more than five members (for example, man, wife, and four children) the allowance for each member in excess of five is to be reduced by 1s. It is generally admitted that with an increase in the size of the household there is a saving in the overhead costs per head, and if the allowances were in themselves adequate this latter provision might be regarded as reasonable; but it is indefensible when the basic rates per child already fall below the minimum of subsistence. It must be remembered, moreover, that under unemployment assistance it will no longer be possible, as it used to be, for any additional relief.

No instructions are contained in the regulations with regard to the assessment of meals or milk. The committee very strongly urges that until the scales themselves are adequate they should be supplemented by free meals and milk, which should not be taken into account in assessing the family resources; that where free meals and milk are not yet available at schools and maternity and child welfare centres the appropriate Government departments should immediately bring them for families living below a minimum subsistence scale. It further urges that until such provision is made its lack should be accounted a "special circumstance" under Regulation 11 (2), which would entitle the family to obtain an additional money allowance in lieu of the school meals to which the children would otherwise be entitled. Another point which seems to require elucidation is the position of sick members of the household. While the regulations provide for persons under health insurance, they do not appear to deal with dependants who may receive help from the Poor Law in respect of medical needs. The committee hopes it will be made clear that in such cases any excess in the amount given over that which the dependant would have been entitled under the Board will not be reckoned in calculating family resources.

British Medical Journal

SATURDAY, DECEMBER 29th, 1934

OVERCROWDING IN SCHOOLS

An uncompromising attack has recently been made by Dr. E. Kaye Le Fleming¹ on hygienic conditions in English boarding schools in general, and public schools and their preparatory schools in particular. He deliberately commits himself to the challenge that "all schools, with very, very few exceptions, are overcrowded to the detriment of the health of the pupils," and is confident that this statement could be substantiated with ease before an unprejudiced medical tribunal. While crowding may perhaps be inevitable in classrooms, dining halls, and common-rooms, it is not inevitable in dormitories, and it is in arrangements for sleeping that he considers that most of the mischief is done. The Board of Education, he points out, makes recommendations as to floor space, air space, and the distance between beds in dormitories. How often, he asks, is the three-foot space between beds a real three feet, that will allow a rod of that length to pass without contact? How often is the air space "vital" and not a dead air space without circulation? How often are air-space requirements met by excess of height over floor area? Few schools, he suggests, which profess to conform to recognized standards remember that these standards are minima, and that the moment sickness arises in school a much more liberal standard is required. If epidemics are to be controlled, arrangements for expansion of sleeping accommodation are absolutely necessary. Further, the more efficient the arrangements for early isolation of the sick, the less not only the danger of spread of infection, but also the risk of such serious complications as pneumonia and secondary infection of the ears.

The causes of overcrowding at school are, says Dr. Le Fleming, largely economic. Schools are not charitable institutions, and the more pupils that can be accommodated in a given building the greater the profit. He finds it difficult to avoid the conclusion that financial considerations override all others in the minds of a school authority. Either, he says, they are ignorant of the dangers of overcrowding or they refuse to face an awkward problem. In matters of health the head master, though free to take any advice he thinks fit, is the sole and final arbiter. As a human being he shares the common failing of mankind of thinking that he knows a good deal about medical questions. Sometimes he is responsible to a board of governors on which medical opinion is not represented, and sometimes the

kind of medical advice at the disposal of the board is not the best on such a technical question as accommodation. The school doctor is often criticized for not recognizing that his duty is to take care that the boys remain in good health; but before he can practise preventive medicine he must have some control of the conditions which govern the conduct of his patients while in good health. It is difficult, observes Dr. Le Fleming, to imagine a more suitable field for preventive medicine than a school community, where the conditions of living can be modified to a great extent by a stroke of the head master's pen. But the dead weight of tradition, he declares, too often induces in the medical officer an acquiescence in a state of affairs of which he disapproves but which he cannot control. He has learned by bitter experience that it is easier to obtain the expenditure of ten shillings on a boy for almost any other object than that of health.

By way of remedy, Dr. Le Fleming suggests that the method of fixing school fees should be revised. These are at present arranged to provide education of the mind on the assumption that all boys are healthy and will remain so. Medical charges are "extra," and if there is one thing more than another that irritates parents it is the additional payments associated with school fees. In a well-organized school with experience of a period of years it should be possible, he thinks, to estimate the charges entailed by all necessary medical services. In a large school the expenses of sanatorium, nurses, consultations, and everything else could be covered by a fixed sum included in the regular school fee. This sum would be ear-marked for a special fund, which would constitute an insurance of the whole school against sickness. Part of the money could with advantage be spent on preventing overcrowding in dormitories and providing fresh air in the scientific sense. He points out that eight hours or so of the twenty-four can be made relatively free from the risk of infection instead of a period of incubation. Slowly but surely, he foresees, the advantages of open-air dormitories will become recognized, and those schools which have adopted the system will provide an object-lesson alike to education authorities and parents. There are, meanwhile, many schools which can at small cost give facilities for a limited number of boys to sleep in the open air under shelter.

Dr. Le Fleming's indictment, backed by his great experience, cannot be disregarded by any school medical officer or head master. Not all head masters, happily, are obstinate and indifferent, and a surprisingly large number would probably put their schools in order once they grasped the necessity for doing so and were properly advised on the steps which they should take. The school medical officer, like Agag of old, is constrained to walk delicately lest evil befall. Dr. Le Fleming's bold example may well encourage medical officers who hitherto have refrained from speaking their minds to make a stand for what they consider indispensable to the welfare of their charge.

¹ *Preparatory Schools Review*, November, 1934.

DIET DURING PREGNANCY AND LACTATION

The awakened interest in the dietetic problems peculiar to pregnancy and lactation is expressed in the rapidly increasing number of papers dealing with different aspects of the question. The foetus is a parasite, and during pregnancy the mother has to provide it with food and at the same time lay up a reserve of supplies for lactation. Too often the woman at the beginning of pregnancy is more fitted to go to a convalescent home than to undergo the readjustments necessary to enable her to entertain a hungry guest. Macy and Hunscher¹ conclude, as the result of an analysis of quantitative chemical and physiological data, that the daily diet during pregnancy should contain 70 to 100 grams of protein, 1.6 grams of calcium, 2 grams of phosphorus, 0.3 gram of manganese, and 20 mg. of iron. It may be stated in parenthesis that the average diet in this country contains from 5 to 10 mg. of iron. They also stress the need for including a sufficient amount of vitamins in the diet, and point out that lactation requires a greater amount of all food nutrients than does pregnancy. Macomber² places the daily protein requirement during pregnancy at the still higher figure of from 100 to 125 grams, and agrees that an increased amount is necessary during lactation. Working with white rats he found that on a diet containing 2.9 grams of protein, or 20 per cent. of the daily diet, fertility was optimum. Progressive reduction in the daily protein intake to a minimum of 0.83 gram reduced fertility but did not affect pregnancy. He further found that a low protein intake resulted in a diminished secretion of milk; so that a smaller number of young of a lower average weight were weaned. Moreover, the mothers suffered a greater loss of weight.

The relevance of these results and the justification for the estimate the author has made of the amount of protein required by a woman during pregnancy may be questioned when it is remembered that millions of women in Southern China and India subsist on an excessively low protein diet, are extremely fertile, and nourish their young until the next arrival claims the breasts. Turning to the question of calcium it was found by Mendenhall and Drake,³ as the result of clinical observations, that a somewhat high percentage of pregnant and lactating women suffer from symptoms due to calcium deficiency, and that most of the symptoms can be relieved by the proper administration of calcium and vitamin D. They also concluded that calcium may help to prevent the toxæmias of pregnancy, and that this therapy can be used with absolute safety. Nicholas, Johnson, and Johnstone⁴ found that while the maternal serum calcium decreases during the

latter months of pregnancy, reaching a low concentration at delivery and then increasing during the puerperium, the diffusible calcium increases both relatively and absolutely during the latter months of pregnancy, reaches a high level at delivery, and then decreases during the puerperium. Blood taken from the umbilical cord had a higher calcium content than that of the mother, although the diffusible fraction was lower. Abnormal pregnancies showed variations in the total and diffusible calcium contents of both maternal and foetal blood, and the authors are disposed to think that there is a connexion between a low serum calcium and the presence of toxic amines in the blood of eclamptic women, suggesting a disturbance of parathyroid function.

Lastly, reference may be made to the observations of Donaldson and Macy⁵ that the biological potency of breast milk may be enhanced by the addition of a concentrated source of vitamin B to the diet, while the mothers themselves experience less fatigue. All these papers stress the need for an adequate diet during pregnancy and lactation, but whereas a greater demand for protein, carbohydrate, and fat is made by the child on the breast than by the foetus *in utero*, the demand for iron almost ceases, and that for calcium is greatly lessened with delivery.

INFLUENZA

A recent issue of a German contemporary⁶ contains a series of four papers on the subject of influenza. Three of these—by Hegler, Baernsner, and Pette respectively—deal with the complications of the disease, its effect on pre-existent lung conditions, and its effects on the nervous system. Perhaps the most interesting is the remaining paper by Gundel, entitled "Influenza Problems." This is concerned in part in defining what influenza is, and more particularly what is an influenzal pneumonia. Anyone who has attempted any investigation of this disease, even during a mild epidemic, is aware of this difficulty in certain diagnosis, especially at an early stage. In cases of bronchopneumonia the history, certain clinical features, and the state of the trachea and the histology of the lung post mortem may all afford indications which are generally accepted as evidence of influenzal origin; Gundel maintains that the bacteriology is also characteristic. He is, in fact, largely concerned to maintain the claim of Pfeiffer's bacillus to be regarded as the cause of influenza, only granting the possibility that a virus infection may coexist. If this is a common view in Germany to-day it affords another example of Teutonic isolation, since, apart from the true merits of the question altogether, it is indisputable that the adherents of Pfeiffer's bacillus in this country and in the United States are few and far between; the virus hypothesis almost fills the whole picture. In the course of an argument which seeks to reconcile the distribution of Pfeiffer's bacillus with his hypothesis, Gundel suggests that the epidemic type

¹ Macy, I. G., and Hunscher, H. A.: *Amer. Journ. Obstet. and Gynecol.*, 1934, xxvii, 878.

² Macomber, D.: *Ibid.*, 1934, xxvii, 483.

³ Mendenhall, A. M., and Drake, J. C.: *Ibid.*, 1934, xxvii, 860.

⁴ Nicholas, H. O., Johnson, H. W., and Johnstone, R. A.: *Ibid.*, 1934, xxvii, 504.

⁵ Donaldson, E. G., and Macy, I. G.: *Journ. of Nutrition*, 1934, vii, 231.

⁶ *Deut. med. Woch.*, 1934, ix, 1575.

differs from those found in unaffected individuals. This might well be so, but several distinct types of this micro-organism are in fact recognized, and it should be the business of those who offer this suggestion to substantiate it by detailed studies of strains isolated from epidemic and other sources. With one of Gundel's conclusions no one will disagree: that every future opportunity should be taken for thorough bacteriological study of the disease. No one knows from one winter to another what it will bring forth, and another great pandemic may well occur within the next twenty years. Against this we are unprepared with any means of prevention or specific treatment in which there is general confidence. When an epidemic begins it is too late to organize a system of research and a team to execute it; if an organization and a plan were brought into being at leisure beforehand much might be hoped from its concerted efforts when the time came. If any such attempt as this is made to ascertain finally the microbic cause of influenza, it should approach the problem from every angle. Investigators in the past have either sought to demonstrate a virus or studied bacterial flora: these two methods of investigation have rarely, if ever, by satisfactory methods and in adequate detail, been applied together to the same cases. That this should be done is an obvious necessity so long as both these beliefs exist, and it may require some sacrifice of prejudice; carried out on an adequate scale, it would certainly demand the services of a considerable number of investigators. Provided that the duties of each were defined and suitable transport facilities were available, it would not be necessary that all should work in the same institution. Co-ordination of effort in this direction might present difficulties, but it is worth a trial when the isolated efforts of individuals in dealing with a problem of this magnitude have in so many years furnished such meagre results.

WATER POLLUTION

The report of the Water Pollution Research Board for the year ending June 30th, which has just been issued,¹ states that the long spell of dry weather not only caused difficulties in the provision of ample quantities of water, but had a serious detrimental effect on the quality in the rivers and streams into which sewage and trade effluents are discharged. At the present time many undertakings use polluted river water, after treatment, for domestic and industrial supplies, and there is no doubt that other polluted rivers will have to be drawn upon in the future to meet growing demands. It is important, therefore, that further efforts should be made to prevent the fouling of rivers and streams and other water supplies if expensive methods of treatment and danger to public health are alike to be avoided. This calls for intensive systematic research, because entirely satisfactory methods of treatment and disposal of many trade effluents at a reasonable cost are not known. Further, as industry develops new processes of manufacture are devised and new methods of dealing with the waste waters will be required. Experiments have been made to ascertain the effects of various factors on the treatment of water by the

base-exchange process of softening. In this process the calcium and magnesium salts, which cause the hardness, are removed and replaced by sodium salts by passing the water through granules of material consisting of complex sodium aluminium silicates. The softening materials are either treated minerals or clays, which are imported. During the past two years experiments have been carried out on British clays with the object of preparing base-exchange material. Many samples have been employed, and clays have been produced with water-softening capacities greater than those of some imported materials at present in use. Research has been continued on methods of treatment of the waste waters discharged from dairies and milk products factories. In the year under review many cases of serious difficulty and pollution of streams by such effluents have arisen. The experiments indicate that there are methods whereby the effluent can be satisfactorily purified before disposal, and a stage has been reached at which the processes suggested should be tested on a large scale. The industry has been offered the opportunity of co-operating both technically and financially in these further investigations. Considerable progress has been made on the biology and chemistry of methods of purification of sewage, but further research of the kind initiated by the Board is necessary for improving methods of purification of water.

THE CAUSE OF MONGOLISM

The occurrence of mongolism in one twin or in both has provided the starting-point for another attempt to explain the aetiology of this curious condition. A. J. Rosanoff and L. M. Handy¹ of Los Angeles report several new instances, and analyse the total sixty-four cases found by them in the literature. Of the twelve examples in which both twins were affected either they were definitely monozygotic or (in four) the type was unascertained. Out of the remaining fifty-two cases in which one twin was a mongol and the other normal eleven were also in the unascertained group, together with five where the sex of the twins was not stated. This leaves thirty-six definitely dizygotic twins—twenty-three of opposite sex—in which only one was a mongol. The authors assert that the family histories in cases of mongolism definitely exclude hereditary—that is, pre-germinal—factors in its aetiology, and their analysis of the twin material seems to narrow down the aetiological factors to those at work some time prior to that moment in the early part of the embryonic period of development at which, in the case of monozygotic twins, the division into two takes place. The theory of "uterine exhaustion" can scarcely be maintained when one of the twins alone is affected, but since all studies of mongolism agree in finding some correlation between an advanced maternal age and the chances of an affected offspring, the authors deal with this in some detail; they conclude that the size of family and order of birth, equally with "uterine exhaustion," play no real part in the causation of mongolism, but stand out only because of their relation with one real factor—the age of the mother. What cause, then, could be present which would increase the hazard as the mother grows

¹ H.M. Stationery Office (ed.)

¹ *Amer. Journ. Dis. Child.*, 1934, *Alvin*, 764.

older? The answer to this, they suggest, is to be found in postulated changes in the ovary. The authors speculate on what they term circumstantial evidence, that in the ovary of a woman who has given birth to a mongol there will be areas of tissue change, perhaps scars, marking the sites of possible damage to the ovum. The changes they suggest will not be gross, but small discrete foci, probably of scar tissue, which, occurring to a certain extent in all women, will by hazard cause damage to an ovum in some instances—a chance effect which is more likely to arise the more often ovulation has taken place. While by this theory all the blame is attributed to the mother, the authors add a suggestion which prevents the father from being completely exonerated. Why, they ask, is the sex distribution so uneven, and an excess of nearly 50 per cent. of boys agreed upon by all authors who have written on the subject? This excess was also apparent in their collected material among the opposite sex twins, and they suggest that in some cases fertilization of an ovum by a spermatozoon bearing the female-producing chromosome may prevent the development of a mongol which would have resulted had the spermatozoon contained the male-producing chromosome. They quote, also, in support of this that mongolism when it does appear in girls is relatively milder than in boys. Beginning with facts the present authors, like many before them dealing with this subject, end with speculation. The new theory, while it is of interest, does not stand much chance of acceptance till more direct evidence is available. It would be a relatively simple matter to ask gynaecologists and pathologists to secure the ovaries from a mongol's mother and to have this material submitted to a detailed histological examination.

HOSPITAL ADVERTISING

If ages past were fairly described as the Stone Age, the Bronze Age, and so on, this age may be described as the age of advertisement. There is no escaping attacks upon our senses, particularly through the eye and the ear, by our would-be benefactors. Even in the depth of the country some cynic will assure us that the blaze of colour on the heath and in our garden, or the perfume of the rose, is but another and more successful and most ancient display of advertisement. Last week, when leaving London, with its posters, for the country, with its more subtle attractions, we were assailed in a traffic block by a host of modern footpads; from car to car they leapt, taking toll of the passengers. They were a lot of handsome young men (particularly one whose eye we knew!) decked in a variety of incongruous garments, with a make-up and "adjustments" of features that did not come from Clarkson's. They made a splash of colour in the drab morning, and certainly drew attention to the claims of — Hospital. Should such things be done? Should earnest students of medicine leave their books, their dissections, and their wards for a gay carnival of collecting-boxes? Some have taunted the voluntary hospitals with these "unworthy" practices. Others have justified them, and maintained that the voluntary hospitals win a place in our hearts by being known. Those who are troubled on this matter would do well to read a book that has been published by Captain J. E. Stone, the secretary

of the Birmingham Hospital Centre. He has already made a mark with his excellent writings on hospital accounts and financial control. Now he puts us further in his debt by this well-considered book, *Appeals for Funds and Hospital Publicity*.¹ There is no aspect of the problem which he has not well considered, and his findings are of real value. He deals with the importance of publicity, the psychology of this appeal to human nature, the various channels open for such appeals; the necessity for the business management of such appeals; and he goes into details of the preparation and make-up of literature and the drafting of letters. He discusses the varying values of newspaper and poster advertisement, and the more subtle forms of publicity given by hospital reports and subscription lists. Nor does he forget the advertising value of hospital days, and of ceremonies such as royal opening of new wings, dedication services, and addresses of welcome. Here is a book to be read by everyone who has any responsibility for the collection of hospital funds. There are hints on how to do it and how not to do it, and there is some lesson of value on every page.

PROBLEMS OF BECONTREE

Twelve years ago the population of the London County Council estate at Becontree was just over 2,000; at the last census (1931) it was over 91,000; to-day, when the building may be regarded as completed, it is estimated as approximately 118,000. The whole estate was planned and built by the County Council, who now manage it as the landlord. The Council conceived it as an entity, and wished, and perhaps expected, that it would remain one—a town in itself. It is, however, situated in the county of Essex, and neither the council of that county nor those of any of the county districts concerned were in any sense partners in the enterprise. It was thrust upon them, and has indeed caused them many embarrassments. The estate cuts across the boundaries of three such authorities—Ilford, Barking, and Dagenham. When the development began Dagenham was merely a small village in the Romford rural district, with a local parish council. The London County Council therefore was not responsible for providing for the health, education, or other local government necessities or amenities for the rapidly growing population, which had to be met by the four local authorities. Each of these, being concerned with only a portion of the estate, has those powers only which are limited by its status. For example, Ilford and Barking are local education authorities, autonomous as far as elementary education is concerned; Dagenham is not. For that part of the estate within the boundaries of this last, the Essex County Council is the authority, as it is for higher education over the whole area. Similarly, there are divisions and limitations with regard to libraries, and with regard to several public health services. Even as to nomenclature there is a common misunderstanding that the estate is not one, but two—Becontree and Dagenham. Such are the problems of Becontree. They have not yet been solved, but an impartial and comprehensive survey of them has been

¹ *Appeals for Funds and Hospital Publicity*. By Captain J. E. Stone, M.C., F.S.A., F.S.S., Birmingham: Barbeck and Sons, Ltd. 1934 (21 ls., postage 9d.)

made for the Pilgrim Trust by Mr. Terence Young,¹ with an introduction by Mr. Stanley Baldwin, the chairman of the Trust. It should prove of value both to those interested in local government and housing, and to those more immediately concerned with the social, industrial, or religious problems which are raised by the special circumstances of the case. Mr. Young gives a short account of the early history of the area. This is followed by a review of the three stages of the development of the estate, and this by the main survey of the conditions of the estate and their effect upon those who live there. A glance into the future, the formulation of a number of questions which the survey raises, and several valuable appendices, mainly statistical, conclude the volume. Of particular interest to our readers will be the sections dealing with public health, with hospital services, and with the application of the findings of the British Medical Association's Report on Nutrition to the particular economic circumstances of the area. All these are adequately dealt with.

THE STOMACH AND BLOOD FORMATION

A few years ago it would have seemed strange to associate the stomach with the formation of blood. Recent work on pernicious anaemia has shown that there is indeed a close relationship. It has been proved that the stomach secretes a substance which, acting on some portions of the food, produces a stimulus to the bone marrow. The parts of the food forming the so-called extrinsic factor are not exactly known, but are attached to muscle proteins. The intrinsic factor, which Castle showed to be secreted by the stomach, is of the nature of a ferment, not a hormone. It is present in normal stomach secretion and is absent from that of people with pernicious anaemia. Patients who have had a large amount of stomach removed at operation are known to develop pernicious anaemia sometimes. Observations of pig's stomach show that both the proximal and the distal parts of the stomach produce the Castle ferment, but not the intermediate part. Healthy pig's stomach dried at low temperatures is a full remedy for pernicious anaemia, since it contains both the ferment and the stomach muscle, and consequently both constituents of the stimulus to bone marrow. This substance passes through the liver, where it is stored, and the lungs, which contain it in smaller concentration, before reaching the general circulation and the bone marrow. Extracts of these organs and of the kidney are effective in producing remissions in the course of pernicious anaemia. A second disease, achylic chloranaemia, shows the close relation of the stomach to blood formation. This is a hypochromic anaemia, with a gross reduction in the number of red blood corpuscles and an even greater reduction of their haemoglobin content, which is associated regularly with achylia gastrica. In this disease the Castle ferment is present, and the essential factor is not lack of hydrochloric acid but of iron for haemoglobin formation. These patients benefit greatly when iron is administered in large quantities. Patients who have lost much blood—for instance, after childbirth or accident—usually regenerate blood quickly; those who do not are often

found to have anacidity; in the latter large doses of iron will often bring about satisfactory blood regeneration. Reinmann suggested the name "sideroses" for these conditions of deficient iron metabolism, and they may be due to disturbance of gastric function. Treatment consists not so much in supplying the absent hydrochloric acid, as in giving iron in excess, since this cannot so readily be taken up from the food in the absence of hydrochloric acid. The Castle ferment does not run parallel with the hydrochloric acid secretion, but the recent discovery that a reticulocyte response in rats can be used as an index of the presence and amount of Castle ferment has enabled further researches to be pursued. Workers in Eppinger's clinic have been led to consider that, as well as a deficiency of Castle ferment, there may be in some cases an excess produced; and some interesting developments on these lines are described by Hitzenger.¹ It is recognized that cases of duodenal ulcer have usually a high blood count, and after haemorrhage regenerate blood quickly. In cases of duodenal ulcer it was found that there was an increase of total oxygen capacity above normal—that is, a greater haemoglobin quantity for taking up oxygen. This has been regarded as due to an increased density of the blood owing to hypersecretion. Hitzenger suggests that it may rather be due to an increased production of Castle ferment in these cases or to a better utilization of iron; thus producing a disease entity which is the exact opposite of pernicious anaemia or achylic chloranaemia. A further step is the suggestion that an increase in Castle ferment production may be responsible for the increased formation of red blood corpuscles in polycythaemia rubra. Naturally a distinction must be drawn between a true polycythaemia and one secondary to emphysema or congenital heart disease. In the literature a number of cases of polycythaemia are recorded in which the complication of duodenal or gastric ulcer occurred. The crucial test would be the demonstration that in cases of polycythaemia there is over-production of Castle ferment, and this may be possible now that the rat reticulocyte test is available. So far no conclusive results have appeared in the literature. If Hitzenger's contention is correct, it would seem that cases of polycythaemia vera should be treated by systematic drawing off of the gastric juice by stomach sound, or preferably by x-ray therapy of the stomach rather than the long bones, or even, in recalcitrant cases, by resection of two-thirds of the stomach itself.

INTERNATIONAL UNION FOR COMBATING CANCER

A meeting was held in London on December 13th for the purpose of electing the two national delegates to represent Great Britain on the Conseil de Direction of the Union Internationale contre le Cancer. The meeting was attended by representatives of all those organizations proposing to join the International Union, together with the original British delegates to the preparatory conference. Mr. Cecil Rowntree, member of the executive committee of the British Empire Cancer Campaign and surgeon to the Cancer Hospital, and Dr. W. Cramer of the Imperial Cancer Research Fund, were elected to represent Great Britain.

¹ *Industry and Progress*. By Terence Young. London: The Housing Social Survey Committee, c/o Samuel Sellers and Son, Ltd. 1934. (16s. 6d. post free.)

¹ *Klin. Woch.*, September 22nd, 1934, p. 1345.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

THE TREATMENT OF PLEURISY

F. G. CHANDLER, M.D., F.R.C.P.

Pleurisy, dry or with effusion, has many causes: tuberculosis of lung or mediastinal glands, military tuberculosis, injury, pneumonia, new growth, lymphadenoma, any suppurative affection in the lung or below the diaphragm (especially perinephric abscess), infarction, local thrombosis. It may be what is called "primary." There are some who believe in a rheumatic pleurisy, but I have never convinced myself of the truth of this. I believe, however, that herpes zoster may cause pleurisy. The commonest, if not the only, cause of so-called primary, or idiopathic, pleurisy is tuberculosis. Obviously this cannot occur primarily on the pleura. The infection travels there either from the lung or by lymphatics from the mediastinal glands. That this latter is possible is proved, I think, by the existence of carbon pigment on the parietal pleura, even though adhesions between the two layers of the pleura are absent. I propose to deal only with primary, or idiopathic, pleurisy.

Dry Pleurisy

Our first consideration is usually the relief of pain; this will be dealt with later.

The systemic disturbance may be very slight indeed—so much so that dry pleurisy is frequently ignored and the patient is allowed up and about in a few days' time. This, in my opinion, is absolutely wrong. Complete rest in bed should be insisted upon for at least two weeks; if there is fever, then bed until the temperature has been normal for at least a fortnight. If there is any sputum this should be examined for tubercle bacilli. At the first opportunity an x-ray photograph of the chest should be taken. A careful temperature record—especially of the temperature at 6.30 p.m.—should be kept.

Relief of Pain

The simplest method of relieving pain is by the application of heat or of some counter-irritant: a linseed poultice; antiphlogistine; a hot-water bottle; hot-salt bags; a mustard plaster; a belladonna plaster; a firm bandage or strapping of the chest in position of full expiration, binding the hemithorax from spine to sternum with one of the excellent modern adhesive strappings. Aspirin alone, or aspirin 10 grains, phenacetin 5 grains, caffeine citrate 4 grains, in a mucilaginous mixture, may be given. If these measures do not suffice then recourse to some form of opium may be necessary: hypodermically—morphine 1/4 grain, heroin 1/12 or 1/6 grain, omnipon 1/6 or 1/3 grain; or by mouth—pil. saponis co., or 15 grains of Dover's powder. Any of these can be repeated if necessary. If these measures do not suffice, four to seven leeches applied to the painful spot may give magical relief. Another method is carefully to infiltrate the parietal pleura over the most painful area with 1 per cent. novocain, using as much as 10 or even 20 c.cm. The technique for doing this will be the same as that to be described later for exploratory puncture or paracentesis.

As in all acute febrile illnesses it is necessary to ensure complete evacuation of the bowels. This may be done by a good dose of Epsom salts in hot water, say 2 to 4 drachms for an adult, flavoured with lemon juice, or by castor oil, or by a vegetable laxative, followed, if it does not act well, by an enema. In any case, if the aperient does not act well an enema should be given. The next consideration is diet. In the first few days the patient may feel disinclined for food, and nourishment need not be pressed upon him. Later it is important to maintain the nourishment of the patient in the highest possible degree.

Convalescence

The after-treatment consists of very careful convalescence, with rest, not exercise, all the fresh air possible, and abundant nourishment. The patient should be kept under observation for at least two years. Sputum examinations should be made if any expectoration is available, and x-ray photographs should be taken, say, every three months. It is as dangerous to ignore a mild attack of dry pleurisy as it is to ignore a haemoptysis. Occasionally we meet with cases of widespread recurrent dry pleurisy, accompanied by fever, with no impairment of resonance, no tubercle bacilli in the sputum, and a negative x-ray picture. Such cases are extremely refractory to treatment. There is little doubt that they are of tuberculous origin, and should be treated as such, preferably at a sanatorium.

Pleurisy with Effusion (Idiopathic)

The effusion may begin insidiously without the patient being aware of anything except malaise and perhaps an increasing dyspnoea; or it may begin with urgent symptoms. An acute pleurisy with effusion most commonly runs a course of about three weeks, and during this period the patient may be and look very ill. The measures to be adopted for the relief of pain have been described above. With the formation of fluid pain as a rule disappears.

Exploratory Puncture

Exploration may be necessary in order to make sure that the effusion is clear and not purulent. It should be performed in the following manner.

First choose the exact spot for the puncture. The best sites are the fifth space in the mid-axillary line, or more posteriorly in the space below the angle of the scapula. It is a mistake to go too low. The skin is rubbed with tinct. iodi. A 5 c.cm. syringe is filled with sterile 2 per cent. novocain solution. This may be boiled before use or kept in a rubber-capped bottle in chloroform water 0.25 per cent., so preventing the growth of the delicate fungus which otherwise occurs. The finest hypodermic needle is used. With two fingers the intercostal space is carefully determined. The needle is inserted horizontally just beneath the epidermis and a bleb of novocain made. The needle is withdrawn, and a long fine hypodermic needle is then attached to the syringe. With the fingers marking the intercostal space as before, this needle is inserted vertically through the bleb of novocain, and is gently and slowly pushed through the insensitive intercostal structures. When the slightest pain is felt thoroughly infiltrate with novocain, and continue infiltration millimetre

by millimetre, attempting to withdraw the piston. Soon the lessened resistance will show that the parietal pleura has been passed; withdrawal of the piston will show the presence of fluid and its nature. Done thus there is no danger in the procedure. The syringe and needle must be perfectly air-tight. The needle must never be pushed in right up to the hilt, for it is at this point that breakage occurs.

Paracentesis: Indications and Dangers

The next question that will arise if the effusion increases is: Shou'd it be tapped or not? It should not be so treated as a routine. There are fairly definite indications for paracentesis:

1. If the effusion is causing distress, cyanosis, or dyspnoea.
2. If causing great displacement of the mediastinum.
3. If it will not absorb within a reasonable time—that is, within three or four weeks.
4. If it is increasing progressively under treatment.
5. If it appears to be keeping up the temperature.
6. If there are tubercle bacilli in the sputum and there is no skiagraphic evidence of disease on the other side, when the effusion should be replaced by air and the artificial pneumothorax so produced subsequently maintained.

If the effusion is left too long the pleura may become greatly thickened and the lung consequently may not re-expand.

The dangers of paracentesis are: (1) cough, discomfort, or pain; (2) dyspnoea; (3) haemoptysis; (4) acute oedema of the lung; and (5) syncope, or even sudden death. These are caused by a too high negative pressure in the pleural cavity, which produces a strain on the lung, with its capillaries and lymphatics, and on the mediastinum.

Technique of Paracentesis

The initial anaesthetization is exactly the same as that for exploration. The track having been thoroughly anaesthetized, a large needle or a trocar and cannula can be inserted without pain. Removal of fluid can be carried out in the following ways.

SIPHONAGE

The simplest method is ordinary siphonage. All that is required is a needle and a bottle containing some 1 in 100 carbolic solution. The needle is put into the chest with the tube attached, and the distal end of the latter is placed under the fluid in the bottle, which stands on a chair by the bedside or on the floor. A cough will usually drive fluid out of the tube and siphonage will take place.

NEGATIVE PRESSURE ASPIRATORS

Potain's aspirator is somewhat clumsy, and apt to go wrong or be out of order unless in constant use. Dieulafoy's aspirator is more handy. It is portable, can be used for replacement, and the tube is less likely to be blocked by lymph, or, if blocked, can be cleared by reversing the action; it should be of a type without washers. Care must be taken not to exert too much force, as too high a negative pressure may be created in the pleural cavity, with the unpleasant or alarming results mentioned above. These can all be prevented by the replacement method described below.

REPLACEMENT BY AIR OR OXYGEN

The fluid, instead of being drawn off by the force of aspiration or of gravity, is replaced by sterile air or oxygen, so that a pneumothorax is left. This soon becomes absorbed, resulting in a steady and gentle traction on the lung, helping it to expand. By this method no pressure changes are produced, no negative pressure is caused, and no strain is put upon the lung.

In fact, if during an aspiration pain or discomfort is experienced, the symptoms can at once be relieved by removing the tube from the needle or cannula, covering the aperture of the cannula with gauze, and allowing the patient to take a few breaths; this draws air through the cannula into the pleural cavity, and all discomfort at once ceases. This is the simplest and crudest method of air replacement, but it may be most effective; it not infrequently comes to pass accidentally owing to a leak in the instruments employed.

The best and most scientific method of replacement is the two-needle method, using an artificial pneumothorax apparatus. In this way the amount of air admitted can be measured and the intrapleural pressure controlled by the manometer. The aspirating needle is inserted in one space, and the artificial pneumothorax needle in a space or two above. After aspiration has begun this second needle is inserted, care being taken to avoid fluid running up the tubing: air is then allowed to flow, and an air space will soon be created and manometric readings can be taken. If oxygen replacement is intended, the air bottle is previously filled with oxygen.

The method of "automatic air replacement" may be employed: instead of using an artificial pneumothorax apparatus a hypodermic needle is inserted in an interspace well above the site of aspiration—say in the second or third space, in the mid-clavicular line. This is covered with gauze, and air is automatically drawn into the pleural cavity as the fluid is aspirated. It is the simplest possible method, and quite effective.

Usually it is not necessary to withdraw all the fluid. One to three pints are generally sufficient; sometimes even less than one pint may be enough, after which the temperature will fall and the remaining fluid be rapidly absorbed. After withdrawing the instrument, put firm pressure over the puncture and seal with gauze soaked in collodion. Brandy, sal volatile, or a cup of tea or coffee may be given afterwards. If there is any pain or distress, give morphine.

Other Methods

Other methods designed to disperse the fluid have been employed—for example, blistering, cupping—but their value is doubtful. Salyrgan has been given to induce a profuse diuresis, but I cannot help thinking that this, though more subtle in application, is just as crude in principle as the older methods of purging, bleeding, and sweating (which have been abandoned), and just as ineffective.

After-treatment

The after-treatment of pleurisy is as important as its immediate management. When I hear of a patient who has had pleurisy going back to work in three weeks I know that one of two things was wrong—the diagnosis or the treatment.

Idiopathic pleurisy, it must be emphasized again, is tuberculous, whether tubercle bacilli are found in the effusion or not. It means a long convalescence, with rest, fresh air, abundant food, malt and cod-liver oil, a careful temperature and weight record, bacteriological examinations of the sputum, and serial skiagrams of the chest. Actually, to go to a sanatorium is the safest thing in some cases, unless ideal conditions can be found elsewhere. The high altitudes are very beneficial in these cases. Sea voyages are not ideal, for the nights are usually passed in stuffy cabins; the weather may prevent the restful enjoyment of fresh air in the daytime, which is so essential; the diet will not be well balanced; and should complications occur no skilled help is, as a rule, available. For at least two years the patient should be kept under careful observation.

INTERNATIONAL PUBLIC HEALTH

QUARANTINE PROCEDURE

The official summary of the October session of the Permanent Committee of the *Office International d'Hygiène Publique*, which has just been published,¹ gives an account of the work of the committee on the chief international sanitary conventions and agreements and on various problems of plague, yellow fever, cholera, small-pox, typhus fever, and other infectious diseases that are liable to be carried from country to country by maritime or aerial traffic. Although every country with seaports has not as yet ratified the International Sanitary Convention of 1926, its application in practice is almost universal, and few difficulties arise. Some difficulties are being met satisfactorily by agreements between individual countries for facilitating and expediting the procedure called (for want of a better term) "quarantine operations." The arrangement by which a number of countries have agreed to dispense with "bills of health" or, alternatively, with Consular visas on bills of health is an example.

In connexion with the difficulties and delays arising from measures for freeing ships from rats the committee devoted much attention to an important report by a group of British shipowners on the rat-proofing of ships which was published in the *Bulletin Mensuel de l'Office International d'Hygiène Publique* for 1934. It is evident that in proportion as shipbuilders comply with the recommendations of that report the routine procedure of "deratization" will become less and less necessary.

SPREAD OF INFECTION BY AIRCRAFT

The International Sanitary Convention for Aerial Navigation (1933) awaits ratification by six more countries before coming into force, but the committee has received information that the required number of signatories will soon be obtained. In the meantime the committee is endeavouring to arrange that countries over which air traffic passes will make uniform regulations under the Convention as soon as possible, particularly with regard to the measures to be taken for preventing the spread of yellow fever, plague, cholera, and small-pox.

Concerning the measures applicable to yellow fever, the committee examined particularly the difficult problem arising from the discovery that in the interior of Africa and South America there are vast areas in which inquiry by means of "the mouse-protection test" indicates that yellow fever is endemic, but in which, up to the present, no case of yellow fever has ever been reported either among the indigenous population or among travellers, traders, and officials. An area in the southern part of the Anglo-Egyptian Sudan was included in the list of these so-called silent areas, but in 1934, following the occurrence of a fatal case diagnosed as yellow fever, the authorities decided to take all the precautions which the Convention prescribes for areas in which that fever exists. Intensive search for clinical cases is being made in other "silent areas" in Africa, and the committee decided to recommend that the histological examination of specimens of liver tissue obtained by viscerotomy or necropsy on persons dying from fevers of less than ten days' duration was a useful aid in this task. The committee also gave consideration to the problem of the destruction of mosquitoes in aircraft. Information on this subject is being collected with a view to indicating the measures which special inquiry and experience may show to be effective and practicable.

As regards measures for preventing the spread of plague the committee insisted that at present it is impossible to rely on vaccination for the protection of individuals, and that anti-plague inoculation could not, therefore, be included in the category of quarantine measures.

The International Agreement of Brussels, 1924, which provides for the treatment of merchant seamen suffering from venereal diseases, received further attention, particularly for the purpose of defining and obtaining general

agreement to schemes of treatment which are most suited to the circumstances of a seaman's life.

YELLOW FEVER VACCINATION

As usual a large part of the work of the session was devoted to communications on the epidemiology and prevention of the particular infectious diseases which are the subject of international sanitary conventions. There was a discussion on the advantages and disadvantages of different methods of protective vaccination against yellow fever. At present two methods are being tried "in the field"—namely, that in which living neurotropic virus fixed for mice is used in combination with immune serum, and that in which the same living virus is used in different stages of attenuation without the additional inoculation of immune serum. Following the discussion the committee adopted the report of its expert Commission, to the effect that vaccination against yellow fever was to be recommended, but that in the present state of knowledge the use of a vaccine composed of living virus without the supplementary precaution of inoculating immune serum seemed to involve certain risks that called for caution.

IDENTIFICATION OF CHOLERA VIBRIO

The problem of finding a bacteriological method of identifying the cholera vibrio which will give the same results when employed by workers in any part of the world continues to occupy the attention of the committee. On this subject note was taken of a communication by the delegate of Great Britain on work that was being undertaken in England in association with workers in India for the preparation of a standard "O" antigen, which could be used for the preparation of high titre diagnostic sera. These workers have come to the conclusion that "O" agglutination is the method of serological identification upon which most reliance can be placed, and are engaged in studying the preparation of an "O" antigen in a dried form in which the "H" fraction has been destroyed by heat. It is believed that the use of such an antigen would make it possible for workers in any part of the world to obtain precisely comparable results, and so obviate the difficulties arising from the use of strains of vibrio which are liable to variation. The subject is particularly important in view of the discovery that, even in the absence of clinical cases of cholera, agglutinable and non-agglutinable vibrios are sometimes found in pilgrims returning from Mecca who are subject to routine examination at the quarantine station of El Tor, and that there is a difference of opinion whether these vibrios are to be regarded as the true cholera vibrio or not.

MISCELLANEOUS COMMUNICATIONS

The committee discussed communications from the delegates for Great Britain, the United States of America, Poland, and Germany on the new procedure for preparing small-pox vaccine by cultivation on the allantoic membrane of the incubated hen's egg. The lymph obtained by this procedure seems to be identical in its effects with ordinary calf lymph, but trials on a large scale will be necessary before a considered opinion on the merits of the new practice can be given.

Among general subjects the committee received reports on "terminal disinfection," the safeguarding of milk supplies, the endemic incidence of goitre in various countries, psittacosis, Weil's disease, undulant fever, and leishmaniasis in Europe.

King Edward's Hospital Fund for London is making a further six-monthly issue of the time-table prepared recently by its out-patient arrangements committee. The object of the time-table is to minimize the waiting, with possible hardship, which results from patients attending hospital out-patient departments at the wrong hour or even sometimes on the wrong day. The present issue, revised to November, 1934, is being distributed to all doctors in the London area. Copies may be obtained free on request from the publishers, Messrs. Geo. Barber and Son, Ltd., Fumival Street, E.C.4.

¹ It can be obtained from 195, Boulevard St. Germain, Paris.

England and Wales

Medical Society of London

The programme has now been issued for the second half of the 162nd session of the Medical Society of London. On January 14th there will be a pathological evening (8 o'clock), followed by discussions, on January 28th, on the treatment of minor maladies of the foot; February 11th, on body weight in relation to disease; February 25th, on the value and limitations of radium therapy; March 11th, on the surgical treatment of syringomyelia; March 25th, on the future of diagnostic radiology. All these discussions begin at 8.30 p.m., at 11, Chandos Street, W. The Lettsomian Lectures, on the surgery of pleural and pulmonary infections, will be delivered by Mr. J. E. H. Roberts on February 18th and 27th, and March 4th, at 9 p.m. The annual general meeting of the society will be held on May 13th, when the annual oration, by Sir William Willcox, on "Toxic Drugs, their Use and Misuse," at 8.30 p.m., will be followed by a conversazione.

Campaign for Safer Milk

At the annual general meeting of The People's League of Health, held at 12, Stratford Place, W., on December 12th, Dr. C. O. Hawthorne, chairman of the council, said that a very useful addition to the machinery of the League had been created during the past year in the shape of a veterinary council. He referred also to the endeavours of the League to secure not only a clean, but a safe milk supply. An important part of its policy had been to urge on the Government that if consumers desired to obtain a milk which, in addition to being from tuberculin-tested cows, had been pasteurized to render it safe from other organisms, they should have that provision. It had pressed forward the various points set out in its classical report on bovine tuberculosis, published in 1932, and had supplemented this by an authoritative memorandum which had been presented by deputation to the Ministers of Health and Agriculture in the same year, and again in April of the present year, immediately preceding the discussion of the Government's Milk Bill in the House of Commons. To one proposal of the Milk Marketing Board the League had taken the strongest exception: this was the accredited herd and producers milk scheme. The grounds upon which the League, in its memorandum on "A Safe Milk Supply," published in August last, had criticized the scheme were that they doubted the general cleanliness of milk would be improved by the proposal to offer a bonus to selected producers—to be known as accredited producers—who attained a standard of cleanliness which was within the reach of, and should be made compulsory on, all producers. "Accredited" milk (as it would assuredly be called) would no doubt appeal to the public as milk guaranteed to be satisfactory. Yet it would not be obtained from tuberculin-tested herds; the cows yielding it would undergo a general veterinary examination only once in six months; and the protective necessity for pasteurization or boiling would be ignored. "Accredited" milk, in short, might claim to be "clean"; it certainly could not claim to be "safe."

The Hospital for Sick Children

The Princess Royal was present on December 11th at the Mansion House, when the Lord Mayor of London presided over a large and influential meeting in support of the appeal for £400,000 for reconstruction of the Hospital for Sick Children, Great Ormond Street. Her Royal Highness announced two generous gifts: one of £10,000 from Mr. Charles P. Johnson of Sevenoaks, and the other of £50,000 from the deputy-chairman of the hospital,

Lieut.-Colonel Stanley G. Cohen. The Archbishop of Canterbury, in the course of a moving address, recalled that the hospital began eighty-two years ago in a small private house, with ten beds. Now, after many years of great work, it asked London and England that it might be enabled adequately to fulfil its great task. The doctors, surgeons, and nurses who were continually giving themselves to the service of Great Ormond Street had to do their work under the most crippling conditions. It was not their fault; it was not the fault of the hospital: it was the fault of circumstances. During a recent visit he was impressed by the way in which the expansion, not only of the hospital, but of the methods of treating children, had involved the erection of new buildings piecemeal around the old one. The connexions between the old and new buildings were most defective. Children being taken either to the one operating theatre above or to the one x-ray room below very often had to be carried up and down by the nurses. He was perplexed by the passages through which he was hurried. There was a serious lack of sunlight and freshness of air, and a great difficulty in securing a balcony for open-air treatment. The wards were bright and clean and cheerful, but were much too large, and ought to be divided for different classes of patients. The rooms for the nurses at the end of the wards were most inadequate. There was nothing for it but that the buildings, however wonderful their associations might be, must be pulled down and reconstructed from top to bottom.

Tuberculosis in Sheffield

Part of the annual report on the health of Sheffield for the year 1933 is devoted to a survey, by Dr. H. Midgley Turner, clinical tuberculosis officer, of the prevention and treatment of this disease in the city. In the year under review the death rate from all forms of tuberculosis was 838 per million living, a slight increase over the figure for 1932, but considerably less than the other large towns in England and Wales, with the exception of Croydon and Portsmouth. This favourable position is attributed to five factors: (1) There is said to be complete co-operation on the part of general practitioners with the tuberculosis scheme. (2) Adequate sanatorium and hospital accommodation has now been provided for all citizens who are suffering, or even suspected to be suffering, from tuberculosis. (3) A large number of early cases are undergoing treatment subsequent to discovery by means of the examination of contacts of notified cases. (4) Intensive work has been in progress with regard to the isolation of infectious cases either in hospitals or in their own homes. (5) Finally, the intensification of the rehousing scheme has included the provision of accommodation for tuberculous patients who had previously been living under conditions where isolation was impossible. Notification rates were low in 1933, both as regards tuberculosis and general sickness, but Dr. Turner points out that it is not desirable that this tuberculosis rate should fall consistently until, hand in hand with the steady fall in the death rate from tuberculosis, there shall be a decrease in the number of new infectious cases. He stigmatizes the policy of delaying notification until tubercle bacilli are found in the sputum as quite wrong, since it is now known that the percentage of cases which show permanent arrest when the disease has reached this stage is exceedingly small. The total number of notified cases on the register on December 31st, 1933, was 6,560, of which 1,400 (including fourteen children under the age of 15) had had tubercle bacilli found in their sputum at some time. No case which has at any time been found to be infectious has so far been cancelled. The dispensary staff examined 92.1 per cent. of the cases of pulmonary tuberculosis notified during the year, showing how

desirous the patients are of availing themselves of the services provided by the municipality. Of the remaining 111 cases, thirty-seven were receiving treatment in institutions not under the control of the corporation at the time of notification; of the other seventy-seven patients, forty-two did not desire treatment; and thirty-five died before, or within fourteen days of, notification. The slight increase in the death rate for 1933 over that for 1932 is associated by Dr. Turner with the economic depression which was widespread in the city. The percentage of patients dying within a year of notification is still large, but it is admitted that in a certain number the disease ran a very rapid course. Three cases occurred in milk handlers during the year. The large figure of 2,403 sent to the dispensary for diagnosis indicates that medical practitioners are making full use of its services. Of patients notified during life 88.16 per cent. had been sent to the dispensary prior to notification. The ultimate diagnosis of suspicious cases often entails observation for long periods, and in many cases residence in the observation beds in sanatoria. There were 2,912 contacts examined from the homes of notified cases, and of these it was found desirable to retain 40.38 per cent. for observation and treatment. It is recognized that this is one of the most valuable activities of the department, since it is among this section of the population that tuberculosis is most likely to occur in the future.

Food Inspection at the Port of Manchester

The inspection of imported joints of meat through the Port of Manchester involves the exercise of great vigilance, owing to the operation of what is known as the "direct traffic" system. A special rate is quoted by the Manchester Ship Canal Company for all goods landed direct to road transport vehicles, railway vehicles, or barges, and the importers take every opportunity of securing this facility. All frozen meat is handled in this manner, and, although refrigerator space is provided at one berth, it has not for a great number of years been used for meat storage. Only a cursory examination of such imported meat is therefore possible, and the finding of any damage or disease generally entails transferring the full inspection from the port sanitary authority to the local authority of the district to which the particular consignment is to be delivered. In his annual report for 1933 Dr. E. H. Walker, medical officer of health to the Port of Manchester Sanitary Authority, finds that the importation of joints and other small portions of carcasses militates against efficient inspection at this port, owing to the lack of accommodation and facilities for "defrosting" before examination and rehardening afterwards. It is therefore essential that permitted imports should be thoroughly inspected at the time of slaughter, and bear evidence of this on each particular part. He adds that it is of the utmost importance that the certificate from the country of origin shall be trustworthy. An illustration of checking, both as regards quantity and quality, is provided by the catalogues issued by the various fruit brokers. All food and vegetables sold by such firms are graded according to soundness or otherwise, and a catalogue issued before each sale gives full details of the amounts and condition of the various articles offered for purchase. Copies of these catalogues are obtained each day when there is a sale, and an inspector can ascertain from these the condition of any consignment. It is agreed between the brokers and the port sanitary authority that any consignments which show 50 per cent. of unsound fruit shall be sorted on the quay by the buyers, under supervision by the inspector. A list of the various seizures on the dock quays during 1933 includes seventy-three tons of wheat, fifty-seven tons of maize, thirty-six tons of apples, eight tons of oranges, and six tons of tinned beef.

Scotland

Undulant Fever Investigations in Aberdeen

In his report for 1933, Dr. H. J. Rae, medical officer of health for Aberdeen, includes a summary by Dr. J. Smith, the regional bacteriologist, of examinations undertaken to ascertain the possible sources of infection in undulant fever, and the incidence of *Brucella abortus* in the milk of individual cows. No samples of butter from local or English farms or Colonial or foreign sources contained this organism, but five out of the fifty-one locally prepared butters contained tubercle bacilli. No margarine or cheese samples contained *Brucella*, but two out of six locally prepared cheeses were found to be infected with tubercle bacilli. No ice-cream samples were so infected, but the inquiry was hampered by the fact that in some cases the ice-cream was contaminated with various anaerobes which produced intense infections in the experimental animals. Arrangements were made to examine the blood of practically every man engaged in the slaughtering and meat trade business. Out of 106 sera examined fifteen agglutinated *Br. abortus* to a dilution of 1 in 25 or more, eleven positive reactions occurred in sera from actual slaughtermen, and four in sera obtained from men in the meat trade. From the slaughtermen five sera agglutinated the organism to a dilution of 1 in 25, five to 1 in 50, and one to 1 in 100. Sera from the men engaged in working with carcasses, hides, and offal agglutinated *Br. abortus* to a dilution of 1 in 25 in three cases, and in one to 1 in 50. All the eleven with agglutinins of 1 in 25 or more in their sera were engaged in killing all the three types of animals—sheep, cattle, and pigs. It was also found that in slaughtermen the positive reactions occurred in those who had been thus employed for eleven years or more, whereas in those engaged in handling hides, carcasses, and offal, three out of four positive reactions were found in men who had been employed for less than ten years. Furthermore, when the relation of agglutinins in age groups in the abattoir workers was compared with the agglutinins in the sera of normal individuals in the same age groups, a greater incidence emerged in the slaughtermen and other workers with animal products. Thus 16.1 per cent. of sera from slaughtermen and 10.3 per cent. of sera from men working in allied trades agglutinated *Br. abortus* to a dilution of 1 in 25 or more, as compared with only 6.8 per cent. of sera from normal men. When the men who showed agglutinins in the blood were questioned as to a history of previous illness, no evidence was obtained that any of them had suffered from an illness suggesting undulant fever. Dr. Smith presumes, therefore, that latent infections must have occurred in some to give rise to the higher incidence of agglutinins. Bovine infections by this organism are very prevalent, but there is so far very little evidence that sheep or swine are similarly attacked. Examination of samples of blood from sheep and swine only showed agglutinins present in 0.9 per cent., and then only to a dilution of 1 in 25, which can scarcely be regarded as significant. Specimens of porcine uteri, bladders, and spleens were entirely negative to *Br. abortus*, but 12.5 per cent. were infected with tuberculosis. A herd of eighty-four cows which had been vaccinated against *Br. abortus* were examined. Of thirty-one with serum agglutinin titres of 1 in 400 or more, ten (32 per cent.) were excreting this organism in their milk, and 60 per cent. of those with titres of 1 in 800 or more were found to be excreting it. It was noted that, despite vaccination and contact with infection, four out of this herd failed to show agglutinins in the blood in a dilution of 1 in 25, while 95.2 per cent. gave positive agglutination reactions in dilutions ranging from 1 in 25 to 1 in 12,800. No

indication was found that the whey agglutinins had been formed locally. Presumably their appearance was due to damage of the secretory apparatus previously by infection, this damage allowing the serum agglutinins to percolate into the milk. Two out of the ten strains of the organism which were isolated were found to grow in the normal atmosphere without the addition of carbon dioxide. It is held that these strains were probably established in the udder as a result of vaccination with a living strain having the same cultural peculiarity. Out of 203 random samples of milk from cows *Br. abortus* was recovered by guinea-pig inoculation in twenty-three (11.3 per cent.)—a figure comparable with that obtained from the herd of vaccinated cows.

New Zealand

[FROM OUR CORRESPONDENT IN WELLINGTON]

Medical Practice and the Law

An important judgement of the Supreme Court has been given in a claim against the Waitaki Hospital Board for £2,000 damages for injuries alleged to be due to negligent treatment by nurses. The plaintiff, who was injured at a hydro-electric works, was in a state of collapse after operation, and the house-surgeon ordered the use of a radiant heat cradle, during the application of which one of his knees was burned. Some time after discharge septic infection necessitated amputation of the leg. The judge held that in some unobserved period the patient was burned on the knee, and that such injury would not have occurred had the nurse in charge properly applied her professional skill. His Honour said, however, that in her professional treatment as apart from her ministerial treatment of a patient a nurse was bound to apply her professional skill and training subject to the orders of the doctor, not of the board. The proper inference was that the board could not interfere by rule or superintend her work. In such circumstances and in such treatment under the doctor she was not the board's servant. The neglect was not in the matter of mere ward duty or routine, but in the discharge of professional duty, and judgement was therefore given for the defendant board with costs.

In another recent case in the magistrate's court a chiropractor was sued by a woman for damages amounting to £48 for pretending to cure a neck injury by treatment extending over six months, and thereby causing her great pain and suffering. The chiropractor said that he had made a diagnosis of insomnia and neuralgia, the symptoms coming from the region of the neck as shown by x-ray photograph. Medical evidence, however, was to the effect that the treatment administered was unsuitable and aggravated the complaint, and x-ray examination showed nothing abnormal. The magistrate gave judgement for the full amount claimed and costs.

Restricted Entry of Medical Students

There is one medical school in New Zealand, at the University of Dunedin, but mild attempts have occasionally been made to obtain authority to establish another at Auckland. There is no doubt that the number of hospital beds in Dunedin available for clinical teaching is rather limited, but this difficulty has been partly overcome in an agreement whereby in the student's final year part of his clinical work may be done at the hospitals at Wellington, Auckland, or Christchurch. Furthermore, owing to the comparatively large number of public hospitals in New Zealand requiring house-surgeons, a larger supply of medical graduates is needed for junior resident appointments than can later be absorbed in private prac-

tice. Some lay critics do not hesitate to express the opinion that, as regards the number of young doctors starting private practice, the more the better, and the survival of the fittest will best serve the public. Medical practice will thus become a struggle for existence, of economic as well as of biological interest. The problem in New Zealand is further complicated by the necessity for young medical graduates of this Dominion to proceed to Great Britain for further experience, post-graduate study, or the taking of higher diplomas. However, the university authorities have, temporarily at least, removed the problem from Parliament, the people, and the Press by authorizing a definite restriction in the number of medical students, and at the stage of the beginning of the second academical year. The test is to be based purely on scholarship, or, as some might say, on a transitory retentiveness of memory, and not also on heredity and environment, as birth, upbringing, character, and manners, all of which are considered in the admission of students to the older medical schools of the United States of America. The University Council has decided that sixty students are to be accepted at the beginning of the second academical year, and an order of precedence is established, whereby first opportunity is given to candidates who are already graduates of another faculty, and second opportunity to students who have taken a year's science course beyond the requirements of the first professional examination, and the third category consists of those, in order of merit, who have passed the first professional examination (still called the "intermediate" in Dunedin). The experiment of setting up a hurdle at the end of the first year has something in its favour, and the results will be watched with interest.

Causes of Mortality

"Although the total number of deaths registered in 1933 (11,701) was eighteen more than in the previous year, the death rate shows a slight increase—7.98 as against 8.02 for 1932—and sets a new low record," states the report on vital statistics of New Zealand for 1933. The rate of deaths in the first year per thousand of live births was 31.64 compared with 31.22 the previous year—a slight increase. The report points out that the greatest success in combating the infant mortality problem has been attained between the ages of one and twelve months. During the last ten years the death rate in this group has been almost cut in half, but little success has attended the efforts to reduce the mortality at much younger ages in recent years. The rates for deaths occurring within one week of birth have shown but little response, and indeed for 1933 indicate on the whole a slight retrogression. The nearer the moment of birth the less is the decline in the rate observed. Judged on the basis of total death rate alone, it may be said that the health record for New Zealand for 1933 was even more satisfactory than for the previous year. An examination of some of the principal causes of death, however, tends to detract somewhat from that pronouncement. Outstanding among the increases noted is that for cancer, which with 1,624 deaths not only reached the peak for New Zealand but also registered an increase of 152 over the previous year. The largest upward move, however, goes to heart disease, deaths from which advanced by 163 in comparison with 1932. Then cerebral haemorrhage, another of the degenerative diseases, increased by sixty-six, and it would appear that, generally speaking, the greater part of the increased loss of population by death during 1933 may be attributed to diseases of later life and those associated with the degeneration or wearing out of the human structure. In striking contrast to the white races, the death rate from cancer among Maoris is remarkably low, although the

experience is similar as far as the upward movement of the rate is concerned. It is probable that the exceedingly high death rate from tuberculosis is exerting a certain influence towards keeping the cancer death rate fairly low among Maoris.

India

A Public Health Textbook

When a medical practitioner has been born and brought up in a small Punjab village, has studied in Indian schools, qualified in Edinburgh and Cambridge, practised for some twenty years as M.O.H. in two Lancashire towns, and returned to work in India, he is well equipped for writing a useful outline of public health as applied to the conditions to his own country. This Dr. N. R. Dharmavir has done, and his book *Public Health in India*¹ can hardly fail to be of service to those to whom it is addressed—namely, to health and welfare workers, nurses, teachers, and the rulers of municipalities. It deals fearlessly with the public health conditions as he finds them, particularly with the ignorance that still permits preventable diseases to spread, infant mortality to persist, and many Indian women to live unhealthy as well as hopeless lives. Some of the revelations made will help Europeans to understand how difficult it is to promote health—for example, the unpleasant personal habits of some otherwise most respectable Indians, the unsatisfactory dietaries of the urban populations, and the insanitary dwellings and unhealthy villages. Dr. Dharmavir expounds simply and lucidly the principles of right living from the public and private health standpoint. He describes the nature of the more prevalent infectious diseases, emphasizing the possibilities of prevention as capable of being practised by laymen. He fully appreciates the importance of climatic considerations, and gives sound advice about the necessary modifications of life which the Indian sun and rainfall impose.

Urban Sanitation in the Punjab

New sanitary projects are being brought into being in the Punjab as fast as funds will permit. In 1932 they numbered twenty-two, and were a response to urgent needs in respect of schemes for water supply, drainage, sewerage, which could not be left unregarded. The Government and local bodies were alive for the most part to their duties of providing the necessary sanitary amenities within the areas of their respective jurisdiction, but it has to be recorded by the director of public health for the Punjab in his report for 1932 that in some cases the local bodies neglected to keep and maintain such works in proper repair. Major Malhotra, I.M.S., states that the inspection reports of the officers of the public health department, especially on waterworks, revealed many examples of such neglect, but that repeated urgent representations to the authorities concerned had resulted in bringing about a better state of things. In the forty-three towns supplied with a piped water supply the expenditure exceeded the income, except in the case of seven. This will involve the levying of a water tax and the metering of all public and private connexions. Such measures will prevent the waste and extravagant use of water, and will also bring in money for the extension, maintenance, and improvement of waterworks. Experience has shown, however, that very little effort is made by urban authorities to enforce the metering of water supplies, owing to their unwillingness to incur local odium, but until this is done, Major Malhotra insists, no progress is possible. There is need also for a complete overhauling

of the conservancy arrangements. The problem of water-flushed latrines and urinals in towns is becoming more urgent, as is also that of sewerage schemes. At present no town in the Punjab is completely sewered, and accordingly, owing to the lack of proper arrangements for the disposal of effluents from these installations, the danger of contamination of the water supply and the consequent rise in the incidence of water-borne diseases is bound to occur. As regards religious fairs, the incineration of night-soil has now become the recognized policy of the public health department, the burial system which was previously in vogue having been completely discarded. At all fairs, whether of local or provincial importance, this policy was advocated persistently and persuasively until the local authorities were converted to incineration. The result is that at almost all fair sites permanent latrines, urinals, and incinerators are being constructed. This method of disposal of human excreta is not only safer, but it is at the same time cheaper, since the maintenance charges incurred are merely nominal. No deaths from cholera were reported at any of the fairs.

The Bombay Small-pox Epidemic

Small-pox is rarely absent from Bombay, and sporadic cases occur through the year. Dr. J. S. Nerurker, the executive health officer of the city, gives in his report for 1933 an account of one of the severest epidemics that have ever occurred there. In October, 1932, there were twenty-nine cases, and fifty-one in the following month. A sudden rise occurred in December, fifty-eight cases being notified for the week ending December 17th, an indication of the coming of a severe epidemic which lasted until the beginning of June, 1933, causing 4,487 attacks with 2,676 deaths. The two worst months were February and March. As soon as the disease was officially declared to be an epidemic in December, 1932, the usual preventive measures were put into force. Notices were issued in the public press and posters were put up in various parts of the city instructing the public in methods of precaution. Letters were addressed to mills, schools, colleges, banks, and various other similar institutions, offering vaccination at their premises free of charge, an offer widely and gratefully accepted. Small-pox slides were shown in most of the cinemas, advising people to be vaccinated or re-vaccinated. Letters were also written to general practitioners urging them to co-operate in instructing the community, and offering free supplies of lymph for mass revaccinations. Besides the twenty-one permanent vaccination stations, twenty-one temporary ones were opened. The number of primary vaccinations during the year was 33,439 as against 23,783 in 1932, and that of revaccinations 243,102 as compared with 12,436 in the previous year. The proportion of primary vaccinations in children under the age of 1 to the total number of births reached the high percentage of 72, while the numbers of primary vaccinations and of revaccinations were the highest on record. The accommodation supplied by the 160 beds in the Arthur Road Hospital proved sadly inadequate. All the available space, including that in the general unit, had to be devoted to receiving small-pox cases. A record number of cases were admitted, the highest number on one day being 436 on March 12th, 1933. Dr. Nerurker argues that, whatever precautions are taken and preventive measures adopted, Bombay can never be made free from small-pox. Experience has shown that the only effective measure to control it is revaccination. The Bombay Vaccination Act unfortunately does not provide for compulsory revaccination, which Dr. Nerurker maintains it should do, since periodical compulsory vaccination of the community would secure a considerable degree of immunity.

¹ Lahore: Rama Krishna and Sons. 1934. (3 rupees.)

Reports of Societies

EXERCISES AND MANIPULATIONS IN SPINAL CONDITIONS

At a meeting of the Section of Physical Medicine of the Royal Society of Medicine on December 21st, Dr. J. B. Burr presiding, two demonstrations were given, the first by Dr. T. Stacey Wilson of Birmingham on the value of rapid rhythmical exercises as an alternative to osteopathic manipulations for the cure of back pain, and the other by Dr. J. B. Menzell on joint manipulation as applied to the sacro-iliac joints and the joints of the spinal column. Both were assisted by living models, on whom the movements were demonstrated, and Dr. Jeffery gave an appendix to Dr. Menzell's address with some ingenious anatomical puppets.

RHYTHMICAL EXERCISES FOR BACK PAIN

Dr. STACEY WILSON said that he fully believed in the value of osteopathic manipulations; what he had to bring forward was an alternative method of treatment for those who, owing to distance or want of means, could not get into touch with a trained manipulator. The back pain which was curable by osteopathic manipulations appeared to be due to fixation of intervertebral joints by involuntary muscular activity. Once involuntary muscular activity had originated it was liable to persist as a habit phenomenon for months or even years, and the fixation of the joint might prevent other structures from returning to their normal relationships. He had himself suffered for a long time from a subluxation of vertebrae, with pain in the back, due to a badly judged jump from a diving-board, and one day it was suddenly and entirely cured when he jarred his spine by stepping from the pavement into the gutter. The exercises which had been found useful consisted of rhythmical to-and-fro muscular movements having a rapidity of about eight complete movements in five seconds. Such simple exercises were capable of dominating involuntary muscular activity and counteracting habit-fixation of joints.

During the war he had under his care three soldiers who were incapacitated by back pain resulting from strain after being blown into the air by shell explosions. He devised a series of exercises which he made them practise three or four times a day, and within two or three weeks they were completely cured. He mentioned another case, a woman of nearly 70, with back pain due to extensive fixation of the dorsal vertebrae. The pain had been attributed to gastric disturbances, although it was bilateral, but it cleared up under exercises, with perfect restoration of mobility. Another case was in a woman of 36, in whom neck pain following strain had been recurring for nine years. It was cured in a few minutes, and when later it made fugitive reappearances due to habit fixation immediate relief was found in the exercises.

Dr. Wilson then gave a demonstration of the movements. In the case of the spine rotatory movements were made, the patient sitting upright and swinging the whole body and the head first to the right and then to the left, making eight such movements in five seconds. The movement was a kind of purposeful throwing of the body. It called into play the muscles which were fixing the vertebral joints, and if of sufficient rapidity it caused relaxation of the spinal muscles as complete as could be done by osteopathic manipulations. The patient repeated aloud the figures 1 to 8, partly because it assisted the rhythm, and partly because it gave definiteness to the movements. It was not usually possible to carry them on beyond eight, owing to giddiness. If the pain was in the lower part of the dorsal region the patient bent forwards, with the spine almost horizontal, and worked round an axis as far as possible, first to right and then to left. The manipulative method was preferable, especially with a somewhat neurotic patient who would not carry through the exercises, but the exercises had a very real value, and should be commended especially to the country doctor, whose patients might not be able to get manipulative treatment.

JOINT MANIPULATION AS APPLIED TO THE SPINE

Dr. J. B. MENZELL first showed a number of x-ray photographs to illustrate the movements of the sacro-iliac joints and of the joints of the spinal column, showing the ordinary limits of movement in any healthy young adult. He then proceeded to a demonstration of treatment by manipulation to show how fixation could be secured at each level, so that a mobilizing strain might be placed upon the joints in each section of the spine, with a minimum expenditure of force, of exertion, of discomfort to the patient, and a maximum of control, while at the same time securing the relaxation which is an essential part of mobilization treatment. The movements in the different areas of the spine, he said, must be different in each section. It was quite out of the question that they should have been given such differently shaped articular processes if they were not meant for different movements. There was no sudden jump from a lumbar vertebra to a thoracic, or from a thoracic to a cervical; there must be transition from the one to the other, where the vertebrae and their articular facets were altering in shape, and, where there was movement, in function. Relative instability was likely to be chiefly noticed where the vertebrae were not typical—that is to say, in the transitional portions—and this in practice was actually found. Weakness, for example, was most common at the lumbosacral junction. Again, where there was an area of limited movement, as in the upper thoracic vertebrae, which were anchored down by the short and very substantial first rib, liability to disturbance of function was greater than where a wide range of movement was in any way possible.

He had never been able to understand why the same symptomatology was denied to the joints of the spine as was conceded to the joints of the extremities. Yet few of them had been bold enough to write down in black-and-white that a patient was suffering from traumatic arthritis with fluid present in the joint between the second and the third lumbar vertebrae. But why not? The condition must occur. An irritable joint in the spinal column, as elsewhere, was liable to be splinted with the patient's own muscles, with results well known to them all. Just as it was now generally agreed that it was not unwise to manipulate a knee that showed in the x-ray photograph a few bony and cartilaginous changes, so one was justified in freeing the joints of the spine by manipulation. He mentioned that, under an anaesthetic, he had manipulated the necks of two ladies, both of them well over 80, one for sheer pain, and the other for a spasmodic torticollis, with very gratifying results in both. If an anaesthetic was required on account of acuteness of symptoms the same technique which he had demonstrated for securing a mobilizing strain on each section of the spine was generally available. The movements which he showed were, for the most part, not under voluntary control; these, therefore, could not be performed by ordinary active exercises.

Dr. Menzell next considered the possibility of symptoms being referred from the joints to distal parts. The possibility of referred pain must be borne in mind. On an injury to the wrist, for example, pain shot up the arm. The extraordinary distance over which pain might be referred was exemplified by the use of the hypodermic needle when it began to get blunt. The fact of this referred pain accounted for many of the much-acclaimed successes of the unqualified osteopath. The patient came forward with a story of pain in the breast, and perhaps a lump was felt. Mastitis was immediately diagnosed; or it might be pain over the heart region, and nothing would persuade the patient that it was not an angina, and afterwards the manipulator was declared to have cured an incipient cancer or a heart disease, as the case might be, when actually what was wrong was in the chest wall, and relief was obtained by manipulation of the bone and joint structures. It was similar with supposed cases of gall-stones or gastric trouble. Pain in the abdominal wall over the region of the gall-bladder or of the stomach had been cured by manipulation. Often, therefore, the osteopath rode off with the credit of having cured a whole set of conditions which had never existed at all.

ANTI-STREPTOCOCCAL SERUM FOR "RHEUMATIC" AFFECTIONS

At a meeting of the Liverpool Medical Institution held on December 6th, with the president, Dr. J. MURRAY BLIGH, in the chair, Dr. ROBERT COOPE and Dr. F. PYGOTT presented a short paper on "The Use of Anti-streptococcal Serum in certain 'Rheumatic' Affections."

The authors prefaced their remarks by a quotation from one of Trousseau's clinical lectures: "When a patient runs an imminent risk it is justifiable, or at least it is excusable, to use every remedy, as in such a case we cannot make bad worse. Still, even in such cases, our therapeutic action must be defensible in theory and by an appeal to analogy." They presented for consideration a series of nine recent cases in which they had felt driven by clinical necessity to try the effect of anti-streptococcal serum.

One patient, a middle-aged man, had a post-scarlatinal non-suppurative arthritis of the hip-joint, which did not improve with immobilization and heavy dosage with salicylate; intramuscular injection of 20 c.cm. of scarlatinal antitoxic serum was followed by rapid recovery.

The remaining eight patients, all adults, were seriously ill with acute polyarthritis, and in all but one there was a clear history some nine to twelve days previously of severe "sore throat." In four of them the illness was associated with erythematous nodules in the skin; they were patients whose ages varied from 43 to 52 years, and there was no evidence of active tuberculous infection. Their erythema nodosum was but an incident in a generalized severe "acute rheumatism," which did not improve on intensive treatment by salicylate. They all responded quite dramatically to one or two doses of serum (in two cases scarlatinal antitoxin was used, in the other two polyvalent streptococcal antitoxin). Of the other cases, one was desperately ill and incontinent, but after the injection of 20 c.cm. of the polyvalent serum on two successive days he was greatly improved and went on to full recovery.

In another patient, a woman of 35 years, who at the time she fell ill was actually waiting to be admitted for removal of unhealthy tonsils, the acute polyarthritis was complicated first by a toxic nephritis and later by double basal pneumonia. Blood culture revealed a non-haemolytic streptococcus, and two doses of 20 c.cm. polyvalent anti-streptococcal serum were given. The general condition improved, but she then developed an intense urticaria and serum sickness, and nearly died. After that, however, the temperature fell to normal and she slowly recovered.

The remaining two patients were not quite so gravely ill. One young man, in spite of treatment and the disappearance of his fever, had a series of relapses of the arthritis. Three days after a single injection of 20 c.cm. of scarlatinal antitoxin the pain and swelling of the joints subsided, and there were no further relapses. Another patient, seriously ill with polyarthritis and pericarditis, improved temporarily after 30 c.cm. of serum, but later had a series of relapses, involving the throat and joints.

Looking back on the last case, Drs. Coope and Pygott felt that at the time they lacked confidence to repeat the injection, and should have done so. In all the cases treatment by large doses of salicylate was ineffective. In the light of these experiences they suggested that whatever may be the effective mechanism of recovery, whether specific or non-specific, the use of serum treatment in similar cases was worthy of trial.

Sterility with Ovarian Dysfunction

Mr. T. N. A. JEFFCOATE read a paper on "Sterility due to Ovarian Dysfunction," based on the records of 654 patients complaining of sterility of at least two years' duration. A classification of the aetiology of sterility revealed the fact that no abnormality of any kind was present in 17.3 per cent. of cases. Of the patients 12.3 per cent. had no gross lesion, but complained of some menstrual upset—in addition to sterility. The view was put forward that the poor results attending treatment of this condition are due to failure in the diagnosis of the underlying cause. The cause lies frequently, not in any anatomical defect, but on some physiological upset in the ovary. An outline of the modern conception of the normal ovarian and uterine cycles was followed by an explanation of the various types of menstrual irregularity. It was pointed out that all menstrual disturbances, apart from epimenorrhoea, are characterized by absence of, or

infrequent, ovulation; hence the sterility encountered in patients presenting these symptoms. The results of examination of premenstrual curettings from sixty-three patients who had regular uterine haemorrhage (but did not necessarily complain of sterility) were given; these showed that 25.4 per cent. of these women exhibited anovular menstruation. It was suggested that anovular menstruation is even more prevalent in patients complaining of sterility. An appeal was made for the performance of curettage during the premenstrual or menstrual phases, as an essential part of the investigation of sterility. In this way anovular menstruation should be recognized. A method of treatment of this type of ovarian dysfunction was outlined.

Mr. M. DATNOW said there could be no doubt that insufficient stress had been laid on physiology as an aetiological factor in sterility in the past; this was especially so in the case of the ovarian cycle, as was evidenced by the common lay fallacy that a woman is most fertile just after and just before menstruation, instead of during the middle fortnight of her cycle. The fact that menstruation could occur without ovulation (anovular cycle) had been recognized (although controverted) for some considerable time. In rabbits not infrequently the follicles did not rupture and pseudo-pregnancy ensued, with all the uterine and general changes of pregnancy, terminating with lactation about seventeen days after oestrus. Mr. Datnow stressed the importance of inquiring carefully into the menstrual history of every patient who complained of sterility. The time of follicular rupture was fairly constant for any particular individual, and the speaker had frequently been told by patients that they always became pregnant on or about the same day of their cycle. This made him advise his patients who sought advice for their sterility to resort to coitus during different weeks of the cycle each month. He pointed out the importance of correlating the ovarian picture with the histological findings in the endometrium, which Mr. Jeffcoate had not stressed enough. In patients suffering from dysfunction and irregular menstruation there was no doubt that one could see histological appearances illustrative of all the phases of the endometrial cycle in any one uterus. The speaker was not convinced that curettage and examination of the curettings would be of any more value than merely to prove that there was dysfunction. He felt that it was more important to make an analysis of the hormonal content of the blood and urine in those cases of sterility with dysfunction, which really only formed a very small percentage of the total, in order to determine those hormones that were in excess or lacking, so that the appropriate treatment could be applied. It was the absence of a fertilized ovum rather than the presence of a new "hormone Z" suggested by Mr. Jeffcoate, which precipitated the menstrual flow.

INTRATRACHEAL ANAESTHESIA

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, held on November 23rd, with the president, Mr. SETON PRINGLE, in the chair, Dr. R. W. SHAW read a paper on "The Intratracheal Method of Anaesthesia."

Dr. Shaw said that this method was first practised about the year 1886. The apparatus used was a modification of that designed by Fell and O'Dwyer for the treatment of laryngeal diphtheria by intubation. The great advantage of the method in those days was that it permitted, for the first time, operative surgery in the thoracic cavity. One of the first operations of this kind was performed in 1898 by Parham of New Orleans. Improvements in the technique continued to take place between the years 1900 and 1910, but the intervention of the war somewhat retarded its development. Up to 1920 the method in use was known as "insufflation endotracheal anaesthesia," but in that year Rowbottom and Magill reported their experiences in surgery of the head and neck, using the method of to-and-fro breathing through a laryngeal tube, calling the method "inhalation endotracheal anaesthesia." The essential difference between these two methods was

that with insufflation the anaesthetic vapour was delivered into the trachea under pressure through a catheter which was not large enough to fill the rima glottidis; expiration then took place around this catheter. With the inhalation technique the catheter used was of such a size as nearly to occlude the laryngeal cleft. Inspiration and expiration took place through this tube, and no pressure, or very low pressure, was used. This method had now completely displaced the older method of insufflation. It was simple to use once skill and facility in the introduction of the catheter had been achieved. The catheter might be introduced (a) through the nose, and (b) through the mouth. If introduced through the nose the "blind" method, as described by Magill, could be adopted, or a laryngoscope and special forceps might be necessary. When introduced through the mouth the catheter was always passed by direct vision with a laryngoscope. Any efficient gas-oxygen-ether machine could be used for maintenance of anaesthesia, and a minimum of ether was required. The patient must first be anaesthetized by N_2O -ether sequence, or basal anaesthesia combined with cocaineization of the larynx might be found more convenient. In an experience of over forty cases the method had proved entirely satisfactory, more especially for the surgery of the head and neck.

The PRESIDENT said that there were many cases in which intratracheal anaesthesia was of the greatest possible service, but he did not think it would ever come into any very widespread use. He did not believe it was necessary for cases of non-toxic goitre, and in these he personally had found the block method very satisfactory.

Mr R. ATKINSON STONEY referred to the amazing change which had taken place in the giving of anaesthetics in the last thirty years; he felt, however, that in spite of the improvements there had also been an increase in the complications of anaesthesia. Mr T. J. D. LANE said he thought intratracheal anaesthesia was the best method in many cases, and that for some operations the only apparatus necessary could be carried in the pocket. Mr W. DOOLIN thought that in the last five years anaesthesia had developed even more quickly than surgery, and had developed in response to the surgeon. He was convinced that intratracheal anaesthesia was the method of choice in facial surgery, especially in cases of cleft palate.

Mr A. CHANCE said that he felt very confident regarding this method of anaesthesia. A number of the cases quoted by Dr. Shaw were cases of his, and in all of them the result had been most satisfactory. The method was of great use in thoracic surgery. Dr J. J. FITZSIMONS said that he had not used gas and oxygen intratracheally, but he had used McKesson's apparatus, very similar to Walton's. On getting the laryngoscope at the side of the mouth it was possible to see the epiglottis more easily. Dr T. G. WILSON referred to the favourable results of intratracheal anaesthesia in laryngology. He felt that the method was the safest and best for operations on the upper air passages. It dispensed with the nasopharyngeal plug, which was such a nuisance.

At a meeting of the Medical Society of Individual Psychology held on December 13th with Dr. JAMES YOUNG in the chair, Dr. FRANK BODMAN read a paper in which he dealt with the psychological background of patients suffering from colitis. In a series of cases he demonstrated the gradation in the series—functional diarrhoea, mucous colitis, and finally ulcerative colitis. He showed how the ideas of bowel function were associated in the child's mind by training with ideas of good and evil, and how the child learnt to exercise its power over its relations by controlling the action of its bowels. After describing a series of cases of colitis in young women starting to earn their living, of colitis in pregnancy, and, finally, of colitis in women whom he described as "rolling stones," he showed how colitis might be a "flight into illness," and that many of these patients had a family background of a father's home and a widowed mother with a strong personality.

CORRESPONDENCE

Endowment of Clinical Science

SIR,—In your leading article on this topic in the *Journal* of December 15th (p. 1106) you say that there are some who consider that too big a proportion of the funds provided out of public sources for medical research goes to subjects whose medical aspect is somewhat remote. Can you not inform us, roughly, what the annual amounts of these funds are, and how they are apportioned? I think you would do a public service if you would, and that future discussion on this topic would be clarified.

No one would wish to belittle all the aid to the progress of medicine that the ancillary sciences have given. All praise to such men as Sir Gowland Hopkins for the great work they have accomplished. But is it not well to remember what is the original derivation and meaning of the word "clinical," and that there is still room for encouraging purely clinical observation by endowment? Sir Gowland Hopkins, you say, suspects that some clinicians fear that the introduction of multitudinous laboratory methods into the domain of diagnosis is tending to destroy the true clinical art. This suspicion has good foundations, and its causes are not unconnected with many of the present-day difficulties of medical education.

Fifty-three years have gone by since Professor T. H. Huxley (before the seventh International Medical Congress of 1881) said: "We are apt to forget that there is such a thing as a pure science of medicine, which has no more necessary subservience to practical ends than has zoology and botany." Since then James Mackenzie has blazed the path along which medicine can go without endangering a serious divergence between the science and art of medicine. William Osler, in an address given in 1899, said: "To cover the vast field of medicine in four years is an impossible task. We can only instil principles, put the student on the right path, give him methods, teach him how to study and early to discern between essentials and non-essentials." But how can such paths be followed so long as only a small proportion of the sums spent annually upon medical research goes to aid those who are following in the footsteps of such keen-minded scientists as Thomas Addison, William Jenner, and Hughlings Jackson? Their great achievements were based upon the employment of truly clinical methods of research. They advanced medicine by painstaking bedside observation, controlled by morbid anatomy and purposeful laboratory experiments; but in that order.

There is a danger of losing sight of the proper perspective in these things. More money spent on true clinical research would tend to readjust the balance between laboratory and clinical methods, would help to direct medicine back to principles. Medicine can never be a science until the causes of *dis-ease* in human beings are so fully unravelled that broad principles and sure rules of practice can be laid down. It still has far to go to reach such a condition, though the writings of Mackenzie, and much work along such lines before and since his time, are bringing it gradually to that state.—I am, etc.,

Mandeville, Dec. 17th.

S. VERE PEARSON.

London University and its Medical Schools

SIR,—A strange statement appears in Professor F. J. Brown's letter in the *Journal* of December 15th. He suggests that forensic medicine and public health are academic subjects with little relation to daily experience in general practice, and that the examinations in these subjects should be taken, say, at the end of the fourth year. I cannot speak for forensic medicine, although I

should have thought it a highly practical subject, affecting the daily work of many practitioners. But it is the reference to public health which surprises me, for it would be hard to think of a subject which is less academic. It is usually taught, both in London and in the provinces, by men engaged in the public health service; and the teaching puts emphasis not only upon the application of scientific knowledge to the prevention of disease, a matter surely of great practical importance to every medical man and woman, but also upon the machinery afforded by central and local governing bodies for securing that such knowledge is applied in an organized way. With these bodies the general practitioner has to work in the closest co-operation to an ever-increasing extent. To relegate this part of the student's training to a stage of the curriculum when he is hardly capable of understanding the terms used, and, by inference, to suggest that the knowledge imparted has little or no bearing upon his future work, would be a peculiar act in these post-war days of State medicine.—I am, etc.,

Cardiff, Dec. 17th.

RALPH M. F. PICKEN.

Treatment of Ruptured Spleen

SIR,—I was very much interested in Mr. Harold Dodd's article on rupture of the spleen, but I cannot concur with him in his advocacy of the transverse abdominal incision for urgent splenectomy. This incision, although a most excellent one in many set operations, appears to me to be out of place in an emergency. First, even after considerable familiarity with it, the transverse incision takes at least three times longer to close securely than the midline incision—an important factor where speed is a consideration. Secondly, as is well known, the tail of the pancreas is sometimes damaged at the time of the injury; consequently, by reason of digestion by escaped pancreatic ferments, any patient recovering from splenectomy for rupture is liable to the unpleasant complication of burst abdomen. A burst transverse incision is more dangerous and far more difficult to repair than a burst midline incision. I have removed a ruptured spleen through a midline upper abdominal incision on seven occasions; all the patients recovered.

For the above reasons, and others I have detailed elsewhere, I feel confident that in the treatment of this catastrophe the midline upper abdominal incision is the incision of choice.—I am, etc.,

London, W.1, Dec. 15th.

HAMILTON BAILEY.

Epilepsy and Nasal Sinusitis

SIR,—In your issue of December 15th (p. 1101) Mr. D. Y. Richardson called attention to two cases of Jacksonian epilepsy in which the associations with acute nasal sinus disease were so intimate as to leave no doubt of the causal relationship to the epilepsy. Having published in your columns and elsewhere¹ cases of recent mental disorder with epilepsy in which intracranial bacterial invasions from nasal sinusitis were demonstrated, and being interested in these cases from the point of view of the study of the aetiology of mental disorder, I should be glad if your readers would write to me regarding any further similar cases which have or may come to their notice.—I am, etc.,

F. A. PICKWORTH,

Director, Joint Board of Research for
Mental Disease, City and University
of Birmingham.

Hollymoor, Northfield, Birmingham,
Dec. 18th.

¹ British Medical Journal, 1929, i, 721; Proc. Roy. Soc. Med., 1928, xxi, 74; Journ. Laryngol. and Otol., 1928, p. 186.

Trichlorethylene

SIR,—I should like, through your columns, to draw attention to the use of trichlorethylene as a surgical skin cleanser. It is a powerful "degreaser," and as a wound cleanser is, in my opinion, greatly superior to the better-known preparations such as surgical spirit, methylated ether, etc. It is non-inflammable, non-irritating, and has a Chick-Martin coefficient of 0.9. As it is also a good solvent for tar, it is particularly useful in the treatment of tar burns, as illustrated by the following case, which also bears out the fact of its non-absorption through the skin.

On September 21st, 1934, a boy aged 9 was playing with a tar-spraying machine when he fell beneath the tap, which was turned on by a companion, with the result that boiling tar ran out over the patient. He was admitted to the General Hospital, Birmingham, at 10.30 p.m., with several tar burns on the face, neck, chest, parts of both arms and forearms, areas of the abdomen, back, both thighs, both legs, and the left foot. The tar burns were cleaned with trichlorethylene under a general anaesthetic, and subsequently coagulated with tannasavine. The following morning the boy's condition was good and he was free from pain. He has made an uninterrupted recovery, except for a little mild sepsis on the seventh day.

It is interesting to observe that the boy's urine remained normal throughout, whereas in tar burns it is usual to find albuminuria due to absorption of phenol. I personally have seen death occur from an acute kidney damage by a tar burn the size of a saucer. I am indebted to Mr. H. H. Sampson, honorary surgeon to the Birmingham General Hospital, for permission to publish this case.—I am, etc.,

Witton, Birmingham,
Dec. 6th.

H. B. TRUMPER,
Regional Medical Officer, Imperial
Chemical Industries.

SIR,—My attention has been directed to the following paragraph on page 2 in *Industrial Maladies*, by the late Sir Thomas Legge (Oxford Medical Publications):

"Again, the rapidity of absorption is important, for, with some poisonous gases in sufficient amount, it is so quick as to cause instantaneous unconsciousness (carbon monoxide, sulphuretted hydrogen gas, trichlorethylene)."

I have had very considerable experience of the effects of chemicals and the measures of protection. It is well recognized that the effect of carbon monoxide and sulphuretted hydrogen of sufficient quantity is dangerous, because of the rapidity of the onset of the symptoms of poisoning, and in some cases sudden unconsciousness.

In the case of trichlorethylene, however, my experience of the effects of this substance is at variance with the above paragraph. Trichlorethylene is similar to other chlorinated hydrocarbons such as dichlorethylene, perchlorethylene, and chloroform in that it is a narcotic, and it is similar to chloroform in that it does not produce sudden unconsciousness.

In these circumstances, the classification of trichlorethylene with carbon monoxide and sulphuretted hydrogen appears to me not to be in accordance with fact.—I am, etc.,

THOMAS E. A. STOWELL, M.D., F.R.C.S.,
Chief Medical Officer, Imperial Chemical
Industries, Ltd.

London, S.W.1, Dec. 17th.

** Trichlorethylene (C₂HCl₃) has been used for relief of trigeminal neuralgia (Glaser, 1931, *Journ. Amer. Med. Assoc.*, xcvi, 916), and the drug is included in *New and Non-official Remedies*, where the maximum daily dose for inhalation is given as 60 minims. This dose does not appear to produce toxic effects. The toxicity of trichlor-

ethylene as compared with carbon tetrachloride is a matter of dispute (*Journ. Amer. Med. Assoc.*, 1934, cii, 1250). McCord (*ibid.*, 1932, xcix, 409) says that the toxicity of these two compounds is equal. He found that application to the skin of rabbits of 1.2 c.cm. trichloroethylene per kilo daily made the animal ill but was not fatal in seven days, whereas 3.8 c.cm. per kilo a day killed in five days.—ED. B.M.J.

Fractures of the Neck of the Femur

SIR,—Mr. Maurice Sinclair does me the injustice of condemning me unheard (December 8th, p. 1072). On the basis of nothing more than one phrase in a very brief report of my paper he attributes to me a series of opinions which I do not hold, and then proceeds to attack them. I have never doubted the value of the Thomas splint in first-aid treatment; the fact is that first-aid treatment was not under discussion. The treatment of gunshot wounds with compound fractures was not under discussion; the treatment of spontaneous fractures in malignant disease was not under discussion, and a considerable part of Mr. Sinclair's letter is a criticism of views which have never been expressed.

The only fracture to which reference was made was the simple subcapital fracture of the femur in elderly patients. I made two observations on the use of the Thomas calliper and knee-splint in this injury: (1) That many patients are so old and feeble that the treatment of the general condition is of greater importance than the immobilization of the fracture, and that in such cases early ambulation in a Thomas calliper is advisable. (2) That if the patient's general condition is so good as to justify operative fixation of the fragments with a Smith-Petersen nail, the Thomas knee-splint or calliper is dangerous, and is not to be recommended at any stage of such treatment; if in any case the operator feels that external fixation is advisable in addition to the nail, a plaster spica should be employed and not a Thomas splint.

The Thomas knee-splint does not, and cannot, immobilize the hip-joint. It was never intended to do so, and even Hugh Owen Thomas himself designed a different splint to immobilize the hip. In the course of my paper I brought forward clinical and radiographic evidence to prove that even a plaster spica does not always prevent rotation movement of the trunk and pelvis, and therefore of the detached head of the femur. It is obvious that a splint which does not even extend beyond the level of the fracture is still less capable of preventing movement of the pelvis. In this fracture the proportion of cases uniting by bone varies directly with the degree of immobility. If there is no immobilization none unite by bone; if immobility is absolute all unite by bone; between these two limits there is every degree of fixation, with a corresponding percentage of cases of bony union. The fact, as reported by Mr. Sinclair himself, that only a proportion of his cases unite by bone is proof that the method he employs does not immobilize every case perfectly.

Not only is the Thomas splint and calliper an inadequate means of immobilizing the fracture of the femoral neck, but it is actually dangerous, and may be responsible for refracture if it is employed as part of the after-treatment of operative fixation. The calliper fixes the ankle and knee, and converts the limb into one long rigid lever, with its fulcrum at the level of fracture. Every movement of the limb, even slight twisting movement of the feet, is directly transmitted to the neck of the femur.

If the object of our treatment is nothing more than, in Mr. Sinclair's words, "patients leaving hospital walking—some united, others not—in calliper splints," then

the treatment advocated by Mr. Sinclair is adequate. If, on the other hand, the object of our treatment is bony union of the fracture with no shortening of the femoral neck and with full movement of the knee- and hip-joint, then his treatment is not adequate.—I am, etc.,

Liverpool, Dec. 14th.

R. WATSON JONES.

Uveo-parotid Tuberculosis

SIR,—The letter from Dr. Garland in your issue of December 15th last, commenting on our article on "Uveo-parotid Tuberculosis," requires an answer from us.

In the first place, we should like to make it quite clear that our paper was written some considerable time before the appearance of Garland and Thomson's in the *Lancet* on October 6th. It was submitted to you, Sir, on August 10th, and you will recollect that, on the appearance of theirs, one of us wrote to you pointing out this fact and asking your advice on the desirability of proceeding any further with the publication of our account of Case II. Had we known that Dr. Garland intended publishing an account of this patient we would willingly have supplied him with clinical notes showing her progress whilst under our care.

With regard to our statement about the finding of tubercle bacilli in the sections of the parotid gland of this case, we base it upon a later report of the pathologist, who, after a further painstaking and exhaustive search, was able to demonstrate them to us. There were only a few present, but neither he nor the assistant pathologist had any doubts about them.—We are, etc.,

Leicester, Dec. 17th.

S. E. TANNER,
ARTHUR MCCURRY.

** The paper by Drs. Tanner and McCurry was submitted for publication on August 10th, 1934; and Dr. Tanner wrote to us, as he says, in October, after the appearance of the paper by Drs. Garland and Thomson.—ED., B.M.J.

SIR,—There are one or two points raised in Dr. A. D. Macdonald's letter (December 15th, p. 1123) which require some explanation. He says that "a story of discharging neck glands in youth is often obtainable from patients." I wonder which patients. When Dr. Thomson and I reviewed all the available literature on this subject¹ we were only able to find one case (that of Kaitz) with such a history. Again he says: "One of the most constant physical signs is that of enlargement at the root glands of the lungs, demonstrable in skiagrams," but this has only been noted in two or three cases. He then refers to "a recent investigation which I had occasion to make into cases of this malady." Are we to gather that Dr. Macdonald has seen several cases of uveo-parotid tuberculosis which have not yet been recorded in the literature? He next mentions "the conception of tuberculous infection . . . of familial origin"; surely the word familial usually connotes inheritance, more especially recessive inheritance.

With regard to the association between uveo-parotid tuberculosis and Mikulicz's syndrome there can be no doubt that some cases of the latter are examples of the former condition with associated involvement of the lachrymal glands, and several such cases are on record, the last being that of Dr. Esmond Rees.²—I am, etc.,

Leeds, Dec. 17th.

HUGH G. GARLAND.

¹ *Quart. Journ. Med.*, 1933, xxvi, 157.

² *Lancet*, October 6th, 1934, p. 749.

Early Diagnosis of Whooping-cough

SIR,—Whilst appreciating the value of the clinical signs and symptoms enumerated by Dr. P. R. Evans (*Journal*, December 8th, p. 1043), one would like to emphasize the importance and simplicity of the lymphocytic count in the early stages of whooping-cough before the whoop. A simple film stained with Leishman's stain will often show such a high relative percentage of small lymphocytes (in the neighbourhood frequently of 70 per cent.) that a full differential count is rarely necessary. The importance of this is that it transforms what is at the best a suspicion into a diagnosis.—I am, etc.,

London, N.7, Dec. 15th.

W. LEES TEMPLETON.

Obstetric Methods at St. Mary Abbots

SIR,—Dr. Theobald says he is delighted to have my "categorical assurance" that for the last quarter of a century general practitioners have

"always worn gloves, shaved the pubic hair, used more than a gallon of antiseptic solution, and a corresponding number of swabs for each confinement; have dispensed with vaginal examinations in normal cases; have not touched the perineum during delivery; have dispensed with induction of labour and Caesarean section, and kept the forceps rate below 4 per cent.; have used adequate amounts of anti-streptococcal serum in possibly infected cases; have insisted on adequate drainage and purgation; and have kept the urine alkaline during the puerperium."

Now my categorical assurance was never intended to cover all the measures that Dr. Theobald thinks needful to secure the excellent results he does in St. Mary Abbots. But general practitioners have for over a quarter of a century used antiseptic and swabs. They do not share Dr. Theobald's faith in the magic of a gallon or more, and have not had reason to regret either that some cases took only three-quarters of a gallon and some three or four gallons. As for not touching the perineum during labour, they certainly reduce such a practice to the minimum. General practitioners have not a plenitude of helpers in these cases as Dr. Theobald has. They have left Caesarean section to the specialists and also left them to condole with each other on the results. They have induced labour, when necessary, with entirely satisfactory results. They have not bound themselves down to any artificial percentage minimum of forceps applications, but have applied these when they thought them indicated, and both they and the patient have continued to be grateful for an instrument which wisely and properly used has done so much to alleviate and to save. Anti-streptococcal serum, of course, is a comparatively late comer into the obstetric field, but the general practitioner uses it if he thinks the patient requires such support. The general practitioner gets his patients to sit up twenty-four hours after delivery, and as for purgation, he secures that invariably and sufficiently, but not heroically. As for keeping the urine alkaline, the general practitioner does not think himself cleverer than Nature, and if Nature shows an acid urine and all is otherwise well he leaves her alone. If, however, the urine shows signs of infection, he gives ample fluid and pot. cit. Incidentally, how does Dr. Theobald secure clean urine in the puerperium? It must be contaminated by discharges unless it is got by catheter. If contaminated, it will be alkaline, as the discharges will make it so. To catheterize is a dangerous practice, and only justifiable in retention; it involves touching the parts.

When I said that the general practitioner carried out many of Dr. Theobald's ideas I meant that he sees that the breasts are kept clean and the nipples toughened up and developed long prior to confinement. He attends to the bowels and diet. He does not wear masks, as he

shares Dr. Theobald's beliefs on this point. He has known for years that antiseptics, not aseptics, is the key to safe midwifery. These and many more points were in my mind when I congratulated Dr. Theobald on his rediscoveries.

His criticism led me to re-read his article. I should like to say a few words thereon; and to ask a few questions. How did it come that with such efficient ante-natal care a case came to labour a breech, and another a face? Why is it such a dangerous procedure to insert a finger even once into the vulva in a normal and physiological state like labour but a perfectly right thing to do, again and again, in an abnormal state like abortion? Had that case with the retraction ring, in which both mother and child were lost, been a general practitioner case might it not have been thought that zeal for a low forceps rate was at the bottom of the disaster? It also makes strange reading that some infants were born dead after easy labour with no post-mortem signs of any cause of death. I should like to know if these were first cases, and the length of labour in each case? We are not told the length of the labour in any case in the series. Judged by general practitioner standards the infant mortality is high. Why put on forceps when the head was on the perineum? Was it for exhaustion of the mother or child? How did he manage to put them on without touching the perineum? Were they put on with the tongue forceps? How did he dilate the cervix—manually, without touching the perineum? If the estimation of the ability of the head to pass through the pelvis is done under chloroform a false idea is conveyed to the observer; if not attempted under chloroform, Dr. Theobald's manoeuvre is impossible in a primipara. The abdominal muscles are too tight to get behind the uterus, and the primiparae are the cases that really matter. No mortal man can tell certainly in these borderline cases whether the head will pass or not. It depends on so many factors and their interaction. It is not a mere pelvic problem. With so much washing out and purging, one would not expect faeces on a glove after a rectal examination. Lastly, if there is dystocia how does Dr. Theobald secure a fruitful and comfortable labour without resort to Caesarean section, induction, or forceps? As Coleridge asked of Mont Blanc, "Hast thou a charm to stay the morning star?"—I am, etc.,

Glasgow, Dec. 12th.

JAMES COOK, M.D.

The Practice of Midwifery

SIR,—The recent correspondence in your columns revealing the differences of opinion amongst obstetric teachers must be very interesting to the general practitioner. It would seem that pelvimetry has had its day, and it is now suggested that it is almost malpraxis not to hand over our ante-natal work to the radiologist. Will not this add to the anxiety of the mother, who merely wants to know if it is safe to have her baby at home, not to mention the expense?

A short while ago we were asked to take with us to our confinements an anaesthetist with a complicated and cumbersome gas apparatus which made the drop-bottle which our fathers used to take in their pockets look foolishly simple. If the biochemist and physiotherapist want to join the party we may have to buy trailers for our cars. It will be no joke carrying apparatus over ploughed fields in the small hours.

The fact remains that most babies will continue to be born at home under the care of midwives or general practitioners so long as most babies are born for under two guineas instead of at Harley Street prices.—I am, etc.,

WALTER RADCLIFFE, M.B., B.CHIR.

Wivenhoe, Essex, Dec. 18th.

Chloroform Analgesia in Maternity Cases

SIR.—With reference to the letter by "G. D. G." on anaesthesia in maternity cases in the *Journal* of December 15th, I should like to express my agreement as to the efficiency of chloroform used as an anaesthetic in midwifery cases. I would go further and say that the use of the brisettes or crushable chloroform capsules of 20 minims each, as tried out in the maternity hospitals in London and throughout the United Kingdom, has proved a success. The trial was made under the auspices and by the aid of the National Birthday Trust Fund, and the tabulated results bear out the safety and usefulness of chloroform used in that way as an analgesic in labour.—I am, etc.,

London, W 2, Dec. 18th.

W. D. HAYWARD, M.B.

Viewing the Pelvis

SIR.—Perhaps some of our friends have seen the simple x-ray apparatus used to show if a boot or shoe fits. That is what we need in obstetrics. The apparatus is usually stamped with the name Gaiffe Pilon et Cie, for it was invented by the Compagnie Générale de Radiologie, whose headquarters are in Paris.

As I could not get anyone in England to be sufficiently interested in what happens to the pelvis when a patient squats, I spent over a year in France, and, by the kindness of that very company, who gave me introductions to x-ray specialists and assisted me with the work, I found that in squatting or crouching the top of the sacrum goes back, while the subpubic angle opens and the pubic arch is widened, the pubic symphysis diminished in depth, thus facilitating the passage of the foetal head. In a well-shaped pelvis this movement converts it into a cylindrical tube (see Testut—*Anatomie*), and easiness of birth, as I have pointed out before, depends upon three factors:

- 1 Shape of the pelvic brim (the more nearly it approaches the circle the greater is its capacity).
2. Mobility of pelvic joints, which enable the movements described above to be carried out. This mobility is much increased by appropriate exercises.
3. Position adopted for delivery, which should be such that the top of the sacrum can rotate backwards and forwards freely, for the antero-posterior diameter of the pelvis is increased in the squatting position, which necessitates movement and expansion of the pelvic joints.

I therefore asked the Compagnie Générale de Radiologie if they could design a simple apparatus in which, by pressing a button, the pelvis could be viewed. With such an appliance one would not only see the shape of the pelvic brim and judge of its capacity, one could also measure its mobility and what amplitude of movement the pelvic joints possessed. More important than the usual measurements are pelvic mobility, and this can be judged by the difference in the external conjugate when standing compared with the same measurement when squatting.—I am, etc.,

London, W 1, Dec. 18th.

KATHLEEN VAUGHAN.

Alkaline Treatment of Coryza

SIR.—It was with much interest that I read Dr. Bernard Potter's letter in the *Journal* of November 17th, confirming my experience that sodium bicarbonate cures the common cold.

For about ten years I suffered from recurring corneal ulcers—often lasting me off work for six weeks. These were treated by tests in different parts of the world, and I was in London with Dr. Rosa Ford, four

If the object of our treatment was the pertinent question, in Mr. Sinclair's words, "to cure the ulcer" and after making the usual—some united, others supplied the answer by informing

me that I had a nasal sinusitis. This, at the time, seemed to me incredible, as there were no symptoms to suggest this—no pain, tenderness, or discharge, etc. However, after carrying out the treatment prescribed, this diagnosis proved to be right, and I have had no eye trouble of any kind since. About two years ago someone wrote in the *Journal* advising alkalinizing the tissues for such infective conditions by taking sodium bicarbonate—half a teaspoonful three times daily—explaining that infective germs flourish most readily in an acid medium. I adopted this treatment one winter, carrying it out for several months, and it was remarkable that during this time I never had a cold. Usually I suffered from at least three heavy colds in the year, one or more of which appeared in the winter. Thinking that this happy state of things must be due to the alkali, and arguing that those who were liable to infections were those with a lowered alkalinity, it seemed sound treatment to correct this, so I have continued taking half a teaspoonful of sodium bicarbonate at bedtime ever since. The result has been that I have not had a cold since I adopted this prophylactic dose. Occasionally, when I had run much risk of infection, I have felt the familiar symptoms of the commencing cold, but pushing the dose to half a teaspoonful three times a day has immediately nipped it in the bud.

Dr. Potter says the treatment is an old one, but, if so, I think it is so little known that if one were called to a patient suffering from nasal catarrh with chest symptoms and prescribed a teaspoonful of sodium bicarbonate the result would be a letter asking one not to call again. However, I have tried it out on friends with uniform success. One of these never passed a winter without several colds with chest symptoms, each attack laying her up for about a fortnight. She adopted the prophylactic dose and got through last winter without one attack. Others have taken it when the cold was commencing, with the result that it was arrested.

The alkaline treatment may only act with people who have a lowered alkaline reserve, but then probably these are the ones who suffer readily from infections.

Some years ago I had an American patient suffering from severe influenza with cardiac complications. She was astonished that she personally should have caught influenza, as she thought she was immune. She had nursed her husband repeatedly through attacks of it, but she herself had never contracted it. She told me that when she expressed the fear that she might be attacked her American doctor had said, "Don't be afraid; take a teaspoonful of sodium bicarbonate at bedtime and you will be all right."

This leaves one wondering if the alkaline treatment has a wider field of usefulness than in preventing or curing the common cold. At least it suggests that it would be worth trying during an influenza epidemic.—I am, etc.,

San Remo, Dec. 15th.

LOUISE FRASER.

Economic Aspects of Suicide

SIR.—Under the heading "A Practical Note on Suicide" Dr. Frederick Dillon (*Journal*, December 15th) stated that "speaking generally, we may say that suicide is a way of escape from a situation that has become intolerable," and also that "worry from external circumstances, unless the latter are of an extraordinary or exceptionally disturbing character, cannot be said to be sufficient in itself to arouse a suicidal attitude of mind."

In the *Listener* of December 5th, in an article which was broadcast by Major C. H. Douglas, the originator of the Douglas Social Credit Scheme, in the "Causes of War" series, entitled "Is our Monetary System to Blame," there appears a graphic representation of the suicides and bankruptcies in Great Britain since 1910. This startling graph shows a remarkable parallelism between suicides and bankruptcies. During the war both diminished in frequency, to be followed by a rapid rise after the war. The graph indicates that worry from

external circumstances of an extraordinary and exceptionally disturbing character was operative before the war, diminished during the war, when money was more plentiful and greater economic security existed for the individual in spite of the enemy at our gates, and has been and is operative more than ever since the war, during a period of great financial stringency decreed by sound finance.

It is clear that with increasing irritations of an economic nature an increasing number of people will go bankrupt and will commit suicide. This is an argument against the irritations rather than against human nature. At a public meeting convened by the Committee against Malnutrition Sir F. Gowland Hopkins remarked on the now generally accepted fact that through the success of scientific methods the repetition of the miracle of the loaves and fishes had become possible. This possibility is true literally and metaphorically, and yet bankruptcies and suicides have been, and are, increasing. Life itself, including medicine, is being frustrated.

The close association between bankruptcies and suicides suggests a financial basis for them both, and for much of the present frustration of life. Major Douglas's graph is a very practical note on suicide, introduces a realistic touch to a psychological study, and points the accusing finger unflinchingly at the false god of High Finance. This is an aspect of the subject of great moral and practical importance which calls for consideration.—I am, etc.,

Barnard Castle, Dec. 17th.

JOHN LEISHMAN.

Obituary

Dr. FREDERICK GOULBURN GIBSON died suddenly at his home in Christchurch, New Zealand, on November 5th, at the age of 63. He was born in New Zealand and was at school in Christchurch, and subsequently took his M.A. in the University of New Zealand. He studied medicine at Guy's Hospital, taking the M.R.C.S. in 1930 and the M.D.Lond. in 1903. Keen in all sports, he particularly excelled at Rugby football, playing for Guy's Hospital. For the last thirty years he had practised in Christchurch, New Zealand, where he was one of the leading practitioners. He enjoyed particularly the old type of family practice, perhaps less common in new countries than in England, where the general practitioner becomes the friend and counsellor of his patients, as well as merely their medical adviser, and is able to follow the same patients and families through more than a generation. He was also an energetic member of the Christchurch Division of the British Medical Association, and was President of the New Zealand Branch in 1923. During the war he served as a major in the N.Z.M.C., part of his active service being spent on the hospital ship *Marama*. He leaves a widow, two daughters, and a son.

We regret to announce the death, on December 12th, of Dr. ARCHIBALD CAMBELL, medical officer in charge of the venereal clinic of the Royal Hospital, Portsmouth. Born in 1880, he received his medical education at Owens College, Manchester, graduating M.B., Ch.B.Vict. in 1905. After some post-graduate study he joined a partnership in Portsmouth. In 1914 he received a commission and went to France, where he developed great ability in the treatment of venereal diseases. He was later appointed to specialist work at Hilsa Military Hospital, and in 1917, when the new venereal diseases clinic was opened in Portsmouth, he was placed in charge of it, continuing to work there until just before his death, with conspicuous success. As a specialist he was widely known. He invented an aero-urethroscope, and contributed articles on treatment to the *British Medical Journal* and elsewhere. A keen member of the British Medical Association, he was

vice-president of the Section of Venereal Diseases at the Annual Meeting at Edinburgh in 1927. Dr. Cambell was a great organizer; he built up the present venereal diseases department of the city of Portsmouth, which has been widely acclaimed as a model scheme. He took whole-hearted interest in the work of diminishing these diseases, and in 1931 he had the satisfaction of seeing the city rank as the third lowest of the twenty largest towns in the country in respect of the attack rate. He devoted himself particularly to children suffering from transmitted disease, saving very many from permanent blindness, and restoring a large number to health. Quiet and unassuming, he shunned anything that seemed to savour of advertisement. He was imbued with a strong sense of duty, which was evident in the punctilious care given to every detail of his work. He endeared himself to everyone with whom he came into contact by his kindness and charm of manner. Dr. Cambell leaves a widow, three sons, and a daughter.

The following well-known foreign medical men have recently died: Hofrat Dr. MAXIMILIAN STERNBERG, professor of internal and social medicine at Vienna; Dr. HUGO WINTERNITZ, professor of internal medicine at Halle, aged 66; and Dr. G. FARKAS, professor of physiology at Budapest, aged 63.

The Services

ROYAL ARMY MEDICAL COLLEGE

The War Office announces that Brevet Colonel H. M. J. Perry, O.B.E., Honorary Surgeon to the King, has been selected for promotion to colonel and for appointment as Director and Professor of Pathology at the Royal Army Medical College, Millbank, London, with effect from December 28th, 1934, in succession to Colonel A. C. H. Gray, O.B.E., M.B., Honorary Surgeon to the King, who is retiring on retired pay.

Colonel Gray has served for more than thirty-one years in the Army, during which, in addition to the appointment he is now vacating, he has held the appointments of Assistant Professor of Pathology and Professor of Pathology at the Royal Army Medical College as well as that of Director of Pathology at the War Office. He also served for over five years (while seconded) in Uganda with Sir David Bruce as a member of the Royal Society's Commission on Sleeping Sickness, and received the thanks of the Secretary of State for the Colonies for his very valuable work.

Medico-Legal

PUNISHMENT FOR LIBELLING A DOCTOR

At the last Manchester Assizes, before the Commissioner, Mrs. Nelly Mills of Marple pleaded not guilty to publishing defamatory libels on Dr. Garth ApThomas of Stockport, in anonymous letters sent to Dr. ApThomas, his daughter, and his partner. The indictment consisted of six charges, three of them under the Post Office Act.

Mr. A. E. Jalland, for the prosecution, said that the letters imputed immorality by Dr. ApThomas, who, in fact, apart from attending Mrs. Mills for a fortnight in September, 1929, had spoken to her on two or three occasions only. Counsel submitted that all the letters were written in the same disguised handwriting, and there was not a word of truth in the allegations. The letters had been arriving since 1930. Counsel, describing the events leading up to the arrest of the prisoner, said that post-office officials watched her post a letter and then dropped a newspaper into the letter-box. When the pillar-box was opened, a letter addressed to Miss ApThomas was immediately underneath the newspaper. Mr. J. E. Greenwood, a handwriting expert of Manchester, identified the handwriting on this and other letters as that of the prisoner.

In sentencing Mrs. Mills to twelve months' imprisonment the Commissioner described the offence as abominable.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons spent three days last week debating the new regulations for Unemployment Relief. The adjournment of the House was arranged for from December 21st to January 28th.

On December 18th Mr. Isaac Foot presented a petition, signed by 5,102 persons, which stated that, believing vivisection to be morally unjustifiable, scientifically useless, and dangerous and demoralizing to the community, the signatories earnestly prayed the House to pass a Bill withdrawing the sanction of the law to this practice.

The National Health Insurance (Arrears) Amendment Regulations (No. 3), 1934, were laid on the table of the House of Commons on December 20th.

The Housing Bill and the Housing (Scotland) Bill were introduced in the House of Commons on December 20th by Sir Hilton Young and Sir Godfrey Collins respectively. The text of the former will be issued on January 16th. Its purpose is "to make further and better provision for the abatement and prevention of overcrowding, the redevelopment of areas in large towns in connexion with the provision of housing accommodation therein, and the reconditioning of buildings, to make provision for the establishment of a housing advisory committee and of commissions for the management of local authorities' houses, to amend the enactments relating to the housing operations of public utility societies and other bodies, to provide for the consolidation of housing accounts, and to amend the enactments relating to housing." The long title of the Scottish Bill is similar, save that "large towns" are not specified. The second reading of the English Bill is set down for January 30th and 31st.

The Government of India Bill was presented in the House of Commons by Sir Samuel Hoare on December 19th. Sir Francis Fremantle has made representations to the Secretary of State upon its medical aspects.

A motion praying for the annulment of the Traffic Signs (Pedestrian Crossings) Provisional Regulations, 1934, which authorize "beacons," was moved in the House of Commons on December 18th, but withdrawn.

In the House of Lords the Depressed Areas Development and Improvement Bill was read a second time on December 19th, and passed through committee and remaining stages on December 20th, "special areas" being substituted in the title for "depressed areas." The Supreme Court of Judicature Amendment Bill was read a third time on December 20th. The Royal Assent to the former Bill was arranged for December 21st.

The House of Lords, on December 18th, approved by 239 votes to 62 the proposals on Indian government made by the Joint Select Committee.

Revised figures for the division on the second reading of the Osteopaths Bill in the House of Lords show it passed that stage by 37 to 20.

Unemployment Assistance

In the House of Commons, on December 17th, Mr. OLIVER STANLEY moved that the draft Unemployment Assistance (Determination of Need and Assessment of Needs) Regulations, 1934, should be approved. He said that the scales proposed were the result of a very careful survey by the Board of the primary needs of the people for whom they had been responsible. There were very great differences in the results which had been arrived at by the different social surveys, but in deciding whether the Board had succeeded in its task or not it was not fair to pick out the best bits from each of those scales and put them into one scale with which to compare the Board's to the great disadvantage of the latter. In the spring of this year there was a hotly contested debate, and even a

closely contested division, whether a child should receive 2s. or 3s. In the new scale the minimum for any child under 5 was 3s., and that amount increased with age, which was a new principle. This was the first time, he thought, that the distinction had been made on the proper basis—that the older the child the more it needed and the more it should receive. Members would agree that in comparison with the old scale, under which the vast majority of those on transitional payment had been dealt with, this new scale for the family with children was an immense improvement. He had received that day from the Children's Minimum Committee certain criticisms on the subject of the scale for children. The committee frankly admitted, with all the criticism it had to make, that the new scale represented a great advance on what had gone before. However, the committee attempted to make out a case for a higher rate, said that the scale was still inadequate, and gave figures to form a comparison between the British Medical Association's scale for food and the Merseyside scale for such things as fuel, light, and clothing, and the scale adopted by the Board. It would have been possible to take the Merseyside survey as a basis for the whole of the need, including food. Were that done, it would be found that the Board's scale for a man and wife and three children was higher than that of the survey. With regard to the British Medical Association's scale he did not pretend to be able to say whether that scale or the scale produced by three or four other surveys was theoretically correct. It did happen that the British Medical Association's scale, which had been selected for comparison, was very much the highest in the matter of food. One of the reasons for this was the very large provision which the B.M.A. scale made for milk. The latter scale, and the costing of it, were drawn up before the scheme for the provision of cheap milk in schools came into operation, and required revision in view of the fact that the milk, which formed such a large part of it, could now be obtained elsewhere.

Dealing with the question of the treatment of resources other than earnings, he said that with regard to milk and school meals the basis which the Unemployment Assistance Board was going to adopt in the first instance was as follows. All meals given on a doctor's certificate that a child was suffering from a specific physiological condition and required extra nourishment were to be set off against the personal medical requirements of the children, and ignored. The next provision dealt specifically with milk or other special items, such as cod-liver oil, which was to be entirely ignored. Meals up to two per day for a single child in a household, or one meal for two children, would be ignored as constituting a negligible saving to the family. That was to say, twelve meals in the week in the household were free. After that, some deduction was to be made in respect of those meals, which worked out at roughly one penny a meal. As regards medical relief, maternity and child welfare, and tuberculosis services, any payments or allowances in kind under those services would be regarded as being set-off by the special needs, and would therefore be ignored. In the case of pensions for old age, widows and orphans; and blind pensions under the Blind Persons Act, 1920, any balance after providing for the pensioners' needs at the scale rate would be allowed for personal requirements where there were no other resources. In other words, in those cases it would be ignored.

The B.M.A.'s Nutrition Scale

Mr. GREENWOOD moved an amendment to the effect that the regulations would be inadequate to ensure the maintenance of unemployed persons and their dependants in health and physical efficiency. Referring to the adequacy of the scale, he said that Mr. Stanley tried to dispute the validity of any kind of comparisons. The right hon. gentleman said: "Of course, if you accept the British Medical Association's scale you should accept it for everything. If you accept the scale of the Merseyside Social Survey Committee you should accept it for everything." His reply was that on the question of ascertaining the food values and human needs as regards food, it was far better to place reliance on the British Medical Association than on a non-medical body like the Merseyside Survey Committee. While he complained about the price that the British Medical Association put on its food values, as regards food needs there was no higher authority they could accept. As regards other needs, he was prepared to

accept the Merseyside Survey Committee's report, because the committee was dealing with things within its knowledge, and that would not apply to the other elements in the cost of living if the British Medical Association had tried to elaborate the scale. The first point in the British Medical Association scale was that examinations which had been made by working-class women of experience, who could be relied on to, buy in the best possible market, showed that it was impossible to buy the amount of food laid down in the Association's scale at the price that scale suggested. The medical officer of health for the Lancashire town of Middleton said that the prices were higher within that area than in the British Medical Association's scale. He estimated that it would need 24s. in the town of Middleton to buy the food which the B.M.A. said could be bought for £1. That meant that the estimate of the B.M.A., not in terms of food value but of the money needed to buy that food, was about 20 per cent. wrong. He was not blaming the B.M.A. for not being able to change calories into pounds, shillings, and pence, but he could give the House a list of places showing that the Association's scale as measured in money was hopelessly below what would actually be possible. In some towns it would need 25s., 26s., or 27s. to buy the amount of food it was suggested could be bought for £1. That made any disparity between the Unemployment Assistance Board's scale and the British Medical Association's scale all the greater. It was clear to those who had examined the regulations and gone through the scales and tried out various sizes of families, which he spent part of his week-end doing, that there was a very considerable disparity in many cases. He was certain if the British Medical Association's scale was examined as it stood, not subject to a 20 per cent. increase in costs, it would be found that there was a serious disparity between that scale and a reasonable allowance for the barest physical needs of life, which meant that the Government was not meeting the minimum physical requirements of the people. He could not understand the attempts of supporters of the Government to prove that malnutrition did not exist. He was not going to pretend that we were on the whole a C 3 nation, and that there was evidence of malnutrition everywhere; but he said that when people tried to belittle the effects of malnutrition they were not acting in the public interest. It was the Chief Medical Officer of the Ministry of Health who said that malnutrition should be judged objectively; he did not see the cases, but the Labour Party had a certain volume of evidence that under the existing standards of unemployment insurance benefit or transitional payments, numbers of people, especially young people, were suffering from malnutrition, and, unless the scheme was sufficiently generous to meet all reasonable physical needs, the amount of malnutrition which existed to-day would increase.

In the House of Lords, on December 20th, the same Draft Unemployment Assistance (Determination of Need and Assessment of Needs) Regulations were considered. Lord MARLEY said that figures printed in the *Times* on December 17th (p. 14) showed the deficiency of the Unemployment Board's scale of allowances per child compared with the scale laid down by the British Medical Association and the Merseyside survey. The scales laid down in the regulations were likely to affect the heads of the families which came under them. They were inadequate for building up healthy, strong, and capable future citizens. They were shillings per week below the British Medical Association's scale, which was itself founded on a price level which few of their lordships would be able to put into effect if they had the spending of the money. Lord ROCHESTER said that with reference to the difference between the scale of the Unemployment Assistance Board and the British Medical Association, the question had been considered at a conference attended by representatives of the Ministry of Health and the British Medical Association. The conference had deplored the exaggerated importance that had been attached to the alleged disagreement between the two committees which had drawn up scales. It had stated that there was no fundamental disagreement between the two bodies on any matter of scientific importance. The Board scale, taken as a whole, compared very favourably with the average of those other scales to which reference had been made. The regulations were at least a distinct advance on anything which had previously been enacted. The House then agreed to the draft regulations.

Sickness Benefit.—In reply to Mr. West on December 13th, Sir HILTON YOUNG said it was estimated that the sum expended on sickness and disablement benefits by approved societies in England and Wales in the years 1932 and 1933 represented 164,000,000 and 174,000,000 working days respectively.

The Water Survey.—On December 17th Mr. SHAKESPEARE informed Major Hills that the inland water survey which he was instituting was to collect and correlate reliable records of available water supplies, particularly of river flows, including flood flows, and of underground water levels. The information for the survey would be obtained from catchment boards, which were primarily responsible in England and Wales for flood prevention, and other qualified bodies and persons, as well as from water undertakers. The survey would be of value to those concerned with all aspects of inland water administration.

Battersea Power Station.—Mr. ALAN TODD asked the Minister of Transport, on December 17th, if he could make a report on the emission of smoke and noxious fumes from the new Battersea power station. Captain A. U. M. HUDSON, who replied, said a further report by the Government Chemists' Committee was being printed.

Ante-natal Clinics.—Replying, on December 18th, to Viscountess Astor, Mr. SHAKESPEARE said that, according to the latest information available, four of the 422 maternity and child welfare authorities in England and Wales had not yet set up maternity or child welfare centres, and forty-six others which had provided welfare centres had not yet set up separate ante-natal clinics. In some of these areas voluntary clinics worked in harmony with the local authorities, and in others of a rural character arrangements were made by the local authorities for ante-natal supervision by general practitioners. Viscountess Astor asked if the Minister could do anything to make authorities which had not taken advantage of the Act of 1918 set up clinics. Mr. SHAKESPEARE said the Ministry had sent out a circular of reminder to every one of these authorities.

Conservative Housing Committee.—In the absence of Sir Francis Fremantle, who was awaiting his turn to speak on the Unemployment Assistance Regulations, Sir WALTER WOMERSLEY presided, on December 19th, at a meeting of the Conservative Health and Housing Committee. Mr. A. C. BOSSOM opened a discussion on rehousing and slum clearance schemes. He estimated that with the best organization it would take ten years to complete the Government's programme. The first step should be to estimate the total requirements in materials. The Ministry should divide the country into, say, ten areas, each with its building schedule; and each assured of a steady supply of materials. Mr. BOSSOM mentioned as one hindrance to economic efficient organization of building schemes the varying regulations enforced by local authorities. This threatened failure to the proposals of the Government. Mr. H. R. SELBY followed with suggestions in reference to Improvement Area Procedure. The meetings of this committee are of increasing interest in view of the overcrowding legislation to be introduced after Christmas. Its secretary is Captain G. S. Elliston.

Battersea Factory's Fumes.—Mr. SHAKESPEARE, on December 18th, informed Mr. Todd that the attention of the Minister of Health had been drawn to the nuisance caused to residents in West Chelsea by the emission of fumes from the factory owned by the Morgan Crucible Company, Ltd. The Minister's alkali inspectors had taken up the matter with the company, and had conferred with officers of the Battersea Borough Council. The company had very recently completed the installation of remedial plant which, the Minister was advised, had effected a definite improvement. The inspectors would continue to watch the situation. In the circumstances the Minister had not thought it necessary to press the local authority to take action.

Reconditioning of Rural Dwellings.—Mr. SHAKESPEARE informed Captain Heiglers, on December 18th, that the number of dwellings in England and Wales which were reconditioned or improved under the Housing (Rural Workers) Acts during the year ended September 30th last was 1,215. Work was in progress at that date on a further 1,020. During the same period 3,860 houses were built by rural district councils.

Education of Partially Sighted Children.—Mr. RAMSBOTHAM informed Mr. Ernest Evans, on December 20th, that a large number of local education authorities were considering the recommendations contained in the report of the Committee on Partially Sighted Children. He could not say how many of them had already decided to adopt any of those recommendations. The Board of Education was in general agreement with the recommendation of the committee on the advantages of educating partially sighted children in classes which formed part of ordinary elementary schools. A proposal to make provision in one area on lines indicated in the report had recently been approved. The Board of Education took steps as opportunity arose to give effect to the committee's recommendations.

Nursery Schools and Cheap Milk.—Mr. RAMSBOTHAM told Mr. David Grenfell, on December 20th, that it was not the policy of the Board of Education to refuse to sanction any expenditure on nursery schools. Those schools were not debarred from participating in the scheme for cheap milk. An increasing number of grant-earning nursery schools were eligible to participate in the scheme, but it did not apply to schools of any type not recognized for grant.

Answering Lord Strachie in the House of Lords on December 18th, Lord HALFAX said that so far as he was aware the milk supplied to school children in Somerset was not limited to pasteurized or tuberculin-tested milk.

Universities and Colleges

UNIVERSITY OF OXFORD

The following candidates have passed in the examination indicated:

FINAL B.M.F., B.Ch. (Medicine, Surgery, and Midwifery).—H. A. Broadbent, R. Clark, A. Fearnley, P. R. Greaves, C. A. Hinds Howell, A. H. Hunt, T. G. Lowden, R. McDonald, R. Passmore, N. K. Stott, T. M. Williams.

UNIVERSITY OF CAMBRIDGE

At a congregation held on December 19th, the following medical degrees were conferred:

M.D.—J. St. C. Elkington, J. H. L. Easton, D. Aserman, E. A. Nicoll, L. E. Houghton

M.B., B.Ch.—A. C. de B. Helme, A. Lister, A. Willcox, C. S. Hall-Smith, C. H. D. Bartley, F. J. Curtis, R. S. Handley, A. M. Lester.

M.B.—R. H. Dobbs, W. A. Elliott, C. P. F. Boulden, A. R. R. Mears, F. W. Holdsworth.

B.Ch.—R. W. D. Turner, F. B. Turner.

* By proxy.

UNIVERSITY OF BIRMINGHAM

The following degrees were conferred at a congregation on December 14th:

M.B., Ch.B.—H. T. D. Bocking, J. D. Cruikshank, Brenda Fife, R. N. Jones

UNIVERSITY OF BRISTOL

Dr. H. J. Drew Smythe has been appointed to succeed Dr. R. S. Statham as professor of obstetrics.

The Council has decided to establish a full-time chair of medicine. Subject to the concurrence of the Bristol General Hospital, the first holder of the new chair will be Dr. C. Bruce Perry.

The following appointments have also been made: Dr. Charles Cornfield, lecturer in charge of the Department of Anaesthetics, in succession to Mr. Stuart Stock; Dr. C. E. K. Harpath, clinical dean at Bristol Royal Infirmary; Dr. L. A. Moore, clinical lecturer in anaesthetics; Mr. R. Gordon Paul, F.R.C.S.Ed., clinical lecturer in surgery; Dr. H. J. Orr-Ewing, F.R.C.P., clinical lecturer in medicine; Dr. G. E. F. Sutton, M.R.C.P., clinical lecturer in medicine.

VICTORIA UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B. AND CH.B.—Part II: J. Barkman, J. Curry, F. G. Dribbough, A. Harris, B. P. Hild, J. A. Holton, R. H. Johnson, S. H. O. Jones, Fred H. Knight, Winifred Potter, W. K. Street, Maryne Susan, A. McN. Tomlinson. **Part I:** J. Cohen, A. J. F. Crosby, H. A. Reutz, B. Thornley, G. W. Ward.

TURO M.B., Ch.B.—Pathology and Bacteriology: S. G. Abelson, Beryl A. Barlow, Muriel J. Brayshaw, J. C. Brundret, P. J. Burke, J. H. B. Cantley, Caroline J. Chalmers, Violet Cohen, D. L. Cooke, G. D. Dawson, B. Flacks, J. Goldman, D. Halpern, A. B. Humer, A. Hargreaves, B. P. R. Hartley, J. A. Herd, I. Hesford, J. Hilton, C. B. Holland, G. M. Komrower, V. T. Lees, J. Meynell, Evelyn N. A. Milligan, Eleanor M. Mills, E. J. Mitchell, W. S. Parker, *B. Portnay, D. A. Richmond, A. L. Robertshaw, E. N. Rowlands, A. Shashoua, R. M. Shaw, Nina Shetstern, H. B. Slater, A. M. L. Smith, F. W. Smith, N. Taylor, D. J. Walker, E. P. Whitaker. **Pharmacology:** L. S. Anderson, J. C. Rabbage, I. W. Ball, L. Ballon, T. E. Barlow, R. S. A. Beckett, G. H. H. Benham, Muriel L. Bennett, Gretel Berghheimer, G. Berry, M. J. Blank, T. Dinsdale, J. H. Ferguson, J. H. France, Rosaline Green, Edith A. Greenhalgh, R. S. P. Hawkins, T. Holme, W. Ingman, R. Jackson, Monica M. Job, T. H. Lawton, Katherine I. Liebert, H. N. O'borne, *Nydia E. Panton, A. F. Pearson, W. A. Robson, Mary A. Rogerson, J. K. Rowson, R. N. Stansfield, T. S. Stewart, F. Stratton, N. Whalley, *A. B. White.

*With distinction.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—J. J. Healy.
M.B., B.Ch., B.A.O.—D. J. Burgess, J. J. Glynn, M. D. Hegarty, J. J. Hurley, J. F. MacCarthy, T. J. Mullins, T. P. O'Brien, T. P. O'Connor, D. G. O'Driscoll, P. Powell, T. Sutton. **Part I:** J. P. Corcoran, Mary P. Quinlan, J. N. McCarthy. **Part II:** D. C. Lawton. **Exempt in Pathology:** V. Bennett, Brendan Buckley.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

A meeting of the Royal College of Surgeons of Edinburgh was held on December 18th, when Dr. A. H. H. Sinclair, President, was in the chair. The following candidates, having passed the requisite examinations, were admitted Fellows:

C. D. G. Williams, T. J. Eason, G. C. Ferguson, B. B. Frishwater, M. Gaffney, C. J. K. Hamilton, J. A. Inrie, J. G. Irving, J. M. Jackson, O. V. Jones, I. D. Kitchen, A. D. Koutin, J. Lowe, C. C. McCallum, M. MacCulloch, C. A. P. d'A. Martins, P. H. Merfin, D. C. Monro, W. I. C. Morris, I. Newton, E. A. Nicoll, H. L. Rees, Naomi Reuben, D. N. R. Jones, I. M. Rutherford, R. G. A. Savage, P. Shannon, P. K. Thiagarajah, W. E. Thompson, J. H. Wilson.

Medical News

The annual dinner of the London (Royal Free Hospital) School of Medicine for Women, postponed on account of the death of Lord Riddell, will be held on Thursday, January 24th, at the Savoy Hotel (Embankment entrance), at 7 for 7.30 p.m.

Mr. Kenneth Gray will open a discussion on "The Improvement of Drainage and Water Pipes by the Use of Lead Alloys" at a meeting of the Royal Sanitary Institute at 90, Buckingham Palace Road, S.W., on Tuesday, January 8th, at 5.15 p.m.

The next meeting of the Society for the Study of Inebriety will be held at 11, Chandos Street, W., on Tuesday, January 8th, at 4 p.m., when Dr. Percy E. Turner will open a discussion on "Methylated Spirit Drinking."

The fifteenth International Congress of Physiology will be held in Moscow in 1935, according to the decision of the fourteenth congress, which was recently held in Rome, under the presidency of Professor Pavlov, with Professor L. N. Federoff of the Pan-Russian Institute of Experimental Medicine as general secretary.

The Seventh Imperial Social Hygiene Congress will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C.1, from July 8th to 12th, 1935. Further particulars will be issued later.

The King George V Merchant Seamen's Memorial Hospital, Malta, was opened in 1922, and is now in need of extension, which it is hoped may be possible soon. During 1933 the equipment of the x-ray department was considerably augmented, thanks largely to the Royal Naval Benevolent Trust. The in-patients numbered 343, while there were 3,042 out-patients. An appeal is made for financial support, since there is a bank overdraft of £290.

The Physical Society's twenty-fifth annual exhibition of scientific instruments and apparatus will be held at the Imperial College of Science and Technology, Kensington, S.W., on January 1st, 2nd, and 3rd. Admission is free without ticket on Thursday, January 3rd, from 3 to 6 and 7 to 10 p.m. Admission on the first two days is by ticket only. Tickets may be obtained from the exhibition secretary, Physical Society, 1, Lowther Gardens, Exhibition Road, S.W.7, who will also supply copies of the catalogue (price 1s., post free).

The Minister of Health has now arranged to exercise through the Welsh Board of Health his functions in relation to the welfare of the blind, so far as concerns Wales and Monmouthshire, except matters relating to old age pensions for the blind under Section 1 of the Blind Persons Act, 1920, which will continue to be dealt with by the Ministry in Whitehall direct. The transfer will take effect on January 1st, 1935. Local authorities and voluntary associations for the blind should address all correspondence relating to the matters in question to the Welsh Board of Health, City Hall, Cardiff.

The new ward in the Hospital for Sick Children, Great Ormond Street, towards which Mr. Charles Johnson, a member of the committee of management, has given £10,000, is to be named after the Princess Royal, who worked at the hospital during the war.

Sir G. Lenthal Cheatle, K.C.B., C.V.O., has been appointed a Chevalier of the Legion of Honour.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The TELEPHONE NUMBER of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, four lines).

The TELEGRAPHIC ADDRESSES are:

EDITOR OF THE BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.

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MEDICAL SECRETARY, Mediscera Westcent, London.

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Offensive Breath

"J. B. F." writes: I have as patient a girl of 8; good general physique, but suffering chronically from "bad breath." The following possible causes have been eliminated: constipation, bad teeth, tonsils and adenoids, antrum, and accessory sinuses. I should be grateful for suggestions.

Circumcision

Mr. S. F. MARGRAM-MÖLLER (15, Melville Street, Edinburgh) writes: I am preparing a pamphlet on circumcision, and would feel very grateful if any of your readers would let me have their experiences regarding the spread of non-ritual circumcision within recent years. Statistics from school medical inspection, etc., would be of special interest.

Income Tax

Payment for Guaranteeing a Loan

"A. N. M." refers to a reply in our issue of December 8th, and states that in similar circumstances the deduction was refused in his case. He would like the former reply to be amplified.

** In the case of *Ryall v. Hoare*, [1923] 2 K.B. 447, two directors guaranteed the bank overdraft of their company and were paid a commission for so doing. The deduction was refused to the company, but allowed on appeal to the special commissioners; the High Court case decided that the directors were directly assessable on the sums received for their guarantee. So far as the statement of the case discloses the facts the company was finally permitted to treat the payments as allowable. So far, therefore, the case supports "A. N. M.'s" claim, but it has to be admitted that the facts were somewhat different—for instance, the overdraft was an incident of trading; it was not obtained to purchase the business. That difference is of some importance, and tends to support the contention that in "A. N. M.'s" case, and similar ones, the payment is made to obtain the practice rather than as a part of the expense of working it. At the same time, the point is worth pressing, as the case referred to above might be cited in support.

"ACCOUNTANT" writes to point out that the case of *Ryall v. Hoare* related to excess profits duty, not income tax.

** The general principles of the income-tax code relating to the distinction between capital and revenue expenditure applied to excess profits duty—the special allowance for the use of additional capital in the business was merely to exclude from the "excess" the natural result of that addition. If, therefore, the expense was allowable for the purpose of excess profits duty it is, in our opinion, allowable for income-tax purposes. In the case of *Ryall v. Hoare* the point was not argued before the court, but it seems clear that the deduction was allowed, and to that extent the case can be quoted in support of the allowance claimed. Apart from that case we are very doubtful whether the claim can be established, seeing that the payments are made not so much as expenses of carrying on the practice as arising out of its purchase by a particular person.

Proportion of Residential Expenses

"D. M. O." asks, in the case of a medical practitioner who resides and carries on practice in one district and has a surgery and consulting rooms in another district, what proportion of expenses would be reasonable for the residence.

** The proportion depends on how the accommodation at the residence is allotted, as between professional and private use; the fact that there are professional rooms elsewhere affects the matter only if it reduces the professional use of the residence. If, therefore, the residential premises cover almost exclusive professional use of two rooms on the ground floor and of the garage "D. M. O." might reasonably claim one-half, though that would seem to be the most he could expect to be allowed.

Beginning of Appointment

"T. M." qualified in October, 1933, and was employed as from December, 1933. His earnings for the period to April 5th, 1934, were £90, and for the year to April 5th, 1935, say, £200. What is his liability to assessment?

** The rule as to assessment on the basis of the previous year does not apply to the year following the one in which the employment commenced. Consequently the assessment for 1934-5 will be on the amount of the earnings of that year—that is, £200. "T. M." was presumably exempt for 1933-4. There is no real inequity in the position, as the person to be assessed is charged on his actual earnings; it of course follows that when an employment ceases the employee does not continue to be assessed on the previous year's earnings.

LETTERS, NOTES, ETC.

Psychology and Religion

Dr. IRENE N. CLOUGH (Glasgow) writes: I was disappointed to find, in Dr. Forsyth's article on the above subject (*Journal*, November 24th, p. 958), that religious ideas were treated mainly on the level of Browning's *Caliban upon Setebos*. All the great religions transcend Caliban's theology; though all their adherents do not, no religion could persist which did not transcend Caliban's theology. As this is not a point which can be settled by argument, I should like to consider another point which admits of more objective evidence. "Conversion," says the report, "was essentially a phenomenon of adolescence, and psychologically was no other than the new strong tide of sexual feeling being deflected into religion. The check to its usual course was the outcome of undue strictness in early training." On looking at history, we find that neither religion nor sex exhibits a proper sense of its psychological barriers. Dante formed a life-long passion for Beatrice when he was nine; St. Catherine of Siena devoted herself to the religious life at the age of 7; while Joan of Arc was about 13 when she first heard her "voices." If we take the adolescent period to be roughly the years between 14 and 25, we find some leaders of great religious movements experienced "conversion" during this period, and a good many more did not. If Dr. Forsyth cares to study the history of Protestant Missions, he will find a large percentage of entirely normal husbands and fathers among the men who were unquestionably moved by a stronger religious impulse than are most men.

Influence of Decubitus on Vertex Presentation

Miss MINA B. WALKER (Matron, Crayford Hospital and Barnes Cray Nursing Home) writes: As a midwife, may I be allowed to put forward the following suggestion? I submit that there is a factor which, during the latter part of pregnancy, largely determines the respective incidence of right and left vertex presentations. The child's back will almost always be found to be directed towards the side on which the expectant mother is in the habit of sleeping during the last eight or ten weeks of pregnancy. It does not appear unreasonable that this should be brought about by ordinary gravitation combined with the known tendency of the foetus *in utero* to kick away from resistance. Practical interest rests on the general statistics of vertex presentations. With a left position an occipito-posterior presentation is of rare occurrence. With a right position, however, an occipito-posterior presentation is very common, and the frequency with which this leads to various degrees of delay and difficulty in primigravidae is worth bearing in mind. For several months I have been experimenting on these very simple lines at the Crayford Hospital ante-natal clinic. Patients have been instructed to sleep on their left side from about the seventh month of pregnancy. The number of left occipito-anterior presentations has increased so markedly during this period that it is difficult to put the results down to mere coincidence. I suggest that anyone giving the foregoing method a trial will be surprised at the results obtained. The procedure aims at preventing the occurrence of right vertex positions, with their liability to be posterior or to become so at the onset of labour, and is based on the assumption that it is mainly from these positions that the majority of unreduced occipito-posterior presentations are derived. Later in pregnancy, where a right vertex (potentially posterior) is already established—say at thirty-eight weeks—some successful results will still be obtained.

A Cancer Library

News comes from Philadelphia of the gift of Dr. Frederick L. Hoffman's cancer library, made jointly by the Prudential Insurance Company and himself, to the Cancer Research Laboratories of the University of Pennsylvania Graduate School of Medicine. An effort is being made by the Cancer Research Laboratories to establish a central depot or clearing-house for all information about malignant disease, so that, for the North American continent at least, there will be a collection and reference library available to those interested in cancer. The Hoffman library includes many cancer books and reprints, as well as lists of the leading cancer periodicals, and a large collection of related medical works and the vital and medical statistics of practically the whole civilized world, covering at least the last ten years of recorded experience. The library includes also the original mortality data on cancer collected by Dr. Hoffman for various communities and sections of the United States and Canada, exceeding 65,000 transcripts of cancer death

certificates and some 10,000 questionnaires concerning clinical, physical, and dietary factors, as well as treatment data and family histories of living cancer patients interviewed by trained research assistants in different cities with the co-operation of local boards of health and hospitals. At the present time, Dr. Hoffman is concentrating most of his attention upon an elaborate study of cancer in relation to diet and nutrition, including the collection of data in Philadelphia, Boston, San Antonio, and St. Louis. The Hoffman Library for Cancer is open to anyone in search of information, and every possible assistance will be given in the furtherance of special methods of research in which the statistical method can be of value.

Female Bleeders

Dr. M. H. ARMSTRONG DAVISON (Darlington) writes: The recent correspondence concerning female bleeders has prompted me to intrude upon your space. It is well that such cases should be made known, and that the statement found in so many medical textbooks should be confuted. If, as is so often said, haemophilia were only a disease of males, and were only transmitted by females, obviously it would have died out at its inception, and could never have been inherited from the first sufferer. Actually the disease is inherited from male and female alike according to strict Mendelian laws, modified only by the fact that the gene in question is borne upon the X-chromosome. The gene is recessive, and thus, if a female carrier marry a normal male, the chances are (if the number of offspring be sufficient) that half the male children will be bleeders and half the female children carriers. Should a haemophilic male marry a normal female, all the male offspring will be normal and all the females carriers. If, on the other hand, a haemophilic male marry a carrier female the first filial generation will be composed of normal and haemophilic males in equal proportions, and carrier and haemophilic females, also in equal proportions. It will thus be seen that a haemophilic female is not an extraordinary phenomenon, but is the natural, though necessarily rare, outcome of the laws of heredity.

Castor Oil Vapour as a Purgative

Dr. PHILIP KEMP (Birmingham) writes: Another explanation of the phenomena recorded by Dr. Macphree (*Journal*, December 8th, p. 1045) might perhaps be given: Considerable veneration of castor oil prevailed among parents of earlier days, and consequently few children escaped experience of this repulsive liquid. A strong mental impression was likely to result from an administration, and this might become associated with the memory of subsequent purgation. Is it not possible that the "slightly nauseating odour," when experienced in adult life, might stimulate the bowel to increased action?

Unqualified Surgery

Dr. H. ELLIOTT BLAKE (London, W 1) writes: Recent events prompt those of us who are interested in plastic surgery to wonder why the law, which protects the public from being able to buy a few hypnotic tablets without a doctor's prescription, should still allow that public to be subjected to surgical operations under anaesthesia at the hands of unqualified persons.

Diary-Calendars for 1935

Messrs. William R. Warner and Co., Ltd. (300, Gray's Inn Road, W C 1) are issuing again for the forthcoming year their diary and calendar of medical history, and copies can be had gratis by doctors who apply to that address. It is a handy book for the consulting-room desk, with many eddiments of information among the blank spaces. We have also received the 1935 issue of the familiar "A.F.D." diary from the Anglo-French Drug Co., Ltd. (11 and 12, Guilford Street, W C 1) There is a "tear-off" page for each day of the year, the whole pad being encased in stiff covers with a calendar.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 32, 34, 35, and 37 of our advertisement columns, and advertisements as to partnership, assistantships and locumtenencies at pages 36 and 37.

A short summary of vacant posts noticed in the advertisement columns appears in the Supplement at page 303.

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THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

EPITOME

OF

Current Medical Literature

JULY TO DECEMBER, 1934

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INDEX TO THE EPITOME FOR VOLUME II, 1934

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma; Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Eye, Ophthalmia, and Vision, etc.

The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A.

Abdominal distension in retroperitoneal haemorrhage, 382
Abdominal operations followed by uraemia, 104
Abdominal trauma followed by peptic ulcer, 101
AHL, A. L.: Primary carcinoma of the liver, 64
Abortion: Abortive action of *Br. abortus*, 312
Abortion, contagious, immunization against, 477
Abortion in human infection by *Br. abortus* (Bang), 270
Abortion, induction of, local anaesthesia with percaline in, 434
Abortion, septic, tincture of iodine in treatment of, 415
Abscess, fixation, in asthma, 143
Abscess of lung, 235
Abscess, suppurative, 340

Acetylcholine in peripheral vessel occlusions, 179
acemia, 442

Actinomyces, abdominal, vaccine treatment of, 202

Actinomyces, formation of clubs in, 17

Addison's disease, treatment of, 120

Adhesive plaster, See Plaster

ADLERHEIM, E.: Lymphogranulomatosis, 334

Agranulocytic fatalities from amidopyrine and other drugs, 420, 421

Agranulocytic angina, allonal as a cause of, 78

ALBINGSMANN, H.: Early diagnosis of exudative tuberculosis, 314

Alcohol, intrathecal, as an analgesic in cancer, 423

ALDEN, F. H.: Apparent ocular atrophy, 206

Allergic reaction of bathers to aquatic vegetation, 463

Allergic reactions of veins, 121

Allonal as a cause of agranulocytic angina, 78

Amidopyrine and other drugs, agranulocytosis fatalities from, 420, 421

Anion and vernix caseosa, physiology of, 118

Amniotin in gonorrhoeal vaginitis of children, 355

Anoebic dysentery. See Dysentery

Amputation, Ricard's, 293

Amyloidosis, case of, 134

Anaemia from lice, 316

Anaemia, pernicious, invariable association of gastric achylia with, 412

Anaemia, pernicious, in pregnancy, 331

Anaemia, pernicious, proteolytic activity of gastric juice in, 117

Anaemia, pernicious, surgical operations in, 276

Anaemia, pernicious, yeast in, 126

Anaesthesia, avertin, and nitrous oxide, combined, 266

Anaesthesia, avertin, in oto-rhino-laryngology, 111

Anaesthesia, evipan, 410—In psychiatry, 145—In general practice, 267

Anaesthesia, local, in major abdominal surgery, 163

Anaesthesia, lumbar, with pantokain-L, 265

Anaesthesia, nitrous oxide and avertin, combined, 266

Anaesthesia, nitrous oxide, encephalography under, 243

Anaesthesia, nitrous oxide, in orthopaedics, 110

Anaesthesia, percaline, local, in induction of abortion, 434

Anaesthesia, percaline, in urology, 311—Spinal, a complication of, 412

Anaesthesia: pre-anaesthetic medication, experimental, 374

Anaesthesia, spinal, by percaline, a complication of, 412

Anaesthetic properties of cyclopropane, 109

ANDERSON, E. D.: Chloral hydrate in paediatrics, 135

Anaesthet, operative treatment of, 124

Aneurysm of subclavian artery, traumatic, 261

Angina, agranulocytic, allonal as a cause of, 78

Angioma of the kidney, 45

Anti-natal care, 473

Antibodies, heterophil, in glandular fever, 13

Antigonoecol serum in treatment of gonorrhoeal arthritis, 221

Antileprol in Boeck's sarcoid, 12

Antirhabd virus vaccine in treatment of sciatica and neuritis, 223

Antistreptococcal vaccine in treatment of herpes minor, 23

Antitoxin and convalescent scarlet fever serum, 145

Aorta, radiology of in the aged, 156

Aorta, stenotic, congenital, of, 137

Aortic stenosis, 23

Appendicitis, acute, mortality of, 42

Apples, powdered, in diarrhoea of childhood, 328

ARAOZ, J. D.: Tonsillectomy in cases of pulmonary tuberculosis, 139

ARNOLD, L.: Foods and bacterial invasion, 437

Arsenic-gold (combined) therapy in lupus erythematosus, 432

Arsphenamine reactions, serious, prevention of, 274

Arterial hypertension. See Hypertension

Arteriotomy, arteriography as a guide to, 81

Artery, subclavian, traumatic aneurysm of, 261

Artery, uterine, vaginal ligature of, 114

Arthritis, calcium ortho-iodoxybenzoate in, 203

Arthritis, gonorrhoeal, treatment by antigonoecol serum, 221

Arthritis, suppurative, of the knee, treatment of, 158

Ascaric acid in the chick embryo, 191

ASHCROFT, D. W.: Function of the sacculo, 223

Asphyxia, tongue in the production of, 400

Asthma, fixation abscess in, 143

Asylums, secondary pellagra in, 234

Atelectasis, massive, in pulmonary tuberculosis, 398

Atrophia, congenital, 184

Atropine dosage, massive, in Parkinsonism, 9

Aural vertigo. See Vertigo

Avertin anaesthesia. See Anaesthesia

Avitaminoses in pregnancy, 132

AXELROD, M. L.: Pre-operative anaesthesia in, 411

B.

BAASTRUP, S.: Serum treatment of poliomyelitis, 322

BABATZ, L.: Radiotherapy in vasomotor disorders of the extremities, 216—Appendicular stasis, 358

Bacilli, "paracoli," pathological significance of, 418

Bacilluria, tuberculous, significance of, 355

Bacillus abortus (Bang) causing abortion in human infection, 270

Bacillus of diphtheria in chronic nasal infections, 226

Bacillus of leprosy, cultivation of, 96

Bacillus of leprosy in the "healthy" skin of lepers, 13

Bacillus of plague, immunization power of, 495

Bacillus of tubercle in the circulating blood, 40

Bacteria, effect of supersonic waves on, 253

Bacterial invasion and food, 437

Baker's ozena, 44

BALTZARD, M.: Vaccination against typhus, 180

BANZET, P.: Cranial fractures involving the frontal sinus, 425

Barbituric acid poisoning, strychnine therapy in, 459

BARNETT, N. R.: Examination of fresh tissues by the wet film method, 250

Basal metabolism. See Metabolism

Bathers, allergic reaction of to aquatic vegetation, 463

BAYLE, J. C.: Splenotherapy in tuberculosis, 222

BAYLE, J. C.: Arteriography as a guide to arteriotomy, 81

BEAUFAY, J.: Congenital atelectasis, 181

Bee venom in rheumatism, 161

BERGMAN, H.: Leather dermatitis, 162

BELL, F. G.: Goitre in Otago, 178

BELL, T. M.: Evipan anaesthesia in general practice, 267

BENJAMIN, E.: Acute meningitis due to Pfeiffer's bacillus, 352

BENSON, L.: Occult cardiac insufficiency, 193

BERLAND, A.: Basal metabolism and specific dynamic action in heart failure and hyperthyroidism, 400

BERGMAN, A.: Diathermy of the female pelvic organs, 251

BERNER, J. C.: Calcium suppositories after operative, 221

BESCH, N. P.: Vitamin C in the nursing 183

BIANCHI, L.: Isolation of a polysaccharide substance from *Br. abortus*, 172

BIANCHI, C. A.: Gas analysis in the diagnosis of pleuro-pulmonary perforations, 60

Bisphous diameter in persistent occipito-

blood pressure and hypopituitarism, 363

Blood, reinfusion of, in ruptured ectopic gestation, 93

Blood, retroplacental, chemistry of, 77

Blood sedimentation rate in pregnancy and puerperium, 457

Blood-urine urea ratio, 57

BOAS, I.: New method for detection of occult blood, 231

Boeck's sarcoid, antileprol in, 12

BOEMME, H.: Sterilization in the male, 4—Fusion of the kidneys, 482

BOLLEN, R.: Humoral nature of insulin resistance, 354

BONAR, B. E.: Magnesium sulphate in Hirschsprung's disease, 326

Bone grafts, autoplasmic, in surgical tuberculosis, 405

Bone, parietal, depression of, in the newborn, 55

Bone, temporal, cholesteatoma of, 69

Bones, long, tuberculosis of the shaft of, 24

BORTHWICK, Grisel, A.: Factors predisposing to infection with *Cl. septicum*, 252

BOSTON, A.: Ascorbic acid in the chick embryo, 191

BOTHELM, S. P.: Radioscopic examination of recumbent, 173

Botulism, outbreak of, 254

BOUCKAERT, J. J.: Staphylococcal toxin, 152

BOUR, R.: Fibromyomatoma in the newborn, 350

BRADLEY, J. A.: Malaria in drug addicts, 423

BRADY, M. B.: Diagnosis of acute poliomyelitis, 99

Brain, nematodes in in pellagra, 136

BRAM, I.: Suprarenal cortex therapy in Graves's disease, 365

BRACH, A.: Hot and cold compresses, 159

Breathing exercises in treatment of hypertension, 281

Breast, in, 430

Breast, in, 430

Bromide therapy and mental deterioration, 355

Brochography, dangers of, 196

BROWN, G. O.: Treatment of epidemic encephalitis, 486

Brucella abortus, abortive action of, 312

Brucella abortus, isolation of a polysaccharide substance from, 172

BRUNN, H. G.: Coronary syphilis, 22

BRYANT, J.: Vaccination against typhus, 180

BRYANT, J.: Multiple tapplings in cirrhotic ascites, 105

BRUNS, O.: The electrocardiogram in cases of apparent death, 403

BURNETT, E.: Ultra-violet light as a preventive of tuberculosis, 155

BUTCHER, G. S.: Statistics of measles prophylaxis, 112

BUTCHER, C.: Treatment of uterine myoma, 113

BUTLER, P.: Cancer of the stomach, 424

BUTLER, A. M.: Infectious mononucleosis, 377

BUTLER, N.: Successful treatment of vitiligo, 255

BRYANT, J. Fr.: Hypertonic solutions in epilepsy, 366

C.

CADÉ, A.: The hyperthermic syndrome and gastric cancer, 353

Caffeine administration for experimental chronic peptic ulcer, 203

Caesarean section, low cervical, 167

Calcium in epididymitis, 63

Calcium ortho-iodoxybenzoate in arthritis, 203

Calculus, renal, apparent recurrences after operations for, 26

Calculus, renal, glycerin therapy in, 153

- [illegible]

Inflammations, acute, x-ray treatment of, 323
 Influenza, human, and canine distemper, 233, 332
 Insulin resistance, humoral nature of, 354
 Intestinal mucosa. See Mucosa
 Intoxication, fatal, by sodium salicylate, 234
 Intussusception in nurslings, 327
 Iodine, (incture of, in treatment of septic abortion, 415

in gonorrhoeal

of the ultra-short waves, 190

J.

JACKSON, C.: Tongue in the production of asphyxia, 400
 JACKSON, C. L.: Tongue in the production of asphyxia, 400
 JACOBSON: Artificial oily tumours, 103
 JAHNKE: Acute meningitis due to Pfeiffer's bacillus, 352
 Jaundice. See Icterus
 JEANNERET, R.: Ultimate results of phrenicectomy, 141
 JEANNERET: Limits of operability in cancer of the breast, 320
 JEDLOWSKA, P.: Hepatic extract in general paralysis, 181
 Jejunal ulcer. See Ulcer
 JELLINEK, S.: New method of artificial respiration, 242

107

44
 y in
 6
 JOPPICKE, G.: Endemic pneumococci of Type I, 91
 JUSATZ, H. J.: The hour of death, 79

K.

KARLUN, E.: A modified Aschheim-Zondek test, 272
 KARLITZ, S.: Venoclysis in paediatrics, 471
 of placenta: model, 1, 166
 nosis of pulmonary
 treatment in G.P.I.

KEIFFER, H.: Physiology of amnion and vernix caseosa, 118
 KELLER, A. E.: Rapid immunization against diphtheria, 450
 KELLER, R.: Cervical cancer during pregnancy, 348
 KEMLET, J.: Determination of blood cholesterol, 171
 KENNARD, Margaret A.: The pre-motor cortex syndrome in man, 50
 KERNSEITZ, C.: Schick test after tonsillectomy, 53
 KEY, E.: Thoracoplastic operations for pulmonary tuberculosis, 341
 Kidney, aneurysm of the, 45
 Kidney, carbuncle of, 319
 Kidney in diphtheria, 317
 Kidney, "pregnancy" types of, 54
 Kidneys, fusion of the, 482, 483
 KINSLEY, R. A.: Treatment of epidemic encephalitis, 463
 KINSEMAN, M.: Injection treatment of haemorrhoids, 7
 KISZELNIK, D.: Thromboangiitis obliterans and typhus fever, 237
 KLEINBERG, J.: Treatment of venereal lymphadenoma, 363
 KLEINBERG, A.: The heart in diabetes, 335
 Knee cartilage injuries, misuse of crutches in, 125
 Knee tuberculosis in adults, 250
 KOCH, S.: Acute infections of the hand, 445
 KOCH-MOLNAR, K.: Hormones in the suboccipital cerebro-spinal fluid, 135
 KOLLER, W.: Tubercle bacilli in the circulating blood, 40
 KONZATY, G. E.: Gas gangrene, 160
 KORULNIK, E.: Snake venom as an analgesic in cancer, 466
 KRAE, A.: Psychotherapy in treatment and prevention of neuro-typhus, 451
 KRAUCHER, G.: Local anaesthesia with percaine in induction of abortion, 454
 KRENS, L.: X-ray diagnosis of chronic appendicitis, 233
 KRENNHORN, H.: Retroperitoneal perirenal lymphadenoma, 353
 KRECHWISZ, I. L.: The abortive action of Brucella abortus, 312
 KRIEGL, F. W.: Neuritis acquired in turnip and potato fields, 3
 KREK, W.: Therapeutics of Filix mas and oil ricini, 53
 KREGLMASS, I. N.: Haemorrhagic disease in the newborn, 475

KUNDRATITZ, K.: Vaccine therapy in whooping-cough, 446
 KUNTZE, W.: Sodium evipan in psychiatry, 145
 KUTNER, E.: Tubercle bacilli in the circulating blood, 40
 KÜSTNER, H.: Labour and heart disease, 150

L.

Labour and
 Labour, a
 Labour, uterine, 474
 Labour, occipito-posterior presentation, bipartous diameter in, 330
 Labour, oedema of the cervix during, 347
 Labour and pregnancy in morphine addicts, 92
 Labour, second stage of, prophylactic intervention in the, 187
 LAHNEN, A.: Spread of tuberculosis in school children, 1

LAWSON, H. A.: Infectious mononucleosis, 497
 LAZARUS, G.: Carbuncle of the kidney, 319
 Leather dermatitis, 162
 LEATHES, W. S.: Rapid immunization against diphtheria, 450

LEAVES, J. G.: Treatment of Addison's disease, 120
 LEHR, N. B.: Treatment of Addison's disease, 120
 See Limb, lower
 LEHOVICI, R.: Uræmia following abdominal operation, 104
 LEMETAYER, E.: Natural immunity to tetanus in ruminants, 76
 LENARSKY, M.: Diagnosis of acute poliomyelitis, 99

LENDLE, L.: Experimental pre-anaesthetic medication, 374
 LENNOX, W. G.: Epilepsy and the cerebral circulation, 450
 LENORMANT, Ch.: Abdominal distension in retroperitoneal haemorrhage, 382
 LEROPOUL, S. S.: Therapeutic pneumothorax in pneumonia, 58
 Lepers, gynaecomastia in, 396
 Lepers, leprosy bacilli in the "healthy" skin of, 13
 Leprosy bacillus, cultivation of, 96
 Leprosy bacilli in the "healthy" skin of lepers, 13
 Lencorrea, vaginal, 269

LIAN, C.: Diagnostic signs of slight ascites, 461
 LINDSON, Miriam: X-ray treatment of acute inflammations, 324
 Lice, anaemia from, 316
 LICKERT, F.: Glycerin therapy in renal and uterine calculus, 153—Dangers of bronchography, 196
 LIEBERMAN, L. M.: Therapeutic pneumothorax in pneumonia, 98
 LIEBESNY, P.: Short-wave treatment of G.P.I. and schizophrenia, 339
 Limb, lower, excessive shortening of the, 362
 LINDEMANN, E.: Early diagnosis of coxa vara of adolescents, 46
 LINDSTROM, A.: Influence of diet on the gums and teeth, 56
 LINDSTROM, B.: An outbreak of food poisoning, 138
 LISSER, H.: Treatment of Addison's disease, 120
 LITSCHKE, M.: Otitis in sucklings, 489
 LIV, Bzu-Chil: Effect of supersonic waves on bacteria, 253
 Liver treatment of general paralysis, 181
 Liver treatment of granulocytopenia, 65
 LIZET, P.: Tertiary syphilis of the uterus, 271

and
 tendons, 218
 LÖNN, W.: Cod-liver oil in treatment of wounds, 428

LOHSE, S.: Antileprol in Boeck's sarcoid, 12—Remedy for psoriatic eczema of the feet ("mycocten"), 21
 LÖPZ, Calvelo: Intradermal tests for hydatid disease, 353
 LONGH, H.: Recurrence of bladder papilloma, 178
 LORRIS, W. S.: Immunization against contagious abortion, 477
 LOUVE, J.: Allergic reactions of veins, 121
 LOUVE: Treatment of ringworm of scalp with Buzellum acetate, 165
 Lumbar puncture, headache. See Headache
 Lymphedema. See Oedema
 Lupus erythematosus, combined arsenic-gold therapy in, 42
 Lymphadenoma, retroperitoneal perirenal, 353
 Lymphogranuloma inguinale, treatment of, 455
 Lymphogranuloma, cervical, treatment of, 364
 Lymphogranulomatosis, 334
 LYNN, F. W.: Xeroderma pigmentosum and sensitivity to light, 433
 Lysis of human blood by cholera vibrios, 232

M.

MACDOWELL, F. L. H.: Malaria therapy in dementia paralytica, 201
 MCGINN, S.: Aortic stenosis, 258—Acute pulmonary congestion and cardiac asthma in mitral stenosis, 478
 MCKAIG, C. B.: Neurological complications of mumps, 148
 McLEOD, J. W.: Cultivation of the gonococcus, 273
 Macroscopic sections, differential staining of myelin in, 212
 MADISON: Allonal as a cause of agranulocytic angina, 78
 MADSEN, J.: Importance of early malarial treatment in general paralysis of the insane, 32
 MAITROT, A.: Carotid sympathectomy in ocular degenerations, 204
 Magnesium sulphate in Hirschsprung's disease, 325
 MAITLAND, T. G.: Prophylaxis in sea-sickness, 419
 Malaria in drug addicts, 423
 Malaria therapy in dementia paralytica, 201
 Malaria therapy, early, in general paralysis, importance of, 32
 Malaria therapy in tabetic ocular atrophy, 27
 Malarial polyneuritis, 338
 Male form and castror oil, therapeutics of, 88
 MALVERN, A.: The toe reflex: a diagnostic aid in ear affections, 72—Avertin in oto-rhino-laryngology, 111
 Malignant disease, monocytic histology in, 230
 Mammary gland. See gland
 MANDELSTAM, A.: A modified Aschheim-Zondek test, 272
 MARINISCO, G.: Massive atropine dosage in Parkinsonism, 9
 MARINOFF, G. P.: Antistreptococcal vaccine in treatment of herpes zoster, 38
 MARIQUE, A.: Treatment of fractures in children, 249
 MARONEY, J.: Tuberculin sensitivity in childhood tuberculosis, 231
 MARSHALL, C. J.: Minor complaints of pregnancy, 493
 MARTIN, J.: Tumours of the salivary glands, 5—Angioma of the kidney, 45
 MARTINEZ, F. Fernandez: Intravenous sodium benzoate in peptic ulcer, 127
 MARTINI, E.: Ascorbic acid in the chick embryo, 191
 MATZOS, L.: Gonorrhoeal arthritis treated by antigonococcal serum, 221
 MAYRAS, M.: Aberrant intrathoracic goitre, 137
 Maxillary sinus. See Sinus
 Measles, the blood in, 39
 Measles prophylaxis, statistics of, 142
 Meckel's diverticulum, morbid conditions

MEIJER, L.: Heterophil antibodies in glandular fever, 19
 Melæna, statistics of, 20
 Membranes, retention of the, 228
 MENDELSSOHN, H. V.: Sensitization tests in skin diseases, 283
 Meningitis, acute, due to Pfeiffer's bacillus, 352
 Meningitis, cerebro-spinal, serum treatment of, 343
 Meningitis, streptococcus, recovery from, 337
 Meningitis, syphilitic, affecting the pituitary, 379
 Meningococcus, healthy carriers of the, 18
 MENNINGER-LEUCHENTHAL, E.: Pregnancy and labour in morphine addicts, 92
 Menstruation after conception, 288
 Mental deterioration and bromide therapy, 385
 MERCEMIUM, M.: Parietal bone depression in the newborn, 55
 MERRILL, T. C.: Polyneuritis in mumps, 23
 Metabolism, acid, in rheumatic children, 470
 Metabolism, basal, and specific dynamic action in heart failure and by hyperthyroidism, 460
 Metastases from thyroid tumours, 140
 Methylene-blue in puerperal septicæmia, 112
 Methylene-blue-glucose solution in gas poisoning, 106
 MEULENBACHT, E.: Invariable association of gastric achylia with pernicious anaemia, 442
 MIXER, K.: Formation of clots in actinomycosis, 17—Perforation of jejunal ulcer, 434
 Middle-ear suppuration, surgical intervention in, 468
 Migraine, antirabic virus vaccine in treatment of, 22
 Migraine, ergotamine tartrate in, 430
 Migraine, psychological basis of, 453
 Migraine. See also Headache
 MIKALOVICI, I.: Urethrography in nurslings, 198
 MIKELLES, O.: Epigastric hernia, 278
 MIKOLICZ-RADECKI, F. v.: Pituitary extract and rupture of the uterus, 15—Diffuse squamous-cell carcinoma of the corpus uteri, 15—Aetiology and treatment of pregnancy pthiasis, 230
 MINARD, W.: Latent diabetes and psoriasis, 473
 MINARD, M.: The hyperthyroidic syndrome and gastric cancer, 359
 MINNISH, J. L.: Diagnosis of glandular fever, 397
 MITCHELL, W.: Nasal sinus disease in children, 490

Mitral stenosis, acute pulmonary congestion and cardiac asthma in, 478
 MOFFAT, D.: Tobacco and the peripheral vascular system, 491
 MITCHELL, C.: Traumatic aneurysm of the subclavian artery, 251
 Molluscum contagiosum, experimental infection with, 456
 MORRIS, M. L.: Future of epileptic children, 497
 MORRISON, J. P.: Radiation treatment of oesophageal carcinoma, 70
 Monocyte histology in malignant disease, 250
 Mononucleosis infections, 497
 Monster, double-headed, delivery of a, 36
 MONTGOMERY, T. L.: Premature p'cental separation, 263
 MORRIS: Foreign bodies in the stomach, 65
 MONTGOMERY, P.: Biological properties of the ultrashort waves, 190
 MORGAN, A.: Oral administration of typhoid vaccine, 47
 MOUR, F.: Apparent recurrences after renal surgery, 381
 about in, 92
 Monogitis, syphilitic affecting the pituitary, 379
 MOUTRE, J. L.: Minimum diet for infants and children, 50
 MORTZ, K.: Acute polyarthritis, 293
 Mucosa, intestinal, in the stomach and the pathology of gastric ulcer, 333
 MULLER, S.: Causes of death after appendicitis, 297
 Mumps, neurological complications of, 148
 Mumps orchitis, primary, 256
 Mumps, polyneuritis in, 23
 Mumps, submaxillary, 43
 Muscle, human plain, excitability of in disease, 169
 cardiac affections, 468
 oedema of the foot, 244
 embolism, 244
 ing of in macroscopic sections, 212
 Myocarditis, diphtheritic, 213
 Myoma of uterus, treatment of, 113
 Myositis, gonococcal, 358

N.

NADIAU, G.: Bilateral pneumothorax, 86
 Narcotic treatment of hyperemesis gravidarum, 451
 Nasal infections, chronic, diphtheria bacillus in, 226
 NATHAN, J. L.: Syphilis, 454
 NATHAN, J. L.: Syphilis, 454
 NATHAN, J. L.: Syphilis, 454
 NAVARRO, J. G.: Congenital syphilis, 80
 NAVEAU, P.: Massive atelectasis in pulmonary tuberculosis, 398
 NICHOLAS, H.: Apparatus for detecting free gastric acid, 311
 NIELIS, P.: Staphylococcal toxin, 152
 Nematodes in the brain in pellagra, 136
 Nephritis, chronic, without hypertension, 216
 NICHOLAS, L.: Vaccine treatment of abdominal actinomycosis, 202
 Neuralgia, novocain subaracnoid injections in, 114
 Neuritis acquired in turnip and potato fields, 3
 Neuritis, syphilitic retrobulbar, 369
 Neurological complications of mumps, 148
 Neurosis, physiological conception of, 146
 Neurotrophic cellular alteration and tumour formation, 351
 Neurosyphilis, pyrotherapy in treatment and prevention of, 451
 NEWHAIR, H.: Surgical intervention in middle ear suppuration, 453
 NIELSEN, A.: Indications for operation in chronic gastric and duodenal ulcer, 119
 NICOL, T. S.: Evipan anaesthesia in general practice, 267
 NICOLAS: Chasse in the dyspeptic's dietary, 323
 NICOLAS, H.: Unrecognized dislocations of shoulder and hip, 451
 NICOLAS, S.: Antirabic virus vaccines in treatment of acicula and migraine, 223
 Nitrous oxide anaesthesia. See Anaesthesia
 NOLAN, E. C.: Treatment of hiccup, 300
 NOR, C. G. N.: Methylene blue in puerperal septicaemia, 112
 NORTON: Foreign bodies in the stomach, 65
 NORRIS, P.: Primary tuberculous infection in the adult, 62
 NOCHY, M.: Vaccination against typhus, 130
 Novocain-subaracnoid injections in neuralgia, 114
 NORD: Intradermal tests for hydatid disease, 353

O.

Obesity, dietetic treatment of, 253
 Ocular treatment of, 325
 Oesophago-pyrosis prevention, persistent, L. sp. 456
 Ocular atrophy, treatment, 266
 Ocular atrophy, tuberculous, malaria therapy in, 27
 Ocular degenerations, carotid embolism, 104
 Ocular diseases and the testes, 91
 Ocular paronychia, 255
 Ocular, W.: Diagnostic signs of slight ascleritis, 421

Oesophagus, cancer of. See Cancer
 Oesophagus, dentures in, removal of, 71
 Oesophagus, therapeutic dilatation of after poisoning by caustics, 314
 OSMAN, R. C.: Results of thoracoplasty for pulmonary tuberculosis, 62
 OLIVER, O. Sanders: Prognosis in skull fracture, 156
 OLIVER: Avitaminosis in pregnancy, 132
 Ophthalmia, gonorrhoeal, 368
 Ophthalmia, sympathetic, 90

Ophthalmitis, of the
 from streptococcus
 tartrate in migraine, 430
 Osseous affections, blood phosphatases in, 417
 OSSERMAN, K.: Acetylcholine in peripheral vessel occlusions, 179
 Osteitis fibrosa cystica, generalized, treatment of, 383
 Osteomyelitis of the scapula, 200
 OZA, M.: Experimental infection with molluscum contagiosum, 496
 Otalgia, gonitoid, 176
 OTENSO: Intradermal tests for hydatid disease, 353
 Otitis in sucklings, 489
 Oto-rhino-laryngology, avertin in, 111
 Oto-rhino-laryngology, the reticulo endothelial system in, 492
 Ovariectomy, experimental, the thyroid in, 133
 Ovaritis, 74
 fibrosa cystica, 383
 Ox-bile therapy in icterus, 87

P.

Paediatrics, chloral hydrate in, 185
 Paediatrics, venoclysis in, 471
 Paret's disease complicated by sarcoma, 340
 "Paracoli" bacilli, pathological significance of, 418
 Paralysis in eclampsia, 207
 Paralysis, general, hepatic extract in, 181
 Paralysis, general, malarial treatment (early) in, importance of, 32
 Paralysis, general, short-wave treatment of, 389
 Paralysis, infantile, epidemic, public health
 PARK, W. H.: Schick test after tonsillectomy, 53
 PARKING, H. A.: Bromide therapy and mental deterioration, 385
 Pathological fluids, inclusion technique with, 335
 PAVLOV, I. P.: A physiological conception of neurosis, 146
 PARK, W. W.: Acid metabolism in rheumatic children, 470
 PEACOCK, A.: Traumatic aneurysm of the subclavian artery, 251
 Pellagra, aetiology of, 373
 Pellagra, latent, 41
 Pellagra, nematodes in the brain in, 136
 Pellagra, secondary, in asympsia, 234
 PELLERIN, M.: Gynaecological tumours and sterility, 368
 PELLERIN, B.: Tonsils and photochemical reactions, 391
 Pemphigus, trypanamide treatment of, 43
 Perinatal therapy in gastro-duodenal ulcers, 181
 Perineal ulcer. See Ulcer
 Percaine anaesthesia, local, in induction of abortion, 454
 Percaine anaesthesia, spinal, a complication of, 412
 Percaine anaesthesia in urology, 381
 Percaine in diseases of the skin, 11
 PERERA, A. S.: Treatment of sexual frigidity in the female, 357
 Pericardial vascular system and tobacco, 401
 Peripheral vessel occlusions, acetylcholine in, 179
 Peritonitis, acute, cholesterol in, 75

Peritonitis and appendicostomy, 6
 Peritonitis, biliary, non-perforative, 56
 PERMAN, O.: Diathermy in prostatic hypertrophy, 123
 PERMAN, A. H.: Sinusitis in children, 329
 Pertussis, disease, prognosis in, 466
 Pertussis. See Whooping-cough
 PESQUET, M.: Massive atelectasis in pulmonary tuberculosis, 398
 PETERSEN, L. S.: Sedimentation rate in pregnancy and puerperium, 457

Physical culture during pregnancy, lying in, and lactation, 34
 PICARD, E.: Staphylococcal toxin, 152
 PIGAUD, H.: Non surgical aids in normal labour, 474
 Pilocarpine, ophthalmological effects of, 370
 PINKEL, I.: Chemistry of retroplacental blood, 77
 PISCHELL, D. K.: Intracapsular and extracapsular operation for senile cataract compared, 205
 Pituitary affected by syphilitic meningitis, 379
 Pituitary extract and rupture of the uterus, 15
 Pituitary, irradiation of in Graves's disease, 260
 Placenta, expression of: modification of Credé's method, 166
 Placenta, expression of, 495
 terminal oedema of the lung, 390
 Plaster, adhesive, sensitization to, 286
 Pleural effusion, massive, stimulated by subphrenic abscess, 399
 natorium-treated
 gas analysis in
 fatalities from
 Pneumococci of Type I, endemic, 94
 Pneumococcosis, pulmonary heart disease in, 177

POILLEUX, F.: Uraemia following abdominal operation, 164
 Poisoning, barbituric acid, strychnine therapy in, 469
 dilatation of
 in 100
 coss solution

Polysaccharide substance, isolation of from *Br. abortus*, 172
 POMERANCE, M.: Heart-block in rheumatic fever, 51
 POTT's disease, dorsal, spindles radiograms in, 129
 POTIGNON, L.: Intussusception in nursing, 347
 Pre-anaesthetic medication, experimental, 374
 Pregnancy, anaemia, pernicious, in, 331
 Pregnancy, Aschheim-Zondek test for, a modified, 277
 lists, 92
 ctation, physical
 after, 493
 monary in, 37
 Pregnancy and ovarian tumours, malignant, 257
 Pregnancy after paralysis, 209
 Pregnancy, pruritus vulvae of, high-frequency in, 35
 Pregnancy pyelitis, aetiology and treatment of, 250
 Pregnancy, sedimentation rate in, 457
 Pregnancy in tuberculosis, 393
 Pregnancy. See also Gestation
 Pre-operative medication, 411
 PURCELL, D. P.: Cultivation of the gonococcus, 273
 Prostatic hypertrophy, diathermy in, 123
 Prostatic hypertrophy in general practice, 252
 Proteolytic activity of gastric juice, normal and in pernicious anaemia, 117
 Pruritus, vulvae of pregnancy, high-frequency in, 35
 Psoriasis and latent diabetes, 473
 Psoriasis, treatment of, 284
 Psychiatry, sodium evipan in, 145
 PRECIGN, L.: Chemistry of retroplacental blood, 77
 Puerperal septicaemia, methylene-blue in, 112
 Puerperium, sedimentation rate in, 457
 Puerperal oedema. See Oedema
 Pulmonary tuberculosis. See Tuberculosis

- Thallium acetate in treatment of ringworm of scalp, 163
..... oto-rhino-
..... of the uterus, 411
THOMAS, R. M.: Effect of testicular extract on tuberculous infection, 210
THOMASON, A. H.: Uniformity in field-taking, 367
THOMPSON, W. O.: Administration of thyroxine, 26
Thoracic trauma and pulmonary tuberculosis, 239
Thoracoplastic operations for pulmonary tuberculosis, 311
Thoracoplasty for pulmonary tuberculosis, results of, 62
Thromboangiitis obliterans and typhus fever, 237
Thrombosis venous, influence of statics and function on, 453
Thymus, x-ray treatment of, 217
Thyroid in experimental ovariectomy, 133
Thyroid tumours. See Tumours
Thyroid, x-ray treatment of, 247
Thyroxine administration of, 26
TIGLEY, E. G.: Breathing exercises in treatment of hypertension, 231
Tissues, fresh, examination of by the wet-film method, 290
Tobacco and the peripheral vascular system, 401
Too reflex : a diagnostic aid in ear affections, 72
TONDEUR: Ricard's amputation, 293
Tongue, cavernous haemangioma of, treatment of, 415
Tonics in the production of asphyxia, 400
TORELL, W.: Operation for spinal cord tumour in the neck, 63
Tonsillectomy, 177
Tonsillectomy, Schick test after, 58
Tonsillectomy in (pulmonary) tuberculosis, 139
Tossils and photochemical reactions of the skin, 462
Toni-films, x-ray treatment of, 407
TORREN, C.: Nematodes in the brain in rabbits, 156
TOUILLAT, E. Pons: Differential staining of myelin in macroscopic sections, 212
Torticollis, congenital, 219
TOURNANE, Grace A.: Psychological basis of migraine, 453
Trauma, abdominal, followed by peptic ulcer, 101
Trauma as a cause of diabetes, 318
Trauma and herpes zoster, 419
Trauma, thoracic, and pulmonary tuberculosis, 239
TRAUT, R.: Suboccipital puncture in cerebrospinal fever, 384
Trichomonas causing vaginitis, treatment of, 319
TRILLIAT, P.: Malignant ovarian tumours and pregnancy, 287
TURNER, J. E.: Haemorrhagic disease in the newborn, 475
..... 48
..... 40
..... culosis, 231
Tuberculo-protein, attempted immunization with, 116
Tuberculosis of childhood, tuberculin sensitivity in, 231
Tuberculosis and cholesterolaemia, 436
Tuberculosis, exudative, early diagnosis of, 314
Tuberculosis, infantile, splenomegaly in, 115
Tuberculosis of knee in adults, 260
Tuberculosis, "lobite," radiological diagnosis of, 456
Tuberculosis, mammary, 321
Tuberculosis, open, infection risks from children with, 235
Tuberculosis, pregnancy in, 333
Tuberculosis, pulmonary, atelectasis (massive) in, 333
Tuberculosis, pulmonary, family history in, 174
Tuberculosis, pulmonary, fluoroscopy T. X-ray film v. diagnosis of, 411
Tuberculosis, pulmonary, and thoracic trauma, 239
Tuberculosis, pulmonary, thoracoplastic operations for, 311
Tuberculosis, pulmonary, thoracoplasty for, results of, 62
Tuberculosis, pulmonary, tonsillectomy in cases of, 153
Tuberculosis, pulmonary, x-ray diagnosis of, 194
Tuberculosis in school children, spread of, 1
Tuberculosis of the shaft of long bones, 24
Tuberculosis, splenotherapy in, 222
Tuberculosis, surgical, atropastic bone grafts in, 455
Tuberculosis, ultra-violet light as a preventive of, 155
Tuberulous taururia, significance of, 355
Tuberculosis infection, effect of testicular extraction, 210
Tuberculosis infection, primary, in the adult, 32
Tumour, cerebellar, transient diplopia as an early symptom in, 31
Tumour formation and neurotrophic cellular activity, 24, 31
TUMOUR, suprarenal, in neck, operation for, 63
Tumours, gynaecological, and sterility, 206
Tumours, oily, artificial, 133
- Tumours of ovary, malignant, and pregnancy, 237
Tumours of the salivary glands, 5
Tumours, supracolic, 451
Tumours, thyroid, metastases from, 140
Typhoid fever. See Fever, enteric
Typhoid vaccine, oral administration of, 47
Typhus fever. See Fever

U.
UBERNAK, K.: Humoral nature of insulin resistance, 354
Ulcer, gastric and duodenal, chronic, indications for operation in, 119
Ulcer, gastric and duodenal, haemorrhage from, 59

..... nat-

..... al
Ulcer, jejunal, perforation of, 444
Ulcer, peptic, chronic, experimental, from caffeine administration, 309
Ulcer, peptic, following abdominal trauma, 101
Ulcer, peptic, organotherapy of, 8
Ulcer, peptic, sodium benzoate intravenously in, 127
Ulcers, gastro-duodenal, pepsin therapy in, 181
ULLMANN, H. G.: Operative treatment of hallux valgus, 217
Ultra-short waves, biological properties of, 190
Ultra-violet light as a preventive of tuberculosis, 155
Uræmia following abdominal operation, 104
URBACH, E.: Haematoporphyria and impaired liver function in hydroa vacciniforme, 165—Pathogenesis and treatment of hay fever, 487
URMAN, H.: Hormones in the suboccipital cerebro-spinal fluid, 135
Urea, blood-urine ratio, 57
Ureteral calculus. See Calculus
Uretrography in nurslings, 198
Urinary excretion of citric acid, 170
Urogenital fistula. See Fistula
Urography, intravenous, in urogenital fistula, 371
Urology, peritoneal anaesthesia in, 381
Uterine artery. See Artery

..... by
Meckel's diverticulum, 25—Lumbar anaesthesia with pantokain-L, 265

V.
Vaccination, duration of immunity following, 175
Vaccine, antirabic virus, in treatment of sciatitis and migraine, 220
Vaccine, antistaphylococcal, in treatment of herpes zoster, 23
Vaccine therapy in whooping cough, 446
Vaccine treatment of abdominal actinomycosis, 202
Vaginal ill-
Vaginilis
Vaginitis, 385
VAILE, C.: Fatal intoxication by sodium salicylate, 294
VAN BOGAERT, L.: Ocular proptosis and pallidus, 305
VAN BROCKHUIS, E. M.: Radiological diagnosis of "lobite" tuberculosis, 460
VAN DEREGHEM, R.: Staphylo toxin and staphylococcalase, 211
VAN CLEVE, J. V.: Sensitization to adhesive plaster, 236
VANGORDEL, G.: Tuberculosis of the shaft of long bones, 24
VAN HEUVEN, J. A.: Ophthalmological effects of pilocarpine, 370
VANHOUTGHEM, L.: Diathermy of the female pelvic organs, 391
VAN NES, C. P.: Excessive shortening of the lower limb, 362
Varicose veins. See Veins
Vascular system, peripheral, tobacco and the, 431
Vasomotor disorders of the extremities, radiotherapy in, 246
VASTINE, J. H.: Pre-operative diagnosis of diverticulum of gall-bladder, 110
Vegetation, aquatic, allergic reaction of bathers to, 465
Vein, axillary, ligation of in furuncles of upper lip and nose, 428
Veins, allergic reaction of, 121
Veins, varicose, treatment of, 67
VELLAZQUEZ, F.: Treatment of venereal lymphogranuloma, 324
Venodysplasia in paediatrics, 471
Vernix caseosa and amnion, physiology of, 118
Vertigo, aurial surgical treatment of, 225
Vibrio septique. See *Clostridium septicum*
VIRNÉ, H. R.: The pre-motor cortex syndrome in man, 50
VIERCHANCE, J.: Spontaneous recovery from acquired syphilis, 57
VIGNES: Avitaminoses in pregnancy, 132
- VILLENKRI, R.: The too reflex: a diagnostic aid in ear affections, 72—Avertin in oto-rhinolaryngology, 111
VITALLAT, PEREZ: Identification of acetoniline, 594
VILLER-DISSARDIERE, G.: Hypertonic solutions in epilepsy, 366
VINCENT, R.: Spirochaetes of the mouth, 310
VIRGILIO, C.: Elective localization of streptococci, 151
Vitamin A, application of to wounds, 264
Vitamin C in nurslings, 185
VITIGO, successful treatment of, 285
VITON, J. J.: Incision technique with pathological fluids, 325
Vocal cords, fixation of, surgical treatment of, 346
Vomiting, post-anaesthetic, 413
VON BONDORFF, B.: Liver treatment of granulocytopenia, 66
VON GAUFF, E.: Cancer following subtotal hysterectomy, 308
VON NUMERS, Clara: Cancer of the ovaries, 435
VON THIEL, P. H.: Mode of infection in Weil's disease, 195
VONON, J.: Non-surgical aids in normal labour, 474
VOSS, G.: Mistaken diagnosis in headache, 422

W.
WAGGONER, R. W.: Esophagography under nitrous oxide anaesthesia, 248
WAHL, F. A.: Tincture of iodine in treatment of septic abortion, 415
WALDENSTROM, H.: Tuberculosis of knee in adults, 260
WARE, H. H.: Pregnancy after paralysis, 209
WEINER, G.: Infection risks from children with

..... 232
Weiss, R.: Methylene-blue-glucose solution in gas poisoning, 106
WELMAN, H. E.: Infectious mononucleosis, 497
WESTERDORN, A.: Evipan anaesthesia, 410
WESTERMANN, J. J.: Mortality of acute appendicitis, 42

.....
..... 290
WITHERELL: Cervical sympathectomy for disseminated sclerosis, 85
WHATELY, B.: Cultivation of the gonococcus, 275
WIEGAND, T.: Calcium ortho-iodoxybenzoate in arthritis, 203
WIEHEN, W. B.: Dietetic treatment of chronic pyuria in childhood, 342
WITZER, P. D.: Aortic stenosis, 258—Acute asthma

..... 416
..... berulous
..... angitis affecting
..... human infection
WODON, J. L.: Retention of the membranes, 228
WOLTMAN, H. W.: Neurologic complications of mumps, 148
Wounds, application of Vitamin A to, 264
Wounds treated by cod-liver oil, 428
WRIGHT, I. S.: Tobacco and the peripheral vascular system, 401
WYATT, A.: Blood pathology in endocarditis lenta, 476

X
Xanthomatosis, generalized, 295
Xeroderma pigmentosum and sensitivity to light, 433
X-ray diagnosis of chronic appendicitis, 238
X-ray diagnosis of foetal deformity, 163
X-ray diagnosis of pulmonary tuberculosis, 194
X-ray film v. fluoroscopy in diagnosis of pulmonary tuberculosis, 441
X-ray treatment of acute inflammations, 324
X-ray treatment of the thyroid and thymus, 217
X-ray treatment of the tonsils, 407
X-rays for determination of foetal size in utero, 203

Y.
Yeast in pernicious anaemia, 126
YEN, A. C. H.: Effect of supersonic waves on bacteria, 253
YICH, J. Y. C.: Treatment of lymphogranuloma inguinale, 485
YOUNG: Ergotamine tartrate in migraine, 450
YOUNG, A.: Primary carcinoma of the lung, 227

Z.
ZEISS, J.: Fusion of the kidneys, 482
ZIA, Lily S.: Transimulsion of kala-azar, 97
ZIMMERMAN, E.: Lysis of human blood by cholera vibrios, 292
ZIRZEN, E.: Barber's eczema, 11
Zondek-Ashheim. See Ashheim
ZOSTER. See Herpes zoster
ZUELZER, W.: Cod-liver oil in treatment of wounds, 423

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

1 Spread of Tuberculosis in School Children

A. LARSEN and K. HALBERG (*Ugeskrift for Læger*, April 26th, 1934, p. 447) give an account of tuberculin tests conducted systematically since 1924 in the school population of the Danish town of Nakskov, with 14,000 inhabitants. The tests were repeated in some cases and included Pirquet's, Moro's, and Mantoux's. Among the 1,877 children thus tested were 361 positive reactors. A search was made for foci of infection, but in only about 17 per cent. could likely home sources of infection be found. Vague clues were discovered in about 8 per cent., and in the remaining 75 per cent. no evidence could be found incriminating the children's homes. The public health measures adopted since 1928 in connexion with the town's milk supply raised it above suspicion as a wholesale source of infection. In the face of these negative results the authors studied the possibilities of infection of one scholar by another, and by charting the places in school of each child they often found a remarkable bunching of the positive reactors. The proportion of positive reactors was much higher in some classes than in others, and when the incidence of positive reactions was studied in one class from one year to another a sudden rise was demonstrable. Thus, in a class of 11-year-old girls, only seven out of thirty-eight were tuberculin-positive in the summer of 1932. In the autumn of 1933, when the same scholars had moved a class up, as many as twenty were found to have become tuberculin-positive in the interval. An investigation of the homes of the thirty-eight children revealed only one in which there was an infectious case of tuberculosis. The tuberculin-positive child (one of the first seven reactors) coming from this home appeared to be perfectly well, and even an x-ray examination of the lungs proved negative. Three of the other children, however, were found to be suffering from pulmonary tuberculosis, and the authors are inclined to suspect intra-school infection as a not negligible factor in the spread of tuberculosis at school age, even when each child has his or her own desk.

2 Cow-pox in Man

J. A. C. SCHEPEL (*Nederl. Tijdschr. v. Geneesk.*, April 28th, 1934, p. 1855) records a case of natural cow-pox in a milkman aged 50, who was admitted to hospital with the diagnosis of whitlow of the right ring finger and cellulitis of the arm. On admission, the finger showed an ulcer with a dark necrotic centre, from which a network of painful bluish-red lymphatic cords passed up the arm. There was a large mass of inflamed glands in the axilla. The man appeared to be very ill, and the evening temperature was 104° F. for a few days, but reached normal in ten days. No pus formation took place and no scarring resulted. On inquiry it was found that he had been milking cows with diseased udders, and that four other milkmen on the farm had been similarly affected. According to Schepel the condition of cow-pox must be distinguished from streptococcal or staphylococcal infection, foot-and-mouth disease, and milkmen's nodes. Prophylaxis consists in vaccination of cattle and staff of the dairy when a case has occurred.

3 Neuritis Acquired in Turnip and Potato Fields

F. W. KROLL (*Deut. med. Woch.*, May 4th, 1934, p. 669) publishes seven cases of turnip growers' neuritis and two of neuritis in adolescent girls employed on a potato field. The cause of this neuritis, which is most liable to occur between the ages of 15 and 25, seems to be the prolonged squatting, which leads to compression of certain nerves of the lower limbs. There may also be a rheumatic element in the genesis of this condition. Only two of the patients were males, and the symptoms appeared

within the first three or four weeks of the work with turnips. A sense of numbness was promptly followed by paralyses and severe pain; and in practically every case the right leg suffered more than the left, an observation which may be correlated with the fact that the patients were right-handed. The nerves most frequently involved, but only partially, were the peroneal and tibial, and in two cases the right femoral nerve showed definite signs of injury. A spontaneous recovery was effected in one case, and the treatment which led to recovery sooner or later in the other cases included the various measures commonly employed for polyneuritis. It is well to temper prophecy with caution in the estimate of the time recovery is likely to take, and in every case a change of occupation should be recommended. An educational campaign is desirable so that persons working with turnips and potatoes may appreciate the significance of that tingling sensation in the legs which gives a foretaste of what is soon to overtake them. Though the author's nine cases were spread over a five-year period, he is inclined to consider this ailment as far from rare in farming areas.

Surgery

4 Sterilization in the Male

H. BOEMINGHAUS (*Zentralbl. f. Chir.*, April 28th, 1934, p. 996) predicts that time will show that morbid psychic reactions, such as have been feared but very occasionally found after sterilizing operations on the vasa deferentia, are practically confined to those in whom the intervention has been judicial and involuntary. Technically, it is essential to isolate the vasa completely, so that the testicular vessels and nerves are not injured. Whether the ducts are divided only or partially resected is immaterial if recanalization is effectively prevented. This is best done by suturing the peripheral end in the skin of the upper end of the scrotum. Through this end the vesiculæ seminales are washed out by a mild antiseptic, which passes through the ejaculatory ducts: the surviving secretion is thus got rid of, and the period of quarantine (segregation) shortened. An advantage of the procedure is that an abscess from a subsequent gonorrhoea, extending to the vas deferens, will point beneath the skin of the scrotum, not deep within it. The central end of the vas is returned to the scrotum without ligature, in order to avoid acute stasis in the testis and epididymis.

5 Tumours of the Salivary Glands

J. MARTIN and D. ELKIN (*Arch. of Surg.*, April, 1934, p. 727) state that the mixed cell variety of tumour is the most common type of growth of the salivary glands, although primary carcinomas may occur. Benign tumours of these glands may become malignant, and an incorrect prognosis may be made if they are seen before or during metaplasia. Mixed tumours of the salivary glands may be epithelial, fibro-endothelial, or fibro-epithelial in origin, and may occur at any age, with the greatest frequency in the fourth decade. The parotid gland is most often affected. The tumour is usually noticed as a small pea-shaped swelling near the gland, which may follow septic parotitis or trauma. At first there are no symptoms, but after some years there is increased activity, and if the growth is removed at this stage it is usually found to be benign. If the removal is incomplete recurrence occurs, in which growth is more rapid than in the original tumour. Radium and x rays alone have given unsatisfactory results, and complete surgical excision of the tumour is the treatment of choice. The danger of injury to the facial nerve is less grave than the failure to remove all the diseased tissue. In some cases where there had already been recurrence the implantation of radium seeds at the time of operation has given encouraging results. Twenty-four cases of tumour

of the salivary gland are reported, of which twenty-one were of the mixed cell variety, and of these eleven were definitely benign. A combination of surgical removal with x-ray and radium therapy prevented recurrence in seven cases. There was recurrence of the growth in ten cases, twelve patients are still living, whilst in seven instances the result is not known. The prognosis is therefore not good, recurrence having taken place in two-thirds of the cases. It was noted that with each recurrence the growth became more active, thereby making permanent cure less likely.

6 Appendicostomy and Peritonitis

E. JONES (*Ann. of Surg.*, April, 1934, p. 640) emphasizes the high mortality in cases of ruptured appendix with diffuse general peritonitis, and points out that patients who develop faecal fistulae usually recover. As a result of this observation, appendicostomy has been carried out in a series of seventy-five cases with a mortality of only 1.4 per cent. Early symptoms of a ruptured appendix, complicated by diffuse peritonitis, are abdominal distension, muscular rigidity with vomiting, pain, and restlessness. Severe toxæmia develops, and as infection progresses and spreads the intestine becomes increasingly distended. The severity of symptoms is in direct proportion to the time interval following perforation. As distension increases the arterial blood supply to the intestine is interfered with, resulting in ischaemia and death of the gut on its antimesenteric border. Infective thrombosis and extensive infarction may occur. Blood chlorides fall rapidly, and death ensues as in acute intestinal obstruction. The advantages of appendicostomy are that the caecum and ascending colon are drained, and relaxation occurs when pressure is removed from the ileo-caecal valve. The intestines are also placed at rest, peristalsis is slight or nil, there is no distension, and therefore the blood supply becomes normal. Following appendicostomy obstructive adhesions rarely occur, and the introduction of fluids and chlorides through the appendicostomy tube prevents acute systemic dehydration and rapid and severe chloride loss. The operative technique is described, and stress is laid on the necessity for post-operative treatment. Warm normal saline solution is instilled into the caecum through the tube every two hours, and nothing is given by mouth for forty-eight hours, the fasting period being extended according to the condition of the patient. The average period of hospitalization in the series was eighteen days. Six cases are reported as being typical of the series of seventy consecutive cases in which the mortality rate was 1.43 per cent.

Therapeutics

7 Injection Treatment of Haemorrhoids

M. KIRSCHEN (*Wien. med. Woch.*, May 5th, 1934, p. 527) has treated about 400 patients suffering from haemorrhoids with injections of a high concentration of quinine. The material recently used for injection was "antiphlebin," a concentrated solution of quinine put up by the *Sächsische Serumwerke*. For the preceding six weeks the authors had been working with "nodithrombin," made in Austria by the firm of Löw. The preparation has the same effect, and it is thought that the addition of glycerin and alcohol to the solution has promoted the thrombogenic action of the quinine. Though as a rule the patients were thus treated under ambulatory conditions, it was never necessary to intervene surgically. There were also no serious complications. Yet this treatment was extended to the most troublesome forms of haemorrhoids aggravated by prolapse and haemorrhage. In the four cases in which relapses occurred within a two-year period, renewal of the treatment quickly effected a cure. The treatment was preceded by a rectoscopic examination, after which the patients were instructed to avoid evacuation of the bowels during the following twelve to twenty-four hours. This injunction, aided by a suitable diet and a few drops of tincture of opium, helped to make the internal haemorrhoids more congested and easier to expel. In

opposition to the opinion of others, the author finds that in many cases it is difficult to give the injections satisfactorily without an effective preliminary aspiration by means of Bier's suction apparatus, which, after being in action for ten to fifteen minutes, draws out and gives prominence to the internal haemorrhoids. Such aspiration is helpful even when the internal haemorrhoids can be rendered visible simply by exerting pressure on them. Two or at most three haemorrhoids are treated at a time, the patient being in the knee-elbow position except when he or she is elderly, in which case the lateral recumbent position is preferable. Only two to four drops of the solution are introduced into each haemorrhoid, care being taken to avoid the often thickened and chronically inflamed extremity of the haemorrhoid, and to puncture laterally, near its base. On the rare occasions when necrosis supervened it is probable that the solution was deposited not within the haemorrhoid itself, but in the surrounding tissues. Such necrosis delays convalescence, but does not otherwise impair the efficiency of this treatment. It is easy to replace the haemorrhoids after they have been injected, the patients being allowed to go back to work forthwith.

8 Organotherapy of Peptic Ulcer

This is based, according to K. GLAESSNER (*Wien. klin. Woch.*, April 27th, 1934, p. 513), on the findings that peptic ulcer does not affect regions of mucosa in which parietal cells are present (the exceptions are in cases of aberrant inclusions, in such regions, of other gland types); that more severe subcutaneous ulcers are induced in animals by injection of gastric juice from patients with, than from those without, peptic ulcers; and that parenteral injections of neutral water-soluble pepsin from gastric mucosa accelerate the healing of such experimental subcutaneous ulcers. The organotherapeutic treatment which Glaessner recommends consists in injection, subcutaneous or preferably intramuscular, of extracts of gastric mucosa rendered sterile by filtration; small amounts of preservative and anaesthetic substances may be added. Two subsequent courses of injections at six months' intervals prevent recurrences. At the same time frequent mixed meals from which red meat and extractives are excluded, are given, and the treatment is ambulant. Each meal is preceded by exhibition of 20 grams of pure olive oil and followed by a protective dose of a bismuth salt. Atropine medication is usually, and the alkaline carbonates are invariably, forbidden. The principal contraindications are penetrating old-standing ulcers, marked stenoses, and acute haemorrhage. The cases treated on the e lines and adequately investigated by means which included x-ray and biochemical tests number about 1,000, of which some two-thirds were duodenal ulcers. Lasting cure was obtained in more than two-thirds. Recurrences were noted in 10 to 20 per cent.; unresponsive cases were often found to have morbid conditions of the bile passages or pancreas, or a malignant neoplasm—any of which might or might not coexist with peptic ulceration. Injections of which the pepsin had been destroyed by heating to over 60° C. were inactive. Loeper and his co-workers have had equally good clinical results from injection of 10 per cent. pepsin solution, the action of which they regard as one of desensitization: Glaessner visualizes, but does not decide amongst, three possible modes of action of his neutral pepsin—namely, (1) its production of protective antibodies, (2) production of an increased hormonal anti-pepsin titre in the blood, and (3) stimulation and replacement of gastro-genic hormones promoting repair.

9 Massive Atropine Dosage in Parkinsonism

G. MARINZANO and E. FAYON (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, April 2nd, 1934, p. 479) confirm the superiority of Romer's treatment by large doses of atropine in the Parkinsonian sequelae of encephalitis, and give the results in fifty-one cases. Complete cessation of tremor was noted in twenty-three instances, and diminution of rigidity in a larger proportion. A remarkable improvement occurred in these with involuntary move-

ments and torsion spasms, and oculo-gyric crises as a rule became less frequent and less prolonged. The usual dose was 10 to 16.5 mg. daily, occasionally as much as 25 mg.; the effects were better in recent cases, young subjects, and those who had not received hyoscine treatment. About one in three had dry mouth, improved by daily doses of 2 to 3 cg. of pilocarpine; one in ten had persistent trouble in accommodation; four had temporary psychic disturbances; those having anorexia reacted favourably to insulin therapy; and diarrhoea (secondary to diminished gastric motility and secretion) invariably ceased when pepsin and hydrochloric acid were given.

Dermatology

10 Recurrent Herpes Zoster

H. HRUSZEK (*Derm. Woch.*, April 28th, 1934, p. 515) describes two cases of recurrent herpes zoster. In the first the rashes occurred in the same thoracic zone at twelve months' interval, during which neuralgia had persisted. In the second a syphilitic male, aged 52, suffered from gluteal, and three weeks later from thoracic, zoster. In both patients cutaneous auto-inoculation tests and inoculation of the rabbit's cornea proved negative. Discussing differential diagnosis of herpes zoster from other herpetic forms, Hruszek concludes that localization and scar formation are significant, but that at present the inoculation tests are the most reliable.

11 Percaine in Diseases of the Skin

J. FÉNYES (*Wien. med. Woch.*, April 28th, 1934, p. 499) has investigated the action of percaine on certain diseases of the skin at the dermatological department of the Graf Apponyi-Alber-Poliklinik in Budapest, where, since 1930, he has used it in an alcoholic solution or in an ointment in some scores of cases. No definite results were achieved with a 1 per cent. alcoholic solution in pruritus, associated with internal conditions such as jaundice, diabetes, Graves's disease, or cancer, nor when there was an underlying 'nervous element' such as hysteria, neurasthenia, general paralysis, or tabes. Failure had also to be admitted in several cases of lichen. In forty-two cases the percaine was used as an ointment (percaine 1 part, liq. alum formicis 10, aq. hamamelidis 6, adipis lanae comp. ad 100). The best results were achieved in pruritus and eczema of the anus, particularly when they were associated with erosions and fissures. Painful and itching haemorrhoids, pruritus vulvae, eczema of the scrotum, burns of the first and second degrees, and varicose ulcers also responded satisfactorily. Variable results were observed in senile pruritus. Frostbites became less painful, but did not seem to benefit in any other way from this therapy. The author is, on the whole, favourably impressed with this treatment, whose effects he traces partly to the anaesthetic action of the percaine, partly to the other constituents of the ointment containing it. It is, in fact, to the cooling properties of this vehicle that he traces most of the good effects in those cases in which the skin was intact. Only when it is broken does the anaesthetic action of the percaine on the exposed nerve endings make itself felt.

12 Antileprol in Boeck's Sarcoid

S. LOMHOLT (*Hospitalstidende*, February 13th, 1934, p. 187) reports from the skin department of the Finsen Institute in Copenhagen his results in twelve cases of Boeck's sarcoid treated with antileprol, which is a mixture of ethyl esters of various unsaturated fatty acids derived partly from genuine chaulmoogra oil, partly from various hydrocarpus oils. It was first prepared in 1908 by Hoffmann and Taub (Bayer and Co.). Boeck's sarcoid has been hitherto considered as a very intractable condition; even in those cases in which certain remedies have achieved success it has not as a rule been permanent. Lomholt's tests with antileprol were prompted by the successes claimed for it in Cuta in the treatment of leprosy. As far as tests with lupus of the skin were

concerned, his results were discouraging, but they were surprisingly good in the cases of Boeck's sarcoid, the cutaneous infiltrations disappearing completely in eight cases after only three to ten weeks' treatment, and showing marked improvement in the remaining four cases. The associate condition of the mucous membranes responded very favourably to the treatment in three cases. On the other hand, there was no change in the quite superficial abnormalities of the skin, in its cyanosis, in the dilatation of the blood vessels, nor in the characteristic partial atrophy of the bones. Antileprol may be given by intramuscular injection, but Lomholt soon abandoned this in favour of the intravenous route. As a rule 1½ c.cm. was given every day, the dose being reduced to 1 or 0.5 c.cm. when a febrile reaction was provoked. In cases in which the drug was well tolerated the dosage was increased to 3 c.cm. The composition of antileprol being very mixed and lacking uniformity, and the aetiology of Boeck's sarcoid being still obscure (at present it is generally regarded as an infection by an unknown virus), this treatment is still on an empirical footing.

13 Leprosy Bacilli in the "Healthy" Skin of Lepers

A. A. STEIN and M. I. STEPERIN (*Norsk Mag. f. Lægevid.*, March, 1934, p. 278) report from the leprosarium of Krutijie Rutschi, Leningrad, observations made on the ninety-seven patients and forty-nine members of the staff. In none of the latter could leprosy bacilli be found in the nose, although the examinations were repeated in the case of the doctors and nurses. In a considerable proportion of the patients these bacilli were found in skin, although it looked healthy and had never been the seat of macroscopical leprosy changes. The technique employed was to cut the skin so superficially that no blood (only lymph) escaped, and to raise a blister by the application of carbon dioxide snow, and then to examine the lymph for these bacilli. The proportion of positive and negative findings varied with the forms of the disease examined, but even in those forms in which the bacillus of leprosy occurs in scant numbers and is difficult to find, it was occasionally demonstrated by the method described. It alone yielded positive results in three cases in which the patients were apparently cured, and in whose nasal mucosa the bacillus of leprosy could not be found, even after the administration of potassium iodide. The authors' success with the demonstration of the bacillus of leprosy in the apparently healthy skin does not detract from the great value they attach to the nasal mucosa as the surface most likely to yield the bacillus of leprosy on examination.

14 Bakers' Eczema

E. ZITZKE (*Deut. med. Woch.*, April 27th, 1934, p. 642) has carried out skin tests on 130 bakers suffering from eczema. Intracutaneous injections were given of extracts, in normal saline solution, of various flours and chemicals used in their preparation ("improvers"). The chemicals entering into the composition of "improvers" include ammonium persulphate and acid calcium phosphate. Sensitization to one or other of these substances was indicated by the appearance of vesicles at the site of injection in ten to fifteen minutes. Sensitization to the same substances was also investigated by the percutaneous test, which consisted in keeping the substance to be tested for twenty-four hours in contact with the skin under a hermetically sealed dressing. Though now and again sensitization to one or other of the substances tested was demonstrable, the worst offender proved to be ammonium persulphate, which, in the last series of twenty-two bakers examined, gave a positive reaction to the percutaneous test in as many as nineteen cases. Discussing the treatment of this condition, the author finds that change of occupation is the most effective remedy, but also a council of perfection. Considering how widespread and serious bakers' eczema has become since the introduction of "improvers" in the manufacture of flour, it would be well if prospective bakers were to be subjected to specific skin tests, so that those who reacted violently to one or other of the substances with which bakers come into contact could be persuaded to seek some other occupation.

Obstetrics and Gynaecology

15 Pituitary Extract and Rupture of the Uterus

F. v. MIKULICZ-RADECKI (*Deut. med. Woch.*, May 4th, 1934, p. 665) finds that rupture of the uterus is becoming alarmingly common on account of the popularity of two measures—Caesarean section and the administration of pituitary extract before the stage of dilatation is complete. As head of the University Gynaecological Hospital in Königsberg, Prussia, this author has recently had occasion to study two cases of rupture of the uterus following the intravenous injection of a pituitary extract by general practitioners, and he records a third case, observed by a colleague, in which the pituitary extract was given by intramuscular injection. To these three cases he adds eight from the literature. Common to ten of these eleven cases was the fact that the women were multiparae. The lessons he extracts from these cases are that "plugging in" pituitary extract at random during labour constitutes malpractice, that every successive dose should be given with reference to the patient's reaction to previous doses, and that the administration of this substance by intravenous injection should be banned, as it fails to provoke the desired rhythmic contractions. Instead, it gives rise to tetanic contractions which do not promote the dilatation of the passages through which the foetus has to pass.

16 Diffuse Squamous-Cell Carcinoma of the Corpus Uteri

F. v. MIKULICZ-RADECKI (*Zentralbl. f. Gynäk.*, April 14th, 1934, p. 850) recalls that "icing-sugar" carcinoma of the uterine interior—lined continuously by a whitish layer of squamous-celled carcinoma—was described by C. Ruge fifty years ago. About thirty cases have been recorded, and the writer adds two more, occurring in women aged 65 and 70 respectively. In the first patient pyometra had followed x-ray and radium treatment for advanced carcinoma of the cervix: penetration of the corporeal myometrium was well marked. The second had a cervical cancer, but no pyometra. The author agrees with R. Meyer that in these cases it is unlikely that the squamous-celled cancer should develop independently in corpus and cervix. Not all squamous-cell epithelium in the body of the uterus is malignant; it may be secondary to severe endometritis or pyometra. The distinction between malignant and non-malignant cases is difficult: in Hofmeier's case, first regarded as benign, an inoperable condition was found to have been reached four months later. Accordingly the detection, in curettings, of fragments of squamous epithelium which do not come from the cervix calls for resection of the uterus.

Pathology

17 Formation of Clubs in Actinomycosis

K. MEYER (*C.R. Soc. de Biol.*, 1934, cxv, 1684) disputes the truth of the widely accepted view that the clubs of actinomycetes are formed at the ends of the mycelial filaments either as the result of a degenerative or of a defensive process. He points out that club formation in the tissues has been observed with other organisms, such as the actinobacillus, the tubercle bacillus, and staphylococci, and brings experimental evidence to show that it occurs even when dead actinomycetes are introduced into the body. Cultures of human origin in glucose broth, which had been incubated for ten to fifteen days, were centrifuged; the deposit was washed with saline and a fine suspension obtained; the organisms were then destroyed by exposure to steam for thirty minutes. This suspension was inoculated twice intravenously at a week's interval into a rabbit. The animal was killed a fortnight after the second injection, and the lungs were fixed with

formol and stained with Gram. The sections showed masses of mycelial filaments, either naked or surrounded by radially disposed clubs, looking like typical actinomycotic granules. Incomplete granules were visible, in which the clubs were imperfectly developed, or not arranged radially, or distributed round one side only of the central mass. In these rudimentary granules the clubs were at some distance from the mycelium, and even in the typical granules the clubs could be seen to have no connexion with the mycelial filaments. The more marked the club formation was, the less preserved was the mycelium. The fact that the club formation occurred with dead actinomycetes, and that the clubs and mycelial elements appeared to be quite separate, leads the author to conclude that the clubs are formed by the host and not by the invading organism. It is interesting to note that they have been observed by Levaditi around inorganic substances, such as tellurium.

18 Healthy Carriers of the Meningococcus

G. RAKE (*Journ. Exper. Med.*, May, 1934, p. 553) reports an intensive study of the meningococcal carrier problem. For twenty months twenty-four persons on one floor of the Rockefeller Institute in New York were examined weekly, swabs being taken from the nasopharynx and plated directly on to a 4 per cent. rabbit blood, 0.03 per cent. glucose, nutrient agar medium. The proportion of meningococcal colonies was estimated, and the identification of the organisms carried out by morphological examination, fermentation, and serological methods. Ten carriers were found. Of these, five were chronic, four of them carrying the meningococcus for periods ranging from twenty-one to twenty-six months; two were intermittent, showing long intervals of freedom extending to four months and six months respectively; and three were transient, the meningococcus being found on one occasion only. The numbers of meningococci present varied considerably, but in some of the chronic carriers they constituted at times over 90 per cent. of the colonies on the plates. The effect of coryza and pharyngitis appeared to be negligible, unless of a type in which streptococci or other throat pathogens increased greatly in number, when the meningococci underwent a temporary or permanent diminution. A second community was examined, consisting of twenty-five girls varying from 6 months to 14 years of age, who were in a founding hospital suffering from gonococcal vaginitis; only two carriers were detected. This low incidence is more likely to have been due, the author thinks, to the strict isolation of the patients rather than to the comparatively short average period of observation—fourteen and a half weeks. A third community, consisting of 569 young men, of 18 to 25 years of age, collected in a concentration camp, was also examined, swabs being taken for only a few times from any given person. Twelve carriers were found, an incidence of only 2.1 per cent. Twenty-six carrier strains were examined serologically, and though only eight could be identified with one or other of Gordon's four types, absorption tests revealed their affinity to his Groups I or II. Altogether five of the twenty-six strains belonged to his Group I and twenty-one to his Group II. This work shows that the meningococcal carrier state may be far more persistent than has commonly been supposed.

19 Heterophil Antibodies in Glandular Fevers

L. MEIJLER and R. J. SIEMELINK (*Nederl. Tijdschr. v. Geneesk.*, May 5th, 1934, p. 1952) refer to the work of Paul and Bunnell, who were the first to show that heterophil antibodies in the form of agglutinins for the washed red corpuscles of sheep were present in high concentration in glandular fever. Meijler and Siemeling used the test in six cases of clinical glandular fever in patients aged from 2½ to 30, and found it positive in all, whereas in 400 cases of miscellaneous diseases the reaction was negative, except in a case of subacute myelogenous leukaemia and another of jaundice due to gall-stones. They conclude that the test is of great value in differentiating glandular fever from other diseases.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

20 Statistics of Haematemesis and Melaena

S. FROSTAD (*Norsk Mag. f. Laegevid.*, May, 1934, p. 578) has collected the cases of haematemesis and melaena (not including occult haemorrhages) observed in a public hospital in Oslo in the seventeen-year period 1916-32. There were 424 such cases, 250 of which were of haematemesis alone, 118 of melaena alone, and fifty-six of both haematemesis and melaena. The males were in the majority (59.4 per cent.). The youngest patient was 12, the oldest 81. As some of the patients represented readmissions the 424 cases corresponded only to 382 patients. Grouping of the patients according to their age showed that before 20 there were only eighteen cases, but between 20 and 30 there were as many as 109 cases. After 30 the incidence of haematemesis and melaena declined. There were as many as thirty-six deaths—that is, a mortality of 9.4 per cent. (not cases, but patients). This mortality was highest between the ages of 50 and 60, and among men. The cases were grouped according to the months of the year in which they occurred, so as to ascertain if a seasonal factor (vitamin C deficiency) existed. In the first half of the years there were altogether 197 cases, and in the second half 227—a finding which gave no support for the vitamin C deficiency hypothesis.

21 Investigation of Gastropotosis

E. BOIX REPOLLÉS (*Rev. Med. de Barcelona*, April, 1934, p. 297), analysing with detail twenty-two cases of gastropotosis investigated by all known methods, defines the condition as an enlargement of the stomach, of which no organic cause can be ascertained, and in which the increased size is a mere symptom, and by no means the most important. He adds that the general "make up" of the body—that is, height, weight, etc.—influences, but to a small extent, the shape and size of the stomach, and that atony and ptosis are far from being present at the same time. He found both lymphocytosis and reduced colour index and normal blood count, with normal or slightly low arterial tension, and a diminution of free HCl. The blood pH is inclined to be acid within normal limits; and while there is some connexion between the pH of the gastric juice and the percentage of free HCl, that between the gastric pH and the pH of the urine is by no means clear, even though it is manifest between the former and the pH of the blood. Vagotonia was present in all cases, and basal metabolism was lowered; while hypercalcaemia was detected by Waard's method. In his investigation of the gastric juice the author practised Linossier's technique; the blood sugar percentage was determined by the method of Folin and Wu, and the gastric and urinary pH by that of Hellige and Klark respectively. There was some menstrual disturbance in all the female cases. None of these had commenced to menstruate at an unusually early age, nor had any of them been pregnant, though several were quite anxious to become mothers. The author is far from discrediting the theory that the parathyroid bodies play a great part in the production of gastropotosis.

22 Coronary Syphilis

H. G. BRUENN (*Amer. Heart Journ.*, April, 1934, p. 421) has analysed 118 cases of cardiovascular syphilis with a view to determining the bearing of coronary orifice stenosis upon the pathological and clinical pictures of the disease. By actual measurement it was found that the normal healthy coronary orifice circumference was about 10 mm., the lower level of normality being 8 mm. In thirty-nine of the 118 cases either or both of the coronary orifices had a circumference of less than 7 mm., and all except five of these patients had aortic insufficiency. These cases were then compared with twenty-eight in the series

in which there was aortic insufficiency without coronary orifice stenosis. It was found that the right orifice was occluded eight times more frequently than the left, and that an abnormally high origin of these arteries appeared to be an important factor in the involvement of their orifices. On the average, the hearts with stenosed coronary orifices were found to be less hypertrophied than those with patent openings. Infarction was relatively rare in cases with syphilitic stenosis or occlusion of the coronary openings. A racial factor was detected, negroes being twice as prone to develop stenosis at the orifices as the white population. The duration of life from the onset of cardiac symptoms was shorter in patients with stenosed orifices than in the group with patent openings. No major differences were observed between the two groups as regards symptoms, findings on physical examination, or other diagnostic criteria. Extreme stenosis of both coronary openings due to syphilis predisposed to sudden death, but this was not the case when only one was narrowed intensely. Bruenn calls attention to one characteristic type of case. The patients are in the third or fourth decade of life, and there is no cardiac hypertrophy, the myocardium being free from gross fibrosis. Coronary arteriosclerosis is absent, although the orifices are extremely stenosed. Paroxysmal pain is the predominant symptom, and there is no oedema. The average duration of life after the onset of cardiac symptoms is 3.2 months, as compared with 9.9 months for the total series.

23 Polyneuritis in Mumps

T. C. MERRILL (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, April 23rd, 1934, p. 526), who records an illustrative case, states that the nervous complications of mumps may consist of polyneuritis, meningitis, or encephalitis, but that severe or fatal results are rare. Merrill's case was that of a woman, aged 65, in whom a mild attack of mumps affecting only the right parotid was followed by polyneuritis of the second, third, seventh, eighth, and ninth right cranial nerves. Involvement of the second nerve was shown by optic neuritis, of the third by lagophthalmia and lachrymation, of the seventh by facial paralysis of the eighth by deafness, and of the ninth by dysphagia, dysarthria, and motor disturbance of the tongue and pharynx. The polyneuritis lasted for two months and ended in complete recovery.

Surgery

24 Tuberculosis of the Shaft of Long Bones

G. VANGORDER (*Journ. Bone and Joint Surg.*, April, 1934, p. 269) points out the predilection of tuberculosis of the osseous system for the earlier years of life, although it may rarely occur in adults. The clinical features of the disease are local thickening of the affected bone, pain, muscular wasting, abscess formation, and sinus formation at a later stage. Other lesions of tuberculosis may be associated either in bone or other parts of the body. In tuberculosis of the shaft of a bone the local swelling may be yielding and indentable to pressure at first, but later becomes as hard as healthy bone. The enlarged shaft is not noticeably tender, and pain is variable according to the development of the disease. Abscess formation takes place as the local process of softening and caseation progresses inside the bone, and is one of the characteristic features of the disease. Sinus formation is seen in the late stages, when the bone abscess has extended into the soft parts and worked its way to the surface of the skin. Osseous tuberculosis may be divided into three varieties: the encysted tubercle, which is the most common and chronic; the atrophic tuberculous lesion, which is seen in the metaphysical ends of long bones, and is characterized by local atrophy of the lamellae; and the infiltrating tuberculous lesion, which represents the acute form of the

disease. A tuberculous focus may develop in any portion of the shaft of a bone, and its tendency is to form an abscess. This abscess may remain encysted, may spread along the marrow cavity, may extend from the medulla to the periphery involving the surrounding soft parts, or it may extend from an original metaphyseal focus into the epiphysis and later into a joint. Treatment should consist of the subperiosteal excision of the bone abscesses, and six cases are reported which were treated in this way. Of these, five complete cures resulted, and in one case no end-result was obtained.

25 Morbid Conditions Caused by Meckel's Diverticulum

O. UTTER (*Finska Läkaresällskapet Handlingar*, April, 1934, p. 349) has revised the 13,700 laparotomies performed during the past twenty years in a public hospital in Wiborg, Finland, and has found Meckel's diverticulum figuring in thirty-three of them. In twenty-six of these cases it showed some incidental pathological condition, or was actually responsible for the operation. As many as thirty of the patients were males. In seventeen cases Meckel's diverticulum caused intestinal obstruction, and in seven cases it was inflamed. In three cases it was found in an incarcerated hernia, and in six it was of secondary importance in relation to other conditions. It is not possible to draw a hard-and-fast line between the diverticulum which gives rise to intestinal obstruction and the inflamed diverticulum, for diverticulitis, by causing adhesions and bands, may be the primary factor in a subsequent attack of intestinal obstruction. According to observations made in Finland and Sweden, Meckel's diverticulum is responsible for about 2 per cent. of all cases of acute intestinal obstruction, and causes the death of the patient, as a sequel to the obstruction, in 32 per cent. of such cases. With regard to treatment, simple disinvagination of the invaginated diverticulum is not enough, for the invagination is apt to recur, and it did so in one of the author's cases with fatal results. Resection of the diverticulum, and in some cases of part of the gut as well, is indicated. Every diverticulum, diseased or healthy, should be removed, and whenever a normal appendix is found in an alleged case of appendicitis a Meckel's diverticulum should be sought.

Therapeutics

26 Administration of Thyroxine

W. O. THOMPSON *et al.* (*Endocrinology*, March-April, 1934, p. 228), who have been investigating the action of various compounds of thyroxine on the basal metabolism, report a comparison of the effects of administering thyroxine intravenously in alkaline solution with those of giving it in various forms by the mouth. In terms of the amount which had to be administered each day in order to keep the basal metabolism of patients with myxoedema (basal metabolism minus 37 per cent.) at the normal level, it appeared that the intravenous injection of thyroxine in alkaline solution (0.33 mg. daily) had about four times as much effect as when given by mouth in the form of its mono-sodium salt (1.33 mg. daily), and about 150 times as much effect as when given by mouth suspended in distilled water (50 mg. daily). Thyroxine administered intravenously in alkaline solution and desiccated thyroid given by mouth (1.38 grams daily, containing 0.21 mg. iodine) appeared to have the same effect on the basis of equivalent iodine contents. In patients with myxoedema a single intravenous injection of 10 mg. of thyroxine in alkaline solution caused the metabolism to increase 32 points (from minus 37 per cent. to minus 5 per cent. on the average), while the oral administration of equivalent doses of mono-sodium thyroxine, thyroxine in alkaline solution, and desiccated thyroid caused changes in the metabolism, respectively 22 per cent., 63 per cent., and 69 per cent. as great.

Thus, when the effects of single large doses are compared, 10 mg. of thyroxine given by mouth in an alkaline solution has the same effect as a dose of desiccated thyroid containing the same amount of iodine (6.5 mg.).

27 Malaria Therapy in Tabetic Optic Atrophy

Though the efficacy of malaria therapy in tabes has been disputed, and its use limited to visceral forms of the disease, certain German authorities have recommended its employment in tabetic optic atrophy, a strain of the plasmodium attenuated by quininization being used, as the fragility of the nerve necessitates avoidance of too high febrile crises and large doses of quinine. A. FRIBOURG-BLANC (*Rev. Méd. Franç.*, April, 1934, p. 379) records two cases in which this method was adopted. Though beneficial in both cases, the results were far less favourable in one than the other. In the case of semi-failure, the papillary atrophy with almost complete blindness was very advanced, and well established before treatment. The author concludes that the efficacy of malaria therapy depends on the stage of the disease, as the vaso-dilatating and eutrophic action of hyperthermia is ineffective in lesions of definitely established sclerosis. Hence, early treatment is necessary, and a strain of well-verified plasmodium vivax should be employed. This therapy is contraindicated in cachexia, pulmonary tuberculosis, and conditions with marked cardiac, hepatic, or renal lesions. Malaria therapy is exempt from all danger, and should therefore be applied in all cases of tabetic optic atrophy, especially in view of the gravity and serious prognosis of this disease.

28 Antistaphylococcal Vaccine in Treatment of Zoster

G. P. MARINOFF (*Thèse de Paris*, 1934, No. 70), who reports the histories of ten illustrative cases in patients aged from 16 to 79, in addition to giving a table of seventy-two cases in patients aged from 5 to 75, states that antistaphylococcal vaccination is one of the most efficacious methods of treatment in herpes zoster. It relieves the pain so effectively as to do away with the necessity for local analgesics. It shortens the duration of the eruption by half, and prevents secondary infection, so that local applications of any kind are not required. The treatment is successful at all ages. Though it does not have any effect on the neuralgia following zoster which has cleared up spontaneously, zoster which has been treated by the vaccine is never followed by neuralgia of this kind. In order to obtain the best results the injection of the vaccine should be given subcutaneously in the immediate neighbourhood of the eruption.

Neurology and Psychology

29 Extradural Cysts

According to C. A. ELSBERG, C. G. DYKE, and E. D. BREWER (*Bull. Neurol. Inst. of New York*, March, 1934, p. 395), there is a characteristic syndrome of compression of the spinal cord by an extradural cyst, usually of large size, and not dermoid or parasitic in nature. The patient is generally an adolescent, and four cases are recorded, in which the patients were aged 12, 15, 15, and 16 years, the last being a girl and the remainder boys. The history and symptoms suggest a progressive spastic paraplegia. Pain is usually absent or is not a prominent symptom. The objective disturbances of sensation are slight, and their upper level is in the mid-thoracic region, usually at the sixth or seventh thoracic dermatome. Manometric tests reveal a subarachnoid blockage, with the spinal fluid changes characteristic of cord compression. Measurements on antero-posterior x-ray films show that the interpedicular spaces of three or more vertebrae, somewhere between the fourth and tenth thoracic vertebrae, are enlarged. The pedicles of the affected vertebrae are narrowed and atrophic, especially those of the sixth,

seventh, and eighth. The authors claim that this combination of symptoms and signs justifies the diagnosis of a large extradural cyst of the spinal cord. The condition has to be distinguished from intramedullary disease, multiple sclerosis, and syringomyelia. In the four recorded cases the motor disturbances consisted of marked loss of power and increased tendon reflexes in the lower extremities, with bilateral ankle clonus and Babinski's sign. The limb on the same side as that on which the attachment of the cyst to the dura was found was in three cases the first to be affected, but both limbs soon become involved without muscular atrophy. In one patient in whom the symptoms had been present for three years, the erectores spinae were atrophied. The lower abdominal reflexes were lost in one patient, and all abdominal reflexes in the other three. In all the cyst was found to lie mainly under the arches of the sixth, seventh, and eighth thoracic vertebrae, which appear to be the usual site for these large extradural cysts. The authors suggest that the cyst formation is traceable to a congenital diverticulum of the dura mater, or to a herniation of the arachnoid through a congenital defect in the dura.

30 The Pre-motor Cortex Syndrome in Man

MARGARET A. KENNARD, H. R. VIETS, and J. F. FULTON (*Brain*, March, 1934, p. 69) record a case of forced grasping which, like other cases described in the clinical literature, exhibited spasticity, increase of the tendon reflexes of the digits, and gradual impairment of the skilled movements of the fingers. The patient was a man aged 34, and the first phenomena took the form of epileptiform seizures. The signs and symptoms named, together with vasomotor disturbances of the affected extremity (in this case the left arm), form a well-defined clinical entity which the authors term "the syndrome of the motor cortex." They state that all manifestations of the condition can be reproduced experimentally in the subhuman primates by lesions restricted to the pre-motor area. This syndrome can be differentiated clinically from the motor area syndrome on the basis of chronology of symptoms. In the case of pre-motor lesions, awkwardness, spasticity, and increase of tendon reflexes appear early before the onset of motor weakness; whereas in lesions of the motor area weakness begins early, the reflexes are at first depressed, and spasticity, if present, appears late. Experimental destruction of the pre-motor area in a monkey or chimpanzee was found to reproduce the pre-motor syndrome in its fully developed state, including marked vasomotor disturbance, forced grasping, spasticity, and failure of every type of skilled movement. The authors remark it as highly significant that during the period of recovery from such an experimental lesion the first symptoms to disappear (forced grasping and vasomotor disturbance) are those which appear latest in the clinical pre-motor syndrome, while the symptoms which persist longest after the experimental lesions (impairment of skilled movements and increase of reflexes) are those which appear first in the clinical anamnesis. The precocious disturbance of skilled movements must therefore be regarded as the most significant feature of the pre-motor syndrome. The forced grasping in the case described showed consistent variations with changes of position of the body in space, which, the authors point out, places the phenomenon in the category of the righting reflexes described by Magnus. They add that the changes in skin temperature and sweating on the side opposite the lesion indicate that representation of the autonomic nervous system exists in the cortex.

31 Transient Diplopia as an Early Symptom in Cerebellar Tumour

According to E. ROZNER (*Med. Klinik*, April 20th, 1934, p. 546), double vision is not rare in cerebellar tumour, but is usually a late symptom associated with pressure on the nuclei of the sixth, fourth, or third cranial nerve. A case is described in which transient attacks of double vision of two weeks' duration gave the first indication of a cerebellar tumour. The images appeared to be separated

by the same distance when the object was moved, and slight hyperesophoria was noted, so that a supranuclear fusion lesion was diagnosed. The other signs were slight papilloedema and left hypotonia; left dysidiadochokinesia and other cerebellar signs followed later, and operation showed glioma of the left cerebellar hemisphere. A similar early diplopia may occur in epidemic encephalitis, tabes, multiple sclerosis, syringomyelia, and Little's disease, and is due to lesions near the fourth ventricle. At a later stage impaired fusion may be masked by an ocular muscle palsy.

32 Importance of Early Malarial Treatment in G.P.I.

J. MADSEN (*Hospitalstidende*, April 24th, 1934, p. 481) deplors the fact that hitherto only about a quarter of the patients given malarial treatment recover from their general paralysis to such an extent that they can resume work; and he has conducted investigations which give statistical support to his theory that better results would be achieved if the interval between the first appearance of symptoms and the treatment were shortened. At the Danish asylum in which he works 293 patients were given malarial treatment in the period 1922-8. In the spring of 1930 follow-up investigations were made, and 231 patients were traced. They were classified, on the one hand, according as the interval between the first appearance of symptoms and the institution of treatment was three months or less, between three and six months, between six and twelve months, and over a year, and, on the other hand, according to the therapeutic results. As the various tables show, the proportion of cures, immediate and remote, varied indirectly with the length of the interval between the first appearance of symptoms and the institution of treatment. The same lesson was brought out by grouping the patients only in two classes—namely, those whose symptoms had lasted more or less than half a year before treatment was instituted. The ideal would be to give prophylactic malarial treatment before clinical symptoms had developed, and on the strength of other available evidence of impending dementia paralytica. Short of this ideal there is the alternative of speeding up the administrative machinery: at present in Denmark the transfer of a patient from an ordinary hospital to an asylum is liable to take months. There is also the difficulty of persuading a patient in the early, curable stage of his disease to enter an asylum. One remedy suggested by the author is to centralize malarial treatment in special hospitals, so that the malarial succession from one patient to another would not tend to delay the treatment.

Obstetrics and Gynaecology

33 Treatment of Hypogalactia

L. ROSENVASSER (*La Semana Médica*, April 12th, 1934, p. 1105) found that injections of the anterior pituitary extract gave very inconstant results in this condition, even though it always produced some local reaction in the breast. A 20 per cent. extract of the placenta of the cow or sheep, however, of which 1 or 2 c.cm. was daily injected for twenty days, was eminently satisfactory in forty out of fifty cases in which he tried it. His unsuccessful cases were generally elderly primiparae, or mothers otherwise too feeble to suckle. The injections were at times followed by rigors and local reactions in or around the breasts, such as pruritus, and an urticarial rash; but these were quite transient and disappeared in less than twenty-four hours. The author states that the variety of remedies tried for inducing the flow of milk in all ages is enormous. In the vegetable kingdom he instances angelica, cummin, fennel, anise, nettles, and gossypium; in the mineral, salts of lime and iron; the physical sciences have been called upon in respect of suction, massage, expression, extraction by pump—manual or electrical—actinotherapy, heliotherapy, galvanism, faradism, and diathermy.

34 Physical Culture during Pregnancy, Lying-in, and Lactation

DECUING and GUILHEM (*La Gynéc.*, March, 1934, p. 133), after describing the effects of pregnancy upon a woman's appearance, states that, except in the presence of certain obvious contraindications, including the times when periods would be due, active exercise during pregnancy, checked by the induction of fatigue, and adapted to the age, tastes, and constitution of the patient, should be the general rule. The objective is the prevention of adiposity, ptosis, yielding of the abdominal wall, constipation, and inefficient respiration. The movements required are therefore abdominal and thoracic exercises, preferably active, if necessary passive. Varices in the lower limbs may be avoided by regular movements, having them raised in bed, and wearing elastic stockings. During the lying-in period massage, early getting up, and especially movements described as "going for a walk in bed" are advocated. It is hoped that the French mother will continue deep breathing and abdominal movements, and engage in sports as do German and Swedish mothers with their entire families.

35 High Frequency in Vulvar Pruritus of Pregnancy

Vulvar pruritis, with or without vaginitis, is a frequent accompaniment of pregnancy, and is occasionally refractory to all usual therapeutic measures. In such cases J. HARTEMANN (*Bull. Soc. d'Obstét. et de Gynéc.*, *de Paris*, April, 1931, p. 317) has found that applications of high-frequency current produce a rapid cure, and records two illustrative cases. In one, applications were made to the different vulvar regions with Vignal's electrode, followed by an application (intravaginal) of about ten minutes' duration with Potret's grooved electrode. Owing to a slight recurrence ten days later this was repeated, with resulting cure. In the second case, after applying Vignal's electrode, electrodes of progressively increasing diameter were used, and finally Potret's. As next morning a less violent attack of pruritus occurred, an intravaginal application of ultra-violet light was made; this was followed by complete cure. This efficacious method is entirely without danger, and Hartemann considers that pregnancy is a supplementary indication to its use rather than a contraindication.

36 Delivery of Double-headed Monster

According to A. RYDÉN (*Zentralbl. f. Gynäk.*, April 28th, 1934, p. 972) the immature double-headed monster is usually, and the mature one occasionally, delivered spontaneously. In a case which he notes the two heads were expelled together, side to side, but looking to the mother's right and left respectively, the right side of one head being directed towards the pubis and the right side of the other towards the sacrum. The left apposed sides of the heads were flattened by moulding and occupied the transverse diameter of the pelvic outlet. The weight of the foetus was 5 kilos and the joint girth of the heads 50 cm. Nevertheless, labour, which was at term, lasted only three hours in the 23-year-old three-para, and was only complicated by episiotomy done before the presence of two heads had been found out.

37 Acute Pulmonary Oedema in Pregnancy

M. I. SZER (*Thèse de Paris*, 1934, No. 213), who records seven illustrative cases in women aged from 20 to 45, of whom three were primiparae and four multiparae, states that acute oedema of the lung in pregnancy is generally the complication of a recognized valvular disease. In some cases, however, it may be the first sign of a hitherto unsuspected cardiac disease such as mitral stenosis. It may also develop apart from any cardiac disease—for example, in the albuminuria of pregnancy with arterial hypertension. It is generally a late complication appearing in the fifth month of pregnancy or at term, or even after delivery. In exceptional cases it arises in the second month of pregnancy, when the prognosis is particularly grave. Treatment consists in the administration of cardiac tonics such as ouabaine and morphine

Pathology

38 Experimental Hyperglycaemia in Rabbits

M. E. DELAFIELD (*Brit. Journ. Exper. Path.*, April, 1934, p. 130) describes the effect of intravenous inoculation of rabbits with fractions derived from *Bact. aertrycke*—the organism which gives rise to a typhoid-like disease in rodents and to acute food poisoning in man. The active fractions were prepared by tryptic digestion of the bacterial bodies, followed by suitable alcohol precipitation. They contained polysaccharide components but no unaltered protein. Injection of 0.4 to 2.0 mg. per kg. body weight of rabbit was followed by illness, often of acute onset. Usually within fifteen minutes the animal was subdued and breathing rapidly. Coarse tremors and severe diarrhoea were common. The hind legs became weak, and some of the animals developed severe prostration. At the end of two hours the animals were usually very limp, the temperature had fallen, and the peripheral circulation was so depressed that blood could be obtained only by cardiac puncture. Death sometimes occurred in two to forty-eight hours; in animals that survived, improvement was noticeable after four hours, though the weight continued to fall for about four days. Examination of the blood showed in two hours a marked rise in the sugar, which sometimes reached a figure three or four times the initial one. The hyperglycaemia disappeared in twenty-four hours, and was usually followed by a slight hypoglycaemia. In animals that died the blood sugar fell, sometimes to the convulsive level. Post-mortem examination in fatal cases showed a marked haemorrhagic congestion of the thyroid with occasional haemorrhages in the intestines, adrenals, and kidneys. It is of particular interest to note that the toxicity of the various fractions tested ran closely parallel to their ability to induce antibacterial and antitoxic immunity in mice.

39 The Blood in Measles

G. STANCANELLI (*La Pediatria*, May 1st, 1934, p. 457) examined the blood of nine infants with measles, aged from 5 to 12 months, and came to the following conclusions. During the incubation and prodromal periods there was a diminution of haemoglobin and of the red blood corpuscles, while there was a gradual increase in the white cells during the eruptive stage. In the occurrence of complications leucocytosis was frequently observed; myelocytes and metamyelocytes were often seen in the prodromal period, and subsequently until recovery took place. There was a shift to the left in the Arneth scheme in the prodromal and eruptive periods and during the presence of complications.

40 Tubercle Bacilli in the Circulating Blood

W. KOLLE and E. KÜSTER (*Deut. med. Woch.*, March 2nd, 1934, p. 309) report, from the Chemotherapeutic Research Institute Georg-Speyer-Haus in Frankfurt a. M., investigations which altogether fail to confirm the claims made by E. Loewenstein, who has found tubercle bacilli circulating in the blood of some 50 per cent. of the subjects of tuberculosis, and in a considerable proportion of cases of rheumatic polyarthritis, schizophrenia, and multiple sclerosis. Following Loewenstein's technique, the authors have made 1,033 examinations of 953 patients suffering from tuberculosis or from one of the other diseases already referred to. Positive results were obtained in only seven cases. In one of these seven cases the bacilli were found by animal experiments to be virulent. In five of the seven positive cases the disease from which the patients were suffering was tuberculosis, definite or suspect. Among the 111 rheumatic cases, which included some of erythema nodosum, there was only one positive blood finding. The remaining positive finding belonged to the group of 128 cases of schizophrenia and allied conditions. All the fifteen cases of multiple sclerosis and all the sixty-eight cases of various other diseases yielded blood in which no tubercle bacilli could be found.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

41

Latent Pellagra

E. RUB (*Hospitalstidende*, May 1st, 1934, p. 513), attached to a hydropathic establishment in Denmark, believes that latent pellagra may not be rare, and that it may be responsible for several of the cases hitherto labelled as nervous anorexia or dyspepsia, colitis or neurasthenia, in persons of the asthenic type, nervous and irritable, under weight in spite of a good appetite, and suffering from chronic digestive disturbances and slight anaemia refractory to iron. He has observed five such cases, details of one of which he records at length. The patient was a married woman, aged 50, who had suffered for fifteen years from constipation, and whose vague pains and great lassitude could not be traced to any demonstrable organic lesion. She was put on an almost exclusively vegetarian diet, with a little meat only twice a week and no milk. The constipation ceased, but she rapidly lost weight, and her previous symptoms became much worse. Insomnia, apathy, depression, loss of hair, cessation of the growth of the nails, diarrhoea, and various other troubles overtook her, and, latent pellagra being suspected, although there was no rash or pigmentation of the skin, she was put on an anti-pellagra diet, which included a daily ration of meat, a couple of eggs, "decamin," and yeast. She made a dramatic recovery, and when she reported again for observation between four and five months after discharge her improvement was such that she was hardly recognizable. After she had discontinued the yeast for three weeks loss of weight and pain recurred, whereupon she resumed the yeast and lived for a couple of months on a preparation rich in vitamin B. Her improvement was now resumed. Discussing the pathogenesis of this class of case, the author suggests that the change from an ordinary mixed diet to one which is almost exclusively vegetarian may upset the balance of an already unstable metabolism and give rise to the clinical picture just described. The cure of the constipation may also have reduced the absorption of vitamin B by the intestines. Cases such as this should be a salutary warning to dietetic enthusiasts who, in their treatment of colitis and ulcers of the digestive tract, are inclined to prescribe a dietary deficient in the anti-pellagic factor.

42

Mortality of Acute Appendicitis

From a study of 500 cases of acute appendicitis, J. J. WESTERMANN (*New York State Journ. Med.*, May 1st, 1934, p. 388) concludes that mortality can be definitely lowered by ensuring great care and gentleness at the operation. The smallest degree of exposure compatible at removal and the provision of adequate drainage make for the smoothest convalescence. If considerable difficulty attends appendicectomy, drainage alone may prove very useful. Westermann distinguishes three types of acute appendicitis. The first group (numbering eighty-three in his series) contains cases in which the disease is presumably haematogenous, being coincident with, or immediately subsequent to, respiratory or other infections—twenty-five of the eighty-three having had tonsillitis, twelve otitis media, and ten pneumonia. The morbid process is limited to the outer coats of the appendix, and is usually streptococcal. The mortality rate was 7.8 per cent., the patients' average age being 13½ years. Trauma and excessive operative intervention aggravate the condition and interfere with the peritoneal resistance. An intramuscular incision is preferable with drainage if free fluid is found. The appendix should not be removed if difficulty is entailed. Ileostomy and other secondary measures are very poorly tolerated and light up the infection. The early and copious administration of fluids is essential, including large saline and glucose injections, and repeated blood trans-

fusion. The second group (numbering 372 in the author's series) comprises cases resulting from injury of the appendix mucosa, with ensuing infection by faecal organisms. The average age of the patients was 30.6. These cases are not fulminating, and general peritonitis is not an early complication, a localized abscess being a more common sequel. The mortality rate, which was only 4.1 per cent. in the series, is raised by undue operative interference; eleven patients with right rectus incisions and five subjected to ileostomy died. The most effective procedure in the presence of abscess formation or localizing peritoneal involvement is the induction of drainage at the site with a minimum of surgical trauma. The patient is warned to seek surgical assistance early in the event of the symptoms returning. The third group of patients numbered forty-five, with an average age of 56. The onset is described as slow, with general digestive symptoms and physical signs in the lower part of the abdomen from the start. The appendix has been the seat of previous inflammation; in twenty-two of the forty-five patients there was abscess formation within four days of the onset. The mortality rate tends to be high (11.1 per cent. in the author's series), but simple drainage of the abscess, preferably under local anaesthesia and with a minimum of operative exposure, lowers it. Westermann discounts the value of ileostomy, except when there is mechanical obstruction; seven out of nine patients subjected to it died. Blood transfusion, infusions of saline solution and glucose, and administration of fluids otherwise are the only permissible measures in the presence of general peritonitis and dynamic ileus. Lavage of the peritoneal cavity is not commended. In sixteen cases the appendix was not primarily removed, and eleven of these patients recovered.

43

Submaxillary Mumps

S. L. JOHNSON (*Arch. of Pediat.*, April, 1932, p. 240), during May and June, 1932, saw eight cases of submaxillary mumps, of which he records five in patients aged from 11 months to 38 years. The incubation period ranged from eighteen to twenty days. The onset was sudden. All had been exposed to epidemic parotitis, and none had had a previous attack of mumps. There was no regularity in the involvement of the submaxillary gland, either or both being affected. One or both parotids were affected in half the cases. The sublingual gland was not involved in any case. The cases were fairly mild, and no complications developed.

Surgery

44

Fracture of the Neck of the Femur

S. JOHANSSON (*Svenska Läkaresällsh. Forhand.*, April 30th, 1934, p. 49) has found 390 fractures of the neck of the femur among 3,940 fractures and dislocations treated in a Swedish hospital in the ten-year period 1922-31. In 75 per cent. the age of the patients was over 60 and in 50 per cent. it was over 70. In 17 per cent. the patient's age was over 80. There were 289 women to 101 men. The fractures were classified according as they were median or lateral, the former including subcapital and transcervical fractures, and representing 60 per cent. of the total. On account of the high average age, the mortality was as high as 20 per cent. The treatment of this fracture was unsatisfactory until Whitman introduced the system of immobilization in plaster-of-Paris for three to six months after displacement had been corrected by abduction, extension, and inward rotation. Until recently, operative measures, from excision of the head of the femur to suturing, with or without free exposure of the fracture, have been less effective than conservative treatment. The

Smith-Petersen device for immobilizing the fractured bone by a metal rod has given surgery a new opening, and the author describes his own modification, which differs from the original Smith-Petersen operation, in that the site of the fracture is not exposed. This means that the operation is simplified to such a degree that it can be recommended as a routine procedure, even for elderly patients. Before he undertakes this operation Johansson secures exact readjustment of the fragments, employing Whitman's system in doing so. He has already performed his operation in forty-seven cases, forty-three of which represented median fractures. Bony union was achieved in thirty-one of the forty-three median cases, with restoration of normal functions in thirty cases and with good function in one. Seven cases were still under treatment and five patients had died. Restoration of normal functions, with bony union, was achieved in all the four cases of lateral fracture. Hence the author's conviction that his extra-articular osteosynthesis should for the future take the place of both conservative treatment and of the operations which entail exposure of the fracture.

45 Angioma of the Kidney

G. GAYET, A. GABRIELLE, and J. MARTIN (*Journ. d'Urol.*, April, 1934, p. 297) describe angioma of the kidney as a comparatively rare condition but one which is becoming recognized more frequently as the result of microscopical examination following nephrectomy. The condition may occur at any age, but is most common between 18 and 25 years. The most characteristic symptom is haematuria, which is usually preceded or accompanied by a form of renal colic. The haematuria is similar to that of a renal neoplasm, and is variable in profusion and also in frequency. The urine is usually clear, but microscopical examination will reveal many red corpuscles. Several years may elapse between the first and second haemorrhage, and the attacks may last either for a few days or for some weeks. The bleeding is sometimes so abundant as to render an immediate nephrectomy a matter of urgency owing to anaemia. Angioma of the kidney seldom grows to a large size, but is irregular in shape and has the appearance of a conglomeration of small red pearls. The most frequent site of the tumour is in the medullary zone immediately under the mucosa of the calyces. Diagnosis is usually easy, but the lesion may sometimes be mistaken for a nephritis with haematuria or for tuberculosis. Angioma is the most common form of benign tumour of the kidney. At the present time nephrectomy appears to be the operation of choice, but it is suggested that a less mutilating procedure may some day take the place of the radical operation. If the tumour is of small dimension and the remainder of the kidney unaffected, it is possible that the tumour may be removed by means of the electric cautery after nephrotomy. In the event of post-operative haemorrhage a secondary nephrectomy could afterwards be performed if necessary.

-46 Early Diagnosis of Coxa Vara of Adolescents

According to K. LINDEMANN (*Zentralbl. f. Chir.*, April 14th, 1934, p. 887) coxa vara in adolescents is primarily an affection of the epiphyseal junction, and the patients are not uncommonly above average weight, showing signs suggesting some degree of hypogenital dystrophy. Early diagnosis, though difficult, is important if a consecutive deforming arthritis is to be avoided. Lindemann describes four cases (three in girls) in which the diagnosis could be made radiographically at a stage in which the clinical signs, after two to six months, consisted in inconstant pain and limp; absent or very slight shortening; and no limitation of movement, or only slight restriction of internal rotation, abduction, or flexion. It is essential, he finds, that the plate should be taken with the rays directed to the hip from below, and the hip flexed to 70 degrees and abducted. The early radiological signs are poorness in line of the whole coxal end of the femur, but chiefly its epiphyseal portion; apparent smallness (due to backward displacement) of the epiphysis in pictures

made in the usual position; and retroposition of the epiphysis as seen in the flexion-abduction picture. Even at this stage treatment extending over some twelve months is necessary.

Therapeutics

47 Oral Administration of Typhoid Vaccine

A. MORGADAS, writing in the *Rev. Med. de Barcelona*, (April, 1934, p. 291), states that in the village of Cardedeu in Catalonia in October, 1931, there were five cases of typhoid fever with one death. After a short interval seven fresh cases resulted in three deaths—that is, a mortality of 33 per cent. in twelve cases, all of a serious type, several with haemorrhage and endocarditis. Prophylactic administration of a vaccine supplied by the Municipal Laboratory of Barcelona was commenced in May, 1932, and during that year there were thirty cases, of which five were fatal. In these figures are included those who presented early symptoms of the disease before the completion of the course of vaccine and one case which had received none. Those vaccinated who contracted the disease ran an extraordinarily mild course, while all unvaccinated sufferers were gravely ill. So slight were the symptoms of the vaccinated that diagnosis was effected only by laboratory tests. Their temperature never exceeded 38.5° C., their stools were normal, and delirium was entirely absent. No other cases supervened. Administration of the vaccine, which was by the oral route and according to the technique of Domingo and Vidal, was at once followed by reduction of the mortality rate by 50 per cent., and by the complete disappearance of the disease in this little community within twelve months. Parenteral vaccination might have had a more energetic action on the morbidity, but this advantage is balanced by the ease with which the vaccine was administered orally, and by the fact that its administration was never followed by symptoms of intolerance. In all, 1,500 persons were vaccinated, with the results as above indicated.

48 Trypsamide Treatment of Pemphigus

A. R. ESLER (*East African Med. Journ.*, April, 1934, p. 16) reports a case of the rapid cure of pemphigus by trypsamide. The patient had large bullae on the body and extremities, which broke down into large raw ulcers with an offensive smell. He was tremulous when standing or walking; ankle clonus was present on both sides, the right knee-jerk was elicited with difficulty, and the left knee-jerk was exaggerated. Previous treatment with "914" and stovarsal had failed. The first trypsamide injection was given intravenously, the dose being 3 grams; no new bullae formed after it. Nine injections were given, four of 3-gram doses and the others of 2 grams. Owing to the great difficulty of finding a suitable vein only three intravenous injections were made, the others being intramuscular. All the raw surfaces had healed in four months after the first dose. Esler found that intravenous medication caused more rapid and marked improvement in the symptoms than did the administration of trypsamide by the intramuscular route.

49 Immunity by Diphtheria Toxoid

J. GREENGARD (*Amer. Journ. Dis. Child.*, April, 1934, p. 799) reports his observations on 214 susceptible infants of ages ranging from birth to 2 years, of whom 93.4 per cent. gave a negative Schick reaction after two injections of 1 c.cm. of commercial diphtheria toxoid (Ramon's anatoxine). Of sixty-three immunized infants retested at intervals after the negative Schick reaction eleven (17.2 per cent.) showed a positive reaction again. Of fourteen infants who failed to show a negative Schick reaction after injection of toxoid thirteen were immunized during the first six months of life. Of eleven immunized

infants whose reactions became positive again ten were immunized while under 6 months of age. In a small group of infants in whom the duration of immunity could be tested, the immunity seemed to be more lasting in those who presented a negative Schick reaction most rapidly.

Disease in Childhood

50 Minimum Diet for Infants and Children

J. L. MORSE (*New England Journ. Med.*, May 17th, 1934, p. 1057) maintains that the optimum diet for an infant or child contains the minimum amounts of food elements sufficient to promote health and growth, either excess or deficiency being undesirable. He indicates the caloric needs of boys and girls at different ages, and points out that the storage in the body of protein for growth will be defective if the dietary does not contain sufficient, for some of the protein will be consumed in supplying energy. The optimal amount of carbohydrates for the infant is from 10 to 14 grams per kilo body weight, and from 8 to 10 grams for older children. This corresponds to 40 to 60 per cent. of the total caloric intake. An excess of carbohydrates in the diet is probably the most common mistake, the usual symptoms being indigestion and loss of appetite, with the appearance of glycosuria if the excess is great. Morse thinks that an infant on modern whole-milk mixtures is receiving from 15 to 30 per cent. only of its total calories as fat, which is too little. More than 35 per cent. is probably not fully utilizable, and probably interferes with the utilization of calcium. The main symptoms of fat insufficiency are referable to inadequacy of vitamins A and D. The author's optimum diet is stated as one in which protein makes up from 10 to 15 per cent. of the total caloric intake, carbohydrate from 40 to 60 per cent., and fat from 30 to 35 per cent. The cheapest diet which will meet the nutritive needs is one in which 10 per cent. of the total caloric intake is provided by protein, 60 per cent. by carbohydrate, and 30 per cent. by fat. If a child gets a reasonable amount of milk, an occasional egg, some meat, and whole grains, it is very unlikely to lack vitamins. If the milk is not raw, an infant needs an antiscorbutic, while children should have vegetables as an additional safeguard. Infants should also be given vitamin D in some form during the winter. A child needs one gram of calcium and one and a half grams of phosphorus a day. A retention of half a milligram of iron a day is required during the first six months, and the store of this in the liver of the average infant is probably adequate to make up for any deficiency. During the rest of childhood two milligrams are essential, and are preferably obtainable from eggs, prunes, and green vegetables, although the relative importance of the last-named has been much exaggerated.

51 Heart-block in Rheumatic Fever

According to M. POMERANCE and S. FRUCHT (*Amer. Journ. Dis. Child.*, May, 1934, p. 1087), heart-block in rheumatism is so characteristic that a presumptive diagnosis of rheumatic fever may be made several days before the onset of the clinical manifestations. Three cases are recorded to illustrate the fleeting character of the abnormal rhythm; the accelerated ventricular rate in complete heart-block, making the clinical diagnosis impossible; the curious auriculo-ventricular dissociation in which the ventricular rate is higher than the auricular; and the necessity for keeping exact records in all cases. Heart-block appears and disappears at first with a disconcerting suddenness, which is comparable, however, with the fleeting joint pains in children, the ephemeral nature of the rheumatic nodule, the transitory pericardial friction rub, and the instant cutaneous manifestations. When the rheumatic attack has been exceptionally severe scar tissue replaces the myocardium, and more or less permanent functional changes result, with a lasting modification of the electrocardiogram. In some instances the tracing revealed such

an acceleration of the heart beat—for example, to an auricular rate of 120 and a ventricular of 80—that diagnosis became impossible by ordinary clinical methods. The authors conceive it likely that cases of complete heart-block in rheumatic fever go unrecognized because the ventricular rate is over 70, and that therefore an electrocardiogram is essential for accurate diagnosis. The curve sometimes shows also a ventricular rate faster than the auricular one; an illustration is given of a case in which the former was 120 and the latter 108. In the authors' series of thirty-one rheumatic cases there was prolongation of the P-R interval (incomplete block) in twenty-eight, the other three showing complete dissociation, complete heart-block, and left bundle block respectively. It is contended that, while compression of the fine coronary arterial branch lying adjacent to the oedema round the Aschoff body may be in part responsible for the cardiac functional irregularities, there must also be present some toxic factor acting on the ventricular musculature which accounts for the singular acceleration of the ventricular rate in complete heart-block.

52 Solar Irradiation and Hypervitaminosis D

E. C. DODDS, J. D. ROBERTSON, and H. J. ROCHE (*Arch. Dis. in Child.*, April, 1934, p. 91) have exposed a series of twenty-eight children to solar irradiation during the summer months. Clinical examinations and biochemical investigations were made periodically during the treatment. A further series of twenty children had similar tests at the end of the summer. All except three were between the ages of 6 and 15, and were suffering from various orthopaedic conditions. The degree of pigmentation attained its maximum between the end of June and the middle of July. The general condition improved steadily, the most marked amelioration being that noted soon after admission. There was no loss of appetite or other adverse sequels. An increase in the blood calcium and phosphorus values was demonstrable during the insolation, but the highest serum calcium levels did not always follow the sunniest periods. No cases were found in which any hypervitaminosis D could be suspected. The increase in the serum calcium and phosphorus fell within the physiological limits, and it was therefore evident that the irradiation was not acting to such an extent on the ergosterol in the skin as to free an excess of vitamin D. The patients showed no clinical symptoms of such an excess—for example, drowsiness, diarrhoeas, or mental depression. It was noted that on a normal diet doses of vitamin D such as are produced by irradiation caused a greater increase in the blood phosphorus than in the serum calcium.

53 Epilepsy in Children

K. RUPILIUS (*Med. Klinik*, May 4th, 1934, p. 604) alludes to the difficulty in distinguishing genuine from "residual" epilepsy, due to healed morbid cerebral processes (among which birth trauma has a part). He reports 113 in-patient cases of epilepsy in children; in twenty-nine of these an organic cerebral lesion could not be excluded with certainty. Lues was present in one case only. Parental epilepsy was present in three cases; parental psychopathy, psychosis, neuropathy, syphilis, or alcoholism in twenty-three; a history of difficult labour was obtained in 21 per cent. In one-third of the cases the first fit had occurred before the age of twelve months. Two-fifths of the patients showed some degree of imbecility or idiocy. Ten patients had well-marked attacks of petit mal; three had Jacksonian attacks. There were two cases of "reflex epilepsy" in children in whom orthopaedic manipulations had been done, and neither appeared to have had previous fits. In-patient stay in many cases diminished the frequency of the attacks; a hysterical component was recognized in nineteen cases. No therapeutic gain followed natural or induced pyrexia. Encephalography (air being injected as a rule after lumbar puncture) was done in twenty-eight cases, had some diagnostic use, and in one case in four was followed by improvement of symptoms. Improvement occurred in three of the six children who were subjected to x-radiation of the skull.

Obstetrics and Gynaecology

54 Types of "Pregnancy Kidney"

SERGE SELITZKY of Moscow (*Gynéc. et Obstét.*, April, 1934, p. 325) discusses at length and with reference to many authorities the differential diagnosis of the forms of pregnancy kidney and true nephritis. He classifies renal lesions into (1) those connected with pregnancy, of degenerative histological type; (2) those primarily renal, of inflammatory nature. He insists that the origin is toxic, from some part of the embryo. Incidence of renal lesions in pregnancy, according to figures collected at two institutions, is 3.6 to 10 per cent., whereas that of simple nephrosis or pregnancy kidney is about 2 per cent.; nephritis 2.1 to 4.9 per cent.; mixed forms 4.8 to 10 per cent.; chronic nephritis 7.2 per cent. Primiparae suffer most frequently from pregnancy kidney (that is, simple nephrosis). Older primiparae reach 53.9 per cent. of all cases, second pregnancies 15.7 per cent., and third 8.6 per cent. Age incidence is about 60 per cent. between 21 and 30. Pregnancy kidney always develops in the second half of pregnancy. Though the fulminating form may begin without preliminary, albuminuria is the first sign of simple and serious cases alike. The proportion of albumin is of neither diagnostic nor prognostic significance. Toxic cases are recognizable by a gradually mounting oedema, fatigue, hemicrania, and, most reliably, a loss of muscle tone. The chronic form of nephritis shows little oedema, less rise of blood pressure, and more compensatory effects—for example, cardiac hypertrophy. Hypertonus is a constant and early sign of kidney affection, running parallel with its development and with metabolic changes. Prophylaxis is of major importance. Rest in bed is specially advised, with elimination of salt, fat, and carbohydrates from the diet, and restriction of fluids. Diuretics have been discarded, also baths and hot packs and injections of normal horse serum, etc. The author believes that any treatment may help or fail, and relies upon the development of symptoms as the guide to intervention and to the choice of method. End-results, which may be long in developing, depend upon the type and degree of the lesion. Complete and rapid recovery usually follows parturition. Most statistics give 2 per cent. of reappearance. Selitzky's figures show after nephropathy 10.7 per cent., after nephrosis 20 per cent., and after nephritis 84.6 per cent. The type may be different; acute forms seldom reappear, nor does eclampsia supervene. Further pregnancy, therefore, need not be forbidden, provided a reasonable interval be assured and meticulous precautions be taken from the commencement of a succeeding pregnancy. As to chronic nephritis, therapeutic abortion was called for in 36.7 per cent. of the author's cases. The outlook for both mother and child is, generally speaking, unfavourable.

55 Parietal Bone Depression in the Newborn

Owing to modern pre-natal care, cranial depressions in the newborn are now usually seen only after urgent obstetrical intervention, such as forceps and version extractions. M. MERCENIER (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, April, 1934, p. 330) reports a case of this nature where the newly born infant showed a large depression on the left parietal bone which was evidently insufficiently deep to cause a cerebro-meningeal lesion. Parietal depressions are very characteristic of a flattened pelvis—the head, slightly deformed, is engaged while transverse, and with slightly strong traction, especially of an after-coming head, the parietal bone is forced against the promontory with a resulting saucer-shaped lesion. Commandeur divides these depressions into three groups: simple indurition without apparent fracture, depression with fissured fracture, and depression with evident fracture. According to Bue, three sequelae may follow this lesion: meningeal haemorrhage, which may cause death or secondary symptoms (coma and convulsions); perfect tolerance, after a latent period of several months, secondary conditions, such as cerebral hemiplegia, psychic deficiency, generalized epileptiform attacks at puberty, etc.

Four methods of treatment may be employed. In slight cases massage of the head by occipito-frontal pressure or by pressure on the edges of the depression frequently suffices for cure. Another method is to introduce an auger or corkscrew as far as the internal table of the bone and by traction reduce the depression. A third method consists in an intracranial reduction of the depression either through the suture or the bone. The fourth method, which should be reserved for cases in which a marked intracranial haemorrhagic area is suspected, is trephining. In the present case the intracranial sutural operation was employed with excellent results.

Pathology

56 Non-Perforative Biliary Peritonitis

According to A. ROSARIUS (*Zentralbl. f. Chir.*, May 12th, 1934, p. 1091) non-perforative biliary peritonitis was first described by v. Haberer and Clairmont fifteen years ago: its existence has been doubted, for microscopical examination in some cases has revealed small necroses of the walls of the bile passages and/or very small perforations. The case is recorded of a man aged 66 who had signs of acute peritonitis with icteroid conjunctivae and some urobilinogen but no bile pigments in the urine; at operation the colon contained much free bile-stained fluid, and there was a necrotic zone in the fundus of the gall-bladder but no apparent perforation. No other operative measure than drainage was undertaken and the patient recovered. The peritoneal fluid was sterile and did not contain pancreatic ferments; calculi were not present.

57 The Blood-Urine Urea Ratio

Referring to his previous work on the subject, J. COTTER (*Presse Méd.*, May 12th, 1934, p. 762) reiterates his opinion that the blood-urine urea ratio furnishes a simple clinical means of evaluating the functional activity of the kidneys and, according to the degree of this activity in known conditions of the urea and water excretion, of their secretory value. For the test, the total twenty-four-hour urine, collected in the morning, is employed, and the blood, to avoid the transitory influence of food on the blood urea, is also taken in the morning while fasting. The resulting amount of blood urea in centigrams is divided by that of the urinary urea expressed in grams; the quotient multiplied by 100 gives the stated ratio. This oscillates between 1 and 2 in subjects having a normal renal secretory power, provided that the ureic and aqueous excretions are respectively equal to 15 grams and 1,500 c.cm. in the twenty-four hours; in these conditions the ratio is the higher as the renal secretory power is diminished. A clinical study of this ratio shows the important influence of the aqueous diuresis on renal functioning. The influence of this diuresis on renal functioning, and therefore on the urea secretion, is well illustrated by the syndrome of nitrogenous oliguria of non-renal causation. Cure of this condition is most important; this can be attained mainly by a cure of the diuresis and by a judicious liquid dietary. Thus the humoral adulteration, as evidenced by a raised blood urea, is remedied, and the kidneys guarded from the ultimate damage caused by habitually secreting too concentrated a urine. Notes on three cases are given to illustrate various points in this paper.

58 Schick Test after Tonsillectomy

W. H. PARK, C. KERESZTURI, and D. HAUPTMAN (*Amer. Journ. Dis. Child.*, March, 1934, p. 565) review the literature and report their observations on forty-six children who had been Schick-positive before tonsillectomy and were retested six months after the operation, when 18 per cent. gave negative reactions. On the other hand, of forty-seven Schick-positive controls in whom tonsillectomy had not been performed, 21 per cent. became negative after about six months. All the subjects came from congested urban districts. The carrier rate was not higher in the controls than in those tonsillectomized.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

59 Haemorrhage from Gastric and Duodenal Ulcer

E. HJORT (*Norsk Mag. f. Lægevid.*, May, 1934, p. 542) has scrutinized the records of 4,460 post-mortem examinations carried out in hospital in Bergen between 1909 and 1933. In 108 cases ulcers of the stomach and duodenum were found. The stomach was ulcerated in eighty-four cases, the duodenum in twenty-two, and both in two. The ulceration was associated with haemorrhage in twenty-two cases and with perforation in thirty. In connexion with the teaching that the frequency of haemorrhages increases with age, and that they are much more common after than before 40; it should be noted that in only five of the twenty-two cases of haemorrhage had the patients been under 40. The author set himself the task of answering the question: "How many of these twenty-two patients could have been successfully operated on?" To judge by the local conditions, fourteen of them were operable, five not operable, and three borderline cases. To judge by the general condition of these patients, in only about half of them would there seem to have been a reasonable prospect of an operation being successful. Among the remainder there were such complications as diseases of the vascular system which might well have impaired the chances of a successful operation. After emphasizing the limitations of his method of retrospective calculation, the author concludes that, though in certain cases it is possible to operate on a bleeding ulcer with success, the surgeon must be prepared for unpleasant surprises of a purely local character. He should also, in the light of this study, let his operative indications be influenced by the patient's general condition.

60 Gas Analysis in the Diagnosis of Pleuro-Pulmonary Perforations

C. A. BIRCH (*Lancet*, May 12th, 1934, p. 1002) reports that in ten cases analysis of the pleural gases was of value in demonstrating the presence and state of a pleuro-pulmonary perforation. Details are given of three of these. To obtain a sample of the gas for analysis a special sampling tube was made, having a capacity of 25 to 30 c.c.m., enabling the gas to be removed at about atmospheric pressure by the displacement of mercury, and obviating the necessity of a special tube for washing out the connexions. When air is introduced into the pleural cavity, CO₂ diffuses into it from the capillary blood more rapidly than oxygen passes from the pleura into the blood, thus causing a temporary increase in the volume of the pneumothorax, equilibrium being restored in a few hours. The actual composition of the pleural gas is changed by variations in the degree of the collapse of the lung, histological changes in the pleura, and the presence of pleural effusion. In 150 cases it was found that, whereas the atmospheric air contains about 21 per cent. of oxygen, and practically no CO₂, the air of a dry pneumothorax cavity contained between 1 and 5 per cent. oxygen and between 6 and 8 per cent. CO₂. The presence of inflammatory exudate lowers the oxygen content—even to below 1 per cent.—while the CO₂ is high, usually exceeding 10 per cent. In the author's series of cases without fistula the oxygen content of sixty dry cases ranged from 0.9 to 4.56 per cent., and the CO₂ content from 5.85 to 10 per cent. In ninety cases with definite fluid present the oxygen content ranged from 0.4 to 4.31 per cent., and the CO₂ from 9.84 to 14.7 per cent. In one of the author's cases in which there was a spontaneous pneumothorax the oxygen percentage for a time was just over 2 and the CO₂ percentage between 11.3 and 13.2. After a sudden attack of dyspnoea and pain in the chest amphoric breathing and bubbling sounds were heard at the left base. Gas analysis showed that the oxygen

percentage had risen to 10.21, while the CO₂ was 9.85, indicating that air had entered the pleural space from the lung. At necropsy a pyopneumothorax with a bronchial fistula was found. In another case of spontaneous pneumothorax successive gas analyses revealed oxygen percentages of 3.8, 2.1, and 1.2, with corresponding CO₂ percentages of 8.2, 8.7, and 11.3. When fluid appeared the gas analysis showed an oxygen percentage of 0.9 and a CO₂ percentage of 12.6. The patient later developed pyrexia, dyspnoea, and cyanosis. A gas analysis showed an oxygen percentage of 8.5 and a CO₂ percentage of 11.7, indicating that a pleuro-pulmonary fistula had opened. The coughing up of gomenol in oil previously introduced into the pleural space confirmed this diagnosis.

61 Sudden Death while Swimming

O. GOEBEL (*Deut. med. Woch.*, June 29th, 1934, p. 982) relates a personal experience which throws some light on the origin of sudden death while swimming. As a lad of 8 or 9, he went for a swim one warm summer day in a swimming-bath soon after the midday meal. The water was not cold, and the drums of his ears were intact. Having entered the water from steps, he had swum about eight metres along the side of the bath when he became powerless and could no longer swim. He promptly went under, without making any resistance or even calling for help. He thought the end had come, but was not alarmed. Presently a pole was extended to him, and he seized it and was pulled up by a rescuer. He had no memory of what happened immediately afterwards. There were no sequels to this incident, which never recurred, although he continued to bathe. There could be no question of cold as an aetiological factor, and as consciousness was retained all the time, there could have been no complete anaemia of the brain with fainting. The sensation of the skin was undisturbed, as he felt the pole when it was extended to him. There was also no paralysis, as he was able to seize the pole and walk out of the bath. As far as he knows, he carried out no instinctive, violent, irregular movements, such as are provoked by fear in drowning persons. What happened was that the will to continue swimming suddenly ceased—that is, there was a sudden break in the nervous connexions concerned with the movements of arms and legs. It is conceivable that this may have been due to anaemia of the brain provoked by the abnormal position of a full stomach.

Surgery

62 Results of Thoracoplasty for Pulmonary Tuberculosis

R. C. OHMAN (*Finnska Läkarsällskapets Handlingar*, April, 1934, p. 291) shows, by a study of seventy thoracoplasties, that the prognosis is approximately three times better for patients thus treated than for those in the same category given conservative treatment. His seventy patients were operated on in the period 1924-25, and follow-up investigations made at the end of 1933 showed that forty-five were still alive, and as many as thirty-seven of them were fit for work, although they belonged as a rule to the labouring class. The indications for thoracoplastic operations were: advanced pulmonary disease, failure to induce a therapeutic pneumothorax (fifty-two cases), extensive adhesions limiting the volume of a pneumothorax (six cases), and empyema (twelve cases). Eight deaths occurred within the first two months after the operation and twenty within the first year after it. There were only five more deaths beyond this time limit. The patient, therefore, who can survive one or other of these operations by more than a year has an excellent chance not only

to live, but also to work. Another benefit conferred by these operations on the patients' surroundings was the disappearance of tubercle bacilli from the sputum in about 90 per cent. of all the cases. With regard to the choice of patient and time of operation, success largely depends on the other lung being healthy, and on the operation being performed at a time when the disease is least active. About 90 per cent. of the patients were afebrile when the operation was undertaken. In fourteen cases only a partial thoracoplasty was performed, the indication for it being solitary cavities in the upper part of the lung, in the rest of which there was little disease. The operations were usually performed under local anaesthesia and in two stages, the average total length of the resected ribs being 138 cm. for complete thoracoplasties. The statistical evidence in favour of this treatment may be impressive, but what carries more conviction is the clinical study of the individual case whose prognosis without operative interference is as bad as can be.

63 Operation for Spinal-Cord Tumour in the Neck

W. TÖNNIS (*Zentralbl. f. Chir.*, April 21st, 1934, p. 930) describes a case of long-standing spastic diplegia with decubitus in a man aged 46; the location of a lipiodol block intraspinally, and the presence of subcutaneous ganglioneuromata, facilitated the diagnosis of extramedullary neurofibroma of the fifth or sixth left cervical nerve root. At operation the tumour, which weighed 8 grams, was found to be chiefly ventral: the difficulty which its removal (without injury to the spinal cord) would have presented was overcome by use of the technique described by Cushing and Olivecrona for resection of deep capsulated cerebral tumours. The capsule was incised, and the tumour shelled out by diathermy, a weak current being used; the remaining tumour parts were severed intervertebrally from the motor and sensory roots of C.6. Nine months later the patient could walk and do light work, but a paresis of the triceps and extensors of the fingers persisted.

64 Primary Carcinoma of the Liver

A. L. ABEL (*Brit. Journ. Surg.*, April, 1934, p. 684), describing primary carcinoma of the liver as a rare disease, states that it occurs chiefly in males between the ages of 40 and 60. The two main types of tumours are hepatoma, or carcinoma of the liver cells, and cholangioma, or carcinoma of the intrahepatic bile ducts. Cirrhosis of the liver is frequently associated with primary carcinoma, to which it is probably antecedent. Diagnosis of the carcinoma is difficult, as there is no definite symptomatology, although icterus, ascites, oedema, splenic enlargement, and pyrexia may be present. Fixation of the liver with upward enlargement is sometimes present, and may be confirmed by x rays. Owing to the late development of symptoms, the rapid progress of the disease, and its quick dissemination, operative treatment is rarely possible, but it is suggested that with earlier and more accurate diagnosis an improvement in results might be obtained. Death is usually due to a rapidly progressive malignant cachexia, but may also occur in some cases from severe intraperitoneal haemorrhage due to malignant erosion of a large vessel. Intrahepatic metastasis is common, and on this account preliminary radiological examination should be carried out.

65 Foreign Bodies in the Stomach

MOREAU and NOGUERA (*Semana Médica*, April 26th, 1934, p. 1318), collating their experience with that of surgeons all the world over, unhesitatingly condemn precipitate operation in the above condition, and stress the importance of frequent "screening," which should never be omitted in cases about to be operated upon after the anaesthetic has been administered, as it has been proved that a foreign body, long stationary in the stomach, has frequently passed through the pylorus while the patient is "going under." One of the three cases they report was a child of 20 months, who at noon on November 1st swallowed a slightly bent tie-pin, 5½ cm. long, with a small glass ball at one end. On screening at 3 p.m. the pin was seen to

be in the stomach, but at 3.30 p.m. gastrotomy disclosed an empty stomach. On November 3rd the pin was seen in the right iliac fossa, and on the 4th at the hepatic flexure of the colon. On the 5th the patient was lipolytic, with rapid pulse and cold sweats, but in the early hours of November 6th the pin was passed without any trouble. These authors state that the surgeon's best policy is one of watchful expectancy, always remembering the size of the various portions of the duodenum, and if in doubt, waiting rather than operating. Purges and massage should be avoided. Feeds of wholemeal bread, boiled lentils, peas, and beans (dried) with mashed potatoes can be given. Once the duodenum is passed all fears may be put aside; but it should not be forgotten that this organ in a young child is fixed, and will measure 15 centimetres.

Therapeutics

66 Liver Treatment of Granulocytopenia

B. VON BONSDORFF (*Finska Läkarsällskapets Handlingar*, April, 1934, p. 317) recalls the high mortality associated with granulocytopenia and its failure to react uniformly to any of the many forms of treatment recently prescribed for it. In two seemingly desperate cases he gave a liver extract by intramuscular injection with such success that he is inclined to hope it may prove a specific. The first patient was a servant-girl, aged 18, admitted to hospital in a very feeble condition, with redness of the pharynx and inflammation of one tonsil, which began to ulcerate two days later. The blood picture was that of agranulocytosis, a malignant granulocytopenia. She had taken no drugs and undergone no radiotherapy which might have injured the bone marrow. Between November 25th and December 27th, 1933, she was given every day by intramuscular injection three ampoules containing 2 c.cm. each of campolon, 2 c.cm. of which is said to be equivalent to 500 grams of fresh liver. From December 28th, 1933, to January 4th, 1934, she was given the contents of only two ampoules a day. As she also received other treatment, including blood transfusion, the scientific value of this therapeutic experiment was limited. It was much more clearly demonstrable in the second case, that of a woman of 47, whose granulocytopenia was probably provoked by the neosalvarsan and bismuth she had been given. Her case was so desperate that a spontaneous recovery was most unlikely. Her response to the liver treatment was so prompt and effective that her recovery must assuredly be traced to it, more especially as the case had not been obscured by other therapeutic ventures.

67 Treatment of Varicose Veins

W. COOPER (*Ann. of Surg.*, May, 1934, p. 799) states that, whereas the majority of patients with varicose veins may be treated successfully by the injection method alone, there is a large group of patients who need preliminary ligation before a cure can be effected. It has been found that recurrence follows the obliteration of a varicose internal saphenous vein unless high ligation of the vein is practised. The first step in treatment should be the classification of the patient by means of the Trendelenburg test, so that the sources or points of reverse flow from the deep veins into the superficial veins can be accurately localized. Trendelenburg-positive cases are those in which the reflux of blood through the saphena magna in the thigh is marked and the valves are incompetent. In these ligation at the highest palpable point in the thigh or at the fossa ovalis should be carried out. Negative cases are those in which the reflux takes place from the deep veins through incompetent veins in the leg. Unless the veins are very large preliminary ligation is not necessary in these patients. When large and extensive varices are present, multiple ligations are performed at all the demonstrable points of back-flow, followed by sclerosing injections. It was found that sodium morrhuate, 5 per cent. strength, did not cause toxic symptoms or infectious phlebitis if used correctly, nor did an ulcer or slough occur if acidi-

dentally injected into the perivenous or subcutaneous tissues. In a series of 293 cases of extensive and recurrent varicose veins treated by preliminary ambulatory ligation and subsequent injections there was no instance of recurrence, and immediate symptomatic relief followed ligation. It was found that after ligation the veins were partially collapsed, and so required smaller quantities of sclerosing solution than when distended; also, the number of injections was diminished. The sclerosed vein disappeared more quickly than when treated by injection only.

68 Calcium in Epididymitis

E. RUPEL (*Urol. and Cut. Rev.*, May, 1934, p. 331) records his observations on eighty cases of epididymitis (forty-eight were specific and thirty-two non-specific), in which calcium therapy was used as an adjuvant in addition to heat, rest, and support. The gluconate salt was chosen because it is not irritating and has a low toxicity. It is given intravenously in 10 or 20 per cent. solution in doses of 10 c.cm. As a supplement it can also be given by mouth in 60-grain doses three or four times a day, either four hours after or one hour before meals. The injections are given daily for five or six days, sometimes longer. In most cases where calcium was used the disability was considerably lessened as regards time and severity.

Laryngology and Otology

69 Cholesteatoma of the Temporal Bone

I. DAVID (*Rev. de Laryngol., d'Otol. et de Rhinol.*, April, 1934, p. 511) gives full details of a case of primary cholesteatoma of the left temporal bone, with congenital malformation of the auricle and absence of the external auditory canal. The patient, aged 29, had suffered from deafness in this ear since birth. The auricle presented a very marked congenital deformity, the concha being funnel-shaped. The navicular fossa was absent. At the site of the external auditory meatus a small, almost impervious, fissure was found, and behind the deformed auricle a small tumour. By an operation, which is fully described, marked improvement in the hearing was obtained. A child of this patient, aged 3 months, presented a similar condition on the right side. Various theories as to the pathogeny of these growths are cited. Many authors consider that they are always secondary to unrecognized otic suppurations. David divides them into two main groups—those with and those without suppuration of the tympanic cavity—and believes that both forms may be attributed to an active mitosis of a group of embryonic cells not utilized in the formation of the ear at the embryological epoch. Cholesteatomata without suppuration (the primary forms) are much the rarer; those with this condition are much commoner, as the suppuration acts as an irritant to the enclosed embryonic cells, thus activating them and giving rise to the cholesteatoma.

70 Radiation Treatment of Oesophageal Carcinoma

F. J. CLEMINSON and J. P. MONKHOUSE (*Journ. Laryngol. and Otol.*, May, 1934, p. 313) report the results of radon treatment of eighty-nine cases of carcinoma of the oesophagus (excluding post-cricoid growths) in the Middlesex Hospital during the years 1925–32. They suggest that this treatment may be actually harmful, for these patients might actually live longer if their only treatment were preliminary removal of all teeth followed by gastrostomy. As a rule they do not seek advice until peripheral extension of the malignant growth and early metastasis have made it impossible for the radiation to reach the outlying parts of the carcinoma with effective strength. It is even possible that there may be some danger of stimulation of the growth at the periphery, and the termination be thus hastened rather than delayed. The mode of treatment was to perform first an oesophagoscopy for diagnosis, with removal of a fragment of the growth for section. The patient was then examined by x rays to determine the length of the stricture, the Trendelenburg position being

essential for this procedure, for otherwise the lower end of the stricture is not defined. From this information the dose of radon to be used and the length of the applicator were deduced. At a second oesophagoscopy the radon was placed in position and left for seven days. In several cases the ulceration disappeared after this treatment, but columns of cancer cells were found in the subjacent lymphatics between the muscle bundles, if not also in the actual stricture substance. The average survival period for the whole series was 5.6 months; for growths in the upper part 6.7 months, the middle part 5.4 months, and the lower part 6.9 months. For the ten women it was 8.5 months and for the seventy-nine males 5.2 months. The average length of the history of dysphagia was: for women 5.4 months and for men 3.8 months, women having thus a longer history and a longer survival period. A short history does not therefore indicate that the case can be considered early. It would seem that a preliminary gastrostomy might be beneficial, especially if preceded by removal of all remaining teeth. Increasing the dose of radon was associated with an even shorter period of survival, and the optimum dose appeared to be a moderate one of about 5 mc. to the inch, screened by 0.5 mm. of platinum. The authors add that deep x-ray therapy may be a more promising line of treatment.

71 Removal of Dentures from Oesophagus

In the experience of A. SOULAS (*Bull. et Mém. Soc. Méd. de Paris*, May 11th, 1934, p. 315) the "swallowed" denture more frequently becomes lodged in the thoracic or abdominal portion of the oesophagus than in the air passages. In the thoracic oesophagus retention usually occurs at the constriction corresponding to the superior thoracic aperture, the aorto-bronchial constriction, or the juxtaphrenic region; as a rule the mucosa is uninjured, and it is right to await for twenty-four to forty-eight hours the passage of the denture through the stomach into the intestine. If this does not occur, oesophagoscopy will usually lead to easy extraction, but occasionally the denture will be found to pass into the stomach or become impacted in the subphrenic oesophagus. In this situation impaction, primary or secondary, is of serious import; inflammation and stenosis are apt to occur, and it is best to remove the denture from below after gastrostomy, the wound not being immediately sutured.

72 The Toe Reflex: A Diagnostic Aid in Ear Affections

A. MALHERBE and R. VILENSKI (*Bull. de l'Acad. de Méd.*, May 22nd, 1934, p. 682) describe a reflex of value in the diagnosis of ear conditions in young children. When pressure is made at the level of the postero-lateral fontanelle in the newborn, extension of the great toe occurs, with simultaneous fan-shaped separation of the other toes. In older children the point of pressure is at the junction of the line drawn from the mastoid point to the vertex and a horizontal line passing through the highest part of the cavity of the ear. In the nursing it is found a little further down and posteriorly. If pressure is made on the right side the reflex will be elicited in the right foot if the ear is healthy, and in the left foot if the ear is diseased. The reflex is found in all children with auricular affections under 2, usually in children under 6, and less commonly in those over 6. The exact point of pressure must be found, otherwise the results may be vitiated. An assistant should extend both legs and exert light pressure under the knees to prevent spontaneous movement of the toes. The reflex seems to be due to irritation produced by intratympanic pressure, and it passes down the crossed pyramidal tract to the toes. It disappears when there is free discharge of pus through a perforated tympanic membrane, but if it persists it indicates involvement of bone. It also appears typically under an anaesthetic. The authors do not believe that there is any relationship between the intensity of the reaction and the gravity of the disease. Two variations of the reflex occur—namely, there may be extension of the great toe with flexion of the other toes, and slight extension of the great toe with marked separation of the others.

Obstetrics and Gynaecology

Pathology

73

Pelvic Extravasations

J. GOODALL (*Amer. Journ. Obstet. and Gynecol.*, May, 1934, p. 646) postulates that uterine loss depends upon: (a) one or more consecutive or alternate causes; (b) the "habit" of menstruation—that is, the constant state of ebb and flow in the reproductive function; and (c) the changes in the general circulation operating through the blood itself upon the intima of the capillaries. Oedema may be due to extravasation from blood vessels (purpura), retention of plasma (urticaria), or retarded lymphatic absorption (white leg). Causes are grouped as mechanical, destructive, toxic, blood diseases, and familial blood dyscrasias. Primary and secondary causes may be distinguishable—for example, in the presence of a fibroid haemorrhage may be due to its mechanical influence, a blood dyscrasia, hormonal disturbance, or any combination of these. With regard to abortion, this may be initiated by a blood dyscrasia, either infective or metabolic (focal sepsis, chronic or acute), and is then notably severe. Often endocrine dysfunction is behind the blood condition, and calls for treatment. A case illustrating the peculiar tendency of the uterus to haemorrhage is quoted. Blood transfusion was being performed preparatory to laparotomy, when urticaria—that is, extravasation of plasma into the skin—developed, but from the uterus there was extravasation of blood. Hence, also, the frequency of menorrhagia and the supervention of haemorrhage in chronic simple subinvolution. Endocrine imbalance is evidenced at the menopause by irregular menorrhagia. The causes of hormonal dysfunction are: advancing age, with reduction of endocrine reserve and increased susceptibility to vitiated metabolism, toxæmias, etc. The toxic extravasations may be traced to food, avitaminosis, microbic invasion, or disease of one gland affecting its function, and so the whole body economy. Low-grade protracted infections may be cumulative, and to epistaxis, petechiae, etc., may be added metrorrhagia. The same is true of the toxæmias of pregnancy. Goodall stresses the importance of endocrine balance and interaction, especially in pelvic vascular extravasations. Here the sequence of ovarian follicular hormone with that of the luteinizing agent is frequently disturbed. Research must track the cause of such disturbances and strengthen therapeutic attack. Hysterectomy irradiation is a confession of failure.

74 Hormonic Reactivation of the Senile Ovary

A. WESTMAN (*Zentralbl. f. Gynäk.*, May 12th, 1934, p. 1090) quotes as evidence of experimental reactivation in animals of the senile ovary: (1) the finding of Steinach, Kun, and Hohlweg that serial injections of folliculin induced oestrus, and that if they were sufficiently often repeated spontaneous oestrus and then conception might follow; and (2) Zondek and Aschheim's restoration of oestrus, with ovarian enlargement and production of ripe follicles and corpora lutea containing haemorrhages, by implantation of anterior lobe of pituitary gland, or by injection of prolactin present in the urine of pregnant persons. That the primarily active hormone is of pituitary origin therefore seems probable. Westman describes two cases in which a human experiment was employed. Blood from a patient in late pregnancy was chosen as likely to afford the best source for intravenous injection of the anterior pituitary hormone in large amounts. The first patient, a virgin aged 51, had metrorrhagia from carcinoma of the uterine body three years after the menopause: a week before removal of the uterus a quarter of a litre of blood from a patient eight months pregnant was infused intravenously. One of the ovaries, which measured 4 x 3 x 1.5 cm., contained a cyst, of which the lining was chiefly composed of lutein cells, partly haemorrhagic. In the second case, which was clinically similar, only six months had elapsed since the cessation of the menses in the 48-year-old patient: the ovarian findings were similar, and in addition the endometrium showed proliferation and tortuosity, resembling that of the proliferative intermenstrual phase.

192 D

75

Cholesterin in Acute Peritonitis

M. TABANELLI (*Arch. Ital. di Chir.*, March, 1934, p. 332), as the result of the examination of the cholesterin in the blood of thirty-three cases of acute peritonitis, came to the following conclusion. In favourable cases a progressive fall in the cholesterin values was followed by a return to normal, and in rare cases to an abnormally high level, simultaneously with general recovery. In fatal cases, on the other hand, there was a progressive fall in the cholesterinaemia. Investigation of the cholesterin of the organs most concerned with metabolism—namely, the liver, spleen, and suprarenals—in the course of acute experimental infections of the peritoneum showed that in cases which tended to recover there was a diminution of the cholesterin values in the liver and suprarenals, and a slight increase in the spleen followed by a return to normal in convalescence, while in fatal cases there was a progressive fall in cholesterin in the liver and suprarenals, and an increase in the spleen. The changes in the cholesterin appear to be due to various causes, the most important of which seems to be the state of temporary functional inhibition of the more important organs concerned with metabolism. The increase of cholesterin in the spleen seems to be due to the excessive destruction of the red cells caused by the acute infection and the liberation of the cholesterin contained in them.

76 Natural Immunity to Tetanus in Ruminants

G. RAMON and E. LEMÉTAYER (*C. R. Soc. de Biol.*, 1934, cxvi, 275) have been studying the natural immunity to tetanus possessed by certain ruminants. In a previous paper they recorded that of eighty-two cattle examined in France, every one showed the presence of antitoxin in the blood in greater or less quantity. Antitoxin was also found in the blood of some sheep and goats, but not in that of horses or pigs. In the present paper they record the results of examining ruminants in Morocco, Tunis, Senegal, Sudan, and Syria. Of seventy-five cattle examined, fifty-eight showed the presence of antitoxin. Antitoxin was found in twenty-four out of thirty-four other ruminants, including zebu, buffaloes, chamois, and dromedaries. The last two species of animals, however, had less antitoxin than the other ruminants studied, in this respect approaching sheep and goats. There seems to be a more or less general relationship between the antitoxin content of the serum of the ruminants and the bacterial flora of the soil on which they live. The more tetanigenic the soil is, as gauged by the incidence of tetanus in animals, the higher is the antitoxin content of the blood. The frequent presence of antitoxin in ruminants and its absence in man, horses, pigs, and dogs, lead the authors to suggest that the large stomach of ruminants is concerned in the development of natural immunity to tetanus.

77

Chemistry of Retroplacental Blood

L. PUCCIONI and I. PINELLA (*Ann. di Ostet. e Ginecol.*, April 30th, 1934, p. 457), who had previously shown that the calcium and potassium content of the retroplacental blood was higher than that of the peripheral blood, more recently investigated the differences in the glucose and bilirubin content in the two varieties of blood with the following results. The glucose content of the peripheral blood in labour was always higher than normal, while in the retroplacental blood the glycaemia was always below that of the peripheral blood, and in many cases even below the normal amount, this diminution being explained by utilization of the glucose by the foetus. The bilirubin in the peripheral blood, which was investigated by van den Bergh's indirect method, was often above the normal amount. In the retroplacental blood the bilirubin content was always increased, sometimes to a considerable degree. It is suggested that the increase of bilirubin in the retroplacental blood is due to local transformation of the haemoglobin of the red corpuscles by the reticulo-histiocytic system.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

78 Allonal as a Cause of Agranulocytic Angina

MADISON and SQUIER (*Journ. Amer. Med. Assoc.*, March 10th, 1934, p. 755) state that the increase in agranulocytic angina has paralleled the increase in the use of drugs containing pyrimidon (amidopyrine), and especially those containing pyrimidon with a barbiturate—for example, allonal. They publish fourteen cases of agranulocytic angina in which the onset of the disease was directly preceded by the use of pyrimidon or allonal. Six of these patients continued with the drug during their illness, and they all died, in spite of nucleotide treatment. Of the eight patients who stopped the drug, two died. When two of the convalescent patients were given 5 grains of pyrimidon as a test, the granulocytes practically disappeared from their blood. Eighteen rabbits were given large doses of allonal, and one died with agranulocytosis. The authors believe that pyrimidon is capable of producing agranulocytosis in certain individuals who have developed a sensitivity to the drug.

79 The Hour of Death

H. J. JUSATZ and E. ECKARDT (*Münch. med. Woch.*, May 11th, 1934, p. 709), of the Hygiene Institute of the University of Marburg, have undertaken a chronological study of 3,294 notifications of deaths which have occurred within the past six years. Stillbirths and deaths due to accidents and suicide were not included in this study. The notifications having included statements as to the hour at which death occurred, the number of deaths for each of the twenty-four hours was charted. The resultant curve showed the highest peak between 4 and 5 a.m. Both midday and midnight showed comparatively low levels. The authors record on the same chart the results of three other investigations, one of which dates back to 1846. The main features of all four curves showed a striking similarity, the early hours of the morning being invariably the most fatal. In their discussion of the possible explanation of this phenomenon, the authors draw attention to a study published in 1922 by A. Schlenk of Innsbruck. He showed that the hourly variations of electrical conductivity followed a curve whose course coincided with remarkable accuracy with that of the death rate recorded hour by hour in Marburg.

80 Congenital Syphilis

J. G. NAVARRO (*Semana Médica*, April 9th, 1934, p. 1157) points out the differences between congenital syphilis as it is now seen and that described in the textbooks. In the children's department of the Ramon Mejia Hospital (Buenos Aires) three sections are assigned to children in the post-lactation period of infancy and two to nurslings under the age of 2 years. In the second half of the year 1932, 2,109 patients were examined, of whom 3.36 per cent. were syphilitic. In the first half of 1933, 2,449 were examined, including 707 nurslings under 2 years and 1,742 of more than that age; of these 3.02 per cent. were infected. The figures in Berlin were in nurslings from 2.81 to 3.34 per cent.; in Munich, 2.7 per cent. in all children; in Prague, 2.33 per cent.; in North America, 3.3 per cent. of all children examined in various clinics. French figures are much higher. Amongst nursing patients Lesné at the "Trousseau" found 10 per cent.; Hutinal 40 per cent.; Marfan 30 per cent.; and Lemaire and David 19 per cent. The fact that definite clinical value was attached to signs of a merely presumptive character will account for these high French figures. On reviewing the files of 100 of his own presumably syphilitic patients, Navarro found only five who were definitely positive, and of these only one showed signs of active disease. He states that the only reliable signs of the

disease are perineal condylomata, interstitial keratitis, Parrot's pseudo-paralysis, syphilitic osteitis, luetic aortitis, and mucous plaques. Positive parental proof constitutes the admitted infection of one or of both parents, general paralysis of the insane, and tabes if these are confirmed by serological tests. Probable parental evidence is afforded by the knowledge that a parent is undergoing treatment for lues, by definite syphilitic aortitis, chronic headache, pains in the bones, alopecia, and hemiplegia; and if the mother has had premature births, stillbirths, multiple abortions, and twin births! In the child, the probable manifestations will be Olympe forehead, saddle nose, splenic enlargement, enlarged and especially hard liver, convulsions, encephalopathy, bronchial asthma, and testicular atrophy. During lactation the patient may show signs of rickets, hydrocephalus, double irreducible hydrocele, sanguineous coryza, and various osteopathies. After two years, alopecia of hairy parts (especially the eyebrows), headache, pains in the bones, and dental anomalies, though the writer very rarely meets with Hutchinson's teeth. Serological tests, though immensely valuable when dealing with adults, are of little use in the hereditary or congenital syphilis of the child. Kahn's test is preferable to the Wassermann reaction, being easier to take and to read.

81 Subsequent Fate of Scrofulous Children

V. HALBERG (*Ugeskrift for Læger*, May 17th, 1934, p. 515) has conducted follow-up investigations which suggest that tuberculous glands in childhood are seldom precursors of serious tuberculous disease later in life. Between 1910 and 1925, 553 patients suffering from enlarged lymphatic glands attended the dermatological department of the Finsen Institute in Copenhagen. The author's follow-up investigations concern 125 patients treated in the period 1919-21 and traced in the winter of 1932-3. It was found that only four had died in the interval, pulmonary tuberculosis being the cause of death in only one of these cases. Among the 121 survivors were 117 whose health was excellent. Of the four whose health was poor, three suffered from tuberculosis. Comparing the fate of all his patients with that of the general population at the same age, the author finds that the tuberculosis mortality among the former was only about half that among the latter. In eighty-four cases the follow-up investigations included x-ray examinations, which in fourteen cases showed signs of pulmonary tuberculosis. The author considers the high recovery rate among these ex-scrofulous persons as a tribute to the treatment they received as children with universal light baths, introduced by Reyn of the Finsen Institute in 1913. For, while the recovery rate, as far as the enlarged glands were concerned, among the author's 125 patients was 97.6 per cent., it was only 39 per cent. for a similar group of patients given only x-ray treatment and reported on by Reyn in 1924.

82 Primary Tuberculous Infection in the Adult

P. NOICA (*Thèse de Paris*, 1934, No. 162) records four cases of primary tuberculous infection in young adults aged from 18 to 26, three of whom were women and one a man. The clinical picture was that of Landouzy's typho-bacillosis associated with erythema nodosum. All the patients came from healthy families, and no case of tuberculosis had occurred in their immediate neighbourhood. In addition to pulmonary localization other forms of primary tuberculosis in the adult are: a pleuritic form, which is fairly frequent; a form characterized by phlyctenular conjunctivitis; and other forms in which the symptoms are less definite and the condition is likely to be mistaken for influenza or bronchitis. Lastly, as in the child, primary tuberculosis in the adult may be absolutely without any symptoms, and can only be detected by tuberculin tests and radiological examination.

Surgery

83 Early Diagnosis of Cancer of the Breast

A. LÄWEN (*Deut. med. Woch.*, May 11th, 1934, p. 707), who is in charge of the University Surgical Hospital in Königsberg, gives an account of his system for discovering cases of cancer of the breast before signs of it had been detected by the patients themselves. As the result of an educational campaign 1,227 women were induced to present themselves for examination by Professor Låwen's staff of four women doctors, who, when they found any morbid conditions, referred them to him. The rate of examination was about fifty women per hour for every doctor. In this way one carcinoma was diagnosed. There were also ten women, previously operated on for cancer of the breast, eight of whom showed no sign of recurrence. In as many as 103 cases chronic mastitis was diagnosed; they included two cases in which suspiciously hard nodules led to an exploratory excision. Among these 103 cases were also two characterized by haemorrhage from the nipples. Para-mammary lipoma was diagnosed in three cases and fibroma of the skin in sixteen. The most striking feature of this "comb-out" was the high proportion (8.4 per cent.) of cases of chronic mastitis. Its incidence was greatest between the ages of 30 and 50; only ten were unmarried, and as many as eighty (77.7 per cent.) had had children. The author maintains that the early diagnosis of cancer can only be achieved by the systematic examination of the whole population between the ages of 30 and 70; and he refers, by way of contrast, to statistics he has recently compiled in East Prussia, where, between April 1st and October 30th, 1932, only 104 out of 367 cases of cancer were found to be operable.

84 Arteriography as a Guide to Arteriotomy

L. BAZY, H. REBOUL, and M. RACINE (*Bull. et Mém. Soc. Nat. de Chir.*, May 5th, 1934, p. 625) write with enthusiasm of the help given by arteriography in deciding on and planning operations for arteritis of the lower limbs. It is certain, they say, that arterial puncture and injection by the Santos technique is without danger, and that the use of organic iodine compounds, injected at suitable pressures, is not liable to aggravate an arteritis, although occasionally small discrete patches of cutaneous necrosis follow the injection of any contrasting solution. Lipiodol, sodium iodide, and thorotrast are not free from danger, and should be replaced by one of the organic iodine compounds. Injection of these is painful, so that, unfortunately, it is necessary to give a general anaesthetic. The pictures give valuable information concerning the endarterial and parietal lesions and their relation to the collateral circulation, as well as the anatomy and sufficiency of the latter. In a case described, arteriography in a syphilitic male aged 47, with threatened gangrene of the great toe, showed partial blockage from the popliteal to the upper part of the posterior tibial artery, ending immediately beneath the origin of the inferior external articular artery. Section of the popliteal artery below that origin was followed by resumed pulsation (partly a sympathectomy effect), and, after removal of the superjacent 7 cm. of the arterial trunk, cure followed. Arteriography proved equally useful in indicating a successful arteriotomy in a case of senile gangrene.

85 Cervical Sympathectomy for Disseminated Sclerosis

WETHERELL (*Journ. Amer. Med. Assoc.*, May 26th, 1934, p. 1754) publishes a fifth case to be added to Royle's four cases of sudden improvement in disseminated sclerosis following the removal of the superior dorsal and inferior cervical ganglions. The object of the operation is to improve the circulation in the brain and spinal cord. The speech of Wetherell's patient improved immediately after the operation, and within a few days his intention tremor had so diminished that he was able to feed himself again. The author claims an improvement of 40 per cent. in his condition, and states that the possibility of a marked natural remission in five cases immediately after operation is extremely remote.

240 B

Therapeutics

86 Bilateral Pneumothorax

G. NADEAU (*New England Journ. Med.*, May 10th, 1934, p. 1012) records twenty-six cases of bilateral pneumothorax. In twenty-four the two lungs were submitted to collapse at the same time, while in two the opposite lung was only collapsed after the first had re-expanded. In thirteen the disease was moderately advanced, and in the others far advanced. The first seven cases were almost terminal, pneumothorax being tried only as a last resource. Four had complications such as tuberculous laryngitis and enteritis. After about a year the treatment had to be discontinued in five instances because the progress of the disease could not be checked. These five patients died, but the remaining two survived and are doing well. Thirteen patients are improving under treatment; three have had one intrapleural pneumolysis, two had two pneumolysis operations, and one had three. Phrenicectomy was performed on four patients. Seven patients have been discharged and are doing well. In Nadeau's sanatorium the proportion of the bilateral to the unilateral pneumothorax is about 10 per cent.

87 Ox-Bile Therapy in Icterus

Haemorrhage in icterus is a well-known complication which occurs most frequently in grave cases or in those of long duration. H. TENNESEN (*Lyon Chir.*, May-June, 1934, p. 290) cites statistics compiled by Petré showing that haemorrhage caused death in 10 to 15 per cent. of the fatal cases and in 1 to 2 per cent. of all operated biliary cases; in eighty deaths among 549 of his own biliary cases four (short notices of which are given) were due to haemorrhage. He points out that in cases of chronic biliary fistulae a haemorrhagic tendency can also be noted, which is manifested by similar haemorrhages. Both these conditions have two points in common: the haemorrhagic tendency, and a lack of biliary supply to the intestine. Seifert thinks that this tendency in icteric patients is due to a faulty resorption of intestinal fats, or to lack of bile or of vitamins, and disorders of changes of the calcareous matters. In light of this theory Tennesen believed that the oral administration of bile should improve this condition, and he has since employed this treatment in such cases. Should the blood coagulation time prove abnormally long, he gives ox-bile by the mouth (the dosage is not clearly defined) and finds this materially shortens the period. Three illustrative cases are reported. These show that this treatment reduces the blood coagulation time to normal, and therefore also the tendency to haemorrhage; later bleeding, due to the operation, may, however, occur, as is evidenced by one of the recorded cases.

88 Therapeutics of Filix Mas and Ol. Ricini

W. KUCK (*Med. Welt*, May 12th, 1934, p. 661) notes that while all are agreed as to the efficacy of extract of male fern and its dosage, some still consider its combination with castor oil as dangerous, while others hold that the risk of poisoning is reduced if castor oil is given at the same time or a little later. The investigations of Fahin have revealed the publication of forty-six cases of poisoning by extract of male fern during the past forty years. In as many as thirty-seven of these cases no castor oil was given. In three of the nine cases in which it was given the dosage of the vermifuge had been far too great. In another case it was probable that the poisoning was due to idiosyncrasy to male fern, and there remained, therefore, only five cases in which the combination of castor oil with a normal dose of male fern coincided with poisoning by it. The author has himself combined extract of male fern with castor oil in 123 cases without any mishap other than the occasional return of the drug by vomiting. He gives the extract (8 grams for a man, 6 grams for a woman, and 4 grams or less for a child) with a mixture of castor oil and malt extract, and as the treatment is apt to be heroic he does not recommend it for elderly folk, nor for

the subjects of acute diseases, uncompensated heart disease, aneurysm of the aorta, and abdominal disorders, nor during pregnancy and the puerperium, nor for persons subject to haemorrhage from the gastro-intestinal tract. The old-fashioned preliminary treatment of the patient is not only weakening, but also favours absorption of, and poisoning by, the extract. Even able-bodied persons should be kept in bed so as to lessen the chances of vomiting.

Ophthalmology

89 Dystrophy of Corneal Endothelium (Cornea Guttata)

E. L. GOAR (*Amer. Journ. Ophthalmol.*, March, 1934, p. 215) records that this condition, which is always bilateral though more advanced in one eye, is responsible for many unexplained cases of loss of vision over 40. The slit-lamp at first shows central, well-defined, discrete, rounded, dark areas in the zone of specular reflection. Later these are also found peripherally. The endothelial cells are absent in such areas, while fine dust-like pigment is deposited between them. The areas mark a thickening of Descemet's membrane, which becomes abnormally visible. As the slit-lamp beam is swept across the endothelium, "glinting" is observed. In the last stages there may be epithelial dystrophy. Whether this is due to the action of the aqueous is not generally agreed. Endothelial dystrophy must be differentiated from iridocyclitis, perforating wounds, low-grade uveitis, old interstitial keratitis, and the result of iridencleisis operations.

90 Sympathetic Ophthalmia

A. JESS (*Münch. med. Woch.*, May 25th, 1934, p. 786) states that the smallest perforating wound may be followed by sympathetic ophthalmia. The onset is from fourteen days to several years after the injury. Sympathetic irritation may not progress to ophthalmia, the premonitory signs of which are the early signs of iridocyclitis. The histology of the exciting and sympathizing eyes closely resembles that of tuberculosis, though the bacillus has not been demonstrated. Purulent endophthalmitis by its severity nearly always safeguards the other eye by overwhelming the unknown agent of sympathetic ophthalmia. The treatment is difficult and disappointing. Careful and immediate attention is of supreme importance, and the injured eye, even in the absence of inflammation, should always be enucleated directly it becomes blind or on the appearance of a progressive iridocyclitis with a prospect of blindness. Daily observation of both eyes by the slit-lamp is necessary after a perforating wound.

91 Headaches and Ocular Diseases

B. L. GORDON (*Arch. of Ophthalmol.*, May, 1934, p. 769), basing his findings on 1,339 cases, believes that ocular pain is extracranial, and is reflexly seated in the muscles of the head. Heredity plays an important part, the Semitic, Celtic, and Italian races being more prone to headaches. Impaired health, nervous exhaustion, and neurasthenia are predisposing factors. He recognizes three classes of ocular headache: organic; due to retinal irritation; and to eye strain. The organic type is exemplified in glaucoma, iritis, retrobulbar neuritis, and choroiditis. Retinal irritation follows exposure to the sun's rays, lightning, electric flashes, x rays, and coloured silks, and is associated with local ocular signs of congestion and inflammation. He found 60 per cent. of his cases had headache due to eye strain. The topographical site of the pain is suggestive of the type of ocular trouble, and he gives charts showing the different areas affected in various ocular defects. Astigmatism accounts for most cases of headache. It is the low degree of ametropia and muscle imbalance, unsuspected because the vision is normal, that causes most severe headaches. With a low error the patient struggles to overcome it, while with a larger one the attempt is abandoned. A weak correcting glass should be worn, even though it blurs the distance vision.

Headache is rare in monocular people because the complexity of fusion, with its associated muscular adjustments, is eliminated. Disappearance of a headache when one eye is covered always suggests heterophonia, and it is a safe practice to consider all headaches as ocular until proved otherwise. Headache due to organic disease is persistent with exacerbations, while that due to eye strain is relieved or abolished by resting the eyes. Of other types of headache the nephritic is throbbing, migratory, and often associated with vertigo and tinnitus; the uterine is occipital, radiating, and sharp; the anaemic is pressing in character; the hysterical is as if a nail is being driven into the vertex; the neurasthenic is like a tight band, worse in the morning, and the migrainous has a persistent similarity and periodicity. Careless refraction increases headache, and ill-fitting glasses will make matters worse, however careful the refraction. Finally, headaches which are due to ametropia are not always cured directly glasses are put on the nose.

Obstetrics and Gynaecology

92 Pregnancy and Labour in Morphine Addicts

According to E. MENNINGER-LERCHEHNTAL (*Zentralbl. f. Gynäk.*, May 5th, 1934, p. 1044), while relevant statistics have not been published, it is probable that female morphine addicts have comparatively a very low fecundity rate: they come usually from classes in which children are not keenly desired and contraceptive measures present little difficulty. Amenorrhoea is one of the most constant symptoms of the malady. Balász has recently described the case of a midwife, three years addicted and one year amenorrhoeal, who went to term after taking 60 c.cm. of a 3 per cent. solution daily, intravenously; and childbirth has been described after four years' cessation of the menses. Sometimes a healthy child is born to parents who are both addicted, but normal pregnancy is rare in the wife of a male morphinist. Premature labour is frequent in the female addict. The child may be born healthy, but is exposed to some danger from withdrawal of a drug to which he has become habituated. Treatment of the mother by reduction of the drug is inadvisable after the third month and impossible during labour: between these times it is usually inexpedient, and withdrawal of morphine has frequently been followed by uterine colic, foetal hyperactivity, and danger of premature labour and/or foetal death.

93 Reinfusion of Blood in Ruptured Ectopic Gestation

According to O. HAJEK (*Med. Klinik*, May 11th, 1934, p. 639) extrauterine pregnancy has, since the war, become more frequent in Germany, Hungary, and Switzerland; in Russia the increase has been reported as eightfold. Aetiologically, antecedent pelvic inflammation is of great importance: in a series of 500 cases seen at Prague during the past eight years only forty-eight had not had previous pregnancies or abortions, and in only thirty-four of these were signs of inflammation absent. Thirty patients had small or large cysts of one or both ovaries. In this series diagnostic puncture of the pouch of Douglas was usually done in recent cases, and as a further diagnostic aid the Aschheim-Zondek reaction or the analogous accelerated test in the rabbit was invariably accurate. Hajek discusses the utility of reinjection into the patient of the blood which is found in the peritoneal cavity at operation. This was recommended by Thies in 1914, but has been judged to be not free from inconvenience and danger. Reinfusion of the blood was done in fifty-four of the 129 ruptured cases of the present ectopic series—100 to 350 c.cm., mixed with saline and/or citrate solution, was usually given. Response was, as a rule, better than that noticed after saline infusions. Eight cases proved lethal, and the present practice is to restrict reinfusion of blood to severe cases with grave anaemia; in such cases it may be a life-saving measure, but its routine adoption is judged to be unjustifiable.

Pathology

94 Endemic Pneumococci of Type I

G. JORRICH (*Klin. Woch.*, May 5th, 1934, p. 661) gives an account of the endemic existence of pneumococci of Type I in a rural area in Germany. In this area there was a home for about thirty children of all ages in the charge of nurses and domestics. The presence of the endemic was detected in the middle of December, 1933, when a 2-year-old boy was transferred from this home to hospital, suffering from double pneumonia and a purulent pleural effusion. He died on December 24th, after having developed purulent meningitis. In the cerebro-spinal fluid, in both lungs, and in the pleural fluid pneumococci of Type I were found. A few days later three more children were admitted to hospital from the same home. The clinical and x-ray evidence was indicative of croupous pneumonia. The temperature fell by crisis in all three cases, in which Type I was invariably found. A bacteriological examination was now made of the other inmates of the home, and among the twenty-three cases in which pneumococci were found were fifteen whose pneumococci belonged to Type I. A score of the persons examined were more or less ill, suffering from pharyngitis, tracheitis, bronchitis, etc. While some had been febrile for several days, others had escaped more lightly, and there was no relationship between the age of the patients and the severity of their symptoms. Indeed, in the case of a 7-months-old artificially fed infant the only manifestation of the infection was a slight coryza and cough. Among seven persons found to be clinically well were four harbouring the pneumococcus. The infectiousness of this type of pneumococcus was almost as great as that of influenza, but the disease took the form of croupous pneumonia only in a few cases. Discussing the outstanding features of what he calls an endemic, the author points out that elsewhere and ordinarily, among healthy persons, pneumococci of Type I are demonstrable only in 1 to 3 per cent. This proportion may be increased four times in the presence of cases of pneumonia. But in the present instance more than 60 per cent. of the persons examined harboured this special type of pneumococcus.

95 Diagnosis of Glanders

GÓMEZ-DURÁN (*Arch. Med., Cir. y Esp.*, April 28th, 1934, p. 458), writing from the Military Hospital, Tetuan, believes that in the absence of a pustular eruption and profuse nasal secretion, and owing to the failure of the mallein test in the human subject, glanders is frequently overlooked. Indeed, he says that the glanders of the textbook variety is but rarely seen, and that the acute variety is often confounded with typhoid, rheumatism, septicaemia, pyaemia, miliary tuberculosis, or sporotrichosis. The detection of the *B. mallei* in pus is rare, though its growth on potato is distinctive; but there is one great positive test, devised by R. Strauss, which is quite easy to carry out. This observer injects suspected pus into the peritoneal cavity of the guinea-pig, and if the animal be examined on the third day a profuse vaginal discharge containing numerous *B. mallei* will be detected if the case be one of glanders.

96 Cultivation of the Leprosy Bacillus

C. W. DUVAL and R. A. HOLT (*Proc. Soc. Exp. Biol. and Med.*, April, 1934, p. 828) describe a new method for the cultivation of leprosy bacilli. It rests on the earlier observations of Duval that these organisms continue to multiply outside the body so long as autolysing pieces of leprosy tissue are available. The organisms are unable to utilize whole protein, and consequently they die out in subculture when the original autolysate is no longer present in adequate amount. To remedy this defect the authors have prepared a medium containing protein split products. Its detailed preparation cannot be described here, but it consists essentially of an agar base, to which

are added aqueous solutions of tryptophan, cystin, tyrosine, and leucine, followed by placenta autolysate, banana infusion, and glycerin. The technique of cultivation consists first of all in the excision under aseptic conditions of a subcutaneous leprosy nodule. The nodule is then cut into small pieces and digested for thirty-six to forty-eight hours at 37° C. with a 1 per cent. solution of trypsin which has been sterilized by filtration. The effect of this treatment is to reduce the pieces of tissue to the consistency of soft butter. In this state they can be transferred to slope tubes of the special medium, and spread over its surface with an ordinary loop. The tubes are fitted with paraffined cotton plugs, which are temporarily removed every three or five days to permit of the access of air. Growth becomes evident in four to six weeks, and continues in subculture so long as the trypsinized leprosy material is transferred. The crucial point comes when this is exhausted, and the organisms have to obtain their nutriment from the medium. The incorporation in the medium of protein split products is intended by the authors to facilitate this transition.

97 Transmission of Kala-Azar

C. E. FORKNER and LILY S. ZIA (*Journ. Exper. Med.*, April 1st, 1934, p. 491) examined material obtained by gently passing culture swabs into the nasal passages of fifteen patients suffering from proved kala-azar, and then smearing slides. In nine cases typical Leishman-Donovan bodies were found in the smears in small numbers. Smears from the tonsillar surface and from the saliva in one of these cases also revealed the presence of these bodies. The tonsils of this patient, who died as the result of kala-azar and secondary infection, were found at the necropsy to be massively infected with Leishman-Donovan bodies. The organisms in the nasal discharge of two patients were shown by inoculation into susceptible animals to be viable and capable of producing infection. The authors state that sufficient time has not yet elapsed to determine the viability of the organisms recovered from the remaining cases. They conclude, however, that there has thus been demonstrated for the first time the existence of a rich source of infective material, occurring in a large proportion of patients, and available for the transmission of the disease. They add that the only point which now needs to be demonstrated in order to confirm the finding that one of the natural modes—possibly the most important—for the transmission of kala-azar from person to person is to transmit it experimentally by this route. The experiment has been approached in two ways: by transferring infected material from the nasal cavities of patients to the nasal and mouth cavities of hamsters, and to the nasal cavities of two human volunteers. It is stated to be too early as yet to report the results, but it is remarked that such a conception of transmission suffices to explain many of the epidemiological problems, and is open to no serious objection from the epidemiological or protozoological points of view.

98 Therapeutic Pneumothorax in Pneumonia

L. M. LIEBERMAN and S. S. LEOPOLD (*Amer. Journ. Med. Sci.*, March, 1934, p. 315) have collected from the world literature, dating from 1921, fifty cases of the use of therapeutic pneumothorax in human lobar pneumonia. Only three of these patients died. An average of two injections of 400 c.cm., with an interval of eighteen hours between them, produced a spontaneous crisis followed by convalescence in most of the cases. The authors corroborated these results experimentally by producing lobar pneumonia in thirty-six dogs by bronchoscopic introduction of virulent pneumococci into the lower lobes of the narcotized animals. Eighteen dogs were given two pneumothorax injections, producing a fall in temperature, a drop in leucocytosis, a negative blood culture, and a rapid return of strength in fifteen of the animals. The remaining three died. Of the untreated eighteen control cases thirteen died. X rays were used in every case. The article concludes with a warning that pneumonia is not a suitable disease in which to acquire experience in pneumothorax technique.

104 Uraemia following Abdominal Operation

R. LEBOVICI and F. POILLEUX (*Rev. de Chir.*, April, 1934, p. 328) point out the frequency with which uraemia occurs as a post-operative complication. The onset may be either acute or subacute, with repeated and profuse vomiting, dryness of the tongue, abdominal distension, and deterioration of the general condition. The symptoms simulate incomplete obstruction or peritonitis, and it is possible that a further intervention may be considered, unless the blood urea is examined, when an exact diagnosis can be made. Treatment by means of saline solution should be immediately carried out, and the success depends on early diagnosis. Although uraemia may occur after such operations as hysterectomy or ovariectomy, it is most common after gastric operations. The authors report two cases of uraemia following gastro-enterostomy. In one of these saline treatment was instituted immediately the condition was recognized, and the patient made a rapid and complete recovery. In the other case, through an error, treatment was delayed and the patient died. Three reasons are given for post operative vomiting: a mechanical obstacle due to some faulty technique, an inflammatory condition, or a high blood urea. Vomiting from the last of these causes does not occur until after the eighth day, and is abundant, containing water and free bile. There is also evidence of dyspnoea without obvious cause, whilst the prostration and delirium of the patient are signs of severe toxæmia. These symptoms should lead to a diagnosis of uraemia. Hypertonic saline solution should be injected slowly and frequently—2.6 grams may be given each day, although as much as 10 grams may be given without ill effect.

Therapeutics

105 Multiple Tappings in Cirrhotic Ascites

A. RAVINA and S. BRUNET (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, May 28th, 1934, p. 751) report a case of ascites in which apparent cure was established by multipleappings. During the course of two years the patient, who had been a heavy drinker, was tapped eighty-four times, a total of 950 litres of ascitic fluid being withdrawn; no other form of treatment was employed. Such cases are not exceptional; Chabrol and Cottet have reported cure in two cases of cirrhosis after twenty-eight and sixty-eightappings respectively. Cure in the present case has been maintained for four years; the patient is in excellent health, and is capable of performing heavy work. A marked hepatomegaly, coincident with a return to alcoholic habits, is, however, present. This case confirms the classic theory that resorption of the ascites is especially possible in cases of hypertrophic cirrhosis: such cures necessitate integrity of the renal functions.

106 Methylene-blue-Glucose Solution in Gas Poisoning

F. DEUTSCH and E. WEISS (*Wien. klin. Woch.*, May 18th, 1934, p. 618) believe that in a glucose solution of methylene-blue they have discovered a valuable therapeutic measure in the treatment of poisoning by gas. In 100 c.c.m. of solution there is 0.25 to 1 gram of methylene-blue and 10 grams of glucose, the pH of this solution being 7. Twenty c.c.m. of 1/4 to 1 per cent. methylene-blue-glucose solution is injected intravenously. Twelve cases of severe gas asphyxia treated in this way are described, many of which were in deep coma with serious damage to the central nervous system and circulation. All recovered in a few minutes to a few hours without the help of any other therapeutic measures. They describe the rationale of the treatment as follows. It has been shown experimentally that the living cell possesses an iron-containing complex ferment which enables it to make use of the oxygen in the circulating blood. The iron acts as a catalyst. If this ferment is damaged by

poisonous gases, accessory catalysts come into being to prevent the danger of asphyxia. Methylene-blue has the same action as the accessory catalysts, and can act as a substitute for them, resisting the poisonous gases even when the normal accessory catalysts have been put out of action. It turns haemoglobin into methaemoglobin, protecting the organism against the rapid absorption of the gas. But in addition to its protective action there is that of increasing oxidization by converting the Fe₂ of the haemoglobin and the cells into Fe₃. The presence of glucose has been shown experimentally to increase the oxidizing power of methylene-blue by rapidly reconverting the methaemoglobin into haemoglobin.

107 Treatment of Gonorrhoea in Women

K. JOHNNEN (*Münch. med. Woch.*, May 18th, 1934, p. 746) gives an account of the experiences of the University Hospital for Women in Freiburg, where treatment of gonorrhoea with vaccines is not favoured because of its liability to stir latent foci of disease into activity. The therapeutic induction of fever suffers from the same objection, and on one occasion gonorrhoea was cured at the cost of a latent tuberculous focus rendered active. In the period 1927-33, 243 cases of gonorrhoea were treated. They included 134 cases of unilateral or bilateral disease of the uterine appendages. In order to compare the respective merits of conservative treatment (strict rest in bed, hot and cold applications, etc.) with active treatment (local applications with silver preparations, etc.) 109 patients were kept under close supervision, bacteriological examinations being made once or twice a day of the in-patients and at intervals of two to four days in the case of the out-patients. The criterion of a cure was failure to demonstrate gonococci on three consecutive occasions after menstruation. Thirty of the patients were given conservative treatment and seventy-nine active local treatment. The proportion of cures was approximately the same (sixteen for conservative treatment and forty for active treatment). The average stay in hospital for the patients given conservative treatment was five and a half weeks; for the others it was six and a half weeks. The 134 cases complicated by involvement of the uterine appendages were also classified according as the treatment was conservative or active, and again little difference could be found in the results. The author would therefore have been tempted to abandon active measures but for his recent experiences with an acridin preparation, "flavadin," which contains an organic compound of arsenic. From 1 to 4 c.c.m. of a 2 per cent. solution are slowly injected into the urethra and cervix, a course of treatment consisting of eight injections, at intervals whose length the author does not mention. A cure was effected in eighteen out of twenty-one chronic cases, the average duration of in-patient treatment being only two and a half weeks. Among the three failures were two which could be accounted for as representing reinfections.

Anaesthetics

108 Local Anaesthesia in Major Abdominal Surgery

H. FINSTERER (*Med. Klinik*, May 4th and 11th, 1934, pp. 597 and 631) publishes statistics showing a diminished post-operative morbidity and mortality from the use of general instead of local anaesthesia in major (and especially major abdominal) operations. He finds the use of a local anaesthetic enables the most serious operations to be done in aged and cachectic subjects. Among examples of successful operation under local anaesthesia, in patients in whom surgical treatment had been deemed inexpedient, Finsterer mentions the following cases: (1) a hemiplegic male aged 78, who had subtotal gastrectomy for ulcer; (2) a female, aged 75, with high pyrexia and obstruction of the common bile-duct, who had appendicectomy, cholecystectomy, and choledochoduodenostomy; (3) radical resection in four stages of a fixed, externally visible carcinoma of the sigmoid colon; (4) suture of a perforated

duodenal ulcer and gastro-enterostomy in a woman aged 71; and (5) total obstruction by volvulus of six days' duration, followed by removal of the gangrenous sigmoid. Forty-nine cases of appendicectomy with local anaesthesia in children (twenty-four under the age of 11) are mentioned. In some 4,500 laparotomies with local anaesthesia (one-sixth of the patients being aged 60 to 86) Finsterer had a mortality rate from pneumonia of 0.24 per cent.: the 610 done in general anaesthesia had a death rate of 1.3 per cent. For cancer of the stomach local anaesthesia is used almost exclusively, resection being done in 66 per cent.: in simple resections the mortality was 8.4 per cent. in 271 cases. Where operation was complicated by resection of pancreas, liver, or colon the operative mortality was 41 per cent. (153 cases), but 30 per cent. of survivors (5 to 18 years) were attained. Partial gastrectomy for ulcer, in Finsterer's hands, had 14.7 per cent. mortality after general and 3.5 per cent. after local anaesthesia: the latter gave diminished incidence of shock and peritonitis. Operating in local anaesthesia for haematemesis, Finsterer had one death in thirty-nine early cases, fourteen in forty-six late cases (all resections). His mortality rate in eighty-nine gall-stone operations with complete obstruction of the common duct was only 7.8 per cent.; in 116 cases of acute intestinal obstruction (excluding strangulation of herniae), 16.3 per cent.; in forty-one of these cases requiring removal of gangrenous gut, 22 per cent.—all these series were done in local anaesthesia.

109 Anaesthetic Properties of Cyclopropane

J. A. STILES *et al.* (*Anaesthesia and Analgesia*, March-April, 1934, p. 56) presents a preliminary clinical report on cyclopropane (trimethylene), an isomer of propylene, with a density of 1.46 compared with air. It is compressible in steel cylinders without polymerization or other known chemical change. Stiles has found the gas satisfactory as an anaesthetic agent, particularly since adequate muscular relaxation is obtained with concentrations of less than 20 per cent. in oxygen. It appears to have no more effect on the vital functions than have other anaesthetics, and as regards post-operative complications it compares favourably with ether. The gas has no undesirable physical properties, and, although explosive, is less so than ethylene. The signs of the depth of anaesthesia resemble those in the case of ether, with the exception that there is a roving eyeball usually into the second stage, and occasionally even into the third. Cyclopropane is very powerful and rapid in action; it has been used successfully for infants and in neurological surgery. A slight respiratory depression induced favours its use in chest surgery. Very little of the drug is retained in the body after its administration is stopped. The author adds that care must be taken to avoid high concentrations which are irritating, 10 per cent. being sufficient for light and 14 to 16 per cent. for deep anaesthesia.

110 Nitrous Oxide Anaesthesia in Orthopaedics

SCHREUDER (*Le Scalpel*, June 9th, 1934, p. 821) favours nitrous oxide and oxygen as the anaesthetic of choice, especially in orthopaedics, where the same patient has to be anaesthetized frequently. As this mixture does not produce the necessary relaxation, subcutaneous injections of morphine with atropine or scopolamine, given forty-five minutes before the anaesthesia, are necessary. Schreuder usually injects a maximum of 15 mg. of morphine (approx. 1/4 grain) with 3/8 mg. of atropine (approx. 1/150 grain); this dose is given in two injections only to strong subjects; weaker patients receive less morphine, and children under 5 years of age usually none. When commencing the anaesthesia, nitrous oxide alone should be administered, at the rate of three to four litres per minute, with the mask held slightly above the face to avoid causing a sensation of suffocation; it is placed on the face when the patient loses consciousness. Oxygen is slowly added immediately the subject becomes cyanotic. The nitrous oxide is progressively diminished, one and a half litres per minute being finally sufficient; the oxygen must be correspondingly decreased. If still greater

muscular relaxation is required, ether (15 to 20 c.cm. usually suffices) may be added to the nitrous-oxide-oxygen mixture.

111 Avertin in Oto-rhino-laryngology

Though essentially a basal anaesthetic, A. MALHERBE, G. THÉVENARD, and R. VILENSKI (*Presse Méd.*, April 7th, 1934, p. 560) assert that avertin, given rectally, is ideal for many operations on the head and neck. A few whiffs of ethyl chloride may be necessary to complete the anaesthesia. The authors employ a solution of avertin in amylene hydrate. The patient's tension, pulse, weight, sex, general condition, and oculo-cardiac reflex should, it is stated, be taken into consideration. The evening before operation an evacuating enema is given, and half an hour before the anaesthetic an injection of morphine or pantopon; this supplements the effect of the avertin, and does not cause post-operative vomiting. The patient is kept in strict quietness, preferably in semi-darkness. The avertin enema is heated to 38° or 40° C. Anaesthesia commences in five to ten minutes in young subjects, in fifteen to twenty in the aged, and is complete in fifteen to thirty minutes after administering the avertin injection; it lasts for nearly two hours. Giordan's scheme of dosage is used. The authors emphasize the following points as essential for a successful anaesthesia: the preliminary evacuating enema; the pre-operative morphine injection; correct dosage and temperature of the avertin injection; its administration in strict quiet; waiting a necessary thirty minutes before commencing the operation.

Obstetrics and Gynaecology

112 Methylene-blue in Puerperal Septicaemia

C. G. N. NOË (*Nederl. Tijdschr. v. Geneesk.*, June 9th, 1934, p. 2599), who records three illustrative cases, recommends that every case of puerperal infection should be given an intravenous injection of 300 mg. of methylene-blue, whether the disease is localized or not. The injection should be given as soon after the onset as possible, but may be of service even at an advanced stage. In each of Noë's cases the temperature fell to normal within twenty-four hours after the injection, and rapid recovery took place. The method also deserves trial in non-puerperal infections.

113 Treatment of Uterine Myoma

C. BUCURA (*Wien. med. Woch.*, May 5th, 1934, p. 513, May 12th, p. 544, and June 2nd, p. 634) finds that in about 60 per cent. of all cases of myoma of the uterus no treatment is necessary. But even in such benign cases with no manifestation other than a rather excessive menstruation the patient should be examined every six months and told to report herself promptly if any new symptoms appear. When menorrhagia is the only sign treatment may be limited to the exhibition of ergot, quinine, and calcium lactate during menstruation, which, if it is profuse and protracted, may also be an indication for the injection of a pituitary preparation. Subserous myomata do not react satisfactorily to medicinal treatment, which is indicated only for the submucous and intramural myomata, whose growth is apt to be checked by it. Professor Bucura has little good to say of curetting as a remedy for myomata, and as a diagnostic aid in cases suspected of malignant disease it is unreliable, for islands of malignant disease may be situated in recesses of the cavity of the uterus and elude the curette. In the hands of an expert it can do little harm, and the removal of the hypertrophic lining of the uterus often reduces the haemorrhage. But a too vigorous curetting is liable to promote rather than to arrest haemorrhage, and to favour secondary infections. As for x-ray treatment, it should not as a rule be recommended for women under 46, as it acts indirectly on a myoma through the ovaries, whose functional elimination induces a premature menopause, with all its concomitant discomforts. This objection does not

apply to operative treatment, provided the surgeon is dexterous enough not to injure the ovaries. Women under 46 are better served as a rule by operative than by x-ray treatment, and among the 541 operations for myoma performed by himself, the author has had to record only nine deaths—an operation mortality of 1.68 per cent. In 292 of these cases total hysterectomy was performed by the vaginal route and in 159 by the abdominal route. Supravaginal amputation was performed in fifty-nine cases, and in thirty-one cases the tumour was removed while the uterus was left in place, the abdominal route being chosen in twenty-six of these cases and the vaginal route in five. None of these thirty-one cases terminated fatally.

114 Vaginal Ligation of the Uterine Artery

M. HENKEL (*Zentralbl. f. Gynäk.*, May 19th, 1934, p. 1153) remarks that in functional gynaecological bleedings curettage is as a rule without therapeutic utility; in the absence of subinvolution following abortion or birth, its uses are to exclude carcinoma and to furnish material for microscopical examination of the endometrium. Among functional bleedings he includes those of the menopause and those due to myoma uteri: in both cases, he thinks, the inclination to employ castrating irradiation as a therapeutic short-cut should be resisted. Castration is in either case an acute shock to the organs of internal secretion, whose functions are already deranged. This derangement is shown by the fact that menopausal haemorrhage occurs, or, in the case of myoma, by the postponement, for several years, of the menopausal epoch. Henkel's extensive experience of conservative myoma operations (myomectomy) has convinced him that they are followed by a normal and rightly timed climacteric. As a measure in conservative surgery of the uterus Henkel now recommends bilateral ligation of the uterine artery. This he first did, having found it necessary for anatomical reasons, in a patient aged 34, in whom abdominal myomectomy was performed for a submucous myoma. The immediate post-operative course was uneventful, and subsequent menstruations were normal. In eight other instances he has ligated both uterine arteries from the vagina in cases of severe haemorrhage about the menopause in patients with or without myoma, or those with prolapse or retroflexion. The procedure has the advantages of safety and simplicity; it is, as a rule, done immediately or shortly after the curettage, of which the purpose is to exclude carcinoma of the body. In Henkel's clinic it has to a great extent replaced irradiation treatment. Ligation of the uterine arteries from the vagina was recommended and practised some forty years ago by Gottschalk and by O. Küstner.

Pathology

115 Splenomegaly in Infantile Tuberculosis

M. M. CHASIN (*Thèse de Paris*, 1934, No. 67), who records ten illustrative cases in children aged from 2 months to 2 years, states that enlargement of the spleen is a very frequent symptom of tuberculosis in infants. A comparative study of two groups of children, one of whom had negative and the other positive cuti-reactions, showed that the incidence of splenomegaly in the former did not exceed 6.1 per cent., whereas in the latter it was as high as 31.3 per cent. This justifies the conclusion that the presence of splenic enlargement in a child should at once suggest tuberculosis and the performance of a cuti-reaction. The prognostic value of splenomegaly in a tuberculous child is considerable, for while the mortality of tuberculous infants with splenomegaly is 36.7 per cent., it does not exceed 6.8 per cent. in tuberculous infants with normal spleens. Histological examination of the spleen in infants who have died of tuberculosis shows that lesions of this organ are very frequent. Discordance between the macroscopical appearance, which may be

normal, and the degree of changes noted on microscopical examination, the polymorphism of the histological lesions, and the scarcity of bacilli are constant features.

116 Attempted Immunization with Tuberculo-Protein

K. C. SMITHBURN, F. R. SABIN, and J. T. GEIGER (*Journ. Exper. Med.*, May, 1934, p. 562) have studied the effect of injections of tuberculo-protein on the skin sensitivity and the resistance to infection of laboratory animals. Tuberculo-protein (MA100), obtained from the Mulford Laboratories, was inoculated subcutaneously in increasing dosage into eight rabbits and nine guinea-pigs during a period of thirteen weeks. Six injections were given every week, the dose in rabbits being increased from 0.00000001 mg. to 1 mg., and in guinea-pigs from 0.00000000015 mg. to 0.15 mg. At the end of this treatment all animals reacted to the intracutaneous inoculation of the tuberculo-protein, showing that this substance was capable of giving rise to skin hypersensitiveness. The rabbits were then inoculated intravenously, along with thirty control rabbits, with 0.1 mg. of virulent bovine tubercle bacilli, while the guinea-pigs were inoculated subcutaneously, along with ten control animals, with 0.01 mg. of virulent human bacilli. The tuberculo-protein was continued in the treated series for about three weeks after infection. Each animal was allowed to die naturally. The average survival time of the eight treated rabbits was 154 days, and of the thirty control rabbits 201 days—a difference which by reason of the smallness of the numbers in the treated series is probably insignificant. The nine treated guinea-pigs survived on an average 172 days, while the control guinea-pigs survived on an average 154 days—again a difference which is probably insignificant. These results indicate that it is possible to induce skin hypersensitiveness in animals without appreciably increasing their resistance to active infection, and suggest to the authors that allergy and immunity do not necessarily develop simultaneously.

117 Proteolytic Activity of Gastric Juice—Normal and in Pernicious Anaemia

W. J. GRIFFITHS (*Biochem. Journ.*, 1934, xxviii, No. 2, p. 671) has been studying the digestive activity of gastric juice at a pH of 6, using as substrate the beef muscle globulin employed by Castle in his classical experiments on the extrinsic factor of normal haematopoiesis. Griffiths set out to find if there was in normal gastric juice a proteolytic enzyme with an optimum pH between 3.5 and 5.5, the limits of the activity of commercial pepsin and trypsin respectively, and whether this enzyme was absent in cases of pernicious anaemia. His results are suggestive, but not absolutely conclusive: at a pH of 6 eight out of thirteen normal gastric juices produced active proteolysis, two were completely inactive, and three were weakly active. In nine cases of pernicious anaemia the gastric juices showed only one active, four completely inactive, and four weakly active. The suggested conclusion is that Castle's intrinsic factor is a proteolytic enzyme, active at a pH of about 6, which produces the normal haematopoietic factor from beef muscle globulins.

118 Physiology of the Amnion and Vernix Caseosa

H. KIEFFER (*Bull. de l'Acad. de Méd.*, May 1st, 1934, p. 576), as the result of previous investigations, states that from the third month onwards the amniotic epithelium secretes a fatty substance chiefly composed of cholesterol bodies: the vernix caseosa he believes to be not of foetal but almost entirely of amniotic origin, and to possess anti-haemolytic and anti-bacterial properties, as well as to assist in nutrition and growth of the embryonic cells. As further evidence of the physiological importance of the amnion, Keiffer now reports having found nerves in the amnion of the mature ovum of the guinea-pig. A modified Bielchowski method of staining showed numerous non-medullated subepithelial fibres, with branches penetrating the cells, but not provided with special end-organs.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

119 Indications for Operation in Chronic Gastric and Duodenal Ulcer

A. NIELSEN (*Hospitalstidende*, May 8th, 1934, p. 542) discusses the comparative merits of conservative and operative treatment of chronic gastric and duodenal ulcer, and finds from a statistical study of his own cases and those of others that when symptoms have existed for more than five years before the institution of conservative treatment, it can be expected to confer permanent freedom from symptoms only in from 7 to 15 per cent. Another 15 to 25 per cent. may benefit from conservative treatment to a degree which enables them to keep fairly well, provided they take dietetic precautions and avoid severe exertion when subject to pain. It is doubtful if these mediocre results can be appreciably bettered by ringing the changes on dietetic-medicinal measures; and the direction in which real advances still seem feasible is in the more discriminate selection, with the help of the x rays, of cases for operation. At the author's hospital in Denmark an arrangement has been made between the medical and surgical departments, according to which patients whose ulcer symptoms have lasted more than five years are drafted to the surgical department on admission. If an operation is recommended, the patient has the advantage of being all the time under the care of one and the same doctor—a factor of considerable psychological importance. While most surgeons still consider an acute dangerous haemorrhage as an indication for operation—that is, resection—the author dissents, pointing out that it is very difficult, if not impossible, to gauge the severity of a haemorrhage or to know whence it comes. Besides, conservative treatment, supported if need be by blood transfusion, tides the patient over the crisis in the vast majority of cases, whereas resection is particularly dangerous for these very exhausted patients. As for the possibility of chronic ulceration leading to perforation, and therefore being an indication for an operation, it should be noted that it is the early rather than the chronic case which is complicated by free perforation. Indeed, the danger to life, as distinct from troublesome but not fatal symptoms, is far less in chronic ulceration than was thought to be the case some time ago.

120 Treatment of Addison's Disease

H. LISSER, F. B. TAYLOR, and N. B. LEET (*Endocrinology*, May-June, 1934, p. 333) summarize the results obtained by treating over 100 cases of Addison's disease with suprarenal cortical extracts. In some instances apparently imminent death was averted and the duration of life considerably prolonged, but only in a few cases was the blood pressure raised and pigmentation reduced. In the absence of any reliable clue to the variations in suprarenal insufficiency the dosage has necessarily been empiric. The doses usually necessary for beneficial results have been from 50 to 100 c.cm. in times of crisis and 2.5 c.cm. daily as a maintenance dose for very long periods. In view of the very heavy expense thus entailed the authors think it not wise to resort to this therapy in ordinary clinical practice, but point out that it is possible that the utilization of high salt diets may reduce the amount necessary. Experimental studies and clinical observations suggest that the hypotension, hypoglycaemia, and pigmentation in this disease are ascribable to the suprarenal medulla primarily, and are therefore only occasionally and probably indirectly influenced by cortical extracts. The asthenia, the gastro-intestinal symptoms, and the manifestations of shock and crisis are, however, most likely due to cortical deficiency, and therefore most consistently alleviated by such extracts. This does not explain the failure of medullary extracts to rectify the chronic hypotension or diminish the characteristic pigmentation.

M. M. CANTOR and J. W. SCOTT (*ibid.*, p. 341) report a case of Addison's disease in which experimental relapses and remissions were brought about by substituting saline injections for extracts prepared from the whole suprarenal gland. They remark that, as in the case of insulin, it is clear that the quantity administered must be generously increased during any infections and in relapses due to withdrawal. There is an increased tendency in these patients to abscess development and to succumb to mild intercurrent infections. In the authors' case treatment was continued for more than twenty-six months, experimental relapses and remissions being induced on eleven occasions without any lasting ill effects. Sexual vigour was restored, indicating the relationship between the suprarenal cortex and the gonads. Leucodermic patches also developed, supporting the view that decrease in pigmentation during remissions is attributable to dissolution of pigment in the skin rather than to decrease in the deposition of pigment.

121 Allergic Reactions of Veins

J. LOUVEL (*Presse Méd.*, May 26th, 1934, p. 860) points out that in the treatment of venous affections one must bear in mind not only the therapeutic agent, but also the venous tissue, and obviate those things which might stimulate it to an antagonistic reaction. Familial predispositions must be remembered—for example, sclerosing injections of the same nature and strength may produce different results in different persons. Small doses of sclerosing substances should be given at first in order to find out if the person is unduly susceptible. In provocative sensitization a mild injection followed by no reaction at all, and repeated a few days later, may produce a reaction which is comparable to anaphylactic shock. Such cases of allergy are found not only in hypersensitivity but also in immunity reactions. It is necessary to increase rapidly the succeeding doses, otherwise the veins accustom themselves to them, and resist them even when they are concentrated. It is difficult to explain those cases in which, after the injection of one sclerosing agent has turned the vein into a fibrous cord, a new agent produces inflammation in a venous segment one would have believed to be altogether immune and incapable of a reawakening of its primary susceptibility. The fact that one and the same sclerosing agent may in one case produce sensitization and in another immunity must be interpreted as due to these being two extremes of a defence process. One venous segment seeks to protect itself by intensifying the inflammatory reactions, another shelters itself under cover of immunity and the refractory state. The reactions of veins to sclerogenic substances may be classified as: reactions of primary hypersensitivity, secondary reactions by sensitization, and refractory states by immunization.

Surgery

122 Spina Bifida and Cranium Bifidum

S. W. GROSS and E. SACHS (*Arch. of Surg.*, May, 1934, p. 874) report ninety-six cases of spina bifida in infants or young children, and five cases of cranium bifidum. Two cases are also included of spina bifida occulta in young adults. Operation was carried out in cases where the epithelial covering of the spina bifida was intact, when hydrocephalus was not extreme, and when there was some function in at least one lower extremity. Absence of bladder control or the presence of deformities such as club-foot were not considered to be contraindications for operation. In the series reported forty-six patients were not operated on, and of these thirty-six died while in hospital, twenty-three being afflicted with hydrocephalus and paralysis of the lower limbs. Of the ten who survived, six had extensive defects and four

had leaking and infected sacs. Fifty-seven patients were operated on, and, of these, forty-three cases of spina bifida and four of cranium bifidum were under a year old. Operation was not undertaken until the baby was in the best condition possible. Each infant was kept in a crib with a tent round it, heated by electric light bulbs and maintained at a temperature of about 98° F. The child wore no clothing, and was placed on its abdomen on a pillow. There was no dressing over the spina bifida. These precautions were taken to prevent injury to the lesion and soiling of the operative field with urine or faeces. The infant received 200 to 250 c.cm. of saline solution subcutaneously before operation. The sac was dissected out and the neck opened, all nerve elements being freed and replaced in the spinal canal, and enough of the sac retained to close the defect without tension. End-results were obtained in twenty-six cases; eleven of these had had simple meningocele, and ten were reported to be well in every respect, whilst one had slight awkwardness of the fingers. Of the remaining fifteen cases, twelve had had myelomeningocele, and two died shortly after leaving hospital. Details are given of ten of these cases, and show varying results, with improvement in many instances. Three of the patients with cranium bifidum are living and in good health.

123 Diathermy in Prostatic Hypertrophy

C. PERMIN (*Hospitalstidende*, May 8th, 1934, p. 521), with a personal experience of eleven cases of hypertrophy of the prostate treated by diathermy, and after a study of the literature of the subject, discusses the comparative merits of this and operative treatment. Although hundreds of cases have been published in connexion with both treatments, it is impossible to form a reliable opinion of their respective merits simply by statistical methods, for much depends on the selection of cases for one or other treatment, and on the technique employed. Considering that surgeons are inclined to keep the best cases for themselves, and to leave the less satisfactory cases alone, to be treated by such methods as diathermy, no fair comparison can at present be made; but it seems to be generally agreed that diathermy increases the chances of recovery for the inoperable case. Disagreement begins over the operable case. The author suggests that, having scored so many successes among the inoperable cases, diathermy is entitled to at any rate a share of the operable cases; but he admits that, in spite of the progress made by diathermy, the final verdict on its merits has not yet been given. H. VIETHEN (*Zentralbl. f. Chir.*, June 2nd, 1934, p. 1273) describes thirty cases in which prostatic patients who rejected operations or were unsuitable for it, by reason of morbid conditions of the heart, lungs, or kidneys, were treated by diathermy. The instrument used was that described by v. Lichtenberg-Heywalt in 1932, and is provided with a current with damped oscillations. Anaesthesia was induced by intrasacral injection of 30 c.cm. of 2 per cent. novocain. A groove 2½ mm. deep was burnt in one lobe at each sitting. One death followed from bronchopneumonia; the remainder showed well-marked improvement, none having large amounts of residual urine and six none at all. The electrotome employed can be used for histological distinction between malignant and benign prostatic enlargements; the excised fragments are caught in a cylindrical gauze filter, which is placed within a metal section of the tube through which the bladder is washed out.

124 Operative Treatment of Aneurysm

R. SANTOS (*Bull. et Mém. Soc. Nat. de Chir.*, May 12th, 1934, p. 660) points out that the dangers of aneurysm depend on the possibility of rupture and on the circulatory complications associated with it. Treatment must aim at the obliteration of the sac. Complete removal achieves this, but is a dangerous procedure on account of the risk of injury to the surrounding nerves and the collateral vessels. The most satisfactory operation is Matas's endoaneurysmorrhaphy. By this means all the vascular communications with the aneurysm are closed from the

interior of the sac, and the chances of the development of the collateral circulation are good. It has been found that arteriography helps the diagnosis and makes the operation of Matas considerably more simple. The first essential of the operation is to produce a temporary haemostasis. If it is possible to use a clamp the procedure is simple, but if the aneurysm is situated at the base of a limb it is a delicate or even dangerous operation. Two cases are reported of aneurysms which occurred in the popliteal artery. Radiographs are given which show the condition of the blood vessels before and after operation, and it is seen that a month after treatment an extensive collateral circulation had developed. In cases of aneurysm of the pelvic arteries the condition is more difficult to treat, but in three instances reported the exact position of the aneurysm was located. The first case was cured by the Matas operation after a recurrence which had followed ligature a year previously. In the second case the temporary haemostasis was not satisfactory for the Matas operation to be carried out, and the artery was ligatured, but the patient died after four days from gangrene and heart failure. In a case of aneurysm of the right iliac artery the sac was as large as a pear, but, following a Matas operation, the patient made a good recovery, as shown in a subsequent radiograph. Emphasis is laid on the value of radiography in diagnosis, in showing the position, extent, and type of aneurysm prior to any operative treatment.

125 Misuse of Crutches in Knee Cartilage Injuries

W. EHALT (*Münch. med. Woch.*, May 11th, 1934, p. 709) gives details of two cases illuminating his thesis—namely, that it is a serious mistake to temporize with crutches and immobilization when the articular cartilages of the knee have been injured. The temptation to do so is enhanced by the suspicion at the back of the practitioner's mind that his diagnosis of injury to an articular cartilage is mistaken, and that, if it is correct, the relief of pressure afforded by crutches will hasten repair and recovery. As for the possibility of a mistaken diagnosis, an injury to an articular cartilage can with certainty be demonstrated by clinical examination; and as for the possibility of the spontaneous union of a ruptured articular cartilage, it simply does not exist, be the relief from pressure afforded by crutches, plaster-of-Paris, etc., ever so adequate. Both the author's cases ultimately came to operation, but in the interval valuable time had been wasted. In the first case the crutches gave moral as well as material support to a work-shy individual ready to snatch at any evidence calculated to facilitate his claims on the community's purse. In the second case, the patient was most anxious to return to work as quickly as possible, and his failure to do so was not his fault, but that of his procrastinating medical attendant.

Therapeutics

126 Yeast in Pernicious Anaemia

H. K. RUSSELL (*Ann. Int. Med.*, May, 1934, p. 1398) reports four typical cases of pernicious anaemia in which a slight but definite reticulocyte response followed the administration of brewer's yeast. He concludes that the gastric secretions of these four patients contained some intrinsic factor, but in insufficient amount to prevent symptoms of the disease. It would also appear that small amounts of extrinsic and intrinsic factors were present and administered in the brewer's yeast, or were present in the patients (possibly stored in the body as the result of previous treatment) in amounts insufficient to prevent symptoms, and were activated by the large amounts of yeast which these patients received. Alternatively, it might be argued that Castle's explanation is not correct and that small amounts of extrinsic factor (brewer's yeast) are by themselves capable of stimulating haematopoiesis. Russell considers it likely that many

cases of true pernicious anaemia contain lesser amounts of the intrinsic factor than are necessary to prevent the development of the disease, but are not entirely devoid of it. The symptoms would then be the result of a quantitative rather than of an absolute lack of the factor. Spontaneous remissions, which are characteristic of the disease, would seem to indicate that this must be true. Such a partial deficiency might have been present in the four recorded cases, and their response have been the result of such a mechanism as Castle postulated.

127 Intravenous Sodium Benzoate in Peptic Ulcer

F. FERNÁNDEZ MARTÍNEZ (*Semana Médica*, April 26th, 1934, p. 1329) writes that he tried this method—introduced a year ago by Bazzano of Rome—on nine cases in which the presence of ulcer had been determined by full clinical, radiological, and laboratory examination. All patients were poverty-stricken peasants relieved by the State, whose symptoms were in the fullest phase of development. They were confined to bed, their mouths carefully cleansed, and the bowels well opened. For a few days they were on milk diet, to which was gradually added boiled rice and eggs, broth, boiled whiting, roast potato, minced beef, bananas, grapes, and a slice of bread. Weight, chemical condition of the gastric juice, and radiographic appearance of the stomach were ascertained every ten days, as was the microscopical condition of the stools. Each had a series of from twenty-five to thirty intravenous injections of 2 c.c.m. of 25 per cent. sodium benzoate. Some had two or three such series. The only complications encountered were sclerosis of the vein at the site of injection, and "flushings" which required the addition of an alkali to the benzoate. The immediate results were invariably good; the occult blood disappeared from the stools, weight increased, general health improved markedly, and the radiographic signs of ulcer very often vanished. The acid of the gastric juice was but little affected, and at times increased, even though the patient felt much better. None the less, it was found quite impracticable to revert to ordinary diet, as the signs invariably returned. Hence the writer regards the treatment as suitable only for the earliest stages of the disease, as it does not cure the ulcer, which will yield only to a very lengthy dietetic regime in addition to bismuth, alkalis, and belladonna.

Radiology

128 Radiography in Amoebic Dysentery

K. IKEDA (*Radiology*, May, 1934, p. 610), who records a series of cases, finds that radiography of the colon is a satisfactory method of determining the site, extent, and degree of involvement in amoebic dysentery, and of observing the progress of the disease under specific treatment. A small area of fresh inflammation or the reactivation of old lesions can be thus demonstrated, even when clinical improvement, and the laboratory is negative or inconclusive. Radiological examination of the colon in this disease may therefore be a valuable guide to treatment. In the early stages there are no definite changes, but as the disease progresses, projections develop later along the colon representing small superficial ulcers which become obliterated by inflammatory oedema. Fine feathery or thorny filling defects in the ulcerated wall generally indicate a later stage of lesion in which the submucous and muscular layers are involved in an extensive inflammatory granulation. A somewhat characteristic deformity of the descending and ascending colon can be observed radiographically during the subacute or early chronic stage of the disease, when there may be an apparent shortening or retraction of the wall, with induration and filling defects of varying degrees. These changes are seen to be rapidly eradicated by emetine treatment. An advanced amoebic

lesion, when diffuse and extensive, is not likely to be confused with cancer. When localized and obstructive, however, it may be so mistaken, for there is no radiological means of differentiation. Ikeda adds that the radiographical appearance of the colon in amoebic dysentery may be suggestive or presumptive, but it is not to be taken as definitely diagnostic without supporting clinical and laboratory evidence. On the whole, however, the picture does not represent that of non-specific ulcerative or tuberculous colitis, nor does it usually simulate cancer. As a rule, varying amounts of barium residue were observed in the caecum after the evacuation of the enema during the stage of active dysentery, indicating the absence of spasm in the affected portion. A wide patency of the ileo-caecal ring was also frequently observed, allowing a constant flow of the clysmas into the terminal part of the ileum which was apparently invaded by the infection.

129 Spindle Radiograms in Dorsal Pott's Disease

In 1912 C. ROEDERER (*Bull. et Mém. Soc. Méd. de Paris*, March 24th, 1934, p. 205), with Weil, noted in radiograms of dorsal Pott's disease an ovoid or triangular shadow resembling that of an abscess round the lesion and more or less round the vertebral column. This, however, gave no clinical symptoms, while a lumbar abscess, often palpable, showed no radiological signs. The shadow is not always oval or triangular, but is frequently spindle-shaped, and lies on the vertebral shadow. It is seen only in antero-posterior radiograms, and consists of a dark centre with lighter periphery. It is an early symptom which appears coincidentally with the sensation of constriction, and is possibly due to tuberculous of long evolution. The sign is pathognomonic of Pott's disease; in forty cases examined by the author with Graffin, it was absent in only two, and in only one or two dorsal cases studied by Delchef and Bailleux. Roederer has never found this spindle shadow in epiphysites and other spinal affections. It persists during the evolution of the disease; when it ceases to increase in size and becomes retracted and denser, and if at the same time the calcification of the vertebrae increases, the malady has fully evolved and operation may be safely performed.

130 Preoperative Diagnosis of Diverticulum of the Gall-bladder

J. H. VASTINE (*Amer. Journ. Roentgenol. and Rad. Ther.*, May, 1934, p. 603) reports two cases in which the diagnosis of diverticulum of the gall-bladder was made by cholecystography before any operation. In one instance the cholecystograms corresponded as regards both the size and position of the diverticulum with those of the case of Bárony and von Friedrich, but in Vastine's case no operation was performed. In the present author's second case a calculus was present in the diverticulum which, since it was completely outside the shadow of the gall-bladder, might easily have been mistaken for a renal calculus. No similar case could be found in the literature in which a preoperative diagnosis had been made. Vastine thinks that a diverticulum so diagnosed in an otherwise normal gall-bladder is probably of little clinical significance, although Abbott has recorded a case in which he found an inflamed diverticulum projecting from an uninfamed gall-bladder. He points out that differentiation of such an abnormality has to be made from congenital malformations such as double gall-bladder, hour-glass gall-bladder, redundant gall-bladder due to the presence of a peritoneal fold (the cystoduodenal or cystocolic ligament), and pericholecystic adhesions causing deformity of an otherwise normal gall-bladder shadow. The differentiation should be made easier by films taken at various angles, in some of which the redundant or double gall-bladder shadows can be shown in a position in which there is no overlapping. Vastine adds that the findings in his cases suggest that radiograms taken after a meal rich in fat indicate less decrease in the size of the diverticulum, due to the absence of muscle fibres in its wall.

Obstetrics and Gynaecology

131 Pregnancy and Heart Disease

R. SCHOEN (*Münch. med. Woch.*, May 18th, 1934, p. 739) discusses the fate of sixty-five pregnant women who suffered from heart disease and who were sent to a maternity hospital in Leipzig with a view to the induction of abortion being considered. In as many as fifty-eight of these cases the mitral valve was involved. In thirty-one cases the pregnancy had not lasted three months. The ages of the women ranged from 20 to 35 years, and twenty-six of them were primiparae. Abortion was induced in twenty-one out of the forty-eight cases in the first half of pregnancy. In the remaining forty-four cases it was decided not to interfere with the pregnancy, and among these were thirty-five women who were successfully confined. Discussing the indications for the interruption of pregnancy on account of heart disease, the author holds that when it is compensated and there are no signs of dilatation of the heart or of obstructed circulation, the pregnancy should be allowed to continue. Even when compensation is faulty, the patient may in rare cases be allowed to go to term if she is anxious to have a living child and if her social status is such that she can be well cared for in the interval. There is, in the author's opinion, no such thing as a social indication by itself for the induction of abortion; it is only when social conditions have a material effect on the patient's health that they can be taken into account. With regard to the special position of mitral stenosis in connexion with pregnancy and labour, no untoward events need be anticipated during the pregnancy itself provided complete compensation has been assured. But labour is apt to be dangerous, for when it is completed and the circulation in the uterus is much reduced, the quantity of the blood in circulation is in excess of the capacity of the vessels through which it circulates. The result is liable to be oedema of the lungs, evidenced by cyanosis, dyspnoea, sputum, and rales. This condition may be relieved by venesection. As a general rule, the interruption of pregnancy on account of heart disease with faulty compensation should be limited to the first half of pregnancy.

132 Avitaminoses in Pregnancy

VIGNES and OLIVIER (*Gynéc. et Obstét.*, May, 1934, p. 443) state that vitamin insufficiency is common in the pregnant and nursing mothers and the child: even normal infants have no more than a bare adequacy. The proportions present in milk are so small that other foodstuffs should be added early. Avitaminosis A predisposes to puerperal infectivity; extreme cases (for example, in post-war Vienna) show hemeralopia, and in the foetus poor nutrition. When present in the nursing mother, its signs in the infant are anorexia, slow growth, and catarrhal conditions of intestines, and especially of eyes and nose. Thus, cream, yolk of egg, cod-liver oil, and carotene-containing foods must be fed to the nursing and expectant mother. Avitaminosis B emphasizes the normal metabolic strains in pregnancy. Therefore, such symptoms as vague or marked neuralgias, lumbago, scattered cutaneous and muscular pains, sense of weight in the limbs, gastrointestinal disturbances, and pruritus (which may be paradiabetic) are relieved by the administration of brewer's yeast. Beri-beri, which may develop or be increased in pregnancy, and polyneuritis following hyperemesis are of the same origin. Sucklings and older infants with constipation, muscular rigidity, or anorexia need yeast preparations. Avitaminosis C seems comparatively well tolerated in pregnancy, but is well known to result in infantile scurvy and anaemia, particularly in twins. Prescurbutic conditions are pallor, lack of muscle tone and appetite, persistent rise of temperature, and haemorrhage. Fruit juices are curative. Avitaminosis D in the mother causes osteomalacia, and probably influences the development of rickets in the infant. Nursing mothers require large quantities of vitamin D to keep up the amount in the milk. Irradiated yeast can be given. The avita-

minoses also affect reproduction. Lack of vitamin A hardens the endometrium and prevents rupture of the Graafian follicles. Lack of vitamin B results in atresic follicles. Reproduction in rats on a diet lacking nothing but vitamin E closes with death and reabsorption of the embryo, but on return to full diet becomes normal again. Vitamin E is not stored in the body. It is concerned with the metabolism of Fe, as vitamin D is with that of Ca and P. Sources are fresh lettuce, muscle, yolk of egg, peas, and cereal grains.

Pathology

133 The Thyroid in Experimental Ovariectomy

V. DOGLIOTTI (*Ann. di Ostet. e Ginecol.*, May 31st, 1934, p. 547) made a histological examination of the parathyroids and thyroids of adult rabbits which had undergone ovariectomy, and came to the following conclusions. While the parathyroids did not reveal any obvious changes due to the operation the thyroid presented evidence of histological hyperplasia which showed a progressive increase according to the duration of the experiment. In view, however, of the present state of our knowledge and the difference of opinion on this subject, Dogliotti is unable to state with certainty whether the hyperplasia is accompanied by a corresponding degree of hyperfunction.

134 A Case of Amyloidosis

I. F. GERBER (*Arch. of Pathology*, May, 1934, p. 620) describes an interesting case of generalized amyloidosis, in a white man of 44, with no suppurating focus to cause amyloid disease. It is suggested that this case is a link, pathologically, with amyloid disease and with so-called "nephrosis." Clinically, the case showed a large liver, albuminuria, and hypercholesterolaemia. Two and a half years from the first diagnosis the patient died in uraemia with pulmonary oedema. Post-mortem showed characteristic amyloid changes in all organs, including bones and vertebrae, in which they are rarely found. In a gland removed at biopsy no doubly refracting crystals had been found, so that the renal lesion was in this sense probably different from "lipoid nephrosis"; also the main brunt of the disease falling on the blood vessels and not on the tubules was the cause of the terminal uraemia and vascular failure. The theoretical importance of the case is threefold: first, it is one of a spontaneous general metabolic failure giving rise to amyloid degeneration in all blood vessels and organs; secondly, the whole syndrome of "lipoid nephrosis" was present without the oedema; thirdly, this strange variety of vascular degeneration produced the same terminal results as the more usual forms of arteriosclerosis and hypertension—namely, uraemia and acute pulmonary oedema.

135 Hormones in the Suboccipital Cerebro-spinal Fluid

H. HOFF, K. KÖCK-MOLNAR, and H. URBAN (*Wien. klin. Woch.*, May 11th, 1934, p. 584) recall that folliculin and prolactin, as well as pituitrin, are absent from fluid obtained by lumbar puncture, but that pituitrin has been identified in liquor from suboccipital puncture. In numerous patients the writers found folliculin in the suboccipital fluid; in those cases in which it was possible to test fluid taken directly from the lateral ventricle, folliculin was found to be absent, and in nearly all cases its concentration was less in the blood than in the suboccipital liquor. There was evidence of a cyclical menstrual hormonal variation in this fluid. The patients included males and females, and not only those with cerebral tumour or inflammation, but also those with cancer elsewhere; folliculin appears, therefore, to be associated with cellular proliferation. Prolactin was detected in the suboccipital fluid in two cases only—both had a basophil adenoma of the pituitary, and this seems to confirm the view that prolactin is a product of the basophil cells.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

136 Nematodes in the Brain in Pellagra

G. TÖRRICH (*Deut. med. Woch.*, June 1st, 1934, p. 814) records the case of a married woman, born in 1891, who presented a characteristic clinical picture of pellagra before she died. When her brain was fixed in formalin, serial sections were cut and stained according to Nissl's method. An almost exclusively lymphocytic meningitis, mainly basal, associated with a granular ependymitis, was found. At three different points in the serial sections of the brain nematodes of a type hitherto not associated with human beings were seen. One of them was a sexually mature curved male found in the liquor of the third ventricle. The other two were immature worms. The association of a hitherto unknown parasite in the brain with such a rare disease as pellagra raises the question whether the one may not be the cause of the other. If this is so, it is easy to explain the oversight of the parasite in post-mortem examinations in cases of pellagra, for with few exceptions no systematic examination of the base of the brain has been made in such cases. The elusive life-history of nematodes also helps to explain negative findings when the conductor of a post-mortem is not helminthologically minded. As the larvae of nematodes may be found in the sputum of the host, the author suggests that the sputum of patients suffering from pellagra should be examined with this possibility in view. To the same end the cerebro-spinal fluid should be examined for nematodes when it shows signs of a lymphocytosis.

137 Aberrant Intrathoracic Goitre

According to M. MÁRYÁS (*Zentralbl. f. Chir.*, May 26th, 1934, p. 1219) an intrathoracic goitre can cause serious symptoms of pressure on the lungs, mediastinum, or great vessels, and, having developed progressively, it may reach regions remote from its substernal origin, lose connexions with the thyroid, and simulate tumour of the lung. The case is recorded of a woman, aged 47, who had oedema of the right arm and right side of the neck, swollen right thoracic veins, dullness over the upper lobe of the right lung, and radiological signs of underlying tumour thought probably to be a hydatid cyst. At operation an encapsulated tumour (histologically a benign thyroid adenoma) surrounded entirely by lung tissue was removed; death followed three days later from pulmonary embolus.

138 An Outbreak of Food Poisoning

R. HUSS and B. LINDSTRÖM (*Hygiea*, May 15th, 1934, p. 305) give an account of an outbreak in Sweden of food poisoning in some fifty persons who had partaken of a boiled ham served in a large railway office, which, since it was first opened in 1912, has been the scene of eight such outbreaks including the last, which occurred on November 10th, 1933. On every occasion the poisoning was traced to some meat or other, and only a fraction of the persons fed from the same kitchen fell ill. The frequency with which such outbreaks had overtaken this institution led to an expert investigation seventeen days after the outbreak on November 10th. There was then no ham to examine. Bacteriological examinations of the stools of the kitchen staff and of the ex-patients proved negative, but the blood of four members of the kitchen staff and of five ex-patients agglutinated dysentery bacilli of the Kruse-Sonne type. Failure to demonstrate it in the stools may have been due to the length of the interval between the outbreak and their examination. It transpired that on the day before the outbreak a member of the kitchen staff had handled the ham, then just boiled, though suffering from an acute gastro-intestinal infection. The chances of her having infected it on November 9th, and thus caused the outbreak on the

10th, are the greater because her blood was found on November 28th to agglutinate Kruse-Sonne dysentery bacilli. The previous outbreaks may possibly have been connected with the faulty sanitary arrangements found by the authors, who noticed that the kitchen and adjoining quarters were below ground level and only four metres from a septic tank. But they are inclined to trace the last outbreak to the person who had handled the ham the day before it was eaten, and they conclude with the recommendation that "persons who deal with foodstuffs, particularly those who serve in dining-rooms, should at once discontinue work when they fall ill. This is most important when the illness involves the gastro-intestinal tract."

Surgery

139 Tonsillectomy in Cases of Pulmonary Tuberculosis

J. D. ARAÓZ (*Semana Médica*, May 17th, 1934, p. 1515) records his experience with 149 cases of both sexes, with ages ranging from 14 to 41, on which he operated during the past three years. All of these had definite pulmonary or pulmonary and laryngeal tuberculosis, and the result of operation was so satisfactory that he declares that it has no contraindications except tuberculous affections of the mouth or pharynx, which, of course, include tuberculous disease of the tonsils. Tonsillectomy not only improves the general condition, but is a substantial help to the special—that is, climatic, dietetic, and medicinal—treatment adapted to the stage or type of the disease. Prior to operation, the coagulation time of all patients had been carefully estimated, and some had to be specially treated before this reached the normal standard. Only 3 per cent. of those operated upon manifested any unusual loss of blood, and four out of the 149 complained of pharyngeal tension when cicatrization was complete. The writer adds that his favourable experience has been shared by Dr. H. Newhart, who has published in the review, *Minnesota Medical*, a series of 112 cases, of which eighty-one were in adults and forty-one in children.

140 Metastases from Thyroid Tumours

R. DINSMORE and N. HICKEN (*Amer. Journ. Surg.*, May, 1934, p. 202) report 124 cases of metastases from malignant thyroid tumours. The total number of cases of thyroid malignancy was 264. In the series cervical gland and pulmonary metastases were the most frequent, with ninety-four cases occurring in the cervical nodes, thirty-six in the lungs, and only eighteen in the bones. It is suggested that the small capillaries in the lungs arrest the progress of the neoplastic emboli in the blood, and the malignant cells become established by means of rapid cellular proliferation and invasion of the parenchymatous tissue. Metastatic cancer may also reach the lungs by direct extension from the mediastinum, or by lymphatic permeation from the cervical nodes. Skeletal metastases occur more frequently where red bone marrow is found, such as in the skull, vertebrae, pelvic bones, ribs, and the proximal end of the humerus and femur. At first the tumour develops inside the medullary canal and causes a pressure erosion of the bone, osteoporosis or rarefaction taking place until the entire bony cortex may be destroyed and pathological fractures occur. Sometimes a metastatic skeletal tumour is the first sign of a thyrogenic neoplasm. If the metastatic lesion involves the vertebrae, the tumour produces a compression myelitis, and paralysis develops. The prognosis in malignant disease of the thyroid gland is unfavourable. Of the thirty-six patients with pulmonary metastases, two died in hospital, twenty-three lived for an average of twenty months, seven could not be traced, and four are still living after varying times up to five years. The prognosis is slightly better in cases of osteogenic metastasis, and of the eighteen cases reported, two are still living after

three and five years, and the remaining sixteen patients lived an average of two and a half years after the thyroidectomy. Treatment should consist of thyroidectomy, lobectomy, decompression, or tracheotomy, supplemented by x-ray therapy.

141 Ultimate Results of Phrenicectomy

R. JEANNERET, M. RIET, and F. FAMÉ (*Presse Méd.*, May 9th, 1934, p. 748) state that in recent years many authors have noted a return of the diaphragmatic functions after phrenicectomy, and that this is frequently accompanied by a recrudescence of the pulmonary lesions. Two cases are recorded to illustrate this fact. Reviewing the anatomy of the phrenic nerve, the authors describe it as arising from the cervical roots by three branches from the third, fourth (the principal), and fifth roots. The branch from the fifth root frequently arises from a common trunk with the subclavian nerve, forming an accessory phrenic; this branch and that from the third root rejoin the main trunk of the phrenic lower down. Other accessory phrenics are formed by anastomoses with all the cervical and even the first dorsal roots, these ultimately rejoining the main phrenic trunk. Branches may also be received from the hypoglossal and supra-scapular nerves. More important are the anastomoses with the cervical sympathetic (superior, middle, and inferior ganglia), the opposite phrenic, and with the inferior diaphragmatic plexus. These anatomical points confirm the authors' opinion that the phrenic with its accessories forms the sole pathway of motor and trophic impulses to the diaphragm, and consequently a return of its functions implies a reconstitution of the circuit uniting the cervical plexus to the diaphragm. This may be due, as Cardis and Giraud consider, to an insufficient exeresis of the nerve; experiments of Sergent and Launey confirm this view. If this theory of regeneration be admitted, two interventions are indicated—an examination of the main trunk at the site of the old cicatrix, and if this be negative, the performance of Goetze's operation on the hypothesis that the regeneration occurs in the accessories and not in the main nerve. The authors believe that a secondary phrenicectomy will prove efficacious.

Therapeutics

142 Statistics of Measles Prophylaxis

G. S. BUCHANAN (*Bull. Off. Internat. d'Hyg. Publique*, May, 1934, p. 888) states that convalescent serum has been employed at the Hospital for Sick Children at Great Ormond Street since 1925, but that it is only recently that it has been used on a large scale in other London hospitals. In 1931-2, during an epidemic of measles in London, an investigation was made under the auspices of the London County Council as to the value of adult and convalescent serum for the protection of contacts. Of 2,020 children 680 were given convalescent serum and 1,333 adult serum, while 207 did not receive any preventive injection. Of the last group, only 25.1 per cent. did not develop measles, whereas 90 per cent. of those who had convalescent serum and 76.7 per cent. of those given adult serum escaped an attack. Of the inoculated children only 3 per cent. had an unmodified attack as compared with 70.5 per cent. of those who had not been inoculated. The doses of convalescent serum were 10 c.cm. for children under three years, when complete protection was required, and for older children 1 c.cm. for each year multiplied by four. In such cases the serum was given during the first five days after exposure. When the serum was given after the fifth day, or when the dose, though given within the first five days, was reduced by half, more than half the contacts had a mild or abortive attack. During the last four years an extensive use has been made at Birmingham of adult serum, which is made available by the Health Department for any practitioner who needs it. A similar use of convalescent or adult serum is made in the hospitals at Liverpool, Manchester, and Brighton.

143

Fixation Abscess in Asthma

P. A. SIMON (*Thèse de Paris*, 1934, No. 355) reports fourteen cases of asthma in patients aged from 24 to 32, in which rapid relief was obtained by treatment with a fixation abscess. The success of the method appeared to be due to: (a) the powerful effect exerted by the derivative and decongestive action on the more or less latent bronchial inflammation; (b) a considerable discharge of microbic toxin; (c) a temporary production of fever accompanied by an intense increase in leucopoiesis, which permanently modified the resistance to the toxic-infection and restored the disequilibrium of the neuro-vegetative system; and (d) a psychotherapeutic action on persons of a neuropathic constitution. The contraindications for fixation abscess are anasarca, pulmonary tuberculosis, and diabetes on the one hand; and on the other hand, mild attacks which are not worth treating by a method which, though free from risk, is decidedly painful and immobilizes the patient for a considerable time.

144 Novocain-Suprarenin Injections in Neuralgia

W. T. SCHMIDT (*Med. Welt*, June 2nd, 1934, p. 770) has treated over 160 cases of chronic neuralgia with perineuritic injections of novocain-suprarenin, and has found them, on the whole, more effective than injections of alcohol or normal saline solution. Indeed, the results were often so lasting that it would seem that the injections had not been merely symptomatic in their effect, but had achieved a more or less radical cure by virtue of the anaesthesia and rest of the nerve involved. With regard to sciatica and its notorious tendency to relapse, success largely depends on the accuracy with which the nerve is located before the injection is given. A useful indication is the sense of tingling lower down his leg of which the patient complains when the point of the needle or the injected fluid first comes into contact with the nerve. Should sciatica have to be treated under ambulatory conditions, the dosage of the novocain-suprarenin should be comparatively small in order that the patient's departure may not be hampered by the local anaesthesia. As the illustrative cases show, it was sometimes necessary to administer a general anaesthetic as a preliminary to the injection. It may be repeated every day or at intervals of two or three days, the dosage being in one of the author's cases 3 c.cm. of a 1 per cent. solution and in another case 5 c.cm. of a 2 per cent. solution. In cases of severe and protracted sciatica the injections have to be repeated many times, and even after the pain has practically ceased the treatment should be continued for two or three weeks more. It is of some psychological importance to over-estimate rather than to under-estimate the time this treatment will require when it is first mentioned to the patient.

Neurology and Psychology

145

Sodium Evipan in Psychiatry

W. KUNTZE (*Münch. med. Woch.*, June 22nd, 1934, p. 937) began in April, 1933, to administer sodium evipan by intravenous and intramuscular injection to violent patients, and his first satisfactory experience with an unruly epileptic has since been repeatedly confirmed. He has, in fact, never had to record either a failure or a fatality with this treatment; nor has he ever observed the brief stage of excitement reported by others as an immediate sequel to this treatment. He prescribes it when excited and restless patients have to be moved from one place to another, and as a preliminary to exploratory punctures and artificial feeding. In the twenty-one cases in which he gave the drug to patients about to be transferred to an institution, he usually administered 10 c.cm., partly by intravenous, partly by intramuscular, injection. An interval of ten to fifteen minutes between the intravenous and the intramuscular injection prevented the too abrupt action of the drug. When the patients awoke in the institution to

which they had been removed they did so rather suddenly, but they did not complain of headache or any other discomfort. Patients thus treated were suffering from epilepsy, schizophrenia, general paralysis of the insane, and acute alcoholic poisoning. Even when general paralysis was associated with heart disease the drug did no harm, but it was found to be less suitable for prolonged treatment than for an emergency. In the most difficult cases, and when sufficient assistance is not available, it may be necessary to avoid the intravenous route and give the drug exclusively by intramuscular injection. In one such case 10 c.cm. was given in a single dose by intramuscular injection, and the sedative effect was not obtained till fifteen to twenty minutes later. Even when some of the total dosage of 10 c.cm. is given by intravenous injection the patient is, as a rule, quieted for only two to three hours. Powerful men often sleep only for an hour to an hour and a half. It is exceptional for the effect of the drug to last four to six hours.

146 A Physiological Conception of Neurosis

In an attempt to reach a physiological interpretation of obsessional neurosis and paranoia, I. P. PAVLOV (*Journ. Ment. Sci.*, April, 1934, p. 187) cites some results obtained in a recent study of conditioned reflexes in dogs. It was found possible to produce a pathological disturbance of the activity of the nerve cells, an alteration of the normal balance between two sides of their activity (the excitatory and inhibitive processes), with an abnormal predominance of the excitatory process, which was reducible by treatment with bromides. By further experiments a new phenomenon was discerned, defined as "pathological inertness." Evidence was obtained for assuming that under the influence of various morbid factors of a functional character in the cerebral cortex distinctly isolated pathological points or areas might originate, and it is thought conceivable that this might have some bearing on the pathology of the higher centres of nervous activity in man. Obsessional neurosis and paranoia might prove to be pathological states of the corresponding cells of the cerebral cortex—in this case in a state of pathological inertness. In the actual experiments two factors emerged as producers of disturbance: overstraining of the excitatory process, and at another time a clashing with the opposite process. Pavlov argues that human neuroses might thus be traceable to irregular development, occasional accentuation of one or other of the emotions, and disease of some organ or of a whole system, which cause the corresponding cortical cells to be temporarily or permanently, excessively and unlimitedly excited. This, he suggests, finally brings about their pathological inertness—an irresistible conception and sensation, which continues to exist long after its real cause has been withdrawn. The same might arise from strong and overwhelming life experiences, since life is an incessant struggle, a conflict of innermost aspirations, wishes, and tastes with general natural and special social conditions. The argument is worked out in detail in connexion with two cases recorded by Kretschmer. The author believes that clinicians, neurologists, and psychiatrists in their respective spheres will inevitably have to take into account certain patho-physiological facts—namely, the complete isolation of functionally pathological (at the aetiological moment) points of the cortex, as well as the pathological inertness of the excitatory process and what he terms the "ultra-pathological phase" in these points when there results a reversal of the positive and negative metronomes.

147 Treatment of Epilepsy

H. I. SCHOU (*Nord. Med. Tidsskrift*, May 19th, 1934, p. 620) has treated about 2,000 cases of epilepsy in the past decade in an asylum in Denmark, and is impressed by the improvement effected in this period. His patients have fewer attacks, less dementia, and fewer serious mental complications than they had ten years ago. Bromine has been completely, and, he states, rightly, replaced by luminal. Its action is most effective during the first three months, after which it becomes weaker. Luminal may be given continuously for ten years or

more in doses of 30 to 40 cg. a day without bad effects. The French preparation of borax—"tartrate borico-potassique," 1 gram, three to six times a day—may cause dyspepsia and loss of hair, but is occasionally remarkably effective, the fits recurring only when the drug is withheld. It seems to be particularly effective in children. Dieting has proved disappointing. Eighty patients were put on a diet containing much meat for three months and then for the next three months on a vegetarian diet without the total number of fits in the two periods showing any difference. But much can be done to reduce the number of fits by curtailing the fluid intake. To drink only 500 to 600 grams a day and to avoid liquid food, fruit, etc., is at first unpleasant, but patients get used to this regime, and by comparing six "dry" months with six "wet" months, the author was convinced of the accruing benefits. Rest in bed for some hours every day is beneficial, as well as the avoidance of mental and physical strains. During menstruation the epileptic should always keep her bed—some epileptics remain free from fits only by keeping to bed. In the eight cases in which the author attempted endocrine gland transplantation no benefits ensued. Failure had also to be recorded in connexion with a ketogenic diet. The artificial induction of fever may abort the fits as long as it lasts, but in the author's experience they recurred when the temperature became normal. The modern institutional treatment of epilepsy enables about 10 per cent. of the discharged patients to remain free from fits for more than half a year, and 25 per cent. to achieve considerable improvement.

148 Neurological Complications of Mumps

C. B. MCKAIG and H. W. WOLTMAN (*Arch. of Neurol. and Psychiatry*, April, 1934, p. 794) report a case of transverse myelitis at the level of the sixth cervical segment which followed an attack of mumps in a girl aged 16. The incidence of involvement of the nervous system in this disease is recorded variously in the literature as from 1 to 100 per cent., and many of the necropsy reports mention the presence of meningitis, but otherwise there is no evidence bearing on the nature of the pathological process. It is not known whether the same agent is responsible for both the parotitis and the neurological phenomena; or whether mumps activates a virus already existent in the nervous system, as has been stated to occur in vaccinal encephalitis. This latter view appears to be negated by the findings on serial and repeated spinal punctures, which suggest that the nervous system is involved in most cases, and also by the observation that neurological signs and symptoms may precede the parotitis. Encephalitis is probably the gravest complication of mumps, but as a rule it is not fatal, although the residual complications may take many months to clear up. The symptoms appear to have a vascular basis, and the presence of multiple foci is indicated in some cases. Extension into the cortex from the meninges is known to occur. Hemiplegia and hemianaesthesia are the commonest sequels, but the list of recorded disabilities includes paralysis of one arm and the opposite leg, emissive or receptive aphasia, agraphia, conjugate deviation of the eyes, ataxia (presumably due to cerebellar involvement), chorea, myoclonus, and herpes. Psychiatric disorders are rare; the most common disturbance is delirium, lasting a few days. The course of a meningitis of this aetiology is usually benign. Repeated spinal punctures and drainage for the purpose of lowering the tension of the fluid to normal levels are indicated. When neuritis is a sequel of mumps it seems more likely that the symptoms are secondary to meningitis, so that the term "meningo-radculitis" would be more applicable. Paralysis may be present with a normal spinal fluid. Of the nerves supplying the extraocular muscles the sixth appears to be the most susceptible, and presumes a meningeal origin. Deafness complicating this disease is generally complete and permanent, but, fortunately, is unilateral in 75 per cent. of the cases. The affected ear may be on the opposite side to that of the swollen gland. The most generally accepted explanation is that there has been a sudden exudate into the labyrinth; if so, the injection of a hypertonic solution of dextrose might prove useful.

Obstetrics and Gynaecology

Pathology

149 The Aschheim-Zondek Test in Chorion Epithelioma

H. SCHWALM (*Zentralbl. f. Gynäk.*, May 26th, 1934, p. 1212) describes a case in which this test enabled radical treatment to be instituted where, on clinical grounds, there was nothing more than a suspicion of chorion epithelioma. In curettage material from a woman aged 41, some ten months after a probable abortion, chorionic cells were found embedded in fibrinoid tissue; the injected animals, in an Aschheim-Zondek test of the urine, showed many corpora lutea. Bleeding persisted, and a second test was positive, but the uterus did not enlarge beyond its previous size—that of a fist. The urine, diluted as much as 1 in 150, gave Grade I reaction in one animal: total extirpation was done on the recommendation of Aschheim's laboratory, and the uterus was found to contain a chorion epithelioma as large as a small apple, with penetration of the myometrium. Implantation of tumour portions gave in three mice a positive, in two a negative, result—a confirmation of the finding that a urine test is more significant than that of implantation of material from biopsy or curettage. Schwalm states that in chorion epithelioma the Aschheim-Zondek test in the urine is invariably positive; in the few reported cases to the contrary either the tumour was diagnosed erroneously or its complete and fortunate removal by curetting accounted for the subsequent negative urinary test. The quantitative relations of the excretion of the gonadotropic hormone in the urine in pregnancy, hydatidiform mole, and chorion epithelioma are not yet worked out, but a positive reaction with 1 in 50 dilution is not uncommon in early pregnancy, and it must be remembered that the test does not remain positive more than sixteen days after abortion, but may not become negative for eighty days after passage of a hydatidiform mole. The persistence of a Grade I reaction after ablation of a chorion epithelioma is not of evil significance, for it is a usual sequela of castration.

150 Labour and Heart Disease

H. KÜSTNER (*Münch. med. Woch.*, May 18th, 1934, p. 741) discusses the conduct of labour complicated by heart disease in the light of his experience with 110 such cases at his maternity hospital in Leipzig. In fifty-six of these it was considered advisable to hasten labour artificially (forceps, version, etc.). As these operations required only a few minutes, ether anaesthesia was comparatively safe. In the remaining fifty-four cases the normal course of labour was not interfered with as there were no complications other than the heart disease and several of the patients were multiparae whose labour was soon completed. Eleven of the 110 died. All these deaths occurred after the successful termination of labour, the strain on the heart not achieving its maximum effect till some time later. The fatal issue a few hours after the completion of labour is also promoted by the elimination of the foetal circulation and the flooding of the mother's circulatory system with too much blood. When, after the completion of labour, the patient suddenly begins to cough and breathe with difficulty, she is liable to die in a short time of oedema of the lungs, which depends partly on flagging of the heart and partly on a superfluity of blood in the circulatory system. In those cases in which the loss of blood during labour was considerable, the author noticed that both labour and puerperium were apt to be most uneventful. He refers in particular to two cases, in one of which venesection (500 c.cm.) apparently saved the life of the patient, while in the other death, from acute oedema of the lungs, occurred as a sequel to the interruption of pregnancy between the sixth and seventh months. The general obstetrical rule to shed as little blood as possible does not therefore apply to the patient who is suffering from heart disease and threatened by acute oedema of the lungs.

151 Elective Localization of Streptococci

C. VIRGILIO (*Soc. Internaz. di Microbiol., Boll. Sez. Italiana*, 1934, vi, 102) has been studying the so-called organotropism of streptococci. According to Rosenow streptococci cultivated by a special technique from an infective focus in a particular localization of the body tend, on intravenous inoculation into laboratory animals, to give rise to disease in the same organ as that from which they were originally isolated. The present author has followed Rosenow's technique, and now reports the results obtained by himself on five hundred rabbits, and by his colleagues on several hundred more. These animals were inoculated intravenously with strains of diverse origin, and at necropsy they were submitted to a rigorous examination, usually both bacteriological and histological, to ascertain the distribution of the streptococci in the body. As controls, strains of streptococci were used that had been isolated from the tonsils of healthy persons. The results are given in tabular form, and on the whole confirm Rosenow's findings. For example, while 93 per cent. of strains isolated from acute, and 88 per cent. from chronic, articular rheumatism gave rise to lesions of the joints, only 67 per cent. of "normal" strains, 55 per cent. of cholecystitis strains, and 38 per cent. of strains from the central nervous system did so. Again, while only 3 per cent. of "normal" strains produced lesions in the brain, 25 per cent. of strains isolated from the central nervous system did so. Strains isolated from gastric and duodenal ulcers, from appendicitis, and from cholecystitis gave rise to lesions of the abdominal organs with far greater frequency than strains of other origin. The author, though acknowledging the fact of elective localization of streptococci, is careful to point out that it is merely one of degree.

152 Staphylococcal Toxin

P. NÉLIS, J. J. BOUCKAERT, and E. PICARD (*Ann. de l'Inst. Pasteur*, 1934, lii, 597) have been studying the preparation and properties of staphylococcal toxin. Of fifty strains studied, only two formed a really good toxin; both of these were of the *albus* variety. No relation was observed between the ability of a given strain to form toxin *in vitro* and the severity of the lesion from which it was isolated. Passage through laboratory animals did not appear to increase the toxicity of a strain. The most satisfactory medium for the production of toxin was that used by Ramon for obtaining diphtheria toxin. The addition of 0.1 per cent. glucose to this medium, which is made from pork and veal, proved advantageous. The best results were obtained by growing the organisms for about a week in a current of air containing 20 per cent. carbon dioxide. The haemolytic titre to rabbit red cells of toxin obtained under these conditions varied from about 1 in 100 to 1 in 1,000. Intravenous inoculation of 1 c.cm. of toxin into rabbits weighing two kilograms proved fatal. Rabbits dying rapidly, due apparently to a direct action of the toxin on the heart, showed nothing characteristic at necropsy. In rabbits, however, that survived for some hours, a serous pericarditis was observed, sometimes accompanied by a peritoneal exudate. Intravascular haemolysis was a constant finding. Microscopically, cellular necrosis was apparent in several organs. The protoplasm of the liver cells was often completely lysed, the nuclei remaining intact. The kidneys showed acute tubular nephritis. Comparative studies of the haemolytic and dermatotoxic titres led the authors to conclude that the effects on rabbit red cells and on the rabbit's skin were due to one and the same toxin. Absorption of the toxin with red cells, followed by centrifugation, deprived the supernatant fluid of both its haemolytic and its dermatotoxic power. The stromata of the red cells, however, on to which the toxin had been absorbed, were found, even after washing, to be both haemolytic and dermatotoxic. Staphylococcal anatoxin was found to combine with antitoxin.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

153 Glycerin Therapy in Renal and Ureteral Calculi

F. LICKINT (*Münch. med. Woch.*, June 1st, 1934, p. 821), who states that stones in the kidney and ureter are on the increase with each decade; enumerates some of the methods of conservative treatment: (1) masterly inactivity, with or without anti-spasmodics (undoubtedly quite a percentage of stones are passed spontaneously); (2) ureteral massage; (3) lavage of the ureters by large quantities of tea, coffee, and mineral waters; (4) stretching of the ureters with special instruments, or with two to three ureteral catheters; and (5) administration of pituitary extract, which increases ureteral peristalsis. He then describes treatment by glycerin as an important conservative measure. Large doses of this substance are excreted in large quantities in the urine. Its therapeutic value in the treatment of calculi of the urinary system is stated to be that: (1) it relieves spasm and lessens pain; (2) it increases ureteral peristalsis due to its dehydrating action. Lickint denies the diuretic action of glycerin, that it acts by increasing the viscosity of the urine, that it has any function as a bland fluid, and that it dissolves stones. It is useless given in small doses, and the author administers 50 grams of pure glycerin thrice daily for three days. He states that he has never observed bad effects from this treatment, and

do not occur. The treatment is the stone is too large to pass down the ureter, and in inflammatory conditions of the kidney. He has used glycerin in twenty cases of urinary calculi. In four cases he gave inadequate doses with resulting failure. In sixteen cases, with large doses of glycerin, he recorded one complete failure; one case passed one stone, but a second one failed to pass into the bladder; in the remaining twelve the stones were passed.

154 Symptomatology and Early Diagnosis of Cancer of the Colon

C. CRAFOORD (*Acta Chir. Scand.*, May 15th, 1934, p. 513) deploras the frequency with which cancer of the colon is overlooked until it is inoperable, and analyses the first symptoms of 160 patients treated in a Danish hospital in the period 1900-30. In as many as thirty of these cases the disease was too advanced to warrant a radical operation. In 101 cases there were vague and general abdominal symptoms which in eighty-three cases were the first to appear. The average interval between the first appearance of these general symptoms and treatment was seven months. In most cases the patients themselves were to blame for this delay, but in several instances they had been for some time under the care of general practitioners and even under observation in hospital without the cancer of the colon being recognized until it had reached an advanced stage. An apology for this state of affairs may be forthcoming in the not infrequent symptomless development of the disease whose first manifestation may be acute intestinal obstruction caused by an inoperable new growth. The author classifies in seven groups the manifestations which first indicated the existence of the disease: (1) general abdominal symptoms in eighty-three, (2) intermittent intestinal obstruction in twenty, (3) acute intestinal obstruction in sixteen, (4) emaciation and debility in thirteen, (5) blood and mucus in the motions in six, (6) constipation in sixteen, and (7) diarrhoea in six cases. It should be noted that these figures refer exclusively to the cases in which each sign or symptom was the earliest evidence of the disease. Much could be done to increase the proportion of operable cases if prompt attention were paid to the above signs and symptoms and the patient submitted to an x-ray examination, which, in the author's opinion, is the "sovereign means" for deciding for or against the diagnosis of cancer of the colon.

155 Ultra-violet Light as a Preventive of Tuberculosis

E. BRUNTHALER (*Deut. med. Woch.*, June 8th, 1934, p. 863) has treated with ultra-violet light in two periods children exposed to tuberculosis or already infected with it. In the first period, 1924-8, he treated in this manner 248 children (up to the age of 15) out of 426 who were exposed to infection. Among the 178 children who, not being given this prophylactic treatment, served as controls, there were as many as eighteen who developed active tuberculosis. Among the 248 given artificial-light baths there was only one child who developed active tuberculosis, which took the form of hilum tuberculosis and ran a mild course, being arrested in a couple of months. The second period, representing another five years, from 1929 onwards, concerns 492 tuberculous children and 313 who were in contact with active cases of pulmonary tuberculosis. Of these 313 contacts, 277 were given prophylactic light baths. At the end of 1933 only one of these children had developed tuberculosis, the disease involving the hilum and running a benign course. Hence the author's conclusion that artificial high-altitude sunlight is a potent preventive of tuberculosis in children exposed to it. He does not give details as to the number and duration of his light baths.

Surgery

156 Prognosis in Skull Fracture

O. SANDERS OLESON (*Ugeskrift for Læger*, May 17th, 1934, p. 528) has conducted follow-up investigations which show that the ultimate prognosis for fractures of the skull is often excellent. In the five-year period 1926-30 forty-nine cases of fracture of the skull were treated at his hospital. In twenty-five cases the diagnosis depended on the radiograph. In thirteen cases the fracture involved the base of the skull and was uncomplicated. There were twenty-one children to twenty-two men and six women. The cause of the fracture was a traffic accident in twenty-two cases, a fall from a height in nineteen, the kick of a horse in six, and other blows in two cases. All the eight deaths occurred within a few hours of the accident. The average stay in hospital of the forty-one survivors was sixteen days. Inquiries were answered by forty of the forty-one. Fourteen of the twenty surviving children were reported as perfectly well; three were still subject to slight headache, nervousness, and lassitude; two still suffered from severe headache, giddiness, and mental dullness; and only one had developed typical Jacksonian epilepsy. Of the twenty adults, ten reported as being quite symptom-free, five had still slight symptoms, and five serious symptoms, which did not, however, in any case entail complete incapacity for work.

157 Errors in Surgical Diagnosis

As the result of a study of the records of the first surgical division of the Roosevelt Hospital for three years, C. W. CUTLER, jun. (*Amer. Journ. Med. Sci.*, June, 1934, p. 810) found that the preoperative diagnosis was wrong in 110 out of 2,340 cases, a percentage of 4.6. Acute appendicitis headed the list with twenty-eight errors in 389 cases (7 per cent. of the whole). Five times acute salpingitis or salpingo-oophoritis was mistaken for this condition, while in five other cases infection of the appendix proved to be chronic and not acute. Three of these latter cases had obstruction, and the diagnostic significance of colicky pains is thus indicated. Four other cases proved to be enteritis, the rather early and significant onset of diarrhoea having been overlooked, sometimes in consequence of the administration of a laxative. Pneumonia was only once mistaken for appendicitis, error being obviated often by a preliminary radiography. In three cases pelvic disease was found. Chronic ap-

pendicitis was diagnosed 213 times, with five errors, three of these lying in the field of pelvic diagnosis. Attention is drawn to the use of lipiodol in pelvic examinations, and also the careful investigation of the biliary system in doubtful cases. In 292 hernia diagnoses there were five mistakes, errors of observation involving adenitis, varicocele, hydrocoele, and a psoas abscess being the worst. In nine operations for cholecystitis there was one mistake, a high acutely inflamed appendix closely simulating the clinical picture of a fulminating and possibly gangrenous cholecystitis. There were thirteen errors in 191 operations for chronic cholecystitis, and the importance of not relying on any single diagnostic method in these cases is urged. In eight out of sixty-four cases regarded as duodenal ulcer this condition was not found, the final diagnosis being chronic appendicitis in seven and neurasthenia in one. The author attributes the diminishing number of mistakes in this group to the more prevalent employment of medical treatment and to more careful radiography. The diagnosis of perforated duodenal ulcer was made nineteen times, falsely in six cases. Three of these proved to be acute cholecystitis with cholelithiasis, one a volvulus of the intestine with resulting gangrene, one a perforation of a carcinoma of the sigmoid, and one an angina or coronary occlusion.

158 Treatment of Suppurative Arthritis of the Knee

J. DE FOURMESTRAUX (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, June 2nd, 1934, p. 757) states that simple arthrotomy suffices when the effusion is confined to the anterior portion of the knee without deep fistulae or condyloid perforations. This should be followed by active (in preference to passive) mobilization of the joint according to Willems's method. The pain caused by these movements, and those consequently rendered possible, can be obviated by local anaesthesia of the knee. Active movements cause expression of the effusion, and act as an efficient means of drainage. The anaesthesia should be extensive so as to act on the terminal branches of the external and internal popliteal nerves and the sympathetic; cocaine injections (0.5 per cent. solution) should therefore be made into the external lateral ligament, with infiltration of the crural biceps and diffusion under the fascia lata, and into the internal lateral ligament with diffusion under the rectus, sartorius, and semitendinosus. Movements can be made many times daily; they usually again become painful after forty-eight hours, when the treatment is renewed till the joint is completely free of fluid and dry. Three cases are recorded to demonstrate the efficacy of this method. Despite Picot's war experience that amputation is necessary in cases of streptococcal infection of the knee, de Fourmestaux maintains that his treatment should be employed whatever might be the infecting micro-organism. The prognosis is much graver in arthritis diffused to the posterior of the knee, and especially in cases of suppurative osteo-arthritis.

Therapeutics

159

Hot and Cold Compresses

A. BRAUCHLE (*Med. Welt*, May 26th, 1934, p. 729) discusses the indications of application of hot fomentations and cold compresses. In those cases in which one is in doubt, a hot fomentation should first be applied, which can then be changed if necessary, and followed by a cold compress left on for one to two hours. Hot fomentations relieve pain and cramp, loosen sticky secretions, and soften the part. They are indicated in local rheumatic pain; in migraine, applied to the back of the neck or site of greatest pain; in catarrhal conditions of the teeth, tonsils, glands, and ears. They are helpful in catarrhal processes of the upper respiratory tract and bronchi, in asthma and emphysema; in pleurisy and pneumonia, to lessen pain and loosen secretions. In angina pectoris moderate pain is lessened by them, acute attacks may be accentuated by them. Pain and cramp are lessened

488 2

in all forms of spasm of unstriated muscle. Cold compresses are indicated in headaches of nervous origin; in haemorrhage into the brain; in toxic conditions of the thyroid; in cardiac arrhythmia; in haemorrhages into the lungs, stomach, or intestine. In the case of inflammation which is performing no useful function—for example, pericarditis—cold compresses are also of value. Conversely, when localized febrile reaction denotes an attempt on the part of Nature to cure the condition, hot fomentations are indicated, as they increase the circulation and remove the dead bacteria and metabolic waste products. Brauchle emphasizes the importance of relying on the subjective physical feelings of the patient, and of changing a hot fomentation for a cold compress if the patient does not feel better or even worse after it.

160

Gas Gangrene

G. E. KONJETZNY (*Klin. Woch.*, June 9th, 1934, p. 831), describing nine cases of gas gangrene under his care in the last four years, stresses the value of prophylactic treatment—namely, careful cleansing of all parts in serious accidents, with, when necessary, wide amputation of affected limbs. He denies that anti-gas-gangrene serum is valueless. The serum may not prevent the incidence of gas gangrene (it did not in four of his cases), but it lessens the fatality of the disease. There was only one death in his cases, none occurring in seven which followed street accidents. In five of the seven street accident cases amputation was avoided by the administration of anti-gas-gangrene serum, which was given in doses of 20 to 80 c.cm. subcutaneously or intravenously.

161

Bee Venom in Rheumatism

According to R. SCHWAB (*Münch. med. Woch.*, May 25th, 1934, p. 793) the efficacy of cutaneous injection of bee venom in rheumatic and neuralgic conditions has been widely recognized. He finds that inunction of an ointment containing the poison, together with salicylic acid to soften, and microscopic crystals finely to excoriate the skin, is equally effective and less painful than injection in acute and chronic articular rheumatism, muscular rheumatism, sciatica, and neuralgias. From the fact that remote was as successful as local inunction, it is concluded that the venom acts by immunizing at the same time against the apian and rheumatic poisons. Local reactions were earlier in non-rheumatic than rheumatic subjects.

Dermatology

162

Leather Dermatitis

H. BEERMAN (*Arch. Derm. and Syph.*, May, 1934, p. 671) records five cases of this rare condition, and comments on its complex aetiology. The specific factors in his cases were tanned leather (probably due to some synthetic tannin), and in one instance the vat dye. Beerman remarks that the literature on the subject contains examples of specific irritations resulting from almost every substance used in leather manufacture. Fungus infections, he thinks, probably predispose to this condition by extending the sensitivity of the body to other agents in addition to trichophyton, while injury to the skin caused by the mycotic inflammatory process facilitates the penetration by other irritating substances. On the other hand, an allergic dermatitis, such as that of leather, may predispose to, or reactivate, a fungus infection. In one of the author's cases dermatomycosis of the hands was followed by a hatband dermatitis. Three months later severe dermatitis occurred on the parts of the feet covered by the shoes, and there was an associated interdigital fungous maceration. During the foot trouble, however, there was no recrudescence of the forehead condition, although a later recurrence of the leather dermatitis of the feet was complicated by a return of the dermatomycosis in the locality. It appears that focal infection may bring out a local sensitivity, or may help to maintain

a leather dermatitis, but only temporary relief is secured by removal of the offending focus. Certain clinical peculiarities emerged in the course of observation of these cases. It was clear that persons varied in the intensity of their response to the same irritant, in the same concentration, and acting for the same length of time. Contrary to expectation it was found that all hat leather need not cause irritation in all sensitive persons, though in a very sensitive subject reactions of varying grades to all leathers might be anticipated. It was shown that the irritating substance was soluble in ether, was not present in all leathers, and was not absorbed through the intact skin, unless in sufficient concentration to excite a reaction in a very sensitive person. The author concludes that this lends support to the view that the various irritating substances do not act directly, but possibly excite the production in the skin of some common substance, which in its turn produces the dermatitis.

163 Haematoporphyrinuria and Impaired Liver

Function in Hydroa Vacciniforme

E. URBACH and J. BLÖCH (*Wien. klin. Woch.*, April 27th, 1934, p. 527) describe two cases in which hydroa vacciniforme was combined with porphyrinuria, porphyrinaemia, and impaired liver function. The first patient, a chronic alcoholic aged 50, had had syphilis eight years previously, and function tests pointed to chronic pancreatitis, hepatic cirrhosis, and latent diabetes. His skin was hypersensitive to sunlight, especially the rays of longer wavelength. He responded to, but could not tolerate, raw liver treatment, was not relieved by antidiabetic or insulin-dextrose therapy, but was improved in all respects by a course of neosalvarsan and bismuth. In the second patient (a woman aged 40) the hydroa of the exposed parts preceded by six months the porphyrinuria, and a latent hepatopathy was shown by function tests; improvement in the cutaneous and urinary morbid conditions, as well as in abdominal crises, which had been accompanied by increased porphyrinuria and indicanuria, followed prolonged rest and a diet rich in milk and carbohydrates. Urbach and Blösch believe that neither isolated tests with non-dissociated sun rays nor tests with artificial luminous sources suffice to determine the sensitizing rays: only from tests with coloured glass filters can protective ointments be chosen which will, temporarily at least, cure the eruption.

164 Sodium Thiosulphate Treatment of Dermatitis

Herpetiformis

In four cases E. STEINER (*Derm. Woch.*, June 2nd, 1934, p. 682) has had rapid and conspicuous success in treating dermatitis herpetiformis by ten intravenous injections (three each week) of 1 gram of sodium thiosulphate: at the same time 0.5 gram was given orally thrice daily (twice daily on the day of an injection). Externally, only a 1 per cent. menthol dusting powder was used. Sodium thiosulphate treatment of Duhring's disease was introduced by Wirz, who postulated a metabolic sulphur derangement. Steiner suggests, however, that the action of sodium thiosulphate is chemical, antagonizing tissue iodine. He points out that in dermatitis herpetiformis there is special sensitiveness to iodine, taken internally or applied externally: it gives an intense cutaneous reaction, and often leads to pyrexia and general prostration. Sodium thiosulphate reduces free iodine in solution.

165 Treatment of Scalp Ringworm with Thallium

Acetate

One hundred and thirty-one children aged from 2 to 10 were depilated with thallium acetate by LOUSTE and RABUT (*Bull. Soc. Franç. de Derm. et de Syph.*, March, 1934, p. 484), four of them being treated twice. The cases dealt with were microsporon ninety-two, trichophyton twenty-nine, and favus fourteen. The dose ranged from 7 to 5.5 mg. per kilogram of body weight, and was

given at a single draught. The time taken for depilation to begin was irregular, varying from four to fourteen days, the greatest number beginning on the eleventh day. In 5 per cent. of cases there was no depilation at all. Often the fall of hair was incomplete, bands being left in the frontal and occipital regions, and it was found that there was a tendency for the diseased hairs not to be loosened. Regrowth began in from eight to fifteen days, and was complete in from three to six weeks. Complications encountered were: rise of temperature on the first or second day (as high as 103° F. in one case); muscular pains in the lower limbs, varying from a feeling of heaviness to acute pain necessitating rest in bed; septic folliculitis of the scalp during the second month (20 per cent. of cases); transient albuminuria during the second week (10 per cent. of cases); and loss of appetite, jaundice, erythema of the face, dilatation of the pupils, and oedema of the eyelids. In the cases treated a second time after intervals of from four to seven months there were no complications of note. Louste and Rabut considered their results to be poor, as they had 53 per cent. failures.

Obstetrics and Gynaecology

166 Expression of Placenta: Modification of Crédé's Method

W. KARNICKI (*Gynéc. et Obstét.*, May, 1934, p. 437) points out that most of the historical methods aim at expressing an already detached placenta. If it lies in the vagina Crédé's method is effective; but for the cases in which there is no retroplacental haemorrhage, and therefore no detachment, after waiting for three hours the following manœuvres are suggested. First, the fundus is palpated to find the soft and prominent portion (usually one cornu, often the right) which denotes the site of the placenta. Secondly, the centre of this area is massaged between two fingers until contractions occur whereby detachment and retroplacental haemorrhage is initiated. Thirdly, massage is done radially outwards from this starting-point until the uterine outline has become symmetrical, which indicates complete detachment. Fourthly, pressure is applied with the right hand on the area thus softened in the direction of the genital canal until the placenta is expressed. As complete detachment has been previously secured, this pressure is exerted upon clot only, so that tearing of the membranes is avoided. Further, with the left palm placed above the symphysis, the thumb, and two first fingers make counterpressure on the fundus. This straightens the birth canal and also prevents inversion. The method fails with an actually adherent placenta.

167 Low Cervical Caesarean Section

W. J. STEVENS (*Canadian Med. Assoc. Journ.*, May, 1934, p. 498) argues that since the mortality rate in the intra-peritoneal retrovesical Caesarean section is so much lower than that in the classical method a more universal adoption of this procedure, with a curved transverse incision and a double flap closure would seem reasonable. After infected and prolonged labours this low section is particularly indicated, since the lower uterine segment resists infection better than the fundus. The danger of peritonitis is very much lessened, and any infection is restricted to the most dependent part of the abdomen, where it is well situated for localization and evacuation. There are fewer post-operative discomforts, and there is less tendency to adhesions, since the intestines and omentum are seldom seen or handled during the operation. More protection is afforded to sutures in the passive lower segment, and they are also subjected to less strain from muscular activity. This promotes the formation of a stronger scar, and a consequent lessened liability to uterine rupture in subsequent labours. Stevens points out that the adequately long transverse semilunar incision of 15 cm. or more is restricted to the thinner, avascular, lower uterine segment, where the muscles and blood

vessels run transversely. With reasonable care in delivering the head it is possible to reduce the otherwise unavoidable trauma, and much less haemorrhage is entailed than in the classical operation. He admits, however, that the low method is somewhat more complicated, and takes rather longer to perform. He adds that it is essential to remember that Caesarean section is still to be regarded as very hazardous, and not lightly to be undertaken. There is room for improvement in its technique, as well as in the critical assessment of favourable and unfavourable indications. For example, in urgent emergencies, such as accidental haemorrhage due to acute and complete placental separation, or in bad operative risks, a classical Caesarean section, with or without hysterectomy, is best.

168 X-Ray Diagnosis of Foetal Deformity

J. GRANZOW (*Zentralbl. f. Gynäk.*, June 9th, 1934, p. 1330) specifies the grounds on which diagnosis, before labour, of foetal deformity is desirable: dystocia, as in hydrocephalus, may be foreseen; considerations of foetal survival, as in anencephaly, may be eliminated from the principles of management; and premature induction may in some cases be justifiable. Clinical signs which should lead to suspicion of foetal deformity, and therefore to radiography, are hydramnios, accompanied by failing foetal pulse, and lively foetal movements. In doubtful cases a second picture taken after rupture of the membranes may be conclusive. Abnormalities of the skull are the most susceptible of x-ray detection, and here lateral photography is useful. Limb deformity, especially shortening, may be simulated by false projection, the limb and the film lying in non-parallel planes. A case is mentioned in which repeated films showed one arm only; no mention was made of this to the mother, and the infant proved to be quite normal. The shadow of one arm had been masked by the maternal spine. As a radiological sign of death of the foetus, overriding of the cranial vault bones—Spalding's or the tiled-roof sign—is reliable.

Pathology

169 Excitability of Human Plain Muscle in Disease

A. LÜWEN and H. J. LAUBER (*Bruns' Beitr. z. klin. Chir.*, May 19th, 1934, p. 447) find that the neuromuscular apparatus of excised strips of non-striped human muscle retains its excitability for twenty-four hours. Stomach muscle responds to adrenaline by elongation, the response being less in muscle from the ulcerated stomach than in that from the stomach associated with duodenal ulcer; this may be taken as evidence of sympatheticotonus in the ulcer stomach. The shortening in response to electric stimulation is less in muscle from a case of gastric ulcer than from one of gastric cancer. Electrical excitability of strips of gastric muscle is diminished by novocain, bile, trypsin, or bacterial toxins. Strips of gall-bladder muscle lengthen in response to adrenaline, and after electric stimulation quickly shorten at first, then slowly returning to normal. The electric response may be diminished in preparations from the morbid gall-bladder. The responses of the normal and pathological ureter are similar to those of the gall-bladder.

170 Urinary Excretion of Citric Acid

CLEMENT SCHUCK (*Journ. of Nutrition*, June 10th, 1934, p. 679) found that when 1,000 c.cm. of orange juice or grape juice were added to a basal diet there was an increased citric acid excretion in the urine. In subjects given orange juice the increase was slightly greater than in those who had received grape juice, but the ratio of the amount of citric acid excreted to the amount ingested was very much higher in the cases when grape juice was administered. With one patient the increase represented 20 per cent. more than the citric acid contained in the grape juice, indicating a metabolic source for the excreted

citric acid. There was a general increase in the organic acid excretion as a whole, but only 40 to 60 per cent. of the increase was derived from the citric acid in the orange juice, and of the 35 to 40 per cent. in the grape juice cases only a very small part could have come from the grapes, most of it having a metabolic origin. It is concluded that the organic acids representing products of metabolism may be the result of the alkalinizing effects of the fruit juices. The same author (*ibid.*, p. 691) tested the effects of the ingestion of citric acid, sodium citrate, and sodium bicarbonate. She found that citric acid excretion was not dependent on the ingestion of this acid, while the total organic acids and citric acid excreted as a result of the ingestion of sodium citrate amounted to two or three times the excretion on the basal diet. Sodium bicarbonate brought about an increase in the pH of the urine and a decrease in titratable acidity, accompanied by a small increase in total organic acids and a considerable increase in citric acid excretion. Further evidence is thus afforded for the view that citric acid plays a part in acid-base balance regulation.

171 Determination of Blood Cholesterol

J. KEMLET (*Journ. of Lab. and Clin. Med.*, May, 1934, p. 883) has devised a rapid method of determining cholesterol in whole blood, serum, or plasma. In this technique 0.2 c.cm. of blood (whole, plasma, or serum) is deposited and allowed to dry on an ashless 7 cm. filter paper; when dry the filter paper is extracted with 10 c.cm. of chloroform for two hours. This solution is compared colorimetrically with a standard cholesterol solution by the Liebermann-Burchard reaction. An accuracy of 9 mg. per 100 c.cm. is claimed. For routine laboratory methods this should prove invaluable, as it is simple and quick, and can easily be done in duplicate if greater than clinical accuracy is required.

172 Isolation of a Polysaccharide from *Br. abortus*

G. FAVILLI and G. BIANCALANI (*Lo Sperimentale*, June, 1934, p. 337, record the isolation of a polysaccharide substance from the bovine type of *Br. abortus*. Previous attempts, though successful with *Br. melitensis* and *Br. paramelitensis*, had failed with *Br. abortus*, practically the whole of the polysaccharide being lost during the process of purification. By modifying this process the authors have now succeeded in getting rid of the protein without losing the polysaccharide. Their method was briefly as follows. A typical smooth strain of *Br. abortus*, isolated from the stomach of a bovine foetus, was grown for three days on liver agar. The growth was washed off with saline, filtered through paper, centrifuged, and the bacterial deposit weighed. To every 10 grams of the deposit 100 c.cm. of saline were added. This suspension was placed in a boiling-water bath for four to five hours, centrifuged, and the deposit again taken up in saline and heated. The extraction with hot saline was repeated three times. The extracts were mixed, filtered through paper, reduced to a twentieth of their volume, and treated with five to six times their volume of absolute alcohol. This resulted in the formation of an abundant gelatinous whitish yellow precipitate giving both the carbohydrate and the protein reactions. After being reprecipitated twice with alcohol from an aqueous solution, it was dissolved in water and treated with an 0.6 per cent. aqueous solution of uranium acetate slightly acidified with acetic acid. The resulting precipitate was removed by filtration. The filtrate was treated with sodium phosphate to remove the uranium, and the phosphate was then precipitated as the ammonium-magnesium salt. The filtrate was treated with three to six volumes of absolute alcohol, and the resulting precipitate dissolved in water and reprecipitated two or three times with absolute alcohol. The final material obtained was a white powder, very soluble in water, failing to give any of the protein reactions, giving a strong Molisch reaction, containing 3 per cent. nitrogen, and being precipitated in high titre by sera prepared against *abortus*, *melitensis*, and *paramelitensis* strains.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

173 Radioscopic Examination of Recruits

S. P. BOTENGA (*Nederl. Tijdschr. v. Geneesk.*, June 2nd, 1934, p. 2463) states—that fluoroscopic examination of 1,101 recruits yielded the following results. In six cases where no physical signs were found in the lung radioscopic was the only means by which tuberculous lesions, both incipient and advanced, were detected. In nine cases the pulmonary changes were also obvious on percussion and auscultation. In forty-four cases the radioscopic picture gave a clearer view of doubtful findings, and in eight cases radioscopic alone showed the presence of tuberculous lesions both active and inactive in persons who had been declared unfit for other reasons. In twenty-nine cases the radioscopic picture indicated that the recruit should be kept under observation and be regarded as conditionally fit for service.

174 The Family History in Pulmonary Tuberculosis

K. SCHBERTH (*Wien. klin. Woch.*, May 25th, 1934, p. 643) asserts on an examination of 600 cases that a person exposed to tuberculosis usually becomes infected only if his family history is tainted with the disease. At a low estimate, 64 per cent. of patients with pulmonary tuberculosis have tuberculous relatives. The tuberculous taint may be transmitted by "conductors"—thus in a case of healthy persons begetting tuberculous children, the taint may have been conducted on the mother's side through a tuberculous grandmother. Schberth says, "An aunt who years ago had apical tuberculosis is more important in the pathogenesis of tuberculosis than a bed companion with active disease." He states that no tuberculous patients and no persons with a tuberculous family history should be allowed to beget children, and that if in such marriages women become pregnant, therapeutic abortion should be carried out. When both parents are tuberculous, most of the children will develop the disease, and there is no rule indicating which of them are likely to fall a prey to the disease. Adults with untainted family histories who are exposed to tubercle—for example, a healthy woman marrying a tuberculous man, doctors and nurses in sanatoria—rarely become infected, and if they do the infection is usually slight. The author advises that partners contemplating matrimony should make sure that the grandparents and their offspring on both sides are healthy. It is difficult to get facts further back than the third generation, and the chances of taint are remote. Every member of the two generations is of equal importance, for the taint is not necessarily transmitted directly, but may be transmitted, for example, via an uncle. In those cases of tuberculosis in which there is no family taint it may be assumed that the disease is due to a massive infection which has occurred in youth.

175 Duration of Immunity following Vaccination

W. P. DEARING and H. S. DAVIDSON (*Journ. Amer. Med. Assoc.*, June 16th, 1934, p. 1998) studied the duration of immunity to small-pox as indicated by the results of vaccination in 557 medical students who had previously been vaccinated and in nine who had never been vaccinated but who had had small-pox. Of 337 students vaccinated ten years or less after previous vaccination only one gave a primary take, fifteen (4.6 per cent.) accelerated takes, and 321 (95 per cent.) an immediate reaction. Of the 168 students vaccinated from ten to nineteen years previously only six (4 per cent.) gave primary takes, fifty (29 per cent.) accelerated takes, and 112 (67 per cent.) immediate reactions. After twenty years thirty-five of fifty-two reactions (67 per cent.) were immediate, thirteen (25 per cent.) were accelerated, and 8 per cent. gave primary takes. Thus immunity conferred

by a single vaccination usually lasts longer than six to ten years. Vaccination of the nine students with a history of small-pox gave four primary takes, four accelerated takes, and only one immediate reaction. Small-pox therefore does not protect so well against cow-pox as vaccination.

176

Goitre in Otago

F. FITCHETT, C. E. HERCUS, and F. G. BELL (*Aust. and New Zeal. Journ. Surg.*, April, 1934, p. 318) record a six-year study of thyroid disease in Dunedin Hospital, comprising 368 cases. Simple and toxic goitre occurred in approximately equal proportion, but many of the simple cases presented features of "borderline" toxicity. A high familial incidence was found. The authors condemn the arbitrary division of thyroid disease into primary and secondary, urging that the pathological changes which induce toxicity are the same whether they occur in a previously healthy or in an already diseased gland. They suggest four groups, namely: (1) simple goitre of the colloid or nodular type; (2) the thyrotoxic class, including primary and secondary Graves's disease; (3) hypothyroid states of myxoedema and cretinism; and (4) malignant thyroid diseases. The authors' investigations showed that the results of surgical treatment in toxic goitre were excellent, comparing favourably with those in other important disease groups, such as the biliary one. The operative mortality in these toxic cases was 3.7 per cent. An unduly high incidence of recurrent laryngeal nerve lesions came to light. The classical form of post-operative myxoedema was noted in three out of 319 operations in all classes, and tetany occurred in three cases in the same series. Biochemical findings indicated that the blood iodine content was higher in primary Graves's disease than in simple goitre, and that the iodine contents of blood, urine, faeces, and gland were all lower than normal in simple goitres. The authors conclude that the histological picture merely represents innumerable variations of one and the same pathological process of involution and hyperplasia, and that it is impossible to correlate this picture accurately with the clinical classification.

Surgery

177

Tonsillectomy

E. WIRTH (*Med. Klinik*, June 1st, 1934, p. 725) enumerates the indications of tonsillectomy as follows: (1) recurrent tonsillitis, (2) peritonsillar abscess, (3) chronic inflammation of the tonsils, (4) disease in other organs believed to be due to tonsillar infection, and (5) acute tonsillitis and peritonsillitis with complications. Tonsils with simple hypertrophy unrelated to chronic inflammation or mechanical disturbances of speech or respiration should be left alone. Acute tonsillitis is no longer a contraindication to tonsillectomy, but on the whole it is better to wait for eight to fourteen days after the acute inflammation has subsided. The same holds good for peritonsillar abscess, especially when simple incision fails to empty it fully. In patients with haemophilia, diabetes, tuberculosis, nephritis with high blood pressure, and in those with rigid blood vessel walls, tonsillectomy should not be advised. The operation should be performed under local anaesthesia, which is usually complete and lasts for twenty to thirty minutes. The anterior pillar of the fauces should be removed if there is difficulty in shelling out the capsule. Ambulant post-operative treatment is not recommended, and patients should be kept in hospital for five days and off work for a fortnight. Wirth advises tonsillectomy under local anaesthesia and luminal in children under 12 with few exceptions. Infants should get a general anaesthetic. Post-operative haemorrhage may occur with the most perfect technique, but was

serious in only 0.2 per cent. of cases. Pain usually lasts for two to four days after operation. Respiratory complications are uncommon and usually not serious. Exogenous infection of the wound is more to be feared than autogenous, and slight rise in temperature is common; but marked sepsis is rare. The author denies the allegation that tonsillectomized patients are more prone to infections of all sorts, especially those of the upper respiratory tract. Rarely, patients complain that they are more liable to catch cold, or that there is some disturbance in speaking or singing, but failures may usually be explained on the grounds that ineradicable changes have occurred in the nasopharyngeal cavity due to previous chronic disease.

178 Recurrence of Bladder Papilloma

H. LORGE (*Zeit. f. Urol.*, 1934, v. 310) quotes the report of Scheele from the combined literature that after removal of vesical papilloma through a cystotomy wound recurrence occurs in over 60 per cent. of cases. He concludes that there is evidence of special danger after this operation of occurrence of: (1) diffuse papillomatosis, with very numerous histologically benign growths appearing rapidly after a considerable period of freedom, (2) recurrences in the scar which show definite malignancy and often take the form of solid carcinoma, and (3) other carcinomatous recurrences. An analysis is given of forty-eight cases treated by Suter by electrocoagulation. There were sixteen cases of recurrence of the papilloma, but of these one-half at least were cured by repetition of the treatment, and only one was carcinomatous. Thirteen of the recurrences occurred less than three years after electrocoagulation treatment; as in the case of the primary papilloma preference was shown for the paratrigonal area. Lorge points out that although the vesical mucosa shows in many cases indubitable evidence of a "diathèse néoplastique," it is logical to assess the results of treatment according to the appearance of metastases and their response to treatment. No method of treatment excludes recurrence. Cystotomy is undesirable as favouring scar-implantation metastases. Snare operations are insufficiently radical and lead to truly local recurrence; after electrocoagulation recurrences, however, never affect the scar, and are relatively infrequent. Suter did cystotomy in six cases only, in which electrocoagulation was contradicted by haemorrhage preventing cystoscopic vision; recurrence occurred in five.

Therapeutics

179 Acetylcholine in Peripheral Vessel Occlusions

A. GOLDMAN and K. OSSERMAN (*Med. Record*, June 6th, 1934, p. 579) report three cases of peripheral vessel occlusions treated with acetylcholine. They quote the literature to the effect that the value of this drug lies in the absence of subjective discomforts and its relative safety in patients of any age, regardless of the general physical condition or associated debility. It is, however, not a dependable medication, its effect is transient, and it must be injected intramuscularly. In one of the authors' cases the patient had probably a partial occlusion of the bifurcation of the internal iliac artery; it seemed that the injection of acetylcholine dilated the terminal vessels, and so improved the circulation and relieved the upper congested part. Its effect on the pain was very definite. The second patient had previously had a leg amputated for arteriosclerotic gangrene; three years later paralysis of the other leg occurred, with subsequent ulcer formation. The pain was much reduced by acetylcholine injections, but amputation was later necessary. The third patient had arteriosclerosis of the glans and stocking type of both upper limbs, with hypertension, arteriosclerosis, aortic atheroma with cardiac decompensation, leg ulcer, and sternal calcifications. The employment of acetylcholine cleared up the arteriosclerosis, and the exhibition of digitalis removed the oedema of the legs and the sternal calcifications. The

authors add that the injection of this drug once a week, as usually recommended, is useless, the optimal dose being one ampoule twice a day. The drug's action and its excretion are rather rapid; it is considered worth trial in peripheral vascular disturbances, especially when these are complicated by debility.

180 Vaccination against Typhus

G. BLANC, M. NOURY, M. BALTAZARD, J. BRUNEAU, and J. BARNEQUOD (*Bull. de l'Acad. de Méd.*, May 1st, 1934, p. 582) reported last year a series of successful vaccinations of the human subject against typhus fever. Their vaccine was derived from maceration of the tunicae vaginales and spleen of guinea-pigs infected by murine typhus, and conferred immunity against Toulon and Casablanca strains as well as against the historic virus. These workers have now satisfied themselves that no increase of virulence is shown by the murine-Casablanca type (the source of the vaccine) after fourteen months' preservation and sixty successive passages through guinea-pigs. The serotol-splenic extract is active in dilutions of 1 in 1,000, so that vaccine material for 1,000 persons can be got from one guinea-pig; but paper filtration reduces considerably its potency. The vaccine is a living virus; it is without danger, but confers its immunity at the expense of an infection which is ultra-benign or imperceptible.

181 Pepsin Therapy in Gastro-duodenal Ulcers

In a previous report M. DEBRAY and A. ROY (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, June 11th, 1934, p. 816) showed the marked benefits resulting from pepsin therapy by intramuscular injections in gastro-duodenal ulcer, but that about 20 per cent. of the patients did not respond to this treatment. On the hypothesis that these failures were due to a sensibilization of the gastric mucosa to pepsin and that treatment should be applied more directly to this tissue, the authors have employed intramucous membrane injections in such cases. Owing to the inaccessibility of the gastric mucosa, these were made into the mucosa of the cheek. A solution of pepsin (0.05 gram per c.c.m.) was used, the first dose being 1 in 10 c.c.m., followed by doses of 2 in 10 and 3 in 10 c.c.m. A series of twelve injections monthly (three per week) were given; the frequency and dosage of subsequent series were governed by the digestive tolerance of the patients and the radiological results. The injections, which must be made deeply into the mucosa, cause the formation of a small bulla. Most patients tolerate these injections perfectly; in some, a slight pain at the injection site and swelling of the cheek occur which, however, disappear in one or two days. Brief notes of eight illustrative cases are given; seven of these were markedly improved or apparently cured; no radiological evidence of ulcer was obtained in the non-responsive case. Debray and Roy state that the pain and vomiting disappear in the same time as after intramuscular injections. They consider that, owing to the minute doses injected, the effects cannot be attributed to the medication, but that a veritable desensibilization of the gastric mucosa was produced; the local reactions, which lessened as treatment progressed, constitute an argument in favour of this theory.

182 Hepatic Extract in General Paralysis

F. JEDŁOWSKA (*Arch. di Patol. e Clin. Med.*, March, 1934, p. 560) records his observations on thirty-four cases of general paralysis, tabes, and dementia praecox which had undergone malaria therapy and were in consequence in a state of profound anaemia. He found that daily subcutaneous injection of small doses (2 c.c.m.) of liver extract for a period of ten days caused a rapid restoration of body weight and return to normal in the number of red cells and haemoglobin value. The return to normal conditions was much more rapid and obvious than that obtained by the usual methods, and was complete from ten to fifteen days after commencement of treatment, when controls were still in a state of profound anaemia.

Disease in Childhood

183 Vitamin C in the Nursling

P. ROHMER, N. BEZSSONOFF, and E. STOERR (*Bull. de l'Acad. de Méd.*, June 19th, 1934, p. 871) record attempts to determine the need of vitamin C in the dietary of infants. Their study is based on urinary tests, and definitely proves that the healthy normal nursling can, unlike the adult, synthesize vitamin C in considerable quantities. This function, particularly active during the first months of life, decreases towards the eleventh month, and is definitely lost after the first year. Synthesis of the vitamin is physiologically effected from a substance of unknown nature—"provitamin"—which occurs in raw human and boiled cows' milk in sufficient amounts to satisfy the infants' needs. Hence, orange or lemon juice is unnecessary during the first months, but nourishment containing the provitamin is important. The considerable quantity of the vitamin synthesized by the normal infant indicates its great need of this substance. All lowering of the synthetic function due to an infectious or other cause produces troubles, the cure of which lies in the supply, sometimes large, of vitamin C. After the sixth month the power of synthesis begins to decrease; therefore, from this period an addition, more and more indispensable as the end of the first year is approached, of this principle is indicated.

184 Congenital Athetosis

J. BEAUFAYS (*Zentralbl. f. Gynäk.*, June 2nd, 1934, p. 1279) describes a case in which a healthy mother, aged 21, gave birth to a slightly premature infant whose left arm was at once noticed to show little motility; next day athetosis was noted therein, with tonic flexion of the index and hyperextension of the other fingers, alternating with reversed respective positions. A diagnosis of haemorrhage in the corpus striatum was considered, but next day the condition was symmetrically bilateral; this, together with a tendency to opisthotonos, both of which persisted, established the existence of congenital athetosis. Athetosis is rarely noted at so early a stage, and is due to areas of degeneration scattered in the corpus striatum, the inhibitory action of which on the globus pallidus is diminished. Typical features of this case were: the premature birth (probably accelerated by forcible intra-uterine athetotic cramps); maternal perception of unusually active foetal movements; a protracted asphyxial tendency after birth, due to affection of the motor control of respiratory movements; and diminution of athetosis when the infant was laid on the belly.

185 Chloral Hydrate in Paediatrics

According to E. D. ANDERSON (*Minnesota Med.*, April, 1934, p. 184) chloral hydrate, in common with other drugs, is inadequately employed in the diseases of children. In the exhaustion following severe infantile colic, even though the cause is obscure, it can be given by mouth in 1-grain doses before each feeding, and will in most cases afford immediate relief, while bad sleeping habits can be checked by giving it per rectum at bedtime for two or three nights. In attacks of cyclical vomiting and in the vomiting due to acute upper respiratory infections, marked dehydration or acidosis may be arrested by the rectal administration of doses large enough to put the child to sleep, and these may be repeated if necessary at intervals of four to six hours so as to ensure sleep for eight to twelve hours. At the end of this time nausea and vomiting will often have been brought to an end. If in the course of an acute illness there is extreme restlessness due to toxæmia rather than to severe pain, such as in acute pneumonia, the introduction of chloral by the rectum will often have good results. It may also be used before the performance of certain diagnostic and therapeutic procedures, such as spinal punctures, blood transfusions,

and the injection of subcutaneous or intraperitoneal fluids. In a possible case of acute appendicitis the administration of an adequate amount of the drug by the rectum will induce muscular relaxation without affecting muscle spasm, and permit more careful examination. It may also be given after an operation when the child is beginning to recover from the anaesthetic; fear and physical discomfort will be removed by the induction of sleep, and on awakening finally there will be much less nausea and distress. This procedure is said to be particularly effective after tonsillectomy, and to promote convalescence markedly. Anderson has found it necessary to give larger doses than are usually recommended in the textbooks. To control convulsions or induce sleep, rectal doses of 5 grains are advised in infants under 6 months old, from 5 to 7½ grains in infants of 6 to 12 months, from 7½ to 10 grains in children aged between 1 and 2 years, and from 10 to 20 grains in older children. Even higher doses are required in some cases of convulsions.

186 Endocarditis in Still's Disease

L. SAIMOVICI (*Thèse de Paris*, 1934, No. 389), who records five illustrative cases in children aged from 3 to 12 years, one of which is original, states that endocarditis is a rare occurrence in Still's disease. It may assume the form of a malignant attack with a protracted course or a malignant attack of rapid course and streptococci in the blood. Saimovici's case was that of a boy, aged 7 years, who had been the subject of a febrile disease for four months. During the first three and a half months he had suffered from subacute rheumatism closely resembling Still's disease, and it was only in the last fortnight that he developed symptoms of a fatal infective syndrome consisting in anaemia, haemorrhages in the skin, and enlargement of the spleen indicating malignant endocarditis, the presence of which was confirmed by the necropsy.

Obstetrics and Gynaecology

187 Prophylactic Intervention in the Second Stage of Labour

J. R. GOODALL (*Surg., Gynecol. and Obstet.*, May, 1934, p. 882) argues that, with experienced hands and sound judgement, prophylactic intervention in the second stage of labour and suturing reduce the amount of damage to the abdominal wall, involve minimal trauma to the supports of the uterus and the bladder, ensure a completely repaired pelvic floor and the restoration to the normal of any previous obstetrical damage, and effect a very considerable reduction in the number of stillbirths. Such intervention, moreover, reduces fatigue and prevents exhaustion, while it relieves the patient and shortens labour. In the first stage of labour the approach of the uterine isthmuses to the pelvic wall renders the normal uterine supports excessively lax, especially the pubo-uterine and the sacro-uterine ligaments. When the cervix is fully dilated the uterine ends of these ligaments are stretched to five times their previous size, and consequently thinned as a whole. As the presenting part descends, the whole force of the contraction and retraction of the upper segment against the lower vagina and perineum is borne by the uterine attachments, and a tendency develops to tearing away from the cervix, causing small interstitial haemorrhages. The author describes his procedure to diminish the various risks. It includes manual acceleration of any incomplete rotation, drawing down of the head with forceps if necessary, incision of the perineum, and rapid removal of the placenta. A special plan of suturing repairs the damage and prevents subsequent prolapse. The method is painless in most cases, but three types of cases do not heal well—namely, those in which the head has been allowed to rest too long on the pelvic floor, severely toxic cases, and cases of prolonged dystocia which have become infected before

the completion of labour. When multiparae come for delivery with an obviously damaged vaginal floor and a marked degree of cystocele, the author incises the perineum as in his usual procedure, and extensive denudation and perineorrhaphy are performed. He claims also that his foetal mortality rate has been reduced by 75 per cent. The majority of stillborn children have died during the second stage of labour, owing to impeding of the circulation through the placenta, spasm of the tired uterus, and the growing frequency of the pains. Goodall believes that much of the foetal death rate attributed to forceps is really due to the delay in their application, and that such prophylaxis as he indicates will be effective in most cases.

188 Senile Involution of the Mammary Gland

R. GATTA (*Arch. Ital. di Chir.*, May, 1934, p. 529), as the result of the examination of the breasts of thirty-five women, all but nine of whom were over 40, comes to the following conclusions. In senile involution of the mammary gland there is a gradual disappearance of the fibillary connective tissue, which is replaced by adipose tissue. Definite limits cannot be assigned to this involution, which begins directly after the menopause, but sometimes does not become complete until extreme old age. During the involution, side by side with the regressive process, the parenchyma presents in every case proliferations which become particularly numerous after the menopause. The dilatations of the alveoli and lactiferous ducts which develop after the menopause are to be attributed to the direct activity of the epithelium and not to a sclerogenic action of the connective tissue. They must be distinguished from the cysts due to stasis, which are few in number and often absent, but become more numerous after the menopause. Eosinophil cells are found in the female breast after the menopause, being derived from the normal cells of the gland, of which they represent a final stage. The appearance presented by the breast during its involution partly resembles that of cystic fibrosis, but there are always differences in the intensity of the proliferative processes which allow the two conditions to be distinguished.

189 Manual Extraction of the Placenta

J. SEJRSLE (*Ugeskrift for Læger*, June 7th, 1934, p. 589) finds that among 21,568 confinements at his maternity hospital in Denmark there were seventy cases in which the placenta was extracted by the hand, thirty-six cases in which a retained cotyledon was thus removed, two cases in which the hand was introduced for the removal of membranes, and three cases in which intrauterine palpation was undertaken. Among this total of 111 cases there were nine deaths, but only three of them could be traced with any justification (and to a limited degree) to the introduction of the hand into the uterus. Complete retention of the chorion occurred in 106 cases, one of which terminated fatally from puerperal fever. Among the remaining 105 cases there were fifty presenting some complication or other, such as fever, but the average duration of the patients' stay in hospital was only between fifteen and sixteen days—a state of affairs suggesting that complete retention of the chorion has little influence on the puerperium. The author concludes that, though retention of the membranes may often give rise to fever for some days, such retention should not be taken too seriously, and should not as a rule be an indication for manual extraction. On the other hand, if there are doubts as to the retention of part of the placenta itself, or if there is haemorrhage, it is well to explore with the hand and, in the process of such exploration, to remove any membranes which may be retained. The retention of a placental polypus is such a serious complication that, when in doubt, it is better to palpate the cavity of the uterus and, too often than not often enough. Turning to the literature, the author finds that manual extraction of the placenta has been undertaken in from 0.3 to 1.27 per cent of all confinements. The latter figure is from a hospital in which 111 cases of this nature were made since

1928. It is apparently not only the growing frequency of abortions in Russia which is responsible for this high ratio, but also the greater enterprise shown in the conduct of confinements.

Pathology.

190 Biological Properties of Ultra-short Waves

G. IZAR and P. MORETTI (*Klin. Woch.*, May 26th, 1934, p. 771) summarize as follows their findings, published in Italian journals, concerning short (highest frequency) waves of 1 to 50 metres, and believe that their action is due to electrical rather than thermal effects. Radiation of the animal kidney with waves of 8 metres diminished the blood urea without increasing that of the urine. Human blood sugar content is unaffected by radiation of the upper abdomen, but as a rule the erythrocyte content is temporarily diminished, the leucocyte count temporarily increased. Certain bacteria are killed by 4 or 8 metre waves, and unaffected by longer ones. Human agglutinins may lose their activity, but complement in animal serum is, in general, not destroyed, after application of the shortest waves. The writers now report that 4 to 15 metre waves increase definitely the catalytic activity of colloidal copper with respect to hydrogen peroxide.

191 Ascorbic Acid in the Chick Embryo

E. MARTINI and A. CONSIGNORE (*Biochim. e Terap. Speriment.*, May, 1934, p. 169) point out that vitamin C is found in practically all animal tissues, though in very varying amounts in different organs. In the guinea-pig the amount appears to depend strictly on the diet, while in animals such as the rat and the hen ascorbic acid can be demonstrated in the tissues even after long periods of vitamin C deficient diet. In order to find out whether these animals are liable to synthesize ascorbic acid, the authors carried out an experiment on developing chick embryos. The technique used to demonstrate the presence of this substance was one worked out by themselves, and depended on the reducing action of a weakly acid solution of ascorbic acid on methylene-blue under the influence of strong illumination. Eggs of white Leghorn hens were incubated at 38° to 39° C., and were examined at suitable intervals, the embryos being dissected out and ground up with sand in trichloroacetic acid. The extract, after treatment with an alkaline solution, was then tested by the methylene-blue technique. During the first three days of incubation no ascorbic acid could be demonstrated, but on the fourth day traces were found, and the amount continued to increase till the twelfth day, when 0.17 mg. was found per gram of embryo. During the next few days the amount decreased, and then became stabilized from the fifteenth day onwards at about 0.09 mg. per gram of embryo. The ascorbic acid was found only in the embryo itself. Glutathione, on the other hand, which was estimated by the iodine technique, was found distributed through both the embryonic and non-embryonic parts of the egg. The authors assume that the methylene-blue-reducing substance found in the extracts was ascorbic acid, and suggest that this substance must be synthesized in the developing chick embryo.

192 Natural Immunity in Syphilis

W. SIDOROWICZ (*Thèse de Paris*, 1934, No. 386) records ten cases in persons aged from 22 to 30 who, in spite of numerous exposures to virulent syphilitic infection, did not contract the disease. The occurrence of such cases raises the possibility of the existence of immunity to syphilis. There is, however, no experimental evidence in confirmation of this hypothesis. The suggestion that these refractory cases were due to the presence of hereditary syphilis was negatived by the fact that the individuals in question did not present any dystrophies or stigmata of that disease, and repeated serological tests were invariably negative.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

193

Occult Cardiac Insufficiency

In the first number of the *Revista Argentina de Cardiol.* (March-April, 1934, p. 11) F. COSSIO and L. BERCONSKY demonstrate the frequent existence of cardiac inadequacy in cases where its more manifest signs are non-existent. They noted that the absence of dyspnoea (both "effort" and paroxysmal), of physical and intellectual fatigue, of diminution of the differential tension and gallop rhythm, functional, mitral, or tricuspid inadequacy, venous hypertension, congestion of the lung bases, "cardiac liver," oedema of dependent parts, and exudation into serous cavities is held by clinical teachers to be sufficient evidence of perfect heart-muscle competence. Analysing twenty-seven cases of varied cardiopathy which were free from these manifestations, the writers found that in 80 per cent. the work of the cardiac pump, and thus its output, was diminished. All were examined under the strictest basal conditions while at rest in bed. Pulse and respiratory rates, arterial tension, venous pressure, circulatory speed, vital capacity, difference between the oxygen content of arterial and venous blood, respiratory and circulatory "minute volumes," systolic volume, lactic acid percentage in venous blood, and dimensions and electrocardiographic condition of the heart were all taken. They explain the absence of dyspnoea as due to an increased concentration of oxyhaemoglobin and an increased supply of O_2 in the capillary network, both counterbalancing the diminution of blood supplied to the tissues. Visceral congestion is absent owing to the lessening of blood stasis following upon a slight diminution of the cardiac output. In all patients with structural alterations in the cardiovascular system—even though there may be entire absence of dyspnoea or visceral congestion—an increase of the contraction rate when engaged on a definite effort, a reduction of the differential pressure, and positive cardiac enlargement should point to the probable existence of a diminution of the output of the organ. If to these be added increased rapidity of the blood stream and increased differential ratio between the venous and arterial oxygen with reduced vital capacity, one may be convinced that the power of the heart as a pump has deteriorated. To obviate the conversion of occult to apparent cardiac incompetence, digitalis is essential.

194 X-Ray Diagnosis of Pulmonary Tuberculosis

B. KATTENTIDT (*Münch. med. Woch.*, June 15th, 1934, p. 912) much prefers the x rays to auscultation and percussion in the diagnosis of pulmonary tuberculosis, and he analyses his experience with the routine x-ray examinations (screening) of 30,000 students in Munich since 1929. In support of his dictum that "percussion and auscultation are almost a complete failure, even in open active tuberculosis," he notes that among 10,000 students submitted to auscultation only two were thus found to be suffering from open tuberculosis. On the other hand, in another group of 10,000 students thirty-five were found on screening to be suffering from open tuberculosis. In a group of 1,526 persons sixty-nine were found on auscultation to be suspects; but screening showed thirty-five of these sixty-nine to be perfectly normal, and as for the remaining thirty-four, the scarring of their lungs was comparatively slight. Yet in the same group screening revealed five open and three active but closed cases of tuberculosis, and as many as 193 cases of pulmonary disease about which nothing had been heard on auscultation. Even the most extensive tuberculosis may be compatible with a capacity for great physical exertion, and there may be no symptoms such as cough to betray it. About three-quarters of all the cases of ignored pulmonary tuberculosis are not to be detected by auscultation, and can be discovered only by the x rays. In Munich the average interval between the development of the first focus

of disease and its diagnosis is three years. The author insists that when the community is educated to the point at which routine screening of the lungs is systematically repeated on everyone, the diagnosis of infectious active pulmonary tuberculosis will have been hastened by years. At the present time in Munich one case of open active tuberculosis is to be found to every 200 persons between the ages of 18 and 25. In every fifty such persons there is one with extensive tuberculous scarring, in every fifteen there is one with slight scarring in need of watching, and in every five there is one with negligible tuberculous scars. The author insists on the great skill and experience required in the correct interpretation of what is seen on screening.

195 Mode of Infection in Weil's Disease

P. H. VON THIEL (*Nederl. Tijdschr. v. Geneesk.*, July 7th, 1934, p. 3115) states that, though there is general agreement that *L. icterohaemorrhagiae* invades the human organism by the skin, especially when it is damaged, as well as by the mucous membrane of the digestive tract, it has not hitherto been known by which route infection occurs most often and most readily. The author accordingly carried out experiments with rats and guinea-pigs, which proved that, although infection by the mouth is possible, several millions of spirochaetes could be swallowed by these animals without their contracting the disease. Infection was found to be conveyed much more readily by the nasal route and also by the conjunctival mucous membrane. In all probability, therefore, water inhaled by the nose is much more dangerous for swimmers than swallowed water.

196

Dangers of Bronchography

Although bronchography is valuable in the diagnosis of certain conditions, especially bronchiectasis and bronchial stenosis, F. LICKINT and HIPPE (*Med. Klinik*, July 13th, 1934, p. 937) state it is only indicated in exceptional cases when all other diagnostic methods have failed. Bronchography is contraindicated in diseases of the heart and blood vessels, in acute inflammations of the upper respiratory tract, in hyperthyroidism, and in patients who are nervous or have an idiosyncrasy to iodine. The authors quote several cases in which the iodine acted as a plug in parts of the lower respiratory tract, causing death. They state that the instillation of iodine in tuberculous patients is fraught with danger, as it may activate latent disease. After bronchography most of the iodine is coughed up, but minute quantities may remain for several months, producing untoward results—granulations in the lungs, iodism, and sharp rise in temperature. The most common danger of bronchography is infection of the respiratory tract, and the authors describe a case of bronchopneumonia which occurred after the procedure. That it did not terminate fatally they regard as unusual. Bronchography should not be undertaken in nervous patients, as in them it has been known to produce grave shock, collapse, and epileptiform fits.

197

Atypical Forms of Serum Disease

N. SCHLISSER (*Thèse de Paris*, 1934, No. 408), who reports ten illustrative cases in patients aged from 6 to 22 years, states that the complications of serum treatment are very frequent, but are usually mild in character. There are, however, certain rare atypical forms, the prognosis of which may be very grave. These include orchitis and orchio-epididymitis, generalized adenopathy, gastro-intestinal symptoms, paralysis and amyotrophy, acute suprarenal insufficiency and sudden death, and acute articular rheumatism and cardiac complications. Prophylaxis consists in only using the intravenous and intrathecal routes in cases of absolute necessity, employment of refined serum, and the use of the ordinary methods of desensitization. As regards treatment, the best results are secured by adrenaline, ephedrine, pancreatic extract, and magnesium hyposulphite.

Surgery

193

Urethrography in Nurslings

According to I. MIHALOVICI (*Journ. d'Urol.*, June, 1934, p. 516) radiography of the male urethra and its adnixa is as practicable in the nursing as in the adult. For the contrast substance he employs a 50 per cent. solution of thorotrast, and injects 7 to 8 c.cm. under gentle pressure, the infant being placed in a slight right lateral position with the left leg flexed on the flexed, abducted thigh, and the right leg extended. The plate is taken at the time of the injection, not, as in adults, at the moment of micturition. A radiograph is presented which shows a congenital stricture in an infant 2 months old, and one of a normal child, aged 3 weeks. The latter demonstrates that in the newborn the urethral bulb is formed, and that during average filling of the bladder the lower vesical wall is almost in a straight line.

199 Biliary Fistula following Gastrectomy

O. FRANCKE and N. FALCOIANI (*Bull. et Mém. Soc. Nat. de Chir.*, June 30th, 1934, p. 893) point out the post-operative complications which may follow a gastrectomy, and consider that injury to the bile duct is one of the most serious. Attention is drawn to the advisability of making a careful examination before mobilizing the duodenum, as if the bile duct is not involved in the ulcer a gastro-duodenal resection can be undertaken without great risk. But in certain cases, when the bile duct has been partially eroded by the ulcer and a spontaneous chole-docho-duodenostomy has been formed, it is better to let the condition persist. It has been found that the biliary fistula is not always discovered at the time of operation, and the bile does not begin to flow until some days after. A case is reported in which it was found at operation that a duodenal ulcer was adherent to the pancreas, gall-bladder, and bile duct, and the freeing of the parts and subsequent anastomosis was carried out with some difficulty. Post-operative conditions were normal for two days, but on the third day there was an abundant flow of bile from the wound where the drain had been. The patient's general condition was deteriorating, and twenty-eight days after the first operation a further laparotomy disclosed a mass of adhesions which fixed the liver and the transverse colon to the anterior abdominal wall. There was also a band of adhesions round the gastro-jejunal anastomosis, in which was seen an opening as big as a 50-centime piece, from which a large quantity of bile was flowing. As it was impossible to make an anastomosis between the fistula and the intestine, it was considered advisable to make one between the gall-bladder and the jejunum. The opening of the fistula could not be closed owing to the friability of the tissues, and it was plugged with compresses. After a stormy convalescence and the appearance for a few days of a smaller fistula the patient made a good recovery. It is suggested that the fistula was produced by necrosis of the wall of the bile duct.

200 Osteomyelitis of the Scapula

G. BRANCATI (*Arch. Ital. di Chir.*, May, 1934, p. 575), who records two illustrative cases in a boy and a girl each aged 9 years, states that osteomyelitis of the scapula is not an extremely rare condition, and should be considered in every case of violent inflammatory processes of the shoulder and back. Its rational treatment requires operation in two stages. The first consists in incision of the soft parts containing pus as early as possible, while the second stage consists in resection of the necrosed part of bone or sequestrectomy. The interval between the incision of the soft parts and the resection must be determined by the local and general conditions in each case, but must not be too long, so as not to delay the time needed for healing of the wound. Functional capacity may be restored even after extensive operations in cases in which care has been taken to preserve the periosteal sheath.

Therapeutics

201 Malaria Therapy in Dementia Paralytica

F. L. H. MACDOWELL (*Journ. Royal Navy Med. Service*, July, 1934, p. 222) cites statistical evidence in favour of his commendation of malaria therapy in dementia paralytica. In fifty cases of this disease dealt with at the Royal Naval Hospital, Great Yarmouth, before this treatment was employed 30 per cent. of the patients died within a year of admission, 46 per cent. within two years, 10 per cent. within three years, 8 per cent. within four years, 4 per cent. within five years, and 2 per cent. within six. None showed any stage of remission, and all became bed-ridden and died miserably. Of twenty-four cases subjected to malaria therapy the disease was well advanced in twenty. There were only seven deaths in the series; four of these patients showed no improvement and died within six months after the termination of the treatment, while three had good remissions lasting six, five and a half, and two years respectively. Two of these patients were capable of useful employment until a short time before death. Twelve cases showed good mental and physical improvement (50 per cent.); six had a marked degree of physical amelioration without mental change; one patient improved mentally without corresponding physical advance as regards the ataxic symptoms. The change for the better became apparent usually within a few weeks after the cessation of the pyrexia, while in some instances an amelioration of the mental symptoms was obvious during the fever. Increase in weight was immediate, and an important index as regards prognosis. The author believes that the more gradual the gain in weight the more favourable will be the result; rapid gain in weight goes with less permanent improvement. No marked serological changes were recorded.

202 Vaccine Treatment of Abdominal Actinomycosis

In treatment of actinomycosis, which in his district is usually met with as an abdominal and chiefly ileo-caecal affection, E. NEUBER (*Wien. klin. Woch.*, June 8th, 1934, p. 708) has had good results from vaccinotherapy. He finds that in the wasted patients allergic reactivity is in abeyance, so that a preliminary stimulant treatment is required. In this, injection of gold salts (solganal) is found particularly effective. In some cases malariotherapy, followed by stimulant and dietetic treatment, is a useful preliminary. The vaccine is preferably autogenous and freshly prepared; it is given intracutaneously in increasing doses, in the greatest dilution which will produce reaction in those suffering from actinomycosis but not in healthy subjects. A case is illustrated of lasting cure, with 9 kilograms increase in weight, after seven weeks' treatment by injections at four or five days' intervals.

203 Calcium Ortho-Iodoxybenzoate in Arthritis

T. WHEELDON (*Ann. Int. Med.*, June, 1934, p. 1510) has treated 282 cases of arthritis in the last two years with calcium ortho-iodoxybenzoate; the therapeutic results were most satisfactory, and there were hardly any unpleasant effects. Four tablets, each of half a grain, were administered daily by the mouth. The author gives the warning that no real improvement is manifest in less than a month. The clinical improvement is described as having been excellent in 50 per cent., fair to good in 36 per cent., and slight or none in 14 per cent. The average age of the patients was 53. A remarkable feature was the improvement noted in hypertensive and heart conditions; this is attributed to the amelioration of the general condition, but is said to be utilisable as a criterion of the effect of the drug. Joint swellings were reduced and the range of motion was increased, but the relief of pain was less evident. It is pointed out that salicylates or other analgesic drugs can be exhibited concurrently without fear of incompatibility. Laboratory investigations indicated an increase in the indican output and a lowering

of the sedimentation rate. The author is inclined to doubt whether the benefit obtained is due to any bactericidal effect or improvement of the permeability of membranes. He thinks the important factor is the drug's stimulating action on the peripheral circulation, especially in the affected joints. Patients who had been chronic invalids were restored in some cases to wage-earning employment or the resumption of household duties. The patients were also treated by the removal of foci of infection, exercises and apparatus to improve the muscular movements, dieting, measures against constipation, and the local treatment of affected joints. The average length of treatment was sixteen months.

Ophthalmology

204 Carotid Sympathectomy in Ocular Degenerations

A. MAGITOT (*Bull. de l'Acad. de Méd.*, June 12th, 1934, p. 816) points out that carotid sympathectomy, which differs from resection of the cervical sympathetic cord or of the superior cervical ganglion, consists of decortication, anterior and posterior, of some 2 cm. of the sheath of the common carotid artery. The carotid ganglion is of necessity excised. Together with Desvignes, Magitot has traced the effect of unilateral and bilateral carotid sympathectomy on the general blood pressure and that of the central retinal artery, as shown by ocular sphygmography, in which pulsation of the retinal arteries is provoked by graduated pressure on the globe. Unilateral sympathectomy is followed by slow oscillations, lasting some days, of the retinal arterial pressure; bilateral sympathectomy (one side being tackled ten to twenty-five days after the other) after an oscillatory phase by a bilateral and long-lasting increase of that pressure, somewhat more marked on the side of the first intervention. The effects on pressure in the retinal arteries are not concomitant with those on humeral blood pressure. Magitot describes six cases in which bilateral carotid sympathectomy was done as treatment for insular softening of the retina or optic neuritis of non-central origin. Temporary improvement occurred in a man, aged 38, with familial optic atrophy. Notable and apparently lasting benefit followed in two cases of optic atrophy in subjects who had suffered from syphilis and malaria. In a man, aged 56, with insular retinal degenerations, vision improved from 1/25 to 4/10. In a female, aged 54, with old-standing chorio-retinitis due to congenital syphilis and recent optic atrophy, the acuity altered from 1/50 to 2/10 and from 0 to 1/20 on the respective sides. Complete restoration of vision was obtained in a case of toxic retrobulbar neuritis, probably due to carbon bisulphide poisoning. Magitot notes, as the chief encouraging sign, that a rise in the retinal arterial pressure is accompanied by improved visual function: in the weeks following operation the two vary *pari passu*, but later oscillation and even diminution of retinal arterial pressure may occur without regression of the gain in sight.

205 Intracapsular and Extracapsular Operation for Senile Cataract Compared

D. K. PISCHEL (*Amer. Journ. Ophthalmol.*, April, 1931, p. 326) cites many conflicting reports on the comparative excellence of the two operations. Such reports deal only with immediate effects, and contain amazingly wide interpretations of a good operative result. Thus some consider 24 per cent. of vitreous loss normal, and others 6/36, or even less, a good visual outcome. A useful conclusion was drawn by one writer, who obtained the same immediate visual result with the combined, the simple, and the intracapsular operations. The last were, however, all selected cases, while the combined was used for all poor risks. The present writer examined a series of cases which had been operated on in Meller's clinic at least two years previously. Forty-five "perfect" intracapsular operations, performed on an average two years and six months before examination, were compared with fifty extracapsular

operations, of an average history of three years and seven months, which included all cases except those started as an intracapsular. Results showed 6/8 or better vision in 91 per cent. of the former group and in 94 per cent. of the latter. In five of the former vision was permanently lost, while in the latter in no case was useful vision or the prospect thereof lost. Thus there were more bad results in a selected series of intracapsular than in an unselected series of extracapsular operations.

206

Apparent Optic Atrophy

F. H. ALDER (*Arch. of Ophthalmol.*, June, 1934, p. 942) states that it is well known that the vision may remain normal for several months (in one case seven years) after the appearance of "optic atrophy." The loss of vision is thus not proportionate to the degree of pallor seen, though in most cases the vision is soon lost when the disk is dead white, and once lost is never regained. In certain toxic atrophies (methyl alcohol and some arsenicals) retention or recovery after total blindness of central vision is not uncommon. Further, the maintenance of the pupillary reactions and marked contraction of the nasal fields are characteristic of these toxic cases. These points are of importance in differentiating the atrophy of tabes from that of anti-syphilitic remedies. The explanation of the preservation of central vision with apparently complete atrophy in tabes may be that the condition is analogous to peripheral interstitial neuritis. The nearer the lesion is to the globe the sooner is central vision lost. A case of delayed loss of vision was found to have a chiasmal lesion at post-mortem. One must not be dogmatic about the state of the nerve fibres from the colour of the disk, which may be rendered pale by anaemia, diminution in the number of capillaries on the disk, overgrowth of glia, and, finally, actual loss of nerve fibres. Where the vision is temporarily lost in a pale disk the condition may be one of Cushing's "physiological block," which later becomes relieved, those fibres which have survived taking up their function again.

Obstetrics and Gynaecology

207

Paralysis in Eclampsia

H. SCHWANEN (*Zentralbl. f. Gynäk.*, June 16th, 1934, p. 1394) contrasts the frequency of an intracranial focus of bleeding or softening as a post-mortem finding in eclampsia with the rareness of paralysis as a clinical symptom. In explanation he finds that paralysis occurs mostly in very severe cases, in which coma leads quickly to death, so that the palsy may be overlooked; that neurological examinations are apt to be incomplete, attention being concentrated on management of the labour and circulation; and that confusion may occur with cerebral embolus. In thirty-four cases from the literature and three personal cases of eclamptic paralysis the mortality was about 50 per cent.: the palsy usually took the form of hemiplegia or monoplegia, but in one of Schwanen's cases there was evidence of meningeal haemorrhage and paralysis of the abductors. In over one-half of the cases the eclampsia was unaccompanied by convulsions. It may, he states, be concluded that the intracranial bleeding had interrupted the motor tracts—a view confirmed by certain cases in which the convulsions as they occurred affected the non-paralysed side only.

208 Determination of Foetal Size in Utero by X Rays

S. CLIFFORD (*Surg., Gynecol. and Obstet.*, June, 1934, p. 959) measures the occipito-frontal diameter of the foetal head *in utero* by stereographic radiograms. Applying "the law of uniform foetal growth ratios," as worked out by Scammon and Calkins, whereby they deduce the age in lunar months, he has constructed a graph which shows the average body weight in the last four months *in utero*, corresponding to an estimated occipito-frontal diameter. The calculations are based on measurements of 479 new-

born infants. The information is of service in deciding the date at which the infant is viable in cases where induction is called for because of maternal conditions. Interesting figures emerge. During lunar months seven and eight the foetus increases by five or six ounces per week—that is, from one to four pounds; but during lunar months nine and ten the increase is eight to twelve ounces per week, so that even a week's delay into the ninth month is of great value. The mortality of infants of five to six pounds was less than 3 per cent.; in weights lower than five pounds it was between 28 and 29 per cent. In the last two months assurance could be given of minimum weight only. While below four pounds, corresponding with 10 cm. occipito-frontal measurement, the actual weight can be forecast.

209

Pregnancy after Paralysis

H. H. WARE (*Journ. Amer. Med. Assoc.*, June 2nd, 1934, p. 1833) reports three cases of the occurrence of pregnancy in women suffering from paraplegia. In the first case complete motor and sensory paralysis below the second dorsal segment of the cord had followed a febrile attack three years previously. There was incontinence of urine and faeces. Pregnancy gave rise to no discomfort, but, owing to the abdominal muscles being flabby and the foetal breech presenting, Caesarean section was performed without anaesthesia, a healthy child being born. Apart from a few days of pyrexia, recovery was normal. The second patient had sustained a fracture-dislocation of the first lumbar vertebra, and laminectomy did not relieve the ensuing paralysis. Pregnancy followed about three years later, being uneventful except for slight nausea and vomiting during the first three months. The membranes ruptured spontaneously at term, and after considerable delay delivery was completed with forceps painlessly. In the third case the paralysis had been due to a fall which caused a compressed fracture of the first lumbar vertebra and of the transverse process, with almost complete severing of the cord. Four years later the patient became pregnant. Under procaine anaesthesia, later reinforced by nitrous oxide and oxygen, low Caesarean section was performed without complications of any magnitude. Ware concludes, therefore, that labour can occur in paralytic women, and that labour is painless. No instinctive use is made of the accessory muscles, and uterine contractions were shown to be weak in the one patient delivered from below. He believes that Caesarean section and sterilization should be performed in these cases, sometimes without an anaesthetic. The uterine and abdominal incisions heal normally. The author's three patients were unable to nurse their children.

Pathology

210 Effect of Testicular Extract on Tuberculous Infection

R. M. THOMAS and F. DURAN-REYNALS (*Proc. Soc. Exp. Biol. and Med.*, June, 1934, p. 1201) report some curious observations on the effect of testicular extract on the progress of tuberculous infection and reinfection in guinea-pigs. The increased permeability of the tissues caused by testicular extract is now well known, and it was to be expected that the incorporation of this substance with the inoculum would lead to a considerable increase in the size of the primary lesion. This in fact occurred. The testicular extract was prepared by mincing bull testicle in two volumes of saline, straining through cloth, and filtering through a Berkefeld V candle. One group of guinea-pigs was injected intradermally with a mixture of 1 c.c.m. of testicle extract and 10 c.c.m. of a suspension containing 0.1 mg. moist weight of human tubercle bacilli. Another group was injected with 0.1 mg. of bacilli suspended in 2 c.c.m. of saline. In the testicular group the resulting lesions measured 7 to 8 cm. long and 5 to 6 cm. broad, while in the control group small nodules formed, varying from 1.5 to 2 cm. in diameter. In a

second experiment the inoculations were made subcutaneously. The testicular group, when killed sixty to seventy days later, showed not only more extensive primary infection but a much greater amount of generalized tuberculosis than the control group. This was probably due to a greater spreading of the organisms in the primary lesions, and not to any systemic action of the testicular extract, since the injection of this extract alone into guinea-pigs that were already tuberculous did not appreciably affect the course of the disease. Rather different results, however, were obtained in reinfection experiments. Two groups, each containing eighteen tuberculous guinea-pigs, were reinjected four to six weeks after the primary infection, the reinfecting dose containing testicular extract in one group but not in the other. In the testicular group the local lesions following reinfection were four to five times as large as those in the controls, but when the animals were sacrificed four to six weeks after reinfection the lesions in the testicular group were found to be not nearly so advanced as those in the control reinjected or the control non-reinjected groups. The effect of testicular extract was apparently to favour primary and delay secondary infection.

211

Staphylotoxin and Staphylocoagulase

R. VANBREUSEGHEM (*C. R. Soc. de Biol.*, 1934, 116, N. 22, 650) assembles the evidence collected by different workers to show that while the various cytotoxic activities of the staphylococcus—that is to say, its effect on red blood cells, platelets, leucocytes, and tissue cells in general—are due to one and the same toxin, the coagulating effect of this organism on oxalated plasma is due to an entirely different substance. Staphylotoxin is destroyed in half an hour by exposure to a temperature of 58° C.; staphylocoagulase withstands heating to 100° C. Chamberland candles allow the toxin to pass through, while retaining the coagulase. The toxin is strongly adsorbed by red blood corpuscles; the coagulase is not. In Ramon's medium incubated in an atmosphere containing 20 per cent. CO₂, toxin is formed abundantly, while the coagulase is formed only if the culture is incubated under ordinary aerobic conditions. In Ramon's medium containing 0.1 per cent. glucose the yield of toxin is better than in the medium without glucose, but the yield of coagulase is negligible unless the reaction is kept constantly alkaline. Acid has a deleterious action on the coagulase, and leads to its partial destruction. Both by its properties and the conditions necessary for its formation the coagulase appears to be distinct from the toxin.

212 Differential Staining of Myelin in Macroscopic Sections

E. PONS TORTELLA (*Rev. Méd. de Barcelona*, June, 1934, p. 515) stresses the ease with which the grey nuclei may be effectively stained in many ways, whereas the staining of the white matter is difficult and the processes by which it is effected are few and lengthy. The technique required by the methods of Weigert and Spielmeier is long and not precise, though the results are often beautiful; hence the writer, inspired by the success obtained by Ortega, who stains myelin in histological sections with ammonio-silver carbonate, succeeded with the same salt in evolving a most effective and rapid process of staining it in macroscopic sections. His method is as follows. Take the thinnest possible sections of brain preserved in formalin. Wash well in running water. Place in water acidulated with sulphuric acid for half to one hour. Rinse rapidly in distilled water. Immerse in solution of ammonio-pyridine-silver carbonate until the myelin is thoroughly stained. Place in 4 to 5 per cent. formal for fifteen minutes. Reduce with 5 per cent. hyposulphite of soda and mount in gelatin. The entire process takes but two or three hours. The grey nuclei remain unaltered, while all myelin is deeply stained. If the acid bath be withheld, both grey and white matter are stained. The writer holds that the acid forms with the iron of the grey nuclei a sulphate which prevents the fixation of the silver carbonate.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

213 Diphtheritic Myocarditis

I. NATIN and C. DARIN (*La Semaine Médica*, June 14th, 1934, p. 1789) emphasize the value of electrocardiography in assessing the condition of the heart muscle during and after diphtheria, and hint at the impossibility of accurate prognosis when this is neglected. They attach great value to the syndrome described by Marfan as an indication of the presence of "malignant" diphtheritic toxæmia, but believe that with endocardiographic examination many of its elements may be forestalled. These are: persistent pallor, apathy and listlessness, paralysis of the soft palate, hypotension, and tachycardia, which are succeeded in order by increased liver dullness, increased cardiac dullness, weakening of the heart sounds about the eighth or tenth day, and, finally, vomiting, often accompanied by bradycardia. Early and massive doses of antitoxin afford the sole preventive treatment, with absolute rest for as long as the electrocardiogram indicates. To prevent heart-block, camphor and adrenaline intravenously is recommended, but if there is ventricular fibrillation, as evinced by multifocal extrasystoles, often in salvos, adrenaline must be omitted. Digitaline, if pushed, will cause auriculo-ventricular block. Ouabain (strophanthin) is preferable to digitaline when repeated electrocardiographic examination is impracticable. If there is heart-block, caffeine and adrenaline should be used, and if sudden death is feared, owing to the occurrence of ventricular fibrillation during complete auriculo-ventricular dissociation, intracardiac injection of adrenaline is advised.

214 Primary Rheumatic Carditis in Adults

Commenting on the rarity, nowadays, of meeting with attacks of acute rheumatism in the adult, either with or without arthritis, C. DIMITRACOFF (*Arch. des Mal. du Cœur*, June, 1934, p. 337) reports on two patients, aged 47 and 48, with rheumatic pericarditis, and one, aged 48, thought to have rheumatic carditis. In the first case there was a pericardial effusion of considerable size; this quickly subsided with rest and large doses of salicylate; an electrocardiogram was taken some months later, when the patient was well and at work, and the author interprets the rather low voltage waves in the curve as indicating myocarditis. In this patient there had been no previous manifestation of acute rheumatism. The second case was similar to the first, except that there was no x-ray evidence available of pericardial effusion; there was, however, intense pericardial friction. The electrocardiogram showed changes in the T-wave such as have been reported by others as occurring in pericardial effusion, but which are rarely seen in rheumatic carditis without effusion. The third, a man aged 48, complained of epigastric pain, which was accompanied by fever and soon followed by dyspnoea and gross heart failure. These symptoms, together with typical electrocardiographic changes, very strongly indicated a diagnosis of coronary occlusion, but the author's diagnosis of rheumatic carditis was based on the appearance of slight joint pains in the course of the illness, and on an improvement which followed administration of salicylates.

215 Epidemic Pneumonia

A. A. RASMUSSEN (*Ugeskrift for Læger*, June 28th, 1934, p. 691) gives an account of an epidemic of pneumonia in the Faroe Islands in the autumn of 1933. All the twenty-six cases (only two in males) occurred within twenty days, and the explosive character of the epidemic was suggestive of typhoid fever, but the Widal was negative in the four cases thus tested. The examination of the scanty sputum provided no clue, and the clinical picture was too well defined to warrant the diagnosis of influenza.

Besides, there were no colds or influenza-like illnesses observed during the epidemic. The disease began suddenly, with high fever, shivering, and severe headache. In some cases there was nausea, with vomiting and pain in the back. There was no cough or expectoration, no pain in the chest, no dyspnoea, and no cyanosis, and the pulse was not very rapid. During the first few days, up to a week, there would be no stethoscopic signs over the lungs. Then crepitation would be demonstrable over the base of one lung, whence it would extend to other parts, to the accompaniment of dullness and bronchial respiration. The other lung was not infrequently involved, the extension of the physical signs from one lung to another being marked by a rise of the temperature. There were no catarrhal symptoms referable to the upper respiratory passages, and no history of a cold such as often precedes croupous pneumonia. The temperature remained high for two to four weeks, showing small remissions and falling by lysis. In the neighbouring districts the epidemic claimed forty-two victims, and of the total of sixty-eight patients only seven were males. The remainder were almost exclusively adult women, middle-aged or elderly. Of the seven patients who died, three were pregnant women. The author does not identify this disease with croupous pneumonia, and the name he gives it is "primary epidemic alveolar pneumonia."

216 Chronic Nephritis without Hypertension

U. DE CASTRO (*Arch. di Patol. e Clin. Med.*, May, 1934, p. 644), who records an illustrative case, states that arterial hypertension is an almost constant symptom in chronic diffuse glomerulonephritis. Exceptions to the rule do, however, occur, and several cases have been reported, especially in recent years, of chronic nephritis with a normal blood pressure, which has lasted for a long period and continued up to death. In some instances the patient dies of uræmia with a normal blood pressure, or even hypotension, and without marked evidence of myocardial insufficiency. De Castro's patient was a woman aged 51, who had undergone subtotal removal of the uterus and adnexa at the age of 23. About a year before death she began to suffer from feverish attacks, pain in the spine and limbs, general weakness, anaemia, and vomiting. The blood pressure was never higher than 125 mm. Hg, and in the last stage the systolic pressure was 95 mm. and the diastolic 73 mm. Hg. The necropsy showed a remarkably smooth appearance of the surface of the kidneys in spite of their considerable reduction in size, predominance of some of the small renal arteries, and an absence of changes in the intima, a slight degree of generalized hypertrophy of the heart, and a normal condition of the suprarenals.

Surgery

217 Operative Treatment of Hallux Valgus

H. G. ULLMANN (*Deut. med. Woch.*, June 22nd, 1934, p. 932) deplors the profusion of different operations for hallux valgus, as it is apt to give the erroneous impression that not one is satisfactory. Since 1924 thirty-four patients, representing fifty-nine cases of hallux valgus, have been operated on at his hospital, the procedure being that recommended by Hueter in 1877 and modified by Mayo in 1908. After all the diseased skin over the affected joint has been excised, the head of the first metatarsal bone is resected, and the gap thus made is filled in by the flap of soft tissues cut so that its base is on the proximal side of the wound. The shortening entailed by the bony resection is essential to any successful operation for hallux valgus, as it helps to compensate for the shortening of certain muscles provoked by this condition. The fact that all the author's cases healed by first intention may be credited to the excision of diseased

skin. The patients were allowed to get up eleven to fifteen days after the operation, with plaster-of-Paris splinting. After a couple of days shoes were worn with supports, and three weeks after the operation the patients were discharged. From four to six weeks after the operation they were again fully fit for work. The last symptoms disappeared between one and a half and three months after the operation. From one to six years later thirteen patients (twenty-one cases) were re-examined. With only one exception all were completely rid of their symptoms, both active and passive movements being perfectly satisfactory. In the case of the one exception, movement was limited by shortening of the extensor tendon and slight dorsal flexion of the big toe. The cosmetic effect was excellent in eighteen cases. A patient who had been operated on on both sides had developed a slight valgus displacement soon after the operation, because, as she admitted, she had promptly returned to unsuitable shoes. She was, however, completely free from symptoms.

218 Habitual Dislocation of the Peroneal Tendons

According to R. LOHE (*Zentralbl. f. Chir.*, May 19th, 1934, p. 1154) dislocation of the peroneal tendons at the outer ankle is rare, and their anchoring to the periosteum by the retinaculum superius is so effective that occasionally their dislocation is accompanied by cleavage of the periosteum from the fibula. When dislocation with tearing of the retinacula occurs it is apt to become repeated after slight trauma or in forcible extension of the ankle, and treatment by simple suture and/or immobilization is ineffective. Habitual dislocation of the peroneal tendons has been successfully treated by suture with fascial strips, bridging by grafts of bone and periosteum, or fixation by a transplanted tendon of the palmaris longus. Lohe recommends and has practised section of the peroneus longus tendon at the ankle, its displacement from the anterior to the posterior border of the peroneus brevis, round which it is wound, and then sutured to the periosteum of the inner surface of the os calcis. In cases in which in addition to the peroneus longus the peroneus brevis tendon becomes habitually dislocated he suggests implantation of the latter, after passage around the former, in a similar situation.

219 Congenital Torticollis

G. DE N. HUGH, jun. (*Surg., Gynecol and Obstet.*, June, 1934, p. 972), states that in rare cases congenital torticollis is bilateral, with forward inclination of the cervical spine and head. There was no sexual predisposition in the cases he reviews (twenty-seven boys and thirty girls). The right side was affected in thirty-one cases and the left in twenty-six. Various theories of aetiology include heredity, constitutional defect, arrested development, birth injury, infective myositis, and ischaemic fibrosis. Abnormal intrauterine position or increased intrauterine pressure is widely believed to be a causative factor. The condition is described as a sclerotic interstitial myositis, with Zenker's waxy degeneration producing dense induration and shortening. This is usually limited to the sternomastoid muscle, but in severe cases the platysma, scaleni, and splenius capitis may be shortened. The lesion is usually noted at birth or soon after, and it has been found that non-operative treatment results in correction in a large proportion of cases under one year. In older cases open division of the sternomastoid muscle is the usual method of operative treatment, followed by a period of fixation and subsequent massage and exercises. In this series the operative procedure consisted of division of both the sternal and clavicular origins of the muscle, with a subcutaneous tenotomy of the insertion when necessary. It was found that complete excision of the sternal head of the sternomastoid causes an asymmetry of the neck, with loss of normal contour and prominence of the sternal extremity of the clavicle. This can be obviated by plastic lengthening of the tendon. Full active and passive over-correction of the deformity was obtained in all cases, and facial asymmetry was usually complete in about three years.

Therapeutics

220 Antirabic Virus Vaccine in Treatment of Sciatica and Migraine

J. HAGUENAU, L. CRUVEILLIER, and S. NICOLAU (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, May 21st, 1934, p. 671) report further trials of treatment in morbid conditions of the nerves by injections of neurotropic virus. They use the virus vaccine employed for prophylactic treatment of rabies at the Pasteur Institute, giving a course of daily injections for fifteen or more days. In patients with chronic arthritis of the hip or vertebral rheumatism, in pains after herpes, in trigeminal or facial neuralgia, and in tabes or general paresis the treatment was practically useless. In five out of seven cases of severe sciatica, however, which has proved refractory to other treatments, the virus vaccine injections led to speedy cure. Twelve bad cases of migraine were treated; cure was obtained in six and partial amelioration in two. The writers are satisfied that apart from relief of symptoms the majority of patients showed after their treatment a slow but striking improvement in general health; in several instances a patch of alopecia was found to disappear, and the hair and beard of a diabetic patient regained their colour.

221 Gonorrhoeal Arthritis treated by Antigonococcal Serum

L. MATEOS (*Rev. Med. de Barcelona*, June, 1934, p. 483) publishes an interesting series of cases of gonococcal arthritis treated by intravenous injection of antigonococcal serum (10 per cent. in slightly hypertonic saline), and concludes that this is the treatment of election owing to its speed and efficacy and the absence of any dangerous complications or sequelae. Though he met with early "congestive crises" and lumbar pain at times, these yielded at once to an injection of adrenaline. Delayed serum reactions were frequent, though they rapidly disappeared when adrenaline with calcium chloride and magnesium hyposulphite were administered. Complete cure invariably followed. Here is the simple technique which the author employed. The patient, fasting, though otherwise unprepared, receives intravenously 20 c.c.m. of serum in 200 c.c.m. of saline from a double-channelled irrigator provided with a controlling key. This operation should take half an hour, and is repeated forty-eight hours later with 30 c.c.m. of serum in 300 c.c.m. of saline. With like intervals two other injections are given of 40 c.c.m. of serum in 400 c.c.m. of saline. No other treatment is necessary. Three or four hours after each injection there is a rigor, with some elevation of temperature, which disappears next day. After the final injection there is occasionally serum erythema with arthralgia, both of which yield rapidly to calcium chloride.

222 Splenotherapy in Tuberculosis

J. C. BAYLE (*Bull. et Mém. Soc. Méd. de Paris*, June 8th, 1934, p. 385) advocates splenotherapy in all forms of pulmonary and surgical tuberculosis. This treatment produces a rapid disappearance of the anaemia, alleviation of the cough and dyspnoea, regression of the calcareous lesions, diminution and ultimate disappearance of the bacilli, and a rapid increase in weight and vitality. For subcutaneous or intramuscular (the more active) injections, a mixture of two parts of a glycerin extract of the total gland and three parts of physiological serum is employed, and for oral administration a saccharo-glycerin extract. Bayle combines both methods, giving daily three soup-spoonfuls of the latter preparation, and four injections weekly of the former in 5 c.c.m. doses for adults, and in children 1 c.c.m. for each year of age above 5 years. This treatment is administered for three weeks, and is then suspended for a period. The injections are free from danger, and cause no febrile or anaphylactic reaction. This method is said to be of value in cases in which pneumothorax is contraindicated or impossible, and is a useful adjuvant when this intervention has been performed.

Laryngology and Otology

223

Function of the Sacculæ

D. W. ASHCROFT and C. S. HALLPIKE (*Journ. Laryngol. and Otol.*, July, 1934, p. 450) record the results of experimental work on electro-physiological lines directed towards the elucidation of the problem of saccular function, the animal employed being the frog. While no response was obtained from the saccular nerve in response to movements of tilting or rotation, vibration brought about a marked reaction, showing that in this animal the end-organs concerned in the sense of hearing are situated in the sacculæ. It is thought by the authors that their experimental results support the suggestion of Tait that in man the sacculæ is concerned with the reception of bone-conducted sound. If it is possible to establish the truth of this suggestion the resonance theory of hearing is somewhat discounted, and localization of disturbance in the cochlea, although it may occur, would no longer have the supreme psychological significance expressly attributed to it by the resonance theory. Both the frog's sacculæ and the cat's cochlea exhibit the common attribute of frequency reproduction, and there is thus good evidence for the belief that in the peripheral mechanism of pitch perception both cochlea and sacculæ are commonly concerned, at any rate for the lower frequencies. Regarded from the viewpoint of phylogeny it seems likely to the authors that the cochlea in its primitive macular form would possess the simple telephone mechanism shown to exist in the sacculæ of the frog. That this primitive mechanism would be lost in the course of development seems improbable to the authors, although the appearance of an extraneural tuning mechanism would lead to a spatial representation of frequency. It is thought likely that both telephone and resonance mechanisms are concerned in the psychological process of pitch discrimination.

224 Laryngo-fissure in Laryngeal Carcinoma

L. H. CLERF (*Arch. of Otolaryngol.*, June, 1934, p. 653) has subjected a series of fifty-eight consecutive cases of cancer of the larynx treated by laryngo-fissure to analysis from the standpoints of age, sex, death from post-operative complications, death from intercurrent diseases within three years of the operation, recurrence, and recovery without recurrence for a period of more than three years after operation. There were fifty-four male and four female patients. One was in the third decade of life, two in the fourth, fifteen in the fifth, twenty in the sixth, fifteen in the seventh, and five in the eighth. Five died from complications developing after the operation, a high mortality rate of 8.6 per cent. Four between the ages of 65 and 70 died from cardiac and renal complications (one having coronary thrombosis), while the fifth, who had diabetes mellitus, died on the eighth day from bronchopneumonia and diabetic coma. Deaths from intercurrent diseases after the operation numbered six, and in none of these patients was there any demonstrable evidence of recurrence. There were eight cases of recurrence, of which seven terminated fatally, irrespective of irradiation or laryngectomy. The eighth patient was subjected to laryngectomy, and there was no evidence of recurrence more than three years later. In six of these cases the growth was graded as of an intermediate type, and it might be suggested that laryngectomy would have been a more suitable primary operation. Clerf thinks it doubtful whether all the cancer would have been removed thus, unless the hyoid had been excised with the larynx. He points out that in five cases the growth was incompletely removed, in one the recurrence between the hyoid bone and the base of the epiglottis might have been successfully treated by a radical operation if it had been discovered sufficiently early. In another case there was an unexpected extension of the growth to the thyroid gland; and in the last the metastasis had involved the deep cervical lymph nodes without recurrence in the larynx. Fear of the whole series could not be traced, and thirty-five have remained free from signs of recurrence for periods

ranging from three to five years so far. On the basis of recurrence in eight cases and freedom from recurrence in thirty-five the rate of failure can be stated as 18.6 per cent. Laryngo-fissure is commended, therefore, in laryngeal carcinoma, except in cases where metastasis has occurred, or the growth has invaded the thyroid cartilage, or it is impossible to remove sufficient of the surrounding normal tissue. It should not be employed, moreover, in cases of cancer of the epiglottis or of the aryepiglottic fold, or in lesions originating in the infraglottic portion of the larynx.

225

Surgical Treatment of Aural Vertigo

Drawing an analogy from the surgical treatment of facial neuralgia, A. HAUTANT (*Bull. de l'Acad. de Méd.*, June 26th, 1934, p. 933) considers that this method is indicated in those cases of essential vertigo, characterized by incessant, violent crises, which are refractory to all medical measures. Any displacement or change in pressure of the intralabyrinthine liquid reacts upon and excites the nervous elements. Removal of even a minute quantity of the endolymphatic fluid suffices to destroy the normal excitability of the vestibular apparatus, and, by destroying the peripheral stimulus of the latter, attacks of vertigo are almost always ameliorated and frequently cured. The method consists in trephining the semicircular canals, employing the mastoid route; this involves no danger, and, if unsuccessful, does not aggravate the vertiginous condition. Hautant has performed this operation in thirteen cases, with cure in seven and improvement in four. Short notes on three cases are given.

226 Diphtheria Bacilli in Chronic Nasal Infections

R. SCHROEDER (*Ann. d'Oto-laryngol.*, May, 1934, p. 487) discusses the significance of the appearance of diphtheria bacilli in the nose and throat of patients suffering from chronic nasal infections. In a series of 126 patients with such infections diphtheria bacilli were detected in thirty-nine, but in no instance did the clinical symptoms justify a diagnosis of chronic diphtherial rhinitis. He finds it necessary to admit, therefore, that such an appearance of diphtheria bacilli in the nasal cavities in a state of chronic inflammation is merely a secondary phenomenon. Diphtheria antitoxin was given in four cases without any lasting effect on the rhinitis. In only 10 per cent. of the cases with diphtheria bacilli in the nasal secretions were the organisms discovered in the throat concurrently. As an alternative to the isolation of these diphtheria carriers he urges the active immunization of all their contacts against diphtheria, and emphasizes the danger of infection to the community from these often unsuspected sources.

Obstetrics and Gynaecology

227

Uterine Carcinoma

G. LECLERC (*Presse Méd.*, June 20th, 1934, p. 993) presents a study of cancer of the uterine body based on forty-four personal cases—pre- and post-menopausal. In the former the diagnosis is difficult, as metrorrhagias due to causes other than cancer are very frequent. The latter group comprises forty of the cases described. Leclerc does not agree with Faure and others that a persistent haemorrhage after the menopause is necessarily pathognomonic of cancer, but affirms that, while malignancy should always be suspected when it occurs without cervical symptoms, the diagnosis should be infallibly established. Hysteroscopy, uterine radiography after injection of lipiodol, intrauterine digital exploration, and curettage are cited as diagnostic measures; the first three are dismissed as giving reliable information in only a few cases. Leclerc rules on curettage: this is perfectly harmless if done skilfully with a soft curette; it can be performed without anaesthesia and without dilatation, or merely sufficient dilatation to permit of the introduction of the curette. Hysterectomy is the elective treatment for these cancers; radium is recommended only when inter-

vention is impossible or contraindicated. The gravity of this operation (Leclerc's mortality figure was 18 per cent.) emphasizes the need of correct diagnosis. In twenty-eight cases cured by operation there were nine recurrences and nineteen survivals of from three to fourteen years. In subjects with good resisting powers total abdominal hysterectomy is advocated; in others, the subtotal or vaginal. In doubtful cases Leclerc performs the total in two stages: first, a subtotal is done, with removal of the uterus, and, if a diagnosis of cancer be established, the cervix is secondarily excised.

228 Retention of the Membranes

From the results noted in 317 cases of partial and twenty of total retention of the membranes after delivery, J. L. WODON and R. DE GUCHTENEER (*Bruxelles-Médical*, June 17th, 1934, p. 1047) draw the following conclusions. In partial retention, no intrauterine intervention (curettage, injections) is justifiable. This condition causes no haemorrhage or other grave complication. There was no morbidity (the criterion of this was taken to be the occurrence of an axillary temperature of 37.5° C. once during the first eight days post partum) in 60 per cent. of the cases; in 30 per cent. the temperature did not exceed 37.5° C., and in 8.8 per cent. it reached 38.9° C. In only 1.2 per cent. was the latter temperature exceeded, a figure not higher than that occurring with complete expulsion of the foetal adnexa. In cases of total membranous retention followed by an early temperature of at least 38.5° C., curettage may be performed, though not absolutely necessary; this intervention appears to be of value only if performed before the fifth day of the post-partum.

229 Treatment of Salpingo-peritonitis

J. ELGART reports treatment of fifty cases of incipient salpingo-peritonitis (*Journ. Obstet. and Gynaecol. British Empire*, June, 1934, p. 396) by his method, with no fatality and no diffuse peritonitis. In acute abdomen combined with vaginal discharge he first performs appendectomy, and then examines the Fallopian tube. If pus can be expressed he disinfects with iodine, ligates the tube, and severs it 0.5 cm. beyond the ligature. This prevents escape of pus into the abdominal cavity, is followed by subsidence of inflammatory symptoms in two or three days, results in a patent lumen, and allows for restoration of function by subsequent salpingostomy if desired.

Pathology

230 Monocyte Histology in Malignant Disease

O. C. GRUNER (*Journ. Lab. and Clin. Med.*, June, 1934, p. 917) describes certain filamentous, spirillar, and geniculate structures which are discernible in leucocytes, especially the monocytes, in a high percentage of cases of malignant disease, and are also found in occasional cases which are clinically non-malignant. They are demonstrable only by Pappenheim's panoptic method or by Leishman's stain. Care must be taken not to wrinkle the cells in spreading the film, nor to confuse these structures with azure granules. Such intracellular structures were found in 132 out of every 1,000 mononuclear cells in malignant disease of the alimentary tract, but less frequently in sarcoma and in oesophageal cases. In patients under radium treatment they were much less common and more difficult to find. Gruner discusses their significance, having satisfied himself that patients with malignant disease do, as a rule, have their blood loaded with such abnormal cells. It was found that the blood varied in its content of these structures at different times of the day. He concludes that the nucleo-irritative products vary in amount independently of the defensive tissue reaction. He points out that, while chromoidal extrusions are common in circulating blood, especially in malignant disease, they are also numerous in healthy persons on a diet rich in purines. But these extrusions

never attain the length of the filamentous structures, being of drumstick or spiculated form. The structures might perhaps be taken as an index of chromoplastic activity, which would be in harmony with a popular view as to the nature of malignant disease. They may reflect the outpouring of cytotoxic and cytotoxic products from the neoplasm, an event which need not necessarily be continuous and need not occur in all stages.

231 Tuberculin Sensitivity in Childhood Tuberculosis

J. A. JOHNSTON, P. J. HOWARD, and J. MARONEY (*Amer. Rev. of Tuberculosis*, June, 1934, p. 652) record observations based on 213 children with primary tuberculous infections followed in hospital for two years, and on more than 500 children followed in the out-patient department for six years. Serial dilutions of old tuberculin were given intracutaneously at monthly intervals, the threshold being taken as the highest dilution to which any local response was elicited. The same batch of tuberculin was used throughout. Changes in sensitivity were studied in relation to the x-ray appearances in the lungs and the blood picture. Generally speaking, in the first stage of the infection the x rays showed parenchymatous infiltration, and the tuberculin sensitivity increased. During the second stage, when the parenchymatous infiltration began to clear but the hilum region enlarged, tuberculin sensitivity was at its height. In the third stage, as the hilum nodes diminished in size and began to calcify, tuberculin sensitivity gradually fell. In none of the hospital patients did the tuberculin reaction become completely negative, but thirteen of the out-patient group eventually failed to respond even to 1 mg. The changes in the blood were more variable. As a rule the total leucocyte count was normal, but a steady fall in polymorphs and monocytes occurred, accompanied by a rise in lymphocytes. The most consistent finding, however, was a definite shift to the left in the Schilling-Arneth index, followed, as involution of the local lesion occurred, by a shift to the right. The authors conclude that the maximum level of tuberculin sensitivity corresponds to the maximum involvement of the lymph nodes. The steady rise in sensitivity is a feature not of extension but of absorption of the parenchymal lesion.

232 Serological Diagnosis of Weil's Disease

W. GAETGENS (*Med. Welt*, June 16th, 1934, p. 825) states that in the neighbourhood of Hamburg the number of cases of Weil's disease recognized in each of the last two years exceeded that of the period 1927-31. Further experience has confirmed the diagnostic value of serological tests, and has shown that the complement-deviation test is at least as valuable as those of agglutination and lysis. Its antigen prepared from the spirochaetes is highly specific, and is stable for at least twelve months. The complement-deviation and other serological tests are only exceptionally positive during the first week of illness, but nearly always positive towards the end of the second week. Gaetgens agrees with Uhlenmuth and Zimmermann that agglutination or lysis in a serum diluted to 1 in 200 confirms clinical suspicion of Weil's disease: agglutination in a titre of 1 in 100 is highly suspicious. He finds that in the complement-deviation test a positive result in dilution 1 in 100 is fairly conclusive, in dilution 1 in 50, or even 1 in 10, definitely suspicious.

233 Human Influenza and Canine Distemper

A. EICHORN and N. J. PYLE (*Journ. Amer. Med. Assoc.*, June 23rd, 1934, p. 2082), after confirming the findings of Smith, Andrewes, and Laidlaw with regard to the inoculation of ferrets and the post-mortem changes in these animals, found that inoculation of the human influenza virus induced immunity in ferrets to the virus of canine distemper. There thus appears to be a possible relationship between influenza in man and the distemper virus in dogs. The writers are at the present time conducting experiments to determine the possibility of cross-immunization with the virus of influenza and the virus of distemper in dogs.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

234. Secondary Pellagra in Asylums

G. V. BREDMOSE (*Hospitalstidende*, June 12th, 1934, p. 694) has joined in the hunt for cases of pellagra in asylums in Denmark, recently set on foot by Hess Thaysen, whose investigations have shown that pellagra, secondary to protracted gastro-intestinal disease or an inadequate diet, is not rare among the insane. By January, 1934, the comb-out of Danish asylums had yielded as many as twenty cases of pellagra; and the author adds seven more to this number by scrutinizing the records of his asylum in the ten-year period 1924-33. Five of the patients were women, and five had died suffering from well-developed, active pellagra. In the last two cases the patients benefited from the comparatively early recognition of their disease and from treatment with vitamin B₂ preparations (bevit and spinatin) and a dietary including eggs, milk, cream, and maltose. Under this treatment marked improvement was effected as far as the pigmentation, hyperkeratosis, and spinal symptoms were concerned. But there was no improvement in the mental condition, and the author is inclined to think that no such thing as a special pellagra psychosis is demonstrable. Pellagra may occur in any form of mental disease, not as a direct sequel to it, but as the result of refusal to eat or prolonged gastro-intestinal disturbances which interfere with the absorption of the pellagra-preventing vitamin. The investigations hitherto conducted in Denmark suggest that 0.3 to 1 per cent. of the inmates of Danish asylums suffer from pellagra.

235. Infection Risks from Children with Open Tuberculosis

G. WILDER and F. STÜRMELING (*Munch. med. Woch.*, June 29th, 1934, p. 976) draw attention to the growing importance attached to children as sources of tuberculous infection, since several investigators have found that the contents of the stomachs of tuberculous children, withdrawn by the stomach pump, often contain tubercle bacilli. To examine this problem from another angle, they introduced six guinea-pigs into the tuberculosis section of a children's hospital in Munich, letting tuberculous children play with the animals in bed. A couple of guinea-pigs were kept as controls (out of contact with the tuberculous children). The other guinea-pigs were removed from the section during visiting hours, so as to avoid their infection by tuberculous visitors. This experiment was continued uninterruptedly for three months, and the guinea-pigs were then kept by themselves in stables for another three months. During this period they were repeatedly tested with tuberculin administered by the intracutaneous route. There was never any positive tuberculin reaction, and when the guinea-pigs were killed no evidence of tuberculosis was found. Yet at least two of the children had cavities, and in several cases an intercurrent attack of whooping-cough made the children cough much. Though this experiment was negative, the authors are disinclined to conclude from it that tuberculous children do not spread tuberculosis.

236. Abscess of the Lung

H. STARCK (*Deut. med. Woch.*, June 8th, 1934, p. 857) believes that within the last few decades abscess of the lung has become quite common after being so rare that a clinician's experience of it might well be limited to a single case. Now he may have seen over a hundred such cases, and Professor Starck has observed twenty-three cases, which, with only two exceptions, have occurred since 1930. As women are as subject to this disease as men, it can hardly be traced to war-time gassing. A more plausible hypothesis incriminates the successive waves of influenza which have swept over the world since 1918, and which may have paved the way for abscess of the

lung. Though the textbooks distinguish between abscess and gangrene of the lung, the difference is assuredly one of degree only; the simple abscess of the lung merges without any great change into gangrene when anaerobic germs enter the field and render the sputum putrid. Fever is seldom absent, but there is no characteristic temperature curve, and it may not exceed 38° C. throughout an illness lasting for months. Indeed, one of the author's patients has suffered from a pulmonary abscess for two years and a half without any rise of temperature. The disease may be fatal in a few days or run a chronic course, lasting for years; even when there are no complications, and the abscess is a benign, metapneumonic lesion, the illness is apt to last three or four months. The prognosis is most uncertain; at any moment there may be a surprise. As a rule the central and perihilar abscesses fare better than the peripheral abscesses, but the factors of greatest prognostic importance are the general health, the heart, and circulatory system. When the abscess is perihilar or central an artificial pneumothorax is indicated. Of the author's twenty-three patients four were operated on (two deaths and two recoveries). There were five deaths from sepsis. The recoveries under conservative treatment numbered thirteen, and one patient was still under treatment.

237. Thrombo-angiitis Obliterans and Typhus

D. KISZELNIK (*Thèse de Paris*, 1934, No. 513), who records a personal case in a patient aged 23, maintains that thrombo-angiitis or Buerger's disease is not an exclusive appanage of the Jewish race, but is encountered in all countries where typhus is endemic, such as the Balkans and Soviet Russia. In view of the affinity of typhus infection for the vessels and the frequency of thrombo-angiitis obliterans in these countries where typhus is endemic, it is probable that a number of cases of Buerger's disease are due to an attenuated or inapparent form of typhus, for which a careful search should be made by clinical examination and the Weil-Felix reaction.

Surgery

238. X-Ray Diagnosis of Chronic Appendicitis

L. KRENS (*Wien. klin. Woch.*, June 22nd, 1934, p. 778), as proof of the utility of x rays in the diagnosis of the "chronic appendix," cites the finding that the addition of radiography to the pre-operative investigations diminishes the proportion of normal appendices found from about one in four to about one in ten, in cases coming to operation for supposed chronic appendicitis. Of 234 patients who appeared clinically to have this disease, alterations of the appendix could be shown radiologically in two-thirds of them. Only 10 per cent. of the appendices which had been invisible on screening proved to be normal. No single appendix was free from disease which radiologically had showed abnormal filling (partial filling, adhesion, tenderness); this group was composed of twenty-one patients. According to the practice of Czega, the patients received about a teaspoonful of magnesium sulphate with the contrast meal, and were examined eight, twenty-four, and forty-eight hours afterwards; the screening was repeated (with a different aperient dose) if the appendix was imperceptible.

239. Treatment of Syndactylism by Epithelial Inlay

J. ESSER and RAOUX (*Rev. de Chir. Plastique*, May, 1934, p. 21) point out the difficulty of successful operative treatment in cases of syndactylism, particularly owing to the insufficiency of skin available to close the wounds after separation of the fingers. Skin grafts are successful in some cases, but the technique is delicate and difficult, and the formation of scar tissue and granulation may prevent free movement of the fingers. The method of treatment

advocated by the author, and called "epithelial inlay," has been in use by him for eighteen years, and has given remarkably good results. The fingers are first separated up to the interdigital space, so as to leave the web at the normal level when the operation is completed. After careful haemostasis an impression of the wound is taken with a Stent mould, which is similar to that used by dentists when taking impressions of the teeth and jaws. The mould is disinfected externally by sublimate solution, and is soaked in hot water to soften it before it is applied to the interdigital space. After a few minutes the mould hardens, and the impression thus taken is covered with a dermo-epidermic graft, which must be of sufficient size to cover both the web and the two lateral wounds. The graft is then placed between the fingers and is held firmly in place by bandages. The mould is removed after ten days, and it has always been found that the graft has taken so successfully that the wound is completely covered by epithelium without sign of granulation. The mould is dried and replaced for a few more days. This method of treatment is considered to be superior to that of any other type of plastic operation, being simple to carry out, and giving good results in all types of syndactylism.

240 Sarcoma complicating Paget's Disease

Paget observed the frequent occurrence of sarcoma in the disease bearing his name, and Leri noted that this malady predisposes to gout and cancer, especially osseous cancer: several cases are recorded in the literature. J. HAGUENAU, L. GALLY, and P. DAUM (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, June 4th, 1934, p. 786) present details of a case of Paget's disease in which an osteo-sarcoma of the right knee with metastases in the cervical vertebral region developed. Death supervened in six months after the first appearance of pains in the knee. In most cases these tumours appear after the age of 50, and much more frequently in males, and they invariably develop on bones presenting, at least radiologically, the characteristics of Paget's disease, and never on normal ones. Histologically, they most frequently resemble ordinary sarcoma; in one case, however, myeloplaxic tumours occurred, and in another von Albertini noted that the marrow of the affected bones was converted into a tissue of fusiform cells, sarcomatous in appearance, and he suggests the possible formation in "pagetic" bones of a presarcomatous tissue capable of true sarcomatous degeneration. The present authors believe that this complication is too infrequent to permit of this hypothesis, and consider that these cases are analogous to those neoplastic degenerations following chronic irritation. The prognosis of these sarcomata is rapidly fatal and no treatment is of any avail.

241 Fracture of the Styloid Process

O. KAPEL (*Hospitalstidende*, June 26th, 1934, p. 786) finds that in certain fractures, such as those of the os naviculare manus and of the styloid process of the radius, inadequate immobilization may prevent bony union and ultimately lead to a painful wrist with chronic arthritis deformans. When immobilization is not continued long enough pain returns on movement, and it may then be waste of time to practise massage and active movements. A chauffeur, aged 49, fractured the styloid process of the right radius while cranking up a car. For three weeks the wrist was immobilized, and thereafter he was treated with massage and movements. As his wrist remained painful he was referred to the author, who secured it in plaster-of-Paris, in a position of slight dorsal flexion, with the fingers perfectly free. The patient was thus still able to do gardening. The plaster was changed every eight weeks and worn altogether for seven months, after which the movements about the wrist and fingers were perfectly free and painless. The successive x-ray examinations when the splint was changed showed progressive healing of the fracture. The author argues that if movements and massage had been continued when he took over this case the patient would have had an always painful joint, with arthritis deformans and progressive invalidism before him.

Therapeutics

242 New Method of Artificial Respiration

S. JELLINEK (*Wien. klin. Woch.*, June 29th, 1934, p. 808) criticizes the older methods of artificial respiration, and states that the more or less brutal compression of the chest usually employed is physiologically unsound. The circulation in the lungs, as well as the coronary circulation, benefits from the normally present negative intrathoracic pressure, and compression, besides impairing these functions, produces sudden resistance to the muscularly weak right side of the heart. It further damages the lung parenchyma, especially the respiratory epithelium, and if sufficiently brutal may produce fracture of the ribs, rupture of the liver, and laceration of the diaphragm. The good results achieved by older methods do not minimize their danger. Jellinek describes a new method depending on "concussion" of the thorax. The patient is put on his back, with an improvised support between the shoulder blades. The tongue is automatically fixed by the patient's second and third fingers, which are introduced into the mouth and press on the tongue behind the teeth. This automatic fixation keeps the respiratory passages clear. The patient's upper arms are grasped by the fingers, the thumbs resting on the acromial end of the clavicles. With a strong rapid movement the shoulders are pressed against the shoulder-blade support and let go after one second. This pressure is repeated rhythmically at two to three second intervals. X rays showed that all three diameters of the chest increase in size, while manometric readings demonstrated that suction was induced—that is, that active inspiration is aided.

243 Animal Carbon Injections in Infections

H. GAUDIER and DÉMAREZ (*Bull. de l'Acad. de Méd.*, July 3rd, 1934, p. 45) record excellent results in twenty-five cases of very varied infections (urinary and uterine infections, acute articular rheumatism, pneumonia, etc.) following intravenous injections of animal carbon (Saint-Jacques's method). Doses ranging from 2 to 5 c.cm. of a 2 per cent. solution of the finely pulverized substance were injected in series of two or three injections at various intervals. The injections are painless, are not followed by secondary fever, and cause a lowering of the temperature and marked clinical improvement. The authors emphasize the complete innocuity of this method.

244 Remedy for Mycotic Eczema of the Feet

S. LOMHOLT (*Ugeskrift for Læger*, June 21st, 1934, p. 655) of the Finsen Institute in Copenhagen has recently conducted encouraging experiments with para-oxy-benzoic acid-ethyl-ester—sold by the firm of Leo as "mycoeten." It was prepared by two engineers who had investigated various means of preserving foodstuffs against moulds. They requested the author to test it in cases of interdigital eczema of the feet provoked by the *Epidermophyton interdigitale*. After testing it in about 100 cases, some of them controlled by simultaneous tests with various other remedies applied to the other foot, the author was greatly impressed by its efficiency and lack of toxicity. Mycoeten can be applied as a 5 per cent. alcoholic solution or in ointment form, with the following composition: ung. plumb. oxid. grams 60, liquid paraffin, mycoeten, and salicylic acid aa grams 3. The composition of this ointment is designed to promote maceration of the skin, which favours penetration of the drug, while at the same time the acid reaction inhibits the growth of the fungus. The author has found the therapeutic action of this ointment considerably enhanced by the addition of hydrargyrum amidochloridum (5 per cent.). Patients with an idiosyncrasy to mercury should, however, beware of this addition. The ointment is odourless and white, and its application is almost invariably followed by the prompt disappearance of itching and other symptoms. Every evening, the feet are washed with soap and water to which a little soda has been added, and loose tags of skin are removed. The toes are carefully dried and then bathed with the

alcoholic solution of mycoeten. When this has dried a thin layer of the ointment is applied. This procedure is repeated next morning. The stockings are disinfected with methylated spirits and are then dusted with a talcum powder containing 5 per cent. mycoeten and 5 per cent. salicylic acid. In slight cases, and for purely prophylactic purposes, the ointment can be dispensed with and only the alcoholic solution of mycoeten used. It is applied once or twice a day on a pad of cotton-wool to the interdigital spaces. Though the same treatment can be applied to the hands it is apt to be less effective.

245 Convalescent Scarlet Fever Serum and Antitoxin

P. S. RHODS and B. M. GASUL (*Journ. Amer. Med. Assoc.*, June 16th, 1934, p. 2005), from comparative observations on the protective value of convalescent serum and commercial scarlet fever antitoxin, come to the following conclusions. Cases have been observed in which the usual dose of scarlet fever convalescent serum administered to susceptible individuals failed to afford passive protection to the disease. On the other hand, the ordinary commercial scarlet fever antitoxin always afforded complete passive protection against scarlet fever in susceptible persons. Unless an unusually potent convalescent serum is used patients will receive more immune bodies from the therapeutic dose of scarlet fever antitoxin than from convalescent serum given in the usual dosage. Convalescent serum distributed through a serum centre costs much more per antitoxic unit than commercial antitoxin.

Radiology

246 Radiotherapy in Vasomotor Disorders of the Extremities

Owing to the action of x rays on the sympathetic nervous system, R. GILBERT and L. BABANTZ (*Rev. Méd. de la Suisse Romande*, July 25th, 1934, p. 725) have made use of them in vasomotor and trophic diseases of the extremities, such as intermittent claudication, Raynaud's disease, etc. Paravertebral irradiations of the sympathetic ganglia and deep plexuses, either alone or combined with irradiation of the peripheral endings, have given excellent results. The authors have employed this method in eleven cases, five of which are here recorded. With a semi-penetrating moderately filtered irradiation, total doses of 500 to 800 r, spread over two to three weeks, are given in bi- or tri-weekly irradiations; 175 r is given per field at each treatment. If results are not obtained, the series is repeated after an interval of two or three weeks. Spinal irradiations are first given, and, if improvement be tardy, peripheral ones are added. For diseases of the upper extremity, irradiations are made over the cervical and two first dorsal vertebrae, and for those of the lower limbs over the tenth dorsal to the first lumbar vertebrae.

247 X-Ray Treatment of the Thyroid and Thymus

While admitting that x-ray therapy can show a high percentage of successful results in the treatment of overactivity and of enlargement of the thyroid and thymus glands, H. DAVIES (*Brit. Journ. Radiol.*, June, 1934, p. 362) believes that, if cases of thyrotoxicosis were more carefully grouped and operation were regarded as the method of choice in the secondary type with x-ray treatment in the primary type, the results would be still better. Primary thyrotoxicosis occurring in the young adult is attended by an appreciable operation risk and an operation cure of only about 80 per cent., whereas the later x-ray therapy can be shown by large series of cases to be just as effective. Davies considers that the indication for x-ray treatment in thyroid disease is overactivity of the secretory epithelium, while in the thymus not only has such secretory overactivity to be considered as an indication, but also simple enlargement due to overgrowth of the lymphoid tissue. A point to be emphasized is that recurrence in primary cases treated by opera-

tion is as high as 6 to 7 per cent., and this must be taken into account when considering the statistics of successful results in x-ray treatment as compared with operation. Where care is exercised, the risk of skin damage should be nil and the risk of myxoedema negligible. Moreover, x-ray treatment has the advantage that it can be graded, whereas at an operation the amount of thyroid tissue removed is final. The author has treated with x rays three cases of myasthenia gravis with enlargement of the thymus associated with enlargement of the thyroid and some hyperplasia. In one instance there was definite improvement after one month, persisting for eighteen months. In the other two cases there was immediate and striking improvement, but the sequel is unknown. The amount of radiation required to produce a good effect in the thymus is small. In view of the close connexion which has been shown to exist between the lymphoid tissue of the thymus and thyroid and other conditions, the thymus should receive careful attention when treatment is being undertaken.

248 Encephalography under Nitrous Oxide Anaesthesia

R. W. WAGGONER and L. E. HIMLER (*Amer. Journ. Roentgen. and Rad. Ther.*, June, 1934, p. 784) record thirteen cases of encephalography in which nitrous oxide anaesthesia obviated all subjective symptoms while the fluid was being removed, without preventing a quick return of consciousness. This anaesthetic was found also to diminish the severity of the post-encephalographic reaction. The pulse rate, blood pressure, and respiration rate were recorded every few minutes, and no adverse manifestations were noted, whereas without an anaesthetic the pulse frequently becomes weak and thready after about 50 c.cm. of spinal fluid has been removed. The only objection is the additional expense involved. The increase in initial intracranial pressure consequent upon its use does not appear to be a contraindication. The age of the patients in the authors' series ranged from 3 to 56 years. The average time required for drainage of the fluid was slightly under one hour. The authors add that no cases with choked disks or posterior fossa tumours have been included so far, although two with frontal and temporal tumours were clearly localized by this method. These two patients were up and free from headache in less than forty-eight hours.

Obstetrics and Gynaecology

249 Symphysiotomy

W. HAUPT (*Med. Welt*, June 23rd, 1934, p. 863) records that at Bonn in the past fifteen years thirty sections of the bony pelvis have been done, in comparison with 585 Caesarean sections. He believes that the former operation still has definite, if limited, indications. It should not, in general, be done if the conjugate in the flat pelvis exceeds 7.5 cm., or in multiparae—although Zarate included thirty-two primiparae in his series of 100 operations, with one fatality only. According to collected mortality statistics, symphysiotomy, in rightly chosen cases, has a considerably better maternal and a slightly better foetal outlook. Technically, Haupt recommends that the division be done with the guidance of the left index in the vagina, pushing the urethra sideways, and the left thumb pressing the clitoris outwards. The pre-urethral ligament is respected, the arcuate ligament as a rule divided. The division of the cartilage is accompanied by slight abduction and external rotation of the thighs; so soon as it has been slowly completed, with gradual pulling of the pubes, the thighs must be adducted and rotated internally to avoid injury of the sacrospinous joints. In general, labour is completed, after downward pressure of the head into the pelvis, by forceps. The labes are afterwards tied together by a handkerchief, and a pelvic girdle is applied, the crossed anterior ends of which are led over pulleys at the sides of the bed, and subjected to traction for some eight days, sandbags at

being applied outside the hips. In twenty-three personal cases the mortality comprised one only—an eclamptic case. Bleeding and injuries were negligible: four infants did not survive.

250 Aetiology and Treatment of Pregnancy Pyelitis

F. v. MIKULICZ-RADECKI (*Zentralbl. f. Gynäk.*, June 30th, 1934, p. 1506) expresses his astonishment that the importance of ureteral, or rather pelvirenal, catheterization in the treatment of pyelitis in pregnancy is not generally recognized. It is still doubtful, he thinks, whether pressure of the enlarging uterus is an important favouring factor, and whether the renal parenchyma is affected: certainly the vesical mucosa is rarely inflamed. Pyelitis in pregnancy demands as concomitant factors: (1) urinary infection, usually by *B. coli*; (2) stasis in the ureter—this is due, v. Mikulicz-Radecki believes, to angular kinking, with or without torsion, of the lax, spinally slung, uppermost section of the ureter. (Atonicity of the ureter during pregnancy is a proved physiological condition. Acute kinking of the ureter during pregnancy, in the absence of urinary infection, leads to acute pain and rigidity, without morbid urinary findings: acute appendicitis may be closely simulated, but catheterization of the ureter will usually relieve the pain and settle the diagnosis.) In pyelitis of pregnancy the best treatment is found in catheterization and irrigation of the renal pelvis. Many apparent failures are due to omission to pass the catheter sufficiently high.

251 Atrophy of Female Genitals after Castration

F. RÓZSA (*Thèse de Paris*, 1934, No. 350), who records nine illustrative cases in women aged from 33 to 55, states that surgical castration in women may be followed by trophic disturbances which may affect the whole or part of the genital tract remaining after the operation. Subtotal hysterectomy is succeeded by atrophy of the cervix and diminution of the secretion of the glands of the cervix, while the vulva and vagina undergo a sclerotic retraction similar to the kraurosis vulvae of old age. The trophic disorders of castration are mainly due to removal of the ovary and the complete disappearance of its internal secretion. The preservation of a single ovary or the activity of an ovarian graft appears to be sufficient to protect the patients from these trophic changes without the uterus being preserved. Treatment is mainly preventive. In some cases it is possible to keep a part of the uterus or one of the ovaries. When atrophy of the genitals has taken place the treatment must be general by administration of ovarian extract and local by dilatation with the speculum or dressings. When the atrophy is associated with leucoplakia the affected tissues should be excised as freely as possible so as to prevent cancer of the vulva.

Pathology

252 Factors Predisposing to Infection with *Cl. septicum*

GRIZEL R. BORTHWICK (*Brit. Journ. Exper. Path.*, June, 1934, p. 153) has carried out experiments on guinea-pigs to determine the conditions favouring infection with the anaerobic spore-bearing organism, *Cl. septicum*, from the alimentary tract. Cultures of this organism rarely set up infection when fed to normal guinea-pigs—for example, in a series of thirty animals tested not a single death occurred. Adjustment of the gastric contents to pH 7.6 did not seem to favour infection, only one out of twenty-one guinea-pigs dying. Similarly, adjustment to pH 5, which was found to be the most favourable H ion concentration for the activity of the toxin, had little effect in favouring infection: only three out of twenty-one animals died. On the other hand, inhibition of peristalsis by previous administration of narcotine led to the death of fifteen out of twenty-one animals when the pH of the gastric contents was not adjusted, and to the death of

fifteen out of twenty animals when the pH was adjusted to 7.6. Previous exposure to cold led to the death of nine out of twenty animals when the pH was not adjusted, and to the death of sixteen out of twenty when it was adjusted to 7.6. Cooling of the culture to 0° C. had much less effect; only four out of twenty-two animals died under these conditions. It appears, therefore, that the two most important factors predisposing to infection are stasis of the gastro-intestinal tract and exposure of the animals to a low temperature. It was thought that exposure to cold might act by inhibiting peristalsis, but experiments failed to lend any support to this view. The feeding to guinea-pigs of toxin alone, in 8 to 10 c.c.m. quantities, proved harmless, nor did the administration of narcotine or the adjustment of the gastric contents to pH 5 or pH 7.6 render it active. This suggests that the toxin is not absorbed from the intact mucosa of the stomach or intestine.

253 Effect of Supersonic Waves on Bacteria

A. C. H. YEN and SZU-CHUN LIU (*Proc. Soc. Exp. Biol. and Med.*, June, 1934, p. 1250) have studied the destructive action of supersonic waves on a number of different bacterial species. The waves, which consist of actual molecular vibrations, were produced by means of an oscillating current, the quartz plate being adjusted to vibrate at 1.5×10^6 times per second. The bacterial suspensions to be exposed were placed in a test tube, 15 mm. in diameter, containing a glass cooling-coil to prevent the temperature rising above 20° C. Plate counts were made before exposure and at intervals up to ninety minutes during exposure. There seemed to be a more or less continuous variation in the susceptibility of the different species of bacteria to the supersonic waves. The anthrax bacillus, for example, seemed to be very little affected. A definite reduction occurred in the numbers of *B. subtilis*, and a still greater reduction in those of a group of nasopharyngeal organisms, including Pfeiffer's bacillus, *N. catarrhalis*, and *Str. haemolyticus*, together with *Staphylococcus aureus*. *B. coli* and *B. typhosum* were completely destroyed in ninety minutes, while *proteus* X 19 and Shiga's dysentery bacillus survived for only forty-five to sixty minutes. The mechanism of action of the supersonic waves was not determined, but studies on the opacity of the suspensions suggested that actual cellular disintegration was occurring with the liberation of protein which subsequently underwent coagulation.

254 Outbreak of Botulism

A. STRØM (*Tidsskr. f. d. Norske Lægefor.*, June 15th, 1934, p. 633) gives an account of a small epidemic of botulism traced to an infected ham. In the middle of December, 1933, a servant girl fell ill, her most troublesome symptom being paresis of the accommodation of the eyes, lasting between one and two months. The next two cases on the same farm developed at Christmas, the illness lasting only a week or two. Early in February three of the farm's workers left it temporarily, and after a couple of days one of them had to return home, feeling ill. His place was taken by another worker, who after a couple of days became very ill, his illness lasting several weeks, and his symptoms including paresis of the muscles of accommodation, the abductors, the intestines, and the bladder. In practically every case the disease began with diarrhoea and vomiting, which lasted twenty-four hours. A couple of days later dryness of the throat and giddiness were complained of, the pupil reflexes were absent, constipation was severe, and the patients were mentally sluggish. Though all recovered some were very exhausted, and the pulse in a couple of cases was up to 120. Suspicion fell on a couple of hams which the three workers had taken with them on leaving the farm. Samples of these hams and of eight others not yet cut into were sent to the State Institute of Hygiene in Oslo, where experiments on mice and guinea-pigs, supplemented by culture tests, demonstrated the presence of the *B. botulinus* in one of the first two hams. The mode of infection of this ham could not be discovered.

OCT. 13, 1934]

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine.

255 Epidemiology of Whooping-cough

C. HÜNERMANN (*Deut. med. Woch.*, June 29th, 1934, p. 978) has made a practice during the past two years of getting all the children in the whooping-cough section of his hospital to cough on to Bordet-agar-blood-culture plates, and he has succeeded in thus finding the Bordet-Gengou bacillus both in the catarrhal stage of the disease and during the first four to six weeks of the convulsive stage. After this interval repeated cough tests failed to demonstrate this bacillus—an observation from which the author concludes that whooping-cough is infectious only during this interval. A search for carriers of the Bordet-Gengou bacillus proved negative in the case of children showing no sign of disease. But in a certain number of cases this bacillus was found in children subject to a more or less obstinate cough in which there was no whooping element. It would appear, therefore, that even in children who have never received prophylactic vaccination against whooping-cough this disease may still exist in such a light, abortive, and atypical form that its true nature would be overlooked in the absence of a bacteriological examination.

256 Primary Mumps Orchitis

C. M. HOOGENBOOM (*Nederl. Tijdschr. v. Geneesk.*, July 14th, 1934, p. 3275) records the case of a man, aged 37, who developed right orchitis, epididymitis, and deferentitis nineteen days after his daughter had developed mumps. He had had no injury to the testis, and there was no evidence of gonorrhoea. Six days later his two sons showed bilateral parotitis, and on the following day he developed left parotitis himself. Complete recovery took place without any testicular atrophy.

257 Odd Reactions to Tuberculin

H. HOFF (*Wien. med. Woch.*, July 14th, 1934, p. 811) records the case of a 54-year-old patient who responded to therapeutic injections of tuberculin with attacks of trigeminal neuralgia. They occurred even when the dosage of tuberculin was most timid. Another patient, aged 34, responded to therapeutic injections of tuberculin by suddenly seeing bright-coloured rings which rapidly approached him. He would then fall and lose consciousness for a few minutes, and would feel very tired after recovering from such an attack. It should be noted that he had been subject to similar attacks before treatment with tuberculin was instituted. In a third case, that of a woman aged 35, injections of tuberculin were followed by slight tetanic convulsions.

258 Aortic Stenosis

S. McGINN and P. D. WHITE (*Amer. Journ. Med. Sci.*, July, 1934, p. 1) record conclusions drawn from a review of 4,800 cardiovascular cases seen in private practice and 6,800 hospital post-mortem examinations. This material produced 123 cases of aortic stenosis proved by necropsies and 113 clinical cases. In the post-mortem series aortic stenosis occurred nearly as often as mitral stenosis, but was less frequent in the clinical series owing to the difficulty of recognizing slight degrees during life. The authors think it justifiable to make this diagnosis when a loud, harsh systolic murmur is heard in the region of the second right intercostal space and is transmitted to the neck in the absence of pronounced aortic dilatation due to syphilitic aortitis or marked hypertension, especially when there is evidence of other valvular deformity or a history of rheumatic infection. An aortic systolic thrill, a diminished or absent second aortic sound, a plateau pulse, and an aortic diastolic murmur are important corroborative findings, but are not essential to the diagnosis, being late signs. The presence or absence of calcareous changes in the aortic cusps is said clinically to be rela-

tively unimportant as compared with the aortic stenosis itself, except in so far as it alters the degree of stenosis or aids in the x-ray diagnosis. Patients with pronounced aortic insufficiency in addition to aortic stenosis had a shorter terminal illness and died younger than did the cases where stenosis predominated. The authors are satisfied that all grades of aortic stenosis exist, with varying symptoms and signs, much as in the case of mitral stenosis. The aortic form, even of considerable degree, is common, particularly in males; is often caused by rheumatic infection; is less serious than aortic regurgitation of high degree; and is sometimes associated with considerable hypertension. It is often overlooked, and special search should be made for it, even in the lesser grades, because of the progressive nature of the lesion and the frequency with which it is associated with congestive heart failure.

259 Thoracic Trauma and Pulmonary Tuberculosis

Citing numerous cases from the literature and two personal cases, N. N. STOICHIȚA (*Presse Méd.*, June 30th, 1934, p. 1051) states that pulmonary tuberculosis can be caused by thoracic contusions. Penetrating wounds are not usually followed by this complication, since as a rule they mortally injure the heart or large vessels, thus causing fatal haemorrhage. Infection of the contused pulmonary area through the respiratory passages or by bacilli circulating in the blood has been advanced as a possible pathogenic factor. Distension of the lung, due to a reflex occlusion of the glottis preventing expiration, is the essential cause of the rupture during trauma. The injured tissue with the consequent haematoma forms an excellent medium for the development of the Koch bacilli. In most cases the thoracic contusion activates a latent tuberculosis; occasionally it aggravates an active one. The onset of post-traumatic pulmonary tuberculosis may consist of haemoptysis, or it may be pneumonic or pleuritic. The site of the lesion usually corresponds to the injured area. In most cases the clinical signs appear in three to six months after the trauma, and the evolution of the disease is, as a rule, rapid and grave.

Surgery

260 Tuberculosis of the Knee in Adults

H. WALDENSTRÖM (*Hygiea*, June 30th, 1934, p. 401) has come to the conclusion that operative treatment is indicated in every case of tuberculosis of the knee in adults as soon as it has been diagnosed with certainty. In the past the results achieved in different quarters in the treatment of this disease have varied greatly with the correctness of the diagnosis, the successes being directly proportional to the mistaken diagnoses. A clinical examination, supplemented by an x-ray examination, is, he states, inadequate. The correct diagnosis can with certainty be made only by an expert microscopical examination of the capsule of the joint and of an effusion in it. After aspiration, this fluid should be injected into a guinea-pig or two. If the guinea-pig test is negative, a snip of the synovial membrane should be examined by an expert for tubercle bacilli and typical tubercles. It is well to defer such an exploratory excision of the capsule of the joint for some time in order that the tuberculous disease, if present, may have extended to the whole of the joint, otherwise an exploratory excision may yield an island of still healthy tissue. During the past ten years the author has applied these criteria to twenty-five persons over the age of 17. In twenty of these cases tuberculosis was diagnosed on the strength of an exploratory excision, and in the remaining five on that of a guinea-pig test. Both tests were employed in six cases. In as many as nineteen of the twenty-five resection was performed, in all but two instances after protracted conservative treatment had proved

futile. Whatever the treatment, there are only two alternatives—ankylosis, or retention of some degree of mobility. The former can be achieved much more rapidly by an operation than by conservative treatment, and if it assures the retention of movement there is always the prospect of a relapse, even years after an apparent cure, as a result of a long walk or other excessive claim on the joint's functional capacities.

261 Traumatic Aneurysm of the Subclavian Artery

W. LEE, C. MITCHELL, and A. PEACOCK (*Ann. of Surg.*, July, 1934, p. 87) point out that, though the onset of aneurysm of the subclavian artery is so gradual as to obscure the diagnosis, yet a correct one can usually be made when there is a history of trauma, signs of swelling, expansile pulsation, a bruit, and an increasing severity of symptoms. Conservative treatment is sometimes advocated, but is not so successful as operation, particularly in cases of traumatic aneurysm. Good operative results depend on prolonged and safe anaesthesia, adequate exposure, repair of the vessel, and post-operative care. Avertin, with ether inhalation, has proved a satisfactory anaesthetic. The two routes of exposure are: the anterior, in which the location and type of incision are variable; and the posterior, which passes through the posterior mediastinum and may be used in cases involving the first portion of the left subclavian artery. With the anterior approach a partial resection of the clavicle is necessary to gain adequate exposure. Operative technique must depend upon the condition encountered, and may consist of ligation, excision, or endo-aneurysmorrhaphy. Post-operative complications consist of primary or secondary haemorrhage, shock, collapse of the lung, gangrene of the extremity, and infection. Complete rest, by means of a cast, bandage, or splint, is absolutely essential after operation, and large doses of sedatives are necessary. A record is given of 128 cases of traumatic aneurysm of the subclavian artery, and one case is reported which originated from the first portion of the artery and was successfully excised, the opening in the artery being closed with lateral sutures.

262 Treatment of Hydrocephalus

T. J. PUTNAM (*New England Journ. Med.*, June 28th, 1934, p. 1373) describes a method of treating hydrocephalus by coagulation of the choroid plexus. The ventriculoscope used carries a tiny bronchoscope light and electrodes for diathermy. Through a trephine hole the apparatus is passed into the lateral ventricle and down to the fossa in which the plexus lies. The current is turned on and carefully limited coagulation ensues, the tissue within the field of operation turning from red to white. Avertin anaesthesia is usually employed, but the patient generally moans slightly when the coagulation begins. The reaction to the operation is slight, and directly proportional to the amount of haemorrhage. The infant is often able to resume its feedings in two or three hours. Each ventricle is dealt with separately, an interval being introduced between the two operations. The author states that endoscopy with coagulation has been performed twelve times in seven unselected cases of hydrocephalus, the age of the infants ranging from one to eighteen months at the time of the operation. In most of the cases hydrocephalus had been the sequel of operations for meningocele. Two patients died, but it is doubtful whether either death could be ascribed to the operation. The procedure seemed to have no ill effects on the mentality. Two patients had a few convulsions in the subsequent fortnight, but no other complications were observed. Putnam remarks that, considering the otherwise almost hopeless outlook in hydrocephalus, the immediate results of this treatment appear encouraging. The relief of the intracranial pressure was always manifest, bulging of the fontanelles was terminated, and the diameter of the head was decreased in all cases except one. There would seem to be at least as much hope of permanent benefit as in the more immediately dangerous operation of removing the choroid by open operation.

Therapeutics

263

Dietetic Treatment of Obesity

According to G. A. HARROP (*Journ. Amer. Med. Assoc.*, June 16th, 1934, p. 2003) a diet having as its basis bananas and milk is an effective way of treating obesity, and is commended on the grounds of simplicity, low cost, ready availability, palatability, high satiety value, and low salt content. The strict diet consists of six large bananas and 1,000 c.cm. of skimmed milk, taken in three or four meals, which are spaced according to the individual preference. The caloric value of this is estimated as being 940. A salad of a quarter medium-sized head of lettuce, or of an equal quantity of cabbage, is a useful and valuable supplementary at one meal during the period of strict dieting. In about ten days to a fortnight there is a loss in weight of four to nine pounds in persons who are moderately active, and who continue their usual routine. Reduction to four bananas daily is well tolerated by many, and the results are said to be more striking; weakness and severe physical discomfort must be avoided. Fluids without food value, including tea and coffee but without milk and sugar, are freely permitted, but salt is avoided in order to obviate retention of fluid in the body. At least six large glasses of fluid must be taken daily in addition to the milk. After about a fortnight the diet is modified by the gradual substitution of one or two bananas by one or two eggs and a little butter. Green vegetables may also be taken with butter poured over them, though not used in the cooking. Then lean meat, fish, or poultry can be added, but no pork or thickened gravy. The strict and modified diets are alternated, each continuing for about a fortnight at a time. The limit to which weight reduction can be continued is given as one or two pounds a week, or five to ten pounds a month. Some hunger and weakness at the start of the treatment are not uncommon, and need not be considered as deterrent, being replaced at the end of a week by a feeling of well-being. Weight loss in excess of two or three pounds a week indicates an undue loss of water, except when the diet has been markedly curtailed. The larger losses at the beginning of treatment represent the displacement of water from the tissues, and this should be explained to the patient to prevent alarm. The author adds that although the nitrogen intake is low on this diet the nitrogen balance was maintained fully in six cases observed, and only slightly reduced in four others.

264

Application of Vitamin A to Wounds

Z. HORS and S. SANDOR (*Deut. med. Woch.*, July 6th, 1934, p. 1018) report from their hospital in Ujpest observations on the action of an emulsion and an ointment of high vitamin A content on wounds liable to become septic, and in cases of phlegmon, tendo-vaginitis, carbuncle, lymphadenitis, etc. The same treatment was also applied after operations for appendicitis, gall-stones, etc., when the wounds were left open. The preparation of vitamin A contained 2,000 international units per c.cm., and the name given to it by the firm of Richter in Budapest was "vulnovitan." The investigations were conducted in a surgical hospital, but the authors make no reference to any control tests. After immobilization had been effected by splints, extension, etc., and the neighbourhood of the wound had been cleaned, the emulsion or ointment was applied, and a layer of gauze, saturated with the oil, was secured in place. Six to eight days later, when the dressings were changed, there was a lively growth of granulation tissue showing no inflammatory reaction. The system previously adopted of irrigating the wounds, chiefly in a bath, was found to be injurious in association with this new treatment. It not only facilitated the escape of discharge from wounds already septic, but it also inhibited secondary infections by the promotion of granulation tissue, the growth of which was apt to be even too luxuriant. When this happened, mild antiseptic dressings had to be applied

alternately with the vitamin A dressings. The authors suggest that the success recently achieved by Löhr in the local treatment of wounds with cod-liver oil may depend on the same principle that they have exploited.

Anaesthetics

265 Lumbar Anaesthesia with Pantokain-L

O. UITER (*Finska Läkarsällskaps Handlingar*, May, 1934, p. 428) has studied the effects of lumbar anaesthesia with pantokain-L in a Finnish hospital in which, since the autumn of 1933, 162 out of 1,350 major operations were performed by this means. In 144 cases the anaesthesia was perfectly satisfactory, and in fifteen cases—nervous patients for the most part—it was necessary to supplement with a little ether, the dosage of which was only 10 to 30 grams—that is, enough to have a merely psychic effect on the patient by virtue of the smell. In only three cases was the anaesthesia a failure, possibly because anatomical anomalies prevented the deposit of the anaesthetic in the desired place. A blood pressure of 100 mm. of mercury or less was considered a contra-indication for this form of lumbar anaesthesia: when this rule was broken, a preliminary injection of "racedrin" was given to prevent a further fall of the blood pressure. A smaller dose of racedrin was given when the blood pressure was normal. In at least two cases complications associated with the anaesthetic were traced to the neglect of a preliminary measurement of the blood pressure, and the author is most emphatic as to the necessity of such measurements. A quarter of an hour before the administration of the pantokain-L, morphine and hyoscine should be injected subcutaneously; they hasten the action of the pantokain-L and render the patient less nervous during the operation. The severe headache supposed to follow pantokain-L anaesthesia was never observed by the author, who connects his freedom from this complication with his adoption of the Trendelenburg position, with the head so low that the spine forms an angle of 5 to 10 degrees. Several of the patients could not have taken a general anaesthetic because of their advanced age, high blood pressure, fatness, or pulmonary complications. This selection of the unfittest for pantokain-L anaesthesia must be taken into account with the admission that the complications among the author's cases were perhaps more frequent than after an ether anaesthesia. Convalescence was, however, remarkably satisfactory on the whole, particularly in connexion with that gas retention which is apt to follow laparotomies. The author is most appreciative of this anaesthetic in gynaecological operations, which constituted sixty-two of the total of 162 operations. Pneumonia did not follow one of them.

266 Combined Avertin and Nitrous Oxide Anaesthesia

Based on the results in 600 cases, DESMAREST (*Presse Méd.*, May 19th, 1934, p. 811) advocates combined avertin and nitrous oxide as a most valuable anaesthetic. It should not, however, be given as routine in all cases. Avertin (the French "rectanol") is not a true anaesthetic but only produces a calmer sleep; narcosis must be attained by a complementary narcotic, and as nitrous oxide is the sole physiologically perfect anaesthetic, this is chosen. Contra-indications to this anaesthesia are a bad general condition of the patient (its use is dangerous in debilitated conditions or renal and hepatic diseases) and arterial hypotension. The oculo-cardiac reflex and basal metabolism are valuable guides to correct dosage. These, especially if concordant, indicate the patient's resistance or sensibility to anaesthesia of the base. The duration of the operation also governs dosage—the longer the operation the larger the dose required. Pantopon, given one hour before the avertin enema, is an excellent adjuvant. Nitrous oxide administration should be started twenty minutes after giving the enema. Narcosis during the operation is rarely disturbed. Should respiratory symptoms arise, carbon dioxide should be administered.

Avertin does not cause as great a lowering of blood pressure as was first supposed, and the nitrous oxide usually suffices to restore the equilibrium. If after operation the arterial tension is low and remains so, an injection of ephedrine (1 c.cm.) should be given. Tardy awakening is due to an imperfect elimination of the avertin; such cases should be closely watched and, if awakening does not occur in one or two hours, subcutaneous injections of coramine or cocaine should be given; thyroxine is also useful. Post-operative complications are less frequent with this combined method than with nitrous oxide alone or with ether. Pulmonary complications are seldom noted, and avertin has no unfavourable action on the hepatic or renal functions when these are normal before operation; if renal or hepatic lesions exist, the drug must be used with great caution. Repeated anaesthetics with avertin can be safely given. A further advantage to the use of this combined form of anaesthesia is that it is agreeable to and not feared by patients.

267 Evipan Anaesthesia in General Practice

In order to indicate the suitability of intravenous injections of sodium evipan for inducing anaesthesia in general practice T. S. NICOL and T. M. BELL (*Charing Cross Hosp. Gaz.*, July, 1934, p. 100) record summaries of twelve cases in which it was used for such minor surgery as the opening of boils and abscesses, the removal of nails, needles, and splinters, and the incising of whitlows. An ampoule producing 10 c.cm. costs 2s. 3d. The solution in sterile water is slowly injected into a vein until the patient yawns or loses consciousness, when a further 2 or 3 c.cm. is introduced according to the length of anaesthesia needed. From three to five minutes of full anaesthesia follows, after which the patient may sleep for several hours. Muscular relaxation was poor. Evipan can, it is stated, be administered single-handed, although it is better to have an assistant to hold the arm during the injection, since the patient may sometimes make clonic movements. Slight dizziness may ensue, and patients should not be allowed to go out alone in the succeeding three hours. Other precautions advised are urine testing and inquiry as regards previous nephritis, prevention of the tongue falling back, and the availability of coramine in case of collapse—precautions which apply to any other anaesthetic. There are said to be no unpleasant after-effects.

Obstetrics and Gynaecology

268 Premature Placental Separation

T. L. MONTGOMERY (*Amer. Journ. Obstet. and Gynecol.*, July, 1934, p. 33) finds as the result of a careful investigation of over 4,000 obstetrical histories that the diagnosis of premature separation of the placenta is not infrequently confused in the less severe cases with that of lateral placenta praevia. If the two conditions are carefully differentiated, premature separation of the normally implanted placenta would appear to be a less frequent complication of pregnancy than placenta praevia. The type of treatment and the method of delivery have to be adapted to the circumstances of the individual case. Caesarean section is reserved for those instances in which the cervix is closed, and the contraction of the uterus is ineffective in producing dilatation—where longer waiting implies more bleeding. In the author's series of sixteen cases of definite premature placental separation there was one maternal death, a rate of 6.6 per cent. The foetal mortality rate was 81 per cent. Twelve of the sixteen foetuses were premature. Montgomery considers external violence an infrequent cause of placental separation. Various degrees occur often during the course of labour in consequence of intra-partum attempts at delivery, or of a sudden decrease in the volume of the content of the uterus. The most frequent aetiological factor in premature separation is toxæmia of pregnancy, abdominal trauma accounting

for only an occasional case. Renal toxæmia is more often encountered as a cause than is pre-eclampsia or eclampsia. The author considers that there is no reason to invoke the presence of some new or strange type of toxic disturbance to account for this disturbance. The characteristic lesion in the placenta is hæmorrhage. Interruption of pregnancy often follows, although the presence of old hæmatomas on the surface and in the substance of the placenta in cases of nephritic toxæmia indicates that small hæmorrhages frequently occur without terminating pregnancy. These hæmorrhagic lesions are quite different in structure and aetiology from placental infarctions. Necrosis (infarction) is found frequently in the placenta of both normal and toxic patients. Its presence appears to play no part in the aetiology of placental separation or pregnancy toxæmia.

269

Virginal Leucorrhœa

Reporting research work on leucorrhœa in virgins, R. CRICKSHANK and A. SHARMAN (*Journ. Obstet. and Gynaecol. British Empire*, June, 1934, p. 369) find (1) the non-infective type of secretion to be white, viscid, cheesy, containing Döderlein's bacillus, and having an average pH of 4.4. This type appears along with excess of glycogen deposit in the vaginal epithelium, and is connected with the presence of increased quantities of oestrin. It is found also in the newly born, and very strikingly in pregnancy. The suggestion is made that such non-infective leucorrhœa may occur in virgins (or similarly after marriage) when the normal balance between the anterior pituitary and ovarian hormones is disturbed. Treatment must not be that used locally for infective types, but general. Hormone therapy had not so far proved successful. The use of "antuitrin-S" is suggested for trial. In some cases only was there other evidence of endocrine imbalance. The research is to be pursued with monkeys. (2) Infective virginal leucorrhœa was traced to *Trichomonas vaginalis* in the majority of such cases, the discharge being watery, yellow, and generally irritating. One case of monilia was found. Tubercle is an occasional cause.

270 Abortion in Human Infection by B. Abortus (Bang)

F. WITENSTEIN (*Zentralbl. f. Gynäk.*, July 7th, 1934, p. 1583) describes a case of spontaneous abortion in the fourth month in a female cook who had had a three weeks' illness diagnosed first as influenza, then as typhoid fever, and finally (serologically) as Bang's disease. Abortion in the human (unlike the bovine) infected subject is very uncommon, and may be held to be an unspecific reaction, such as might occur in any febrile disorder. That explanation seems to be contraindicated, in the present case, by the facts that expulsion of the placenta had been preceded by a specific vaccination, and that its removal by curetting was followed by a negative serological test. In the cow Bang's disease is followed by sterility; but Witenstein's patient later became pregnant twice. Allusion is made to Schürer's case, in which a gynaecologist became infected with Bang's bacillus during a curetting.

271

Tertiary Syphilis of the Uterus

P. LIZET (*Thèse de Paris*, 1934, No. 444), who records five illustrative cases in women aged from 19 to 41, states that syphilis of the uterus is much more frequent than is generally supposed. Lesions of the cervix must be distinguished from those of the body of the uterus. The former are usually due to direct infection, while the latter are mostly the result of congenital syphilis. Tertiary syphilis of the body of the uterus assumes the gummatous form, the lesions being mainly vascular or perivascular, with the result that hæmorrhage, death of the foetus, and abortion are liable to occur. In all cases of metrorrhagia of which the cause is doubtful, antisyphilitic treatment should be tried before an extensive operation, curetting, or even radiotherapy is carried out.

Pathology

272

A Modified Aschheim-Zondek Test

A. MANDELSTAM and E. KAPLUN (*Wien. klin. Woch.*, June 29th, 1934, p. 813) state that the ordinary Aschheim-Zondek test for pregnancy has two drawbacks—namely, it takes about 100 hours and requires the relatively large number of five infantile mice. They found that the time consumed could be cut down to fifty hours by the intravenous injection of detoxicated urine into the tail vein. This requires a little practice, and must be done slowly to prevent the occurrence of shock or embolism. Adult mice are used in their modification and three injections of 1 c.cm. urine are given in the first twenty-four hours, and one the following morning. The mice are put in cages which are irradiated with infra-red light from lamps of 40 to 200 watts for two days before the injection and immediately afterwards. Forty-eight hours after injection laparotomy is done through an incision from the back parallel to the spine. In the kidney region a window is made in the peritoneum through which the ovaries are drawn out and inspected with the naked eye or by means of a lens. Macroscopic hæmorrhages into the ovaries can be observed with ease. The ovaries are replaced and the wound closed with two to three stitches. The mice can be used again after one month. The test requires two mice or even only one mouse. Positive results are obtained in 98 per cent. of cases. The advantages of this modification are stated to be: reduction of time; reduction of the number of mice used; accuracy; use of adult mice, which are easily and cheaply obtained, and which may be used again.

273

Cultivation of the Gonococcus

J. W. McLEOD, J. C. COATES, F. C. HAPFOLD, D. P. PRIESTLEY, and B. WHEATLEY (*Journ. Path. and Bact.*, July, 1934, p. 221) describe a method for the cultivation of the gonococcus that has proved of great value in routine diagnosis. The medium used is a 10 per cent. heated blood agar, prepared from broth made according to Wright's method. The essential feature of Wright's method is the addition of the peptone before the meat is extracted; in this way inhibitory bodies, which are normally formed as a result of the oxidation of the peptone during autoclaving, are reduced by substances in the meat. The percentage of agar in the medium is kept as low as is consistent with stability. The plates are incubated at 36° C. for eighteen hours in a closed jar containing air, 8 per cent. of which has been replaced by carbon dioxide. A further incubation for twenty-four hours is carried out under ordinary aerobic conditions. Comparative experiments have shown the beneficial effect of carbon dioxide on the growth of the gonococcus in primary culture. After incubation is complete, a 1 per cent. solution of tetramethyl-*p*-phenylenediamine hydrochloride is poured over the plate and run off immediately. The effect of this solution is, by an oxidase reaction, to turn gonococcal colonies a bright purple colour. Medium-sized convex and translucent colonies which rapidly turn a bright purple, and which consist microscopically of Gram-negative diplococci, are accepted as gonococci. For complete identification, when necessary, the colonies can be picked off, and the organisms studied by fermentation reactions and their ability to grow on ordinary nutrient agar. Occasionally, colonies giving the oxidase reaction and consisting of Gram-negative diplococci have been isolated from the genito-urinary tract which subsequent examination has shown were not true gonococci. Organisms of this type are likely to give rise in 1 to 5 per cent. of cases to erroneous diagnosis if reliance is placed on the smear method alone. Numerous tabulated results are given to show that the cultural method is considerably more delicate than the direct smear method, but it is pointed out that a certain number of cases do occur in which the smear method is positive when no gonococci can be isolated in culture.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

274 Prevention of Serious Arsphenamine Reactions

According to M. SCARF (*Journ. Amer. Med. Assoc.*, June 30th, 1934, p. 2159), who records six cases, a large proportion of fatal or disabling reactions due to the administration of arsphenamine may be prevented by a careful evaluation of symptoms and signs occurring in syphilitic patients under this treatment. One case of aplastic anaemia developed under neoarsphenamine therapy when two injections were given after the appearance of purpura. In one of the two cases of hepatitis, one injection of this preparation was administered after the patient had complained of itching. Haemorrhagic encephalitis occurred as a complication in a case of gonorrhoeal arthritis with a negative Wassermann reaction in which two injections of this drug were given in increasing doses, although an eruption had followed the first one. In a case of aneurysm of the aorta, rupture followed neoarsphenamine therapy, which had been too vigorous, and had not been preceded by a preparatory course of the milder antisyphilitic drugs. A case of transverse myelitis, due to a rare and usually fatal form of Hershheimer reaction, terminated in complete recovery. Scarf argues that, while the occurrence of haemorrhagic encephalitis might have been held to be unpredictable and unavoidable, it may be doubted whether a drug capable of producing such serious sequelae should be used in gonorrhoea or any other disease in which its capacity for good has not been definitely established. Moreover, a maculo-papular rash had followed the first injection, but this indication of intolerance was ignored. The author concludes that the slightest sign of intolerance should receive great attention when arsphenamine products are being administered, and that the risk to the liver should be always borne in mind if itching occurs, and even in the absence of jaundice.

275 Complications of Diphtheria Immunization

L. J. ICHARD (*Thèse de Paris*, 1934, No. 140), who records ten illustrative cases, seven of which occurred in children aged from 26 months to 8 years, and three in adults, states that immunization against diphtheria by anatoxin has given rise to the following series of complications: (1) local inflammatory reactions, such as oedema at the site of injection and non-suppurative adenitis and a general febrile reaction; (2) less frequently, complications resembling serum sickness, such as urticaria and various eruptions with or without arthralgia or myalgia and even paresis of the lower limbs; (3) rarest of all, haemorrhagic complications, such as purpura haemorrhagica and haemorrhagic nephritis. The explanation of these complications is to be found in the individual who is specially sensitive to the proteins of the diphtheria bacillus and not in the anatoxin itself. To avoid such complications the following rules should be observed. As far as possible only young children should be immunized, 18 months being the most suitable age. In the case of children over 7 years of age and adolescents, only those who are Schick-positive should be inoculated. Special precautions should be taken with those showing a pseudo-positive reaction. In such cases Zoeller's anatoxin reaction should always be performed before vaccination. Immunization is contraindicated in cases of pulmonary tuberculosis, cardiac affections, or renal or blood diseases. Convalescents from diphtheria or other acute diseases should not be inoculated, but one should wait until at least two months after recovery.

276 Surgical Operations in Pernicious Anaemia

R. G. HAHN (*Amer. Journ. Med. Sci.*, July, 1934, p. 60) reports a series of thirty-two cases of pernicious anaemia in which operations were required. Discussing the influence of the operation on the disease, he comes to the

conclusion that intensive pre-operative treatment and special care afterwards induce a satisfactory degree of tolerance, and render the patients good surgical risks. He points out, however, that in these cases there seems to be a definite tendency to the precipitation or increased development of neurological symptoms. These must therefore be forestalled by intensive liver therapy beforehand. In the author's thirty-two cases no deaths occurred which could be attributed directly to the operation. In eight cases operated on before the introduction of liver therapy many blood transfusions were necessary in each instance; in the remaining cases blood transfusion was only twice employed. The operations were deferred, if possible, until the red blood cell count had been brought within the normal range. If an immediate surgical intervention was indicated, the operation was performed, and the patient received intensive liver therapy. After the operation it was not found difficult to restore the red blood cell count. There were three deaths, all in cholecystectomy cases, recalling, as the author points out, the possible relationship between biliary and hepatic disease and pernicious anaemia. All had moderate subjective nervous symptoms, and in two these became worse after the operation. Many of the patients in the series had sources of blood loss or infection which rendered operative treatment necessary. The removal of these sources appeared to have a definite therapeutic value, for subsequent blood counts showed an increase in the number of erythrocytes.

Surgery

277 Primary Carcinoma of the Lung

A. YOUNG (*Ann. of Surg.*, July, 1934, p. 1) points out that successful surgical intervention in primary carcinoma of the lung is rarely possible owing to the relative infrequency of a localized tumour being situated well out in the lung parenchyma, and to the difficulty and delay in diagnosis. In over 90 per cent. of cases the disease originates in the region of the hilum and spreads into the lung and the mediastinum, so that surgical extirpation is impossible. It is hoped that in the remaining 10 per cent. earlier diagnosis may be made by means of x-rays. A case is reported of primary carcinoma of the upper lobe of the left lung in a man of 42. The symptoms were pain and stiffness in the joints and a slight cough, with an irregular temperature. X-ray examination showed the presence of a rounded shadow in the upper part of the left chest. Artificial pneumothorax was carried out, and subsequent x-rays showed that the mass was in the substance of the lung and was not adherent to the chest wall. Trap-door thoracotomy, followed by lobectomy, was carried out. The patient's condition was good for about two weeks, but then a limited apical pleural effusion became evident and it was necessary to carry out the excision of the eighth rib for drainage. As the discharge persisted a thoracoplasty was performed, and convalescence was then uneventful. The patient was seen two years later and photographs are shown to illustrate the comparatively slight deformity of the chest and the extensive range of movement of the left upper limb. Local and general conditions were satisfactory in every way.

278 Epigastric Hernia

O. MIKKELSEN (*Ugeskrift for Læger*, July 12th, 1934, p. 748) publishes a study of the forty-three cases of hernia between the umbilicus and xiphoid process observed in his hospital in Denmark in the period 1920-32. The relative frequency of epigastric hernia is indicated by the numbers of other hernias observed in the same hospital and period—206 cases of umbilical hernia, 426 cases of crural hernia, and 2,238 cases of inguinal hernia. The opinion that epigastric hernia is congenital is discredited

EPITOME OF CURRENT MEDICAL LITERATURE

by the observation that it is hardly ever seen in children or adolescents; among the author's cases there were only two children, aged 7 and 12 respectively. The assumption that the origin of epigastric hernia is often traumatic, seems also incorrect in the light of the author's material, which did not include a single traumatic case. He considers the term "epigastric hernia" a misnomer, for which did not the condition is due to a preperitoneal lipoma without any hernial sac. In five cases the onset of the symptoms was stormy, with violent pain in the middle of the epigastrium, whence it radiated to both sides, and with vomiting. In all these cases the diagnosis on admission to hospital was incarcerated epigastric hernia, but in no case was incarceration found on operation. With regard to the interpretation of the symptoms, it should be noted that the pain of epigastric hernia is always independent of the nature of the food; and in the one case in which the patient associated the pain with certain articles of food, it transpired later that he also suffered from duodenal ulcer. The only treatment for epigastric hernia is an operation, and it might have been supposed that it would always prove successful, but the author's own observations and the statistics of other surgeons suggest that a goodly proportion of failures is inevitable. These patients seem often to be subject to other ailments, and among the thirty-three of the author's patients who were operated on, there were as many as five who died soon after discharge, although none of them was old.

279 Treatment of Fractures in Children

Dealing only with fractures in children under 14 years of age, A. MARQUE (*Le Scalpel*, July 7th, 1934, p. 949) describes their treatment under three heads: immediate reduction, with or without radiological control, and application of a plaster cast; progressive reduction by continuous extension; and reduction after surgical intervention with or without osteosynthesis. He considers the last-named to be the surest method of obtaining a perfect reconstitution of the bone. Brief comments, with notes on illustrative cases, are made on the fractures most frequent in childhood. These are the femoral and humeral diaphyses, supracondylar fracture of the tibia, forearm, and clavicle. Reduction, even if radiologically controlled, of its surgical neck, and fractures of the humerus and clavicle. Reduction, even if radiologically controlled, followed by plaster application, is not advocated. Continuous extension should be tried in possible cases; horizontal extension is ineffective. Should this method fail after four or five days' trial, osteosynthesis should be performed.

Therapeutics

280 Irradiation of the Pituitary in Graves's Disease

According to G. ÉTIENNE and P.-L. DROUET (*Bull. de l'Acad. de Méd.*, July 10th, 1934, p. 86) iodotherapy of Graves's disease is not always effective, and must always be protected partial thyroidectomy gives improvements which are not always complete and never include disappearance of the exophthalmos. These authors regard exophthalmic goitre as a malady of the pituitary as of the thyroid gland, basing this view chiefly on (1) the appearance of the exophthalmos, (2) the occurrence in Graves's disease of clinical signs of hyperpituitarism (a contraction of the visual fields for white light and hypophyseal hypertrophy which accompanies congenital or acquired thyroid aplasia), (3) the persistence of clinical signs of hyperpituitarism in Graves's disease in type of the visual fields for white light and colours, and also the presence in the urine of hypophyseal principles, giving a melanophore reaction, and (4) persistence of these two signs after thyroidectomy or increased functional activity in the pituitary of a patient with toxic goitre. It is therefore, they say, logical as well as requisite to associate with the usual treatments means directed to reduction of pituitary activity. They record five cases in which irradiation of the hypophysis was employed, in four as the sole therapy. They noted (1) general gain of strength, with improvement in tachycardia and tremor;

(2) improvement in exophthalmos, which practically disappeared in three cases; (3) a diminution in the basal metabolic rate, which became normal in two cases and subnormal in one; and (4) an enlargement of the visual fields in one case at least. The improvement was accompanied in three instances by considerable reduction of blood pressure, especially the systolic. In general the writers envisage radiation of the hypophysis as a treatment adjuvant to iodotherapy and thyroidectomy, and one which may replace partial thyroidectomy.

281 Breathing Exercises in Treatment of Hypertension

L. G. TIRALA (*Med. Welt*, July 7th, 1934, p. 946) finds that a reduction in systolic blood pressure, which is notoriously difficult to bring about by drug treatment, can nearly always be secured—even to the extent of 50 to 100 mm.—in hypertensive subjects who are made to do deep breathing exercises for five minutes three times a day for three or four weeks. The reduction in pressure is maintained if the exercises are persevered with afterwards. The diastolic pressure also is reduced, but to a less extent. The patient is taught to take deep slow breaths of a predominantly abdominal type ("as if to burst a girdle round the belly") followed by slow expirations during which an "oo" sound is hummed through the closed mouth. Training increases the length of expirations from ten to thirty seconds or more. The exercises are done in the first place in the recumbent position in those with very high pressures. As an adjuvant measure it is sought to lower the diaphragm by clearing the bowel of gaseous and other contents by administration of saline aperients and animal charcoal. The subjective symptoms accompanying hyperpiesis disappear, it is stated, as the pressure drops. Tirala does not hesitate to prescribe breathing exercises in hypertensives in whom morbid organic cardiovascular conditions have become established. The good effects are attributed to (1) increase of the left ventricular output, with reflex vaso-dilatation from stimulation of the aortic depressor nerve; (2) production of a relative alkalosis; and (3) a diminution of tone in the vaso-constrictor centre. Early in the course of treatment the blood pressure sometimes shows a temporary increase.

282 Prostatic Hypertrophy in General Practice

H. BISGAARD (*Hospitalstidende*, July 24th, 1934, p. 20) criticizes the hospital treatment of hypertrophy of the prostate, and emphasizes the benefits enjoyed by the patient who remains at home, up and about, in the care of the general practitioner, whose main solution for retention of urine and allied ailments is the occasional use, for a few days, of an elastic permanent catheter secured in place by the looping on itself of the bladder end of the catheter, the loop being controlled by a fine wire passing through the catheter. The author began his twenty years' experience with hypertrophy of the prostate in a hospital where the patients were kept in bed, their bladders irrigated with silver nitrate. When, in general practice, he noticed how much better this class of patient fared when kept out of bed he began to see in confinement to bed the main cause of congestion of the parts concerned, with consequent obstruction to the normal flow of urine. Silver nitrate he came to regard as actually harmful—as an irritant responsible for increased inflammation of the bladder. As for cystostomy, it may indeed afford temporary relief, but it is the beginning of a long chapter of unnecessary troubles. When, therefore, the prostate cannot be treated directly by prostatectomy, the prostate cannot be treated directly by palliative treatment in x-rays, or diathermy, and only palliative treatment of intelligent ambulant treatment, which possesses the additional merit of not uprooting old folks from their homes, to whose environment and dietetic ways they have become so accustomed that admission to hospital and all that this implies entail a considerable psychic shock. The author illustrates his article with reproductions of the permanent catheter he has devised, and which is made by the Danish firm of Simonsen's and Weel's Efterfølger.

Dermatology

283 Sensitization Tests in Skin Diseases

H. V. MENDELSON (Arch. Derm. and Syph., June, 1934, p. 845) records conclusions drawn from an allergic study of 262 patients with cutaneous diseases. A detailed and careful history was obtained in each case, and the following allergy tests were made: dermal or scratch method, intradermal method, indirect or passive transfer test, and patch test. Most commonly the intradermal method was employed; Mendelsohn considers this more reliable than the scratch method and free from danger when properly performed. The dermatoses included eczema, urticaria, and dermatitis venenata (80 per cent. of the cases), and also prurigo, erythema multiforme, angioneurotic oedema, and neurodermatitis. Cases were selected in which an allergic cause was suspected, and 12,600 tests were performed, of which only 1,237 were positive. Of these, 12,486 were intradermal, the reactions being negative in 11,287. In 114 tests by the patch method thirty-eight reactions were positive. The passive transfer method was used to check eighty-four positive intradermal reactions, but only thirty-six were confirmed as positive. Mendelsohn concludes, therefore, that intradermal tests are of little value in demonstrating the cause of skin diseases. Most of the positive reactions thus obtained are of no practical significance. Positive reactions to food substances or inhalants administered intradermally to patients with cutaneous diseases are far less specific than similar reactions to pollens in patients with hay fever. The indiscriminate subjection of patients with dermatoses to a large number of skin tests is held by the author to be unjustifiable. Far greater aetiological help can be obtained by securing a proper history and making a correct dermatological survey. Mendelsohn holds, however, that patch tests are of decided value, especially in cutaneous diseases due to external irritants.

284 Treatment of Psoriasis

J. GOUIN and A. BIENVENUE (Bull. Soc. Franç. de Derm. et de Syph., April, 1934, p. 678) present a study of psoriasis, based on twenty-four cases, short notes of which are given, which shows that this condition very frequently develops in subjects with a tuberculous diathesis, less often in mixed tuberculosis and syphilis, and only exceptionally in simple syphilis. The leucocytic reactions to the respective specific medicaments (gold salts and anti-syphilitic remedies) were first ascertained. Positive (hyperleucocytic) or negative (leucopenic) reactions were sure diagnostic indications as to the basic origin of the disease and, therefore, as to treatment. Two important factors for the cure of psoriasis are removal of the scales, these acting as a screen against the future treatment, and prolonged exposure to the air and light. The former is obtained by daily washings with soap; actual scraping of the lesions, as in cutaneous tuberculosis, is unnecessary. Exposure to the air and light should be of four hours' duration daily; to shorten this period, ultra-violet rays may be employed. In addition to these measures, internal treatment with gold salts or antisiphilitic specifics, according to the leucocytic reactions, should also be given; in cases showing a mixed origin both remedies should be combined. This form of treatment is not only useless but also dangerous in cases with negative reactions.

285 Successful Treatment of Vitiligo

Vitiligo has long been regarded as an incurable condition, but N. BURGESS (Brit. Journ. Derm. and Syph., July, 1934, p. 313) records the case of a girl, aged 13, in which gold treatment has apparently proved effective. Patches of vitiligo were present above the left eye and on the right temple. To them was applied twice a day a 10 per cent. solution of oil of bergamot. Sanocrysin in 0.05 gram doses was injected intravenously once a week, and the affected parts were exposed to ultra-violet light each

week from an air-cooled mercury vapour lamp. The surrounding skin was protected from the rays, and only the leucodermic areas were left bare. Pigmentation began at the end of three weeks, but the full treatment was continued for another seven weeks. At the end of this time pigmentation was complete, but it was thought advisable to continue the applications of light and oil of bergamot for another three months. There has been no recurrence.

286 Sensitization to Adhesive Plaster

J. V. VAN CLEVE (Urol. and Cut. Rev., July, 1934, p. 439) records two cases, in a man aged 52 and a woman aged 26, in which application of adhesive plaster was followed by severe vesiculo-pustular dermatitis. As a result of patch tests the aetiological agent was found to be orris root, which is the constituent of most commercial adhesive plasters. The writer maintains that a more general use of the patch test would show that many cases of eruption following the use of adhesive plaster would fall into the group of sensitization dermatitis.

Obstetrics and Gynaecology

287 Malignant Ovarian Tumours and Pregnancy

According to P. TRILLAT and A. PUTHOD (Gynéc. et Obstét., June, 1934, p. 513) the presence of a malignant ovarian tumour does not prevent conception, which is, however, very rare. The evolution of pregnancy is disturbed to a remarkably small extent, and there is no evidence of noxious effect on the foetus. Contradictory opinions have been advanced concerning the effect of pregnancy on the tumour development, but it is certain that pregnancy does not stimulate growth of an ovarian tumour in the acute fashion which is the rule in mammary cancer. Two cases are recorded, in both of which the tumour had been well tolerated during pregnancy. In the first it was not suspected until the head was found to be mobile and to remain high after cephalic version at term. The second patient, a four-para aged 27, had noted but not reported abdominal enlargement for three years; the presence of a large ovarian cyst was discovered the day after spontaneous delivery. Concerning treatment the writers believe that a malignant ovarian tumour discovered during the first half of gestation indicates speedy operation at which the foetus need not be considered; in the second half expectant measures are justified until term is near at hand.

288 Menstruation after Conception

K. HEIM (Zentralbl. f. Gynäk., July 14th, 1934, p. 1641) quotes contradictory views concerning the occurrence of menstruation after conception. Zangemeister in 1927 stated that the occurrence of menstrual bleedings, somewhat diminished, during pregnancy is not altogether uncommon (a single period occurring in 0.2 and repeated periods in 0.1 per cent. of cases respectively). Typical menstruations, undiminished, occur in some 0.05 per cent. of pregnancies. Döderlein and others, regarding the question from the medico-legal standpoint of paternity cases, have deemed that menstruation can occur after conception; and some, defining menstruation as cyclical bleeding due to ovulation, and denying that ovulation takes place during pregnancy, would regard "menstruation during pregnancy" as a contradiction in terms as well as a practical impossibility. This argument has, however, been shattered by experimental induction of ovulation in pregnant animals by injection of prolactin or other anterior pituitary preparation. Heim records in detail the case of a physician's wife who seventeen to twenty-five days after conception, fourteen days after the commencement of the preceding menstruation and ten days before that of the next, expelled an ovum which was histologically shown to be 15 to 19 days old. The men-

struation preceding the abortion appeared normal in every way, and Heim has no doubt that this case proves the occasional occurrence of menstruation after conception. Further evidence is seen in a case, also recorded, in which what was regarded as a small cervical polypus, removed eighteen days after apparently normal menstruation, was found to be an ovum; curetting of the cavum gave issue, in addition to decidual areas with necrosis and inflammation, to non-decidual endometrium showing a secretory phase.

289

A New Hypnotic in Labour

F. P. SCHÖRNES (*Deut. med. Woch.*, July 13th, 1934, p. 1054) reports from a maternity hospital in Königsberg his tests with R 239, or "rectidon," which is the sodium salt of the secondary amyl- β -bromallymalonylureids. Administered per rectum, it is a powerful hypnotic, inducing sleep in a quarter of an hour. For the induction of twilight sleep, from 7 to 8 c.cm. are injected through a Nelaton catheter into the large intestine after it has been emptied by an enema. The drug is given as soon as regular labour pains have set in and the os has begun to dilate. If the drug is given at a later stage of labour, care must be taken to introduce the catheter so far that the drug is deposited above the level of the descending head; otherwise a rapid succession of labour pains may force the drug out of the rectum. Even when the patient has been nervous and excited, she ceases to groan and scream fifteen to thirty minutes after the administration of this drug; and, sleeping between each labour pain, she is awakened by it and co-operates actively with it. Multiparae, with past experiences as criteria, were very appreciative of the drug. It has no injurious effect on the labour pains, and though it provokes a certain degree of amnesia, the patients respond intelligently to the instructions given them. No ill effects on the child have yet been observed. But chloroform cannot be dispensed with during the passage of the head, as the retention of reflex excitability is apt to favour injury to the perineum.

Pathology

290 Examination of Fresh Tissues by the Wet-film Method

L. S. DUDGEON and N. R. BARRETT (*Brit. Journ. Surg.*, July, 1934, p. 4) report on the application of the wet-film method of examination of new growths and inflammatory diseases to pathological processes generally, basing their conclusions on a series of over 1,000 cases. Malignant cells were found to be easily distinguishable from their benign prototypes, by their staining more deeply and their nuclei having a greater affinity for haemalum. They varied in size and shape, were larger than normal, and their relative position to the adjacent cytoplasm was in no way constant. The value of wet films was found to be particularly evident in the diagnosis of the various pathological conditions of the lips, mouth, and tonsils. A small piece of tissue could easily be removed under a local anaesthetic, and the diagnosis could often be determined at once. Papillomata of the bladder and renal pelvis were earlier diagnosed as carcinomatous in wet films than in sections. It proved difficult sometimes to differentiate chronic mastitis from a normal breast in a wet-film preparation, but in the former, although the epithelium was scarce, there was revealed a fibrous tissue stroma, groups of enlarged and partly degenerated cells from the cyst walls or dilated ducts staining pink with eosin, and foam cells. The authors point out that a diagnosis of "simple" as opposed to "malignant" is the desideratum in most cases, and this should not be difficult except in proliferative mastitis. In this, however, the epithelial cells were found to be very numerous, small, deeply stained, and arranged in plaques, but with indistinct cell boundaries. The finding

of malignant cells in tissues which were apparently normal in appearance, and at some distance from the original focus of disease, was achieved in a large percentage of cases examined with this end in view. Various errors possible in diagnosis from wet films are recorded, and detailed reference is made to pitfalls that may be expected. A number of instances are given in which the diagnosis suggested from the wet film was more complete or more accurate than that of the corresponding section. This occurred most frequently in the diagnosis of tuberculosis. Most of the mistakes in diagnosis were due to errors in technique.

291 New Method for Detection of Occult Blood

I. BOAS (*Klin. Woch.*, June 30th, 1934, p. 942) describes a new method for the examination of occult blood in the faeces. The reagent is a 0.2 per cent. solution of 2,7-diamino-fluorine-chloral hydrate in 50 per cent. acetic acid. It does not deteriorate with keeping, and remains in the same concentration, thus having an advantage over benzidine and guaiacum. A fine smear of carefully washed faeces is made on a clean slab. Pure acetone is poured on and, after gentle shaking of the slab, it is allowed to stand for five to ten minutes. If the smear contains much colouring matter, decolorization is repeated two or three times with acetone. Five c.cm. of absolute alcohol and ten drops of glacial acetic acid are then poured on the faeces, and the slab is gently shaken to and fro, and then allowed to stand for some minutes. The alcohol is poured off, and 3 to 5 drops of the reagent together with 3 to 5 drops of freshly prepared hydrogen peroxide solution are added to the smear. If occult blood is present the smear turns green or blue with increasing intensity in a few minutes. The cleaner the material and the more haematin present, the greater is the intensity. If the smear is kept in a dark place it retains its distinctive colour for twenty-four hours, after which time it turns olive green. If only minute quantities of haematin are present, a late reaction occurs after ten to twenty minutes. If there is no haematin in the faeces, the green colour occurs only when the smear has stood for some time. Boas lays great stress on the thorough cleansing of the faeces with acetone, which dissolves the faecal colouring matter and concentrates the haematin present. The new reagent is not superior to benzidine in detecting minute quantities of occult blood, but it does not deteriorate, and the smear can be kept for several days.

292 Lysis of Human Blood by Cholera Vibrios

E. ZIMMERMANN (*Zeit. f. Immunitäts.*, July, 1934, p. 495) has compared the haemolytic activities of cholera and El-Tor vibrios on sheep and human blood. A synthetic fluid medium was used, made up with peptone, asparagin, and ammonium lactate, to which 5 per cent. of citrated blood was added. The tubes were inoculated and readings taken every day for four days. Of twenty-eight cholera strains tested on sheep blood only three produced good haemolysis; two others showed traces after three or four days. On the other hand, of eighteen El-Tor strains every one produced haemolysis within twenty-four hours. Tested on human blood twenty-seven of the twenty-eight cholera strains produced haemolysis, mostly within forty-eight to seventy-two hours. Only nine El-Tor strains were tested, and of these, eight produced haemolysis within twenty-four hours, and the remaining one after seventy-two hours. Experiment showed that the cholera haemolysin on human blood was thermostable, being destroyed at 65° to 70° C. within an hour. These strains had all been tested a year or so previously on sheep blood, and the same results had been obtained, suggesting that the reaction towards blood is a fairly stable property among the vibrios. Some of the strains had, moreover, been submitted to lysis by the bacteriophage and to animal passage, without any alteration in their haemolytic powers being produced. The author concludes that most true cholera vibrios are capable of lysing human but not sheep blood, while El-Tor vibrios are able to lyse both types of blood.

OCT. 27, 1934]

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

293

Acute Polyarthrititis

K. MOTZFELDT (*Norsk Mag. f. Laegevid.*, August, 1934, p. 905) prefaces his study of acute polyarthrititis with an analysis of all the rheumatic diseases treated in his hospital in the nine-year period 1924-33. Among the 10,000 cases were 615 of rheumatic disease, acute polyarthrititis heading the list with 140 cases. There followed sciatica with 115, muscular rheumatism with 103, osteoarthritis with ninety-four, chronic polyarthrititis with eighty-four, gonorrhoeal arthritis with thirty-five, lumbago with thirty-two, rheumatic fever (without articular manifestations) with ten, and arthritis urica with two cases. Ninety of the 140 patients suffering from acute polyarthrititis were women. It was most common in the late winter and spring, and between the ages of 20 and 30; it was rare after 40. Of the forty-eight patients with a record of one or more earlier attacks of acute polyarthrititis as many as twenty-five showed signs of heart disease. In only one case was there a history of exposure to cold—that of a boy of 15, who had betted that he could be out all one night in the winter. In no fewer than sixty-two cases (44 per cent.) the disease was associated with tonsillitis, and in ten other cases with a catarrhal infection without tonsillitis. Six patients developed their first attack of acute polyarthrititis after they had undergone tonsillectomy. Since 1926 the sedimentation test has been systematically employed by the author and found invaluable in the clinical control of the disease. The sedimentation rate was never normal in this disease, and during convalescence this test was the only means of ascertaining whether the disease was smouldering or not. Before 1926 the average stay in bed was six weeks; since then it has risen to nine weeks in response to the warnings of the sedimentation test. Electrocardiography has convinced the author that heart disease is an integral component of acute polyarthrititis, for which the best treatment is prolonged rest in bed. He does not regard salicylates as a specific.

294 Fatal Intoxication by Sodium Salicylate

G. PAISSEAU, E. FRIEDMAN, and C. VAILLE (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, July 16th, 1934, p. 1201) record a case (a child aged 10 years) of rheumatic endocarditis in which, after five days' salicylate treatment (2 grams intravenously and 5 grams rectally), symptoms of intoxication, due to an acidoketosis of salicylate origin, together with renal insufficiency, developed. Despite intensive alkalization death occurred three days later. The post-mortem revealed discrete renal lesions and massive fatty degeneration of the liver. Two peculiarities were noted in this case (*ibid.*, p. 1211): a lowering of the cell-plasma chlorine ratio and hyperglycaemia. Insisting on the rarity of death following this medication, the authors suggest an individual predisposition as a factor. They still advocate large doses of the salicylate, but advise that double doses of sodium bicarbonate be given simultaneously. Examinations for acetonuria should be made systematically. The salicylate should be immediately suppressed, and large intravenous and rectal doses of sodium bicarbonate administered at the onset of the intoxication; insulin may be added if hyperglycaemia appears with the acetonuria, and rechlorination instituted if a blood chloropenia be present.

295

Generalized Xanthomatosis

According to K. HERMAN (*Münch. med. Woch.*, July 20th, 1934, p. 1160) the Hand-Schüller-Christian disease, of which Christian was the first to describe the characteristic symptom-complex (skull defects, exophthalmos, and diabetes insipidus), was first recognized by Rowland in 1928 to be a manifestation of generalized xanthomatosis with hypercholesterinaemia. This rare metabolic disease,

of which some seventy cases have been recorded, and which was practically unknown in Europe until six years ago, is characterized by infiltration of certain organs by a special type of granulation tissue, containing cells filled with cholesterol. The gastro-intestinal tract is least commonly affected. The Hand-Schüller-Christian syndrome is simply one specially common group distribution of xanthomatosis. The affection of the skull in "cartographical" areas is characteristic, but is frequently absent, so that diagnosis is difficult. The hypercholesterinaemia may diminish considerably in old-standing cases. The prognosis is worse in juvenile cases, and the average mortality is 30 per cent. No racial or hereditary factor is known with certainty. Herman's case was recognized from (1) ulcerative tumour-like bluish-red cutaneous infiltrations of the thighs, (2) diabetes insipidus, (3) areas of xanthoma on the eyelids, and (4) blood cholesterol increased to 320 mg. Successful treatment consisted in x-radiation of the thighs, injections of hypophysin, and reduction of fat intake.

Surgery

296 Apparent Recurrences after Renal Calculus Operations

F. MORL (*Zentralbl. f. Chir.*, July 14th, 1934, p. 1648) remarks that with improving radiographical diagnosis and less frequent splitting of the kidney at operation mortality in renal calculus has been diminished, but subsequent recurrences have increased. These apparent recurrences—reported by some to reach 50 per cent.—are nearly always due not to new stone formation but to an existent stone being overlooked at operation. Their increased frequency is attributable to (1) the present tendency to place too much reliance on radiology, which in 10 per cent. of cases fails to show a stone or one of several stones which are present; (2) the employment of simple pyelolithotomy in cases not suited to its relatively narrow scope; and (3) digital investigation being done without rubber gloves having been previously discarded. The surest preventive of "recurrence" is x-radiation before the operation is concluded. Next in importance, Morl believes, is the search with the ungloved hand: he relates the histories of four cases in which stones impalpable through rubber gloves were detected by the bare fingers.

297 Causes of Death after Appendicitis

S. MÜLLER (*Hospitalstidende*, July 24th, 1934, p. 34) has analysed the causes of the sixty-one deaths occurring during eleven years among 1,087 patients on whom appendicectomy was performed for acute appendicitis. Among the forty patients whose death was due to peritonitis were twenty-four whose admission to hospital was tardy. In all of the latter there was an interval of forty-eight hours or more between the onset of the symptoms and admission to hospital. In most instances medical aid had been sought too late, but in an indeterminate number the medical practitioner was responsible for the delay. In this connexion the author mentions the tendency of appendicitis to begin acutely and then to run a more or less "subterranean" course for the next two or three days, after which it flares up again. Among the forty peritonitis fatalities there were, however, eleven patients who had been admitted to hospital within the first twenty-four hours. In the remaining five cases of fatal peritonitis the operation had been deferred for some time for various reasons. There were nine deaths from sepsis which in six cases developed after an attack of peritonitis had subsided. There was only one death from subphrenic abscess. Embolism of the pulmonary artery and septic infarct each accounted for two deaths, and pyelophlebitis and emolito cerebri each for one death. There remained five deaths from intestinal obstruction, and in connexion with these cases the author is inclined

to wonder if such fatalities may not be reduced by the avoidance of extensive drainage. He himself has not extended drainage beyond the right iliac fossa, and he is inclined to ask if even such limited drainage may not be excessive and provocative of ileus.

298

Ricard's Amputation

In certain injuries of the foot TONDEUR (*Le Scalpel*, July 21st, 1934, p. 1013) prefers Ricard's to other better-known amputations. This operation, in which the os calcis is conserved, consists essentially of inter-tibio-calcaneum disarticulation, astragalectomy, and the placing of the os calcis in the tibio-fibular mortise, thus forming a new joint; finally the extensor tendons and the plantar muscles are sutured together, and the plantar and dorsal flaps. Astragalectomy lessens the bony mass to be covered and increases the size of the dorsal flap and the relative length of the Achilles tendon. Conservation of the os calcis provides a normal heel and gives absolute steadiness to the stump. Both measures prevent ultimate equinus. The primary incision varies with the extent of the injury; if made at the calcaneo-cuboid articulation, excision of successive layers of the os calcis is necessary; if only 3 cm. in height of this bone is conserved, very good results are still obtained. The advantages of a Ricard amputation are: only slight shortening of the limb and the formation of a painless, mobile, well-covered stump. It is indicated in trauma, in tuberculosis of the medio-tarsal articulations, and in correction of useless stumps. Details of a case with a full description of the operation are given.

299

Cystin Stones

W. POLLAK (*Zent. f. Urol.*, July, 1934, p. 480) draws attention to recent reports of cystinuric subjects who, although excreting cystin in solution, have no cystin sediment in the urine and no stone formation in the urinary tract. Scepticism therefore seems justified concerning cases in which a familial cystinuria is denied because a family history of stone is not obtainable. He describes two cases in which cystin stones cast excellent shadows on the x-ray screen (equally as dense, in one case, as contralateral phosphatic oxalate stones of the same size). These and numerous similar cases from the literature appear to shatter the older statements that cystin stones cast faint shadows or none at all. In one of Pollak's patients cystin stones had existed in the third decade, after the establishment of chronic urinary infection, was followed by repeated production of stones consisting of calcium oxalate, calcium phosphate, and triple phosphates.

Therapeutics

Treatment of Hiccup

300

E. C. NOBLE (*Canadian Med. Assoc. Journ.*, July, 1934, p. 38), discussing the aetiology and treatment of hiccup, draws attention to the great variety of causative factors, and states that various remedies may be effective in different cases. In cases when the hiccup is associated with infection of the upper respiratory passages, the throat may be sprayed with a 2 per cent. solution of cocaine, and a 20 per cent. solution may be applied to the trachea, warm alcohol being slowly dropped into the trachea. The local application to the nasopharynx of menthol or cocaine may also be effective. If it is due to the constant, direct, or reflex stimulation of the phrenic nerve in such cases as mediastinal new growth or diaphragmatic pleurisy, the only therapeutic measures of any avail will be those which depress the sensitivity of the nerve endings or interrupt the central nervous system to such a point that conduction is interrupted, or which involve the actual crushing or severing of the nerve. Drugs worthy of trial but usually in maximum doses, are atropine, luminal and its compounds, bromides, chloral hydrate, morphine and its compounds, heroin, nitroglycerin, and quinine. Noble has had good results with sodium amylal in prolonged hiccup. A dose of 7 to 10 grains is given intravenously, or until the

patient becomes unconscious during its administration. The effect is immediate, and lasts usually from two to six hours, when it may be repeated. On account of its tendency to produce pharyngeal paralysis, the patient must be kept constantly under observation. When hiccup arises from the gastro-intestinal tract, removal of the cause is indicated; the induction of vomiting will often suffice, but, if not, gastric lavage with alkalis should be a routine procedure. This is particularly the case in post-operative hiccup arising early. After lavage, various stomachics or anodynes may be used, such as the tinctures of capsicum or belladonna, chloroform, benzyl benzoate, ginger, peppermint, and chloretone. In the infectious type of hiccup described by Mayo and Rosenow an antibody globulin solution was effective in cases in which a specific organism was isolated. After an initial desensitizing dose, 2 to 5 c.cm. was injected intramuscularly two or three times daily, one dose being found effective sometimes in stopping the symptoms. Caution is advised in the application of surgery involving the phrenic nerve on account of the potential risk of hypostatic congestion following paralysis of the diaphragm.

301

Acetylcholine in Hemiplegic Seizures

By statistics and personal cases F. SCICLOUNOFF (*Pressa Méd.*, July 14th, 1934, p. 1140) shows that acetylcholine therapy greatly improves the chances of cure or marked amelioration in cases of hemiplegic attacks due to recent cerebral softening, and even in those of some days' duration and definitely established. Four illustrative cases are recorded. He injects daily for at least twenty days, or until results are obtained, 10 to 20 cg. of the hydrochlorate. For ten days during each of the three following months preventive doses of 10 cg. are given, and subsequently similar doses every two or three months. Treatment, which is more efficacious in younger subjects, should commence as soon as possible after the seizure, or in the case of idiosyncrasy or intolerance have been noted. Numerous authorities practise this method also in seizures following cerebral haemorrhage and thrombosis. The favourable results obtained are thought to be due to the vaso-dilatory action of the drug on the cerebral arteries, and to its peripheral vasomotor action.

302

Cibalgil Suppositories after Operations

J. BETZNER (*Deut. med. Woch.*, July 13th, 1934, p. 1053) reports from a hospital in Dusseldorf his experiences with cibalgil, which has hitherto been given only by the mouth or by injection. The suppositories he has used have each contained two tablets of cibalgil or the equivalent 0.44 gram dimethylaminophenazone and 0.06 gram dia. A suppository was inserted on the evening of the second day after an operation or accident instead of an injection of morphine. In 90 per cent. of all the cases the patients were rid of pain and other symptoms, but about 40 per cent. missed the hypnotic effect of the injection. To remedy this defect the author inserted a second suppository three hours after the first. The patients then fell asleep about half an hour later, and next morning they did not complain of any symptoms referable to the heart or intestines. There was no excitation phase, nor that intestinal paralysis which is apt to follow the administration of morphine or one of its derivatives, particularly after an abdominal operation. The suppositories also eliminated the risk of morphine addiction. They were successful in all the cases of dysmenorrhoea and other gynaecological ailments given conservative treatment, both headache and pain disappearing in about half an hour. The pain of pleurisy was also relieved, but the results were less satisfactory in cases of biliary colic, for which the intravenous and intramuscular injection of this drug may be more suitable. In chronic diseases such as osteomyelitis and purulent arthritis requiring prolonged treatment, cibalgil in a suppository was found an effective and harmless substitute for morphine. The author publishes a tabular analysis of the 119 cases treated with cibalgil suppositories, whose use was never followed by addiction or other harmful consequences.

303

and begets in the frigid, always provided that this frigidity is not due to an organic lesion. The contents of one capsule, or more rarely of two, were administered by the subcutaneous route daily. As a rule some improvement was noticed in a week or two, but in some cases it was found necessary to administer as many as sixty capsules before a conclusive result was obtained.

308 Cancer following Subtotal Hysterectomy

E. VON GRAFF (*Amer. Journ. Obstet. and Gynecol.*, July, 1934, p. 18) comments total hysterectomy for general use, reserving the subtotal form for selected cases, because he believes that a patient with an amputated uterus is menaced for the rest of her life by the possibility of cancer of the cervix. He cites statistical evidence showing that cancer of the stump was the lesion in 8.3 per cent. of 263 cervical carcinoma cases, and 6.3 per cent. of 344 cases of carcinoma of the uterus, demonstrating therefrom that removal of the stump together with the body of the uterus would have resulted in a considerable decrease in the incidence of cervical cancer. The author believes that undue importance is attached to lacerations of the cervix and cervicitis following childbirth as aetiological factors. He cites evidence that Jewesses are protected by racial immunity against cancer of the cervix—a fact, he thinks, which may explain somewhat the prevailing conflict of opinion as regards the danger and frequency of stump cancer following subtotal hysterectomy. A common concomitant of cervical cancer is the presence of fibroids in the uterus. Failure has attended attempts to prevent stump cancer by destroying the cervical mucosa, because more than 80 per cent. of these cases originate from the squamous-cell epithelium of the vaginal portion of the cervix. Even the most elaborate excision of the mucosa, including the muscular wall, will not prevent it. Nulliparous as well as parous women may be affected, and the age of the patients has no particular significance. Von Graff argues that, since considerably more than half of the patients with stump cancers die, these losses should be taken into consideration when comparing the mortality rates of the total and subtotal operations.

Pathology

309 Experimental Chronic Peptic Ulcer from Caffeine Administration

H. HANKE (*Klin. Woch.*, July 7th, 1934, p. 978), experimenting on cats, was able to produce chronic gastric ulcer similar in all respects to that in man. Caffeine sodium salicylate 2 to 3 grams was injected subcutaneously daily. The cats were given a large meal at night, the remains of which were removed in the morning. The injection was given at noon, so that they fasted four hours prior to, and six hours after, each injection. Eight of the ten experimental cats died spontaneously, but in two characteristic ulcers were found at the end of two months: two control cats, fed in the same manner but not receiving injections, showed no signs of ulcer. Hanke believes that the ulcers were undoubtedly produced by the caffeine acting on an empty stomach and eroding the mucous membrane. The continual ingestion of large doses of caffeine has, he thinks, the same effect on human gastric membrane, producing a peptic gastritis, due to excessive production of gastric juice on the mucous membrane of the empty stomach, and leading to chronic peptic ulcer.

310 Spirochaetes of the Mouth

R. VINCENT and M. DUFRESNE (*C. R. Soc. de Biol.*, 1934, cxvi, 490) record briefly the results they have obtained in classifying the buccal spirochaetes. Working on the belief that a proper classification would be possible only when these organisms had been studied in pure culture, they proceeded to isolate spirochaetes from the mouths of patients with pyorrhea and stomatitis. Using a medium made up with serum, agar, and a fragment of tissue under

a seal of vaseline, they isolated eleven strains of spirochaetes. These strains have been provisionally classified into six groups, labelled A to G. Group A is not yet identified. It differs from B in the greater motility and suppleness of the organisms morphologically, and in the absence of a fetid odour in culture. Group B corresponds to *Sp. microdentium*, and is the easiest of all to cultivate. Group C corresponds morphologically to *Sp. skolidonti* (Hoffmann) and probably to *Sp. acuta* (Seguin). Group D is certainly identical with *Sp. trimerodonta* (Hoffmann) and *Lepto. buccalis* (Fontana), though it is not a true leptospira. Group E is a large group, and corresponds to *Sp. macrodentium* (Noguchi). Group G is also an important group, but so far only one member has been isolated, which apparently belongs to the species *Sp. buccalis* (Cohn). This organism, which under dark-ground illumination appears as a large spirochaete with a double contour, and which is abundant in Vincent's angina, has not yet been obtained in pure culture, though it has been cultivated for many months in association with other organisms. The detailed description of these various organisms will be given in a subsequent paper.

311 Apparatus for Detecting Free Gastric Acid

A method of testing for free acid successive samples of gastric contents withdrawn by controlled suction is described by H. NECHELES and L. SCHEMAN (*Journ. Amer. Med. Assoc.*, July 14th, 1934, p. 107), who point out that by ordinary methods of examination a small quantity of free hydrochloric acid escapes detection, having been neutralized by mucus after withdrawal. The apparatus consists of a glass T-tube, the vertical limb of which is wide enough to hold a stopper with a bore, through which is passed the lower end of a burette filled with Töpfer's reagent. One end of the T-piece is connected to a suction device, with a mercury manometer and needle valve, while the other is joined to the stomach tube. Small sealed glass tubes with various concentrations of hydrochloric acid and reagent may be attached along the horizontal part of the tube for comparison. As the suction begins to work and the stomach contents appear in the T-tube, drops of Töpfer's reagent are allowed to fall on them from time to time, and the colour reactions are noted. Mucus, bile, and pure stomach juice can thus be tested separately before admixture and consequent neutralization. In this way the authors have been able to demonstrate free acidity in eighteen out of twenty patients with subtotal gastrectomies, and to elucidate the problem presented by an apparently complete anacidity and a lack of response of the acid secretion of the stomach even to histamine in patients complaining of heartburn and the vomiting of sour material.

312 The Abortive Action of *Br. abortus*

I. L. KRITSCHESKI and E. P. HALPERIN (*Zeit. f. Immunol.*, July, 1934, p. 421) have attempted to find out why *Br. abortus* gives rise to abortion. Preliminary experiments in rabbits showed that this organism was incapable of giving rise to the Schwarzmänn phenomenon, and it therefore appeared as if this phenomenon was unlikely to be concerned in undue contractions of the sensitized uterus. The direct action of the endotoxin of the organism was then investigated on the virgin uterus of the guinea-pig. A so-called endotoxin was prepared by heating a thick saline suspension of *Br. abortus* to 60° C. for two to two and a half hours. The effect of this extract on contraction of the uterine muscle was tested by the Dale technique. A marked contraction was observed to follow the addition of 0.5 c.m. of a 1 in 50,000 solution of histamine. Control experiments made with the typhoid bacillus, Friedländer's bacillus, and *Staphylococcus aureus* showed that these organisms had little or no effect on uterine contraction. Further work, shortly to be published, by Kritschewski and Galonowa disclosed the interesting fact that the uterus of guinea-pigs that had been immunized against *Br. abortus* did not respond to the endotoxin. If this should be confirmed it would explain, as the authors point out, why living or dead vaccines of *abortus* should protect against actual abortion while being unable to destroy the organisms in the body.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

313 Public Health Measures in Epidemic Infantile Paralysis

K. HROLV (*Ugeskrift for Læger*, July 19th, 1934, p. 804) gives an account of an epidemic of this disease which broke out in the summer of 1932 in Greenland, and which he met with various public health measures. There were about 700 persons in the colony, and the total population of the area involved was about 2,500. Apart from abortive cases, there were eighty-three well-defined cases, twenty of which terminated fatally. There had been a serious epidemic in the same colony in 1914, and it was significant that none of the patients in the present epidemic was more than 17 years old. As soon as the author suspected an outbreak of infantile paralysis he secured the complete isolation from the rest of the colony of a children's sanatorium housing twenty scrofulous patients. This isolation was so rigorous that he even omitted his daily call, remaining in touch with the sanatorium only by telephone. The epidemic was over in five weeks, and neither at the time nor later did any of the children in the sanatorium develop acute anterior poliomyelitis. Other measures included closing of the schools and interdiction of meetings, dances, and church services. Burial services were permitted only in the open, and no more than six persons at a time were allowed to enter the local shop. The patients were isolated in hospital, their homes were disinfected, those who had lived in the same home were kept in quarantine at home for three weeks, and visits in hospitals were forbidden. A sanitary cordon was drawn between this and neighbouring colonies, and the crews of ships touching at the colony were forbidden all intercourse with its inhabitants. Presumably as a result of these measures, a neighbouring colony remained immune till half a year later. With this exception and that of the sanatorium already referred to, the measures described seemed to have no effect on the course of the epidemic.

314 Early Diagnosis of Exudative Tuberculosis

H. AHRINGSMANN (*Med. Welt*, July 14th, 1934, p. 982) deprecates that the exudative form of pulmonary tuberculosis is seldom diagnosed early in practice. If it is diagnosed and treated within the first four to eight weeks complete cure occurs in the majority of cases. The diagnosis is manifestly difficult, for in the early stages there is no rise in temperature, no cough or sputum, no malaise, and nothing to be found on percussion and auscultation. The history of the illness is of great importance. Gastric symptoms, especially feeling of discomfort in the epigastrium and loss of appetite, should raise suspicion of tuberculosis. If the x-rays show that there is no organic disease of the gastro-intestinal tract, an x-ray of the chest should be insisted upon. Screening of cases is not enough, and a film should be obtained. A blood sedimentation test shows an increased sedimentation in nearly all cases of progressive exudative pulmonary tuberculosis.

315 Post-influenzal Polyradiculitis

In 100 cases of post-influenzal polyradiculitis J. RUSSETSKI (*Ann. de Méd.*, July, 1934, p. 142) noted that this condition, consisting chiefly of intense pains, usually appeared on the fifth to the tenth day of the disease, rapidly reached its maximum, and lasted for periods varying from a few days to several months. Disorders of voluntary movement and of the reflexes were minimal, the sensory and sympathetic systems being primarily affected. The dorsal region was most frequently affected, the cervical and lumbar regions being rarely involved. As a rule, the radiculitis was unilateral; bilateral involvement occurred only when the disease extended to the lower

cervical region. At the onset, hyperaesthesia and a lowered local temperature were present; this was followed in three to ten days by an inverse state of hypo-aesthesia and hyperpyrexia. The neurotonic vasomotor reaction was therefore a type of sympathetic hyperactivity. During the painful period good results were obtained by intravenous injections of sodium salicylate and urotropine combined with physiotherapy; in refractory cases repeated lumbar or suboccipital punctures were made. During the regenerative period oral doses of an iodide solution, intravenous injections of sodium iodide, and applications of iodized ionization were employed.

316 Anaemia from Lice

A. FINKEL (*Wiss. Arch. f. innere Med.*, June 20th, 1934, p. 49) has followed the blood changes in laboratory attendants to whose arms daily applications of pediculi vestimentorum were made; culture of the vermin was required for preparation of antityphus vaccine. Small, repeated, daily blood losses of 5 to 10 grams led to increase both of red blood cells and of haemoglobin percentage. With larger blood losses of 10 to 25 grams daily a secondary anaemia, with erythrocytes descending to 3,000,000 and a colour index of approximately unity, occurred in a few months. It is inferred that inhabitants of vermin-infested houses may as a direct consequence suffer from chronic anaemia.

317 The Kidney in Diphtheria

M. A. M. GRENET (*Thèse de Paris*, 1934, No. 488), who records thirty-nine cases in patients aged from 2 to 13 years, states that involvement of the kidney is rare in mild and moderately severe attacks of diphtheria, and when it does occur is always slight. In malignant diphtheria, on the other hand, nephritis may be observed (a) at the onset, when it is rarely permanent; (b) in the course of the disease, as shown by the presence of casts, albuminuria, and moderate hyperazotaemia; (c) at a late stage—but such an occurrence is very rare. In any case it is quite exceptional for the nephritis to become chronic. The renal lesions seen in fatal cases are essentially parenchymatous. The lesions in the kidney produced experimentally in guinea-pigs by injection of diphtheria toxin are identical with those found clinically in man. Anatomical and clinical observation has shown that vaccination by anatoxin is absolutely harmless for the renal system. The hyperazotaemia is only in part due to the renal lesion, cellular disintegration being mainly responsible.

318 Trauma as a Cause of Diabetes

H. STURSBURG (*Deut. med. Woch.*, June 29th, 1934, p. 981) refuses to subscribe to the doctrine that traumatic diabetes is a figment of the imagination, and records the case of a policeman whose father had died of diabetes. About six months after his urine had been found normal, the policeman, aged 22, received a hard blow over the right side of the abdomen. During the next few hours he suffered from severe abdominal pain and repeated vomiting; thereafter he never felt well, but he kept at work for about half a year in spite of increasing discomfort and great thirst. He was then admitted to hospital, where the urine was found to contain much sugar. A few years later he was still excreting sugar in the urine, although he could keep his diabetes otherwise in check with insulin and dieting. The only other demonstrable physical change was a tender and palpable liver. Professor Stursburg considers it most probable that the injury provoked diabetes in this case, and that the hereditary factor was a predisposing influence. This patient might well have developed diabetes later without any traumatic provocation, and his case does not prove more than that trauma may play a certain part in the genesis of diabetes.

Surgery

Carbuncle of the Kidney

319 G. LAZARUS (*Amer. Journ. Surg.*, July, 1934, p. 155) describes carbuncle of the kidney as a metastatic renal involvement from a healed or active staphylococcus lesion, such as a carbuncle of the neck, a furunculosis, an osteomyelitis, or a simple paronychia. The carbuncle usually starts as a central abscess, which as it enlarges becomes flanked by a number of smaller abscesses. A fully mature renal carbuncle may remain localized as a single inflammatory tumour or it may suppurate, and the infection may extend through the cortex and break into of the kidney to give rise to a pyelocystitis, and rarely the abscess may extend centrally and into the calyces and pelvis, setting up a pyelocystitis, and finally heal spontaneously. In every one of eight cases reported pain was experienced, and there was costovertebral tenderness over the affected side, with bulging or tumefaction in the loin. Palpation of a tender mass in the lumbar region was possible in five cases. X-rays showed obliteration of the psoas margin in all cases, with enlargement of the renal silhouette of the affected kidney in four instances. A history of a pre-existing furuncle or carbuncle in some other part of the body was obtained in all but one case. Operative treatment consisted of incision and drainage, with excision or gentle curetting of the lesion in all the cases reported. Wound dakinization helped to shorten convalescence, and the patients all made a good recovery.

320 Limits of Operability in Cancer of the Breast

JEANNERNEY (*La Gynéc.*, June, 1934, p. 341) remarks that to extend the local limits of operability in cancer of the breast will not improve a surgeon's statistics, but will improve his patient's chances of survival. He himself regards as operable (if excisable) ulcerated carcinomata, those with supraclavicular gland-metastases which can be excised, and carcinomata adherent to the thorax. For primary growth adherent to the thorax he has done palliative curetting, excision, or diathermic coagulation in five cases, followed in three instances by radiotherapy. Survival for five years followed in two instances. Before attempting radical operation for primary cancer adherent to the thoracic cage, metastases in the contralateral axilla or supraclavicular fossa and the liver should be excluded, as well as—radiographically—those in the skeleton or lungs. The operation may include excision of ribs and opening of the pleura. Jeannerney's two best results in this class are survivals of eleven and sixteen months respectively, but Delbet and Mendaro had—together with eight deaths within two years—an unexpected survival of nearly twelve years. Even when faced with recurrences adherent to the thorax Jeannerney does not recoil—if other metastases, so far as can be ascertained, are absent—from excision by knife or diathermy; he can report three cures for one to three years. With these operations have been associated as a rule radiotherapeutic measures, and occasionally in premenopausal subjects a radiotherapeutic ovarian castration.

Mammary Tuberculosis

321 HAMANT and CHALNOT (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, June, 1934, p. 428) give short notes of cases of mammary tuberculosis. This condition may occur in either a diffuse or a localized form, with a single large cavity, it is usually accompanied by an extensive involvement of the axillary lymph nodes, an important diagnostic sign. In one of the recorded cases the lesion was localized in the axillary prolongation of the gland; in another, with an extensive localized lesion, a yellow discharge occurred from the nipple for some days. Treatment consists in excision of the breast and adjacent lymph glands. The axillary curetting need not, however, be as complete as in cases of cancer.

Therapeutics

Serum Treatment of Poliomyelitis

322 S. BAASTRUP (*Ugeskrift for Læger*, July 19th, 1934, p. 759) has observed 120 cases of acute anterior poliomyelitis in his hospital, and has given thirty-two of them serum. In ten of these cases Pettit's serum from the Pasteur Institute was used and found to be unsatisfactory. In the remaining twenty-two cases the serum of human convalescents, imported from Prague, was used. It gave encouraging results, the proportion of subsequent paralyses being approximately half that observed in the controls. But, in the author's opinion, serum treatment is useless after the onset of paralysis, and he recommends it only in the pre-paralytic stage, before the appearance of symptoms referable to the cells of the spinal cord (tremor, ataxia, etc.). The serum should, he states, be given in a single large dose by intravenous injection, never by the intraspinal route. It is conceivable that the dosage has hitherto been too timid, and until more exact information is forthcoming on the subject, it would be well to fix the minimum dose at 20 to 30 c.cm. for children a year old, the dosage being increased according to age and weight until 50 to 70 c.cm. are given to adults. If the serum of convalescents is not obtainable, the serum of healthy adults may be used; some of them, particularly if they are town dwellers, will doubtless have poliomyelitis antibodies in their blood.

Cheese in the Dyspeptic's Dietary

323 F. RAMOND, NICOLAS, and LEBLANC (*Presse Méd.*, July 18th, 1934, p. 1154) enumerate the dietetic advantages of cheese as opposed to milk. In a small volume it contains almost all the nutritive elements, except the lactose, of milk; 100 grams of cheese contain as much casein and fat as 1,000 grams of milk. The pressure and action of the organisms used in its preparation convert the casein into proteins and hydrolyse a certain amount of the fats. Cheese therefore possesses a greater digestibility than milk. Experiments have shown that cheese diminishes the free hydrochloric acid and increases the total acidity, total chlorine, and fermentative properties of the gastric juice, and, owing to its great content of proteins, causes a quicker opening of the pylorus and more rapid duodenal transit than is the case with meat. Clinical results have proved that addition of cheese to the diet causes marked improvement (absence of emaciation and anaemia and a regaining of vitality) in cases of dyspepsia and of gastro-duodenal ulcer, especially old ulcers complicated with chronic gastritis. It is also of benefit in cases of gastric cancer.

324 X-Ray Treatment of Acute Inflammations

MIRIAM LIBERSON (*Rev. d'Actinol. et de Physiothér.*, May-June, 1934, p. 185) reviews the literature and records the results of personal experiments relating to the mode of action of x rays on inflammatory conditions. Small radiation doses were found to be the most effective. The best results were obtained in superficial staphylococcal infections, gynaecological conditions, dental disorders, and diseases of glandular organs. Liberson discusses the various current hypotheses of the mechanism of the improvement, including the enhancing of the bactericidal power of the blood, the promotion of phagocytosis and the production of antibodies, stimulation of the reticulo-endothelial system, increased bactericidal activity and proteolysis, and modification of the local circulation. The often contradictory conclusions reported permit no very definite understanding as to how x-radiations operate, but the consensus of opinion is that they have a very certain therapeutic value in such local inflammations. If a commencing lesion is treated sufficiently early, it aborts, or requires a very mild subsequent operative intervention. Some have even found that local suppuration would often open spontaneously immediately after the

first radiation and then heal spontaneously. In thirty-five cases of tuberculous abscess of the axilla there were no bad sequels, and subsequent vaccine therapy seemed to have been definitely expedited. The fact that patients so treated can be dealt with as ambulant cases is cited as another reason for using x rays in this condition. The pain of anthrax lesions was relieved, and the inflammation was reduced. Facial furuncles were particularly benefited, a satisfactory result in view of the difficulty of treating them by surgical methods without resulting deformity. Various authors differ as to the benefit to be expected in affections of the nose, ears, and eyes, but periodontitis, dental periosteitis, and maxillary inflammations generally responded well, even in senile patients.

325

Treatment of Obesity

According to E. H. STOKES (*Med. Journ. of Australia*, June 23rd, 1934, p. 804) the common practice of using thyroid substance only in the treatment of obesity cannot be too strongly condemned. Patients whose basal metabolic rate is below normal will probably lose weight, but in others harm may be done. There is no characteristic change in the metabolism of the obese, and hyperthyroidism may be induced in some cases. It is remarked that patients with frank myxoedema often do not lose much weight; in some cases the weight actually rises after a preliminary fall. In a series of fifty cases of obesity the author used thyroid substance, when it appeared to be indicated, in conjunction with other measures. The initial dose was half a grain twice a day. If the patient proved tolerant the dose was doubled, and in some cases where myxoedema was present as much as 15 grains was given daily. Stokes remarks that exogenous obesity is frequently associated with endogenous obesity, particularly of thyroid origin. One of the series of patients benefited from the exhibition of pituitary whole gland extract in that retarded sexual development was simultaneously accelerated, but its employment in the case of adults was without any noticeable effect. A combination of thyroid substance and whole gland pituitary extract appeared also to be beneficial sometimes. Extracts of the genital glands gave no results. Stokes emphasizes the importance of careful dietetic regulation. He considers that a low fluid intake is neither necessary nor desirable, except in cases with cardiac complications. Admission to hospital, the careful calculation of the caloric value of the food intake, and the weighing of all articles of diet may be necessary in some cases.

Disease in Childhood

326 Magnesium Sulphate in Hirschsprung's Disease

B. E. BONAR (*Amer. Journ. Dis. Child.*, July, 1934, p. 123) finds the term "pelvi-rectal achalasia" useful in designating the type of Hirschsprung's disease which is apparently caused by failure of relaxation of the musculature at the pelvi-rectal flexure. He reports the case of a boy aged 3 with this dysfunction, who was treated by repeated intrarectal injections of a saturated solution of magnesium sulphate. In the course of two years more than 200 satisfactory bowel movements were obtained; the abdominal distension was reduced, and the nutrition and health were decidedly improved. When the injections were given at the time that mass peristalsis was occurring the evacuations were more copious. Bonar remarks that magnesium sulphate has been used for some time to relieve certain spastic states of the recto-sigmoid apparatus in adults, saturated solutions being injected into the rectum; but its use in the somewhat analogous condition of this form of Hirschsprung's disease seems to have been overlooked. The success which attended the present instance seems to warrant a trial of it in other cases of this form of megacolon. It acts apparently by local irritation of the neuromuscular elements of the intestinal wall. While it is admitted that sympathectomy is the operation of choice as a general rule, the age and the condition of the child often make preliminary medical treatment

necessary. The author adds that if his results receive confirmation by others this line of treatment would be of considerable value.

327

Intussusception in Nurslings

E. POULIGUEN (*Presse Méd.*, September 12th, 1934, p. 1421) emphasizes the importance of early diagnosis in infantile intestinal intussusception, and maintains that treatment should not be deferred until the pathognomonic bloody stool appears. Two early diagnostic signs are colicky pains, especially if intermittent, and repeated vomitings. The diagnosis can be confirmed by radiological examination after a barium enema. Two methods of treatment may be employed—operation or enema. Pouliguen favours the latter course, and administers an enema containing 20 grams of baryta to a litre of water. This amount is given under a pressure of 1.2 to 1.5 m., and under x -ray control; by the latter and by palpation it can be determined whether reduction has occurred. Should this measure fail immediate operation is indicated. A right lateral incision is advocated; the invagination should be reduced by manual manipulations, persisted in if necessary. In irreducible cases resection must be performed, though this is dangerous and death usually ensues. Post-operative care is of the utmost importance. Notes on three cases are given to illustrate the dangers of delayed treatment.

328 Powdered Apples in Diarrhoea of Childhood

P. FREUD (*Wien. med. Woch.*, September 8th, 1934, p. 1001) has treated nine cases of acute and two cases of chronic intestinal catarrh in a children's home in Vienna with pulverized apples sold by an Austrian firm under the name of "pomfarin." He was encouraged in this therapeutic essay by several recent publications in which praise of raw mashed apples in the treatment of diarrhoea was unanimous. The reaction of all the author's eleven patients, whose ages ranged from 9 months to 8 years, was prompt; the diarrhoea was completely arrested, at the latest within eighteen hours of the institution of this treatment. After there had been no stools for twenty-four to thirty hours, the first motion would be of the consistency of an ointment, or formed and no longer malodorous. Infants under 9 months are liable to lose weight too rapidly under this treatment to stand it well. Freshly prepared apple powder is preferable in many ways to the raw mashed apple. The dosage of the former can be regulated with greater accuracy, and it confers independence in the matter of the seasons of the year, the quality of different apples, etc. The powder is also easier to mix with water, and is better tolerated than the raw article. Children take the powder readily when given in sweetened water. The powder is soaked in warm water (not over 50° C.) for ten minutes and is given lukewarm or cold. A new lot of powder should be used for each feed. The weight of 100 grams of pomfarin corresponds to 100 grams of fresh whole apple, and a dose of about 30 grams on the first day may be raised to 50 to 60 grams on the second day. In refractory cases the same dose may be required on the third day. Only small quantities are given at a time. No other food is given, but thirst is relieved by tea sweetened with saccharine.

329

Sinusitis in Children

According to A. H. PERSKY (*Arch. of Pediat.*, September, 1934, p. 589) sinusitis is a very common condition in children, being the direct cause of many unexplained coughs and questionable bronchitis. The acute condition is always a sequel of an acute rhinitis, increases the severity of the symptoms, and delays their clearing up. After an infection there is always damage of the mucous membranes, and if this has not completely healed by the time the next attack occurs, the injured area is the first to become involved, and its healing is still longer delayed. Finally, permanent thickening results. Local nasal treatment alone will not clear up the condition. The nasal cavities should be cleared, and some astringent such as ephedrine or cocaine and antipyrine be applied. The

suction process can then be extended to the sinuses, which can be similarly cleared, and arrangements be made to ensure regular drainage and aeration of them. The author finds dietetic supervision useful, but does not commend vaccines for acute sinusitis; for chronic sequels, however, vaccine therapy has often proved useful. The quartz lamp and, in some cases, infra-red rays are also helpful. Persky considers that the best results may be expected from the combination of local treatment with general dietary and tonic measures.

Obstetrics and Gynaecology

330 Bispinous Diameter in Persistent Occipito-posterior Presentation

S. HANSON (*Surg., Gynecol. and Obstet.*, July, 1934, p. 102) discusses the influence exerted by an unduly narrow bispinous diameter on the mechanism of labour, particularly as regards the persistence of an occipito-posterior position. Observations were made on a series of 2,254 consecutive cases, of which 811 were primiparae, the bispinous diameter being measured with a specially devised pelvimeter. The average bispinous diameter was found to be 10.51 cm. Pelves with a diameter of 9.5 cm or less were rather arbitrarily classed as narrow; of these there were 143 instances among the primiparae. Hanson insists that in such investigations it is always essential to distinguish between primiparae and multiparae, since in the latter the relaxed perineum is a complicating factor. It was found that persistence of the posterior position, predisposing to the narrow in the primipara series the bispinous diameter was in the primipara series of thirty-eight (71 per cent.) narrow in twenty-seven out of thirty-eight (71 per cent.) of the cases of persistent occipito-posterior position. The measurement exceeded 10.5 cm. in only one of the thirty-eight cases. This finding was rendered even more significant by the discovery that such narrowing was only discernible in 17.67 per cent. of the whole series of cases examined. The average measurement for the group was only 9.46 cm., as compared with the normal of 10.51 cm. Conversely there was a very high incidence of the persistent posterior position among this group of pelvises—twenty-seven out of 143 cases (18.9 per cent.)—approximately thirteen times greater than the incidence of the persistent posterior position in the group of 668 primiparae with normal bispinous diameters. In these cases of narrow bispinous diameter the other pelvic measurements were usually about normal, except the bi-ischial diameter, which was narrow in most, but in only two instances to an extent where it would impede delivery. Among fifty-two cases of persistent occipito-posterior position in multiparae in the series investigated there were eighteen cases with a narrow bispinous diameter, an incidence of only 34.6 per cent. Hanson concludes that it is very necessary to differentiate early in labour by interspinous measurement between those cases in which anterior rotation will proceed normally and those in which there will be obstruction. Early intervention in the second class will eliminate a long and futile second stage, with its attendant difficulties and disastrous complications.

331 Pernicious Anaemia in Pregnancy

P. BARON (*Gynecol. et Obstet.*, July, 1934, p. 731) believes that pernicious anaemia is a specific disease of pregnancy, and gives the full history of a case. The patient presented, with the anaemia, the usual symptoms of pregnancy intoxication: intractable vomiting, marked albuminuria, and icterus, a rarer and in this case the initial symptom. All these symptoms, with the exception of the anaemia, which increased, disappeared after delivery. Two blood transfusions and administration of a prothable liver extract produced no improvement. A progressive amelioration with ultimate cure was obtained in six days by giving raw calves' liver (Whipple's method) in doses increasing from 50 to 200 grams.

Pathology

332 Human Influenza and Canine Distemper

A. EICHMORF and N. J. PYLE (*Journ. Amer. Med. Assoc.*, June 23rd, 1934, p. 2082) record experimental work which indicates that the virus of influenza in man may induce in ferrets an immunity against the distemper of dogs. Pigs were being tested in the United States for susceptibility to human influenza virus, the virulence of which was maintained by passage through ferrets. In testing canine distemper virus, ferrets were also employed and, not suspecting a possible relation between this virus and that of influenza, the authors used some of the ferrets which had recovered from the influenza infection for tests with canine distemper virus. Marked differences were noted in the ensuing reactions, as compared with other ferrets which had not been exposed to influenza virus. The usual period of incubation was lengthened from nine or ten days to thirteen or even seventeen days, and two of the ferrets proved apparently immune to distemper. In view of the authors' experience that the strain of distemper virus with which these experiments were made, and which had been studied in more than 800 ferrets, had never failed to kill the ferrets, and had always shown a uniform incubation period, these results clearly suggested that the animals which had recovered from the infection with influenza virus had acquired a resistance to the canine distemper virus. In a second series of experiments six out of eleven ferrets received only two instillations of influenza virus and the remaining five three nasal doses of canine distemper virus. Injections of lethal doses of canine distemper virus, in the first group one ferret remained well, and in the second group three were entirely unaffected by the distemper virus. All ferrets that died showed a marked delay of the distemper symptoms. The authors conclude that the influenza virus induces some immunological reaction in ferrets against the distemper virus. Limited cross-neutralization experiments and immunizing attempts with hyperimmune distemper serum against the influenza virus are now in progress. They think that some evidence is emerging in support of the long held theory that there is a close relation between the occurrence of human influenza and canine distemper.

333 Intestinal Mucosa in the Stomach and the Pathology of Gastric Ulcer

According to F. CLAR (*Brun's Beitr. z. Klin. Chir.*, August 8th, 1934, p. 145) the occurrence of islets of intestinal mucosa in the lining of the pathological stomach (gastritis, ulcer, carcinoma, achylia, and pernicious anaemia) has been known for seventy years, and is now usually regarded as a mark of imperfect regeneration in an inflamed area, except in a very occasional instance in which the areas have been present at birth. Clar believes that the areas of bowel mucosa are rarely a secondary formation and nearly always congenital. One or several such areas were found in all of fifteen foetuses of six or seven months, in one of three foetuses at term, but in none of twelve adults free from gastropathy or duodenal ulcer. Regression of the islets towards the end of foetal life appears, therefore, to be the general rule. In operation specimens from the pathological stomach Clar has found that the islets of intestinal mucosa resemble minutely those of the small gut, possessing a terminal membrane, goblet cells, Paneth cells, etc. Further, the demarcation zone where the intestinal joins the gastric mucosa is perfectly sharp-cut, resembling the pyloro-gastric or gastro-oesophageal mucous junctions. It is concluded that, although some islets are secondary to inflammation, the great majority are congenital, and that congenital islets, being digestible by the gastric juice, play an important part in causation of gastritis, erosions, and chronic ulcers. An analogy is drawn with the occurrence of peptic ulcer in Meckel's diverticula, in which islets of gastric mucosa are not very uncommon.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

334 Lymphogranulomatosis

E. ADLERCREUTZ (*Finska Läkarsällskapets Handlingar*, July, 1934, p. 587) publishes a study of the thirty histologically examined cases of lymphogranulomatosis observed in a hospital in Helsingfors in the period 1915-33. The fact that as many as twenty of them were concentrated within the last four years of the period under review was probably indicative of diagnostic improvements rather than of any increase in the true incidence of this disease. In contrast to observations made in other countries, the excess of male over female patients was only as seventeen to thirteen. The cases were fairly uniformly distributed between the ages of 10 and 60. The tendency to distinguish between localized and generalized forms of the disease, in conformity with its clinical manifestations, is, it is stated, unsound and arbitrary; the only type which the author recognizes as clinically definable from the rest is the mediastinal form of the disease, whose course as well as localization possesses distinctive features. Though none of the thirty patients was observed in the latent stage of the disease, there were as many as eleven who had already passed through such a stage, the duration of which had been from one month to three years. There were two cases which during the latent stage had presented only one symptom—obstinate pruritus. In some cases the transition from the latent to the active stage had been quite sudden. All but one of the thirty patients were given x-ray treatment, which seldom had any direct effect on the anaemia. But after every series of exposures there was a fall, often considerable, of the total number of the leucocytes, whose numerical relationship to each other was but slightly changed. When lymphopenia had already developed, it was progressive in spite of x-ray treatment. According to the author, it probably prolongs life in some cases, and its achievements would possibly be more impressive if it were given earlier in the disease. Adlercreutz's discussion of its aetiology, and the modern tendency to regard it as an infectious disease, draws attention to the lack of accurate information on this point.

335 The Heart in Diabetes

A. KLINGENBERG (*Norsk Mag. f. Laegevid.*, August, 1934, p. 940) has made a special cardiac study of the fifty-five unselected cases of diabetes treated in her hospital during the past two years. In only twelve were normal electrocardiograms obtained. In fourteen cases electrocardiograms changed from pathological to normal with the therapeutic regulation of the metabolism which, in six other cases, affected an appreciable improvement. This observation suggests that the best treatment of the diabetic heart is treatment of the diabetes itself. Only one patient was addicted to alcohol, and only one was syphilitic. Not one had taken digitalis, but there were as many as three whose cardiac condition might be traced to injudicious insulin medication. Four patients were excessively fat. The author concludes that the old clinical experience concerning the close association of diabetes with heart disease is to be interpreted in a certain proportion of cases as a more or less direct action of the diabetic state on the heart.

336 Radiology of the Aorta in the Aged

In a study of 178 cases (126 females and fifty-two males), of ages ranging from 80 to 100 years, P. BRODIN, H. DE BALSAC, and MME TÊDESCO (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, July 9th, 1934, p. 1132) noted important aortic changes on radiological examination; these are due to a lengthening by distension with thickening of its walls, which causes an increased flexibility with dilatation and change of colour. The most constant characteristic of the senile aorta was its "swan-neck" appearance, seen in the right anterior oblique position. Other changes were:

marked, limited opacities; especially at the origin of the vessel and the upper part of its pedicle; localized dilations, particularly at the commencement of the arch; and calcifications in the arch. When seen in younger subjects, these changes indicate premature senility. P. BRODIN and R. JOSEPH (*ibid.*, p. 1139) maintain that the state of the arterial tension provides earlier information as to the underlying condition, especially if a comparison of the tensions in the upper and lower limbs be made—the former is usually slightly higher and the latter lower than normal. An increase, but particularly a diminution, in the normal difference between these two tensions provides evidence of aortic lesions and of atheromatous areas, which are most marked at the bifurcation of the aorta and which may extend into the iliac arteries.

337 Recovery from Streptococcus Meningitis

J. FELSEN and A. G. OSOFSKY (*Journ. Amer. Med. Assoc.*, June 30th, 1934, p. 2170), who record a personal case, have collected fifty-seven examples of recovery from streptococcus meningitis. The onset in these cases usually followed an infection of the upper respiratory tract. The organisms that have been isolated include both the haemolytic and non-haemolytic type, and *S. viridans* was found in only four instances. Trauma was directly responsible for the meningeal infection in four cases, and of these one showed a haemolytic streptococcus and another *Streptococcus viridans*. The present case was that of a man, aged 22, who developed meningitis as the result of a lacerated wound of the scalp. Smears of the turbid cerebro-spinal fluid showed cocci and a Gram-positive bacillus suggestive of the anaerobic group. Anti-gangrene serum, 5 c.cm., was therefore given intrathecally, and the dose was repeated the same day. Much improvement occurred, and two more doses were given, with the result that rapid recovery took place. Further bacteriological examination showed *Streptococcus viridans* in pure culture.

338 Malarial Polyneuritis

DOAN-KHAL-THINH (*Thèse de Paris*, 1934, No. 41) reports the histories of eleven cases of malarial polyneuritis in patients aged from 21 to 58. The condition is frequent, but is often mistaken for beri-beri, from which it is distinguished: (a) clinically, by its association with attacks of malaria; (b) haematologically, by the presence of haematozoa; (c) therapeutically, by its yielding to quinine; and (d) geographically, by its occurrence in countries where beri-beri is unknown, such as Equatorial or Western Africa.

Surgery

339 Malignant Degeneration of Gastric Ulcer

H. FINSTERER (*Rev. de Chir.*, July, 1934, p. 511) describes malignant degeneration as one of the most serious complications of gastric ulcer, and one which can be avoided in many cases by early diagnosis and prophylactic treatment. Diagnosis of malignant degeneration is extremely difficult, as the onset is seldom recognized either clinically or during operation, since signs of malignancy in the ulcer cannot be detected by the naked eye. It is often only when invasion has taken place that symptoms of cancer of the stomach are manifested, and by that time it is too late for operation. When the patient no longer has hyperacidity, when the appetite fails and loss in weight takes place, malignant changes should be suspected and operation undertaken at once. Radiography at this stage does not show signs of malignancy round the edges of the ulcer, nor can it be recognized by the surgeon after resection. If operation is not carried out before radiography is able to demonstrate the irregular edges of the

ulcer, filling defects, or the peristaltic changes characteristic of cancer, there is no hope that operative treatment will bring about the radical cure of the patient. A prepyloric ulcer is very prone to malignant changes, and operation should therefore be undertaken immediately in the case of a patient with this type of ulcer who has a failing appetite. During operation it is difficult to make a definite diagnosis of malignancy, but if the lymphatic glands are hard and enlarged, malignant change must be suspected. In these cases a radical operation should be performed with removal of the great omentum. When the growth has penetrated to the floor of the ulcer and when it has formed characteristic nodes under the peritoneum, diagnosis is easy, but the prognosis is bad. In a series of eighty cases of simple gastrectomy for malignant ulcer there were only three deaths, but it is pointed out that in cases of primary cancer, or where the growth has penetrated the pancreas, the mortality is much higher.

340

Subphrenic Abscess

W. HAILES (*Aust. and New Zeal. Journ. Surg.*, July, 1934, p. 3) considers that subphrenic abscess may arise from an inflammatory condition, or perforation of a neighbouring viscus, or by the spread of infection from a distance. This happens in appendicitis when the infection travels along the outer side of the colon from an appendix situated extracoeccally or from a pelvic appendix. Subphrenic abscess may develop, particularly on the right side, as a complication of a general infection or soiling of the peritoneal cavity. When a patient, following operation for an upper abdominal or for an acute abdominal inflammatory or perforating lesion, has a raised temperature and pulse rate with sweating or rigors, a secondary abscess formation in the abdomen must be considered. In the case of a subphrenic abscess, pain is frequently present in the loin or over the upper portion of the rectus abdominis muscle, just beneath the ribs. Pleural pain and irritation may cause a slight cough and an increase in the respiratory rate. Diagnosis can only be confirmed by x rays, exploratory puncture, or laparotomy. Only abscesses posteriorly placed are suitable for puncture, and in cases where the patient is seriously ill a direct attack on a localized abscess with posterior drainage under local anaesthesia may give good results with less risk than is caused by an exploratory laparotomy. Transthoracic drainage has proved satisfactory, although infracostal incision is the approach of choice for those abscesses which are localized as low as the tenth or eleventh space. It is considered that the development of empyema might be minimized by first localizing the abscess and then tracing it downwards with fresh needle and syringe through successive intercostal spaces till its route of subpleural drainage is indicated. Ten cases are reported, of which eight recovered and two died. There were four cases of empyema in the series.

Therapeutics

341 Thoracoplastic Operations for Pulmonary Tuberculosis

E. KEY (*Hygiea*, July 31st, 1934, p. 481) has performed thoracoplastic operations in Sweden on 265 patients suffering from pulmonary tuberculosis between 1915 and the end of 1932. Follow-up investigations undertaken after 1932 showed that in 114 cases the patients were rendered fit for work and practically symptom-free, without tubercle bacilli in the sputum. Fitness for work was achieved in thirty other cases, but certain symptoms persisted, and several of the patients remained sputum-positive. In a third category sixteen patients were unfit for work and sputum-positive. Among the deaths were thirty-one within eight weeks of the operation, fifty-seven occurred later and were directly due to tuberculosis, and eleven more were due to some other disease. There

remained six patients who could not be traced. At first the author was doubtful as to the value of partial thoracoplastic operations on the upper part of the chest, and he was afraid of aspiration disasters, but he has gradually acquired a growing faith in these operations, which achieve their object even when large cavities exist. The partial, as distinct from the complete, thoracoplastic operation eliminates a minimum of functional lung tissue, and if enough has not been included in the field of operation it is possible to perform supplementary thoracoplastic operations. Of the total of 265 patients operated on up to the end of 1933, only 185 were subjected to a total thoracoplastic operation, the operations in the remaining 100 cases being incomplete or partial. It is most important, in the author's opinion, that the patient who has undergone a thoracoplastic operation should be under medical supervision for years, and that his medical adviser should know that when a thoracoplastic operation does not restore complete health because one or more cavities prevent the complete collapse of the lung, recovery may yet be effected by one or more supplementary operations.

342 Dietetic Treatment of Chronic Pyuria in Childhood

J. M. RECTOR and W. E. WHEELER (*New England Journ. Med.*, July 26th, 1934, p. 143) agree that most satisfactory results can be obtained from putting on a ketogenic diet children suffering from chronic cystitis and chronic or recurrent pyelonephritis in the absence of congenital anomalies of the urinary tract. Most children are thrown into ketosis easily by high-fat-low-carbohydrate diets, and if over the age of 2 years seem as a rule to tolerate them very well. On account of the difficulty in preventing children from eating small amounts of carbohydrates apart from their meals, ketosis may be difficult to maintain. The authors suggest that this difficulty can be partly met by raising the ratio of fat to carbohydrate in the diet. They aim at establishing intense ketosis as soon as possible, and to render the urine sterile before the beneficial effect has disappeared. To this end the child should be immediately placed on a ketogenic-anti-ketogenic diet ratio of 3:1, and there should be no hesitation in increasing this ratio to 4:1 or 5:1, or more, if the ketosis tends to decrease. By the term "ketogenic ratio of 3:1" is implied a ratio in the diet of 3 grams of fat to every gram of carbohydrate and protein combined. Good results cannot be expected in infections due to organisms other than those of the *B. coli* group, nor if there is anatomical deformity or advanced pyelonephritis with impaired renal function. The pH of the urine must be kept constantly less than 5.5, and acetone or diacetic acid should be present in large amounts. The diet should not be discontinued if the patient feels nauseated or vomits at the outset; a short period without food will probably relieve the symptoms. Normal diet should not be resumed until the urine cultures have remained bacteriologically negative for a week. Pus may continue to be present in the urine for several weeks after sterility has been established, even in cases which do not recur.

343 Serum Treatment of Cerebro-spinal Meningitis

J. QUÉRANGAL DES ESSARTS (*Arch. de Méd. et de Pharm. Napoléon*, April-May-June, 1934, p. 236) reviews the results of the serum treatment of cerebro-spinal meningitis in the naval hospital of Brest in the period 1900-32. Before the institution of this treatment hardly a quarter of the patients recovered, and when they did so it was at the cost of serious complications or permanent deformities. With the introduction of serum treatment in 1909 the proportion of recoveries rose to 70 per cent., at which level it remained till 1920, in spite of a serious epidemic during the war. Between 1920 and 1932 the proportion of recoveries has been 78 per cent. The complications and sequels have become rare, and the duration of the disease has been appreciably shortened. The author contrasts these observations with those in certain other countries where serum treatment has been discredited because it has not prevented mortalities ranging from 60 to 80 per

cent. They can, he believes, be largely explained away by civilian conditions, under which patients do not receive serum treatment till the fifth to the seventh day of the disease, or even later. Under military service in France most patients are given serum treatment within the first three days of the disease. Time is everything in serotherapy, and it is thanks to the application of this principle that in the French Navy recovery has been effected in 67.5 per cent. of 564 cases observed in the course of twenty years, and that the mortality has been reduced to 16.6 per cent. The author deals in detail with the dosage of the serum, the varieties of the disease, the influence of the patient's age on his reaction to the disease and on the treatment thereof, the duration of the disease, its complications and sequels, and the ultimate fate of the patient.

Laryngology and Otology

344 Therapeutic Dilatation of the Oesophagus after Poisoning by Caustics

H. SALZER (*Wien. med. Woch.*, June 30th, 1934, p. 736) contrasts the generally accepted principle of preventing strictures by early intervention with the hitherto common practice of waiting till a stricture has developed before dealing with it. For many years he has been cautiously shortening the interval between caustic soda poisoning in childhood and dilatation of the oesophagus with a sound. In 1920 he demonstrated the results of this treatment applied to thirteen cases, twelve of which terminated in recovery. Professor Salzer's present paper covers the period 1920-33, and deals with 180 cases of injury to the oesophagus in children who had swallowed caustic soda. All these cases were recent when treated; they did not include any child in whom a stricture of the oesophagus had already developed when first admitted to hospital. There were three deaths from sepsis, five from pneumonia, and one from diphtheria. None of these deaths had anything to do with the prompt institution of oesophageal dilatation with a sound. There were, however, three deaths associated with perforation; in the two cases of perforation of the stomach the post-mortem examination failed to link this accident up with the passage of a sound. The author leaves it in place on the first day for only a few minutes. On the second day it is left in place for five minutes, its sojourn being prolonged by the fourth day to thirty minutes once a day. This treatment is continued for a month, after which the sound is passed every other day, and later every third day. The number of free days is gradually increased to seven, and then to a fortnight, a month, two months, and three months. Finally, the child is re-examined at intervals of half a year. While this treatment is comparatively safe if instituted directly after the accident, it is more dangerous in the case of children thus injured half a dozen days earlier, for in the interval ulcers may have formed, and they may be perforated by a sound. It is never certain in the case of a child who has tasted caustic soda whether some of it has been swallowed or not; and it is wiser to extend this treatment to all doubtful cases than to omit it in one actually needing it. Fever provoked by this treatment should not be an indication for discontinuing it, as the rise of temperature may be no more serious than that which follows the change of dressings. The author quotes the statistics of hospitals other than his own to prove what an advance his treatment represents.

345 Radiography of the Maxillary Sinus

H. J. SEDWICK (*Amer. Journ. Roentgen.*, August, 1934, p. 154) records a study of the form, size, and position of the maxillary sinus at various ages by means of radiograms of the skull, with a view to establishing standards of normality. He found that this sinus varied greatly in shape, size, and position, not only in different individuals but also on the two sides of the same person.

The sinus appears to reach its maximum size during the third decade of life, and later there is a definite tendency towards the assumption of a triangular form. When the sinus is triangular the position of its base varies. The relation between the floor of the sinus and that of the nasal cavity is variable, and is not a sex characteristic. The sinus lies in close proximity with the sides of the nasal cavity, and the position of the walls of the latter influences its size. The only racial difference between the maxillary sinuses in skulls of the white and Indian peoples in those examined was that the vertical height was less in the latter, a fact which might be correlated with the shorter nose and broader cheeks of that race. The average measurements of the sinus, based upon 173 cases (346 sinuses examined), were as follows: height, 34 mm.; width, 25 mm.; antero-posterior length, 39 mm. The average maximum and minimum measurements were: height, maximum 46 mm. and minimum 22 mm.; width, maximum 35 mm. and minimum 17 mm.; antero-posterior length, maximum 51 mm. and minimum 29 mm. The average height for males was 35 mm. and for females 34 mm. The average width for males was 25 mm. and for females 24 mm. The average length for both sexes was 40 mm. Sedwick thinks that these figures should be of assistance in the radiological examination of the maxillary sinus for disease. The way in which the measurements were made is described.

346 Surgical Treatment of Fixation of the Vocal Cords

A. RÉTHI (*Rev. de Laryngol., d'Otol. et de Rhinol.*, July-August, 1934, p. 801) describes a surgical procedure he has devised for treating medial bilateral fixation of the vocal cords, whether this is due to paralysis of the recurrent nerve or to ankylosis of the crico-arytenoid joint. He opens the trachea in the mid-line, and resects, according to Hartmann's technique, a semicircular piece of the anterior tracheal wall. He cuts through the cricoid cartilage with Killian's scissors, and opens the larynx by extending the cut with a bistoury. He then extirpates the adductor muscles on one side, preferably on the left, which is the easier. In a simple operation for paralysis the laryngeal opening is allowed to close in a fortnight. At first the voice is very feeble, but it gradually grows stronger, thanks in part to hypertrophy of the stylopharyngeus. At first phonation is strident and monotonous, but a course of voice production soon brings suitable modulation, permitting the patient ultimately to engage in ordinary conversation or even to make a speech. The author remarks that ordinarily the stylopharyngeus does not function as a phonation muscle, but it comes into play in this respect when the ordinary muscles concerned in voice production are paralysed or their action is impeded by joint inflammation. Together with the ventricular bands and the aryteno-epiglottic muscle, which plays an important constrictor part, it restores the voice in a marked degree. Details illustrated by coloured diagrams are given of the steps in the operation and of the final state.

Obstetrics and Gynaecology

347 'Oedema of the Cervix during Labour

Presenting a study of cervical oedema during labour, V. CATHALA and S. SEYDEL (*Gynéc. et Obstét.*, July, 1934, p. 1) divide this condition into two forms—the soft (simple) and the hard (oedema with rigidity). The former rarely affects the entire intravaginal portion of the cervix, and is usually confined to the anterior lip; the latter, the less frequent form, is more extensive, occupying more than half of the cervix, occasionally its entirety. Both forms are extreme types of the same cervical alteration, and intermediate varieties occur, dependent on the degree and tension of the oedema, the intensity of the vascular congestion, etc. The authors do not believe that infection is an aetiological factor, but consider that the cause is

purely mechanical and that the oedema is due to circulatory troubles occasioned by compression of the cervix between the presenting foetal part and the pelvis. The soft variety occurs especially in flattened curved pelves, and the hard in retracted grooved ones.

348 Cervical Cancer during Pregnancy

R. KELLER (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, June, 1934, p. 433) records three cases of cancer of the cervix uteri which showed no, or very few, symptoms during pregnancy. Death occurred rapidly in two of these patients after delivery; the third still survives, following treatment with ultra-penetrating x rays. Despite the dangers of causing a haemorrhage or disseminating the infection, Keller maintains that a biopsy is absolutely necessary in all suspicious cases. The rapid growth of cervical cancer following delivery has been noted by several authorities. This is probably due to dissemination of the cancer cells by dilatation of the cervix, movements of the foetal head, changed vascularization, etc. These young cells possess a marked radiosensitivity, a fact influencing treatment. During the first half of pregnancy an extensive hysterectomy should be performed in operable cases, and radium applied in inoperable ones. During the second half of gestation radium should be employed till term, then a Caesarean section, followed by hysterectomy, be performed in operable cases, and in inoperable ones radium should be applied till delivery, when a subtotal hysterectomy should be done.

349 Treatment of Vaginitis due to Trichomonas

A. HOCHLOFF, writing from Ukraine (*Zentralbl. f. Gynäk.*, July 28th, 1934, p. 1775), reports having found *Trichomonas vaginalis* in sixty of 300 cases of vulvo-vaginitis. The parasites were destroyed by daily swabbing (after careful drying under guidance of the speculum) of the vagina with a saturated solution of lactic acid in sulphuric ether. In twenty-nine cases four or five treatments sufficed; ten cases required as many as eleven to fifteen. Disappearance of the flagellates was verified microscopically, and in fifty-five cases was proved to persist by re-examination three to five months later.

Pathology

350 Fibromyomata in the Newborn

R. BOURG (*Bruxelles-Médical*, July 29th, 1934, p. 1237) records a case of a fibromyoma of the upper lip occurring in a female infant. At first diagnosed as a chondroma, a tumour known to exist congenitally, the present growth, which was removed by a cuneiform resection of the lip, proved histologically to be a fibromyoma exactly similar to the uterine type. The case is reported owing to its rarity and the congenital nature of the tumour. Bourg, referring to the little-known pathogeny of uterine fibromyomata, suggests that in certain cases they may be congenital, and that their growth commences and is accelerated coincidentally with the establishment of the genital functions.

351 Neurotrophic Cellular Alterations and Tumour Formation

P. SUNDER-PLOSSMAN (*Bruns' Beitr. z. klin. Chir.*, July 11th, 1934, p. 75) refers to recent histological demonstrations by himself and others of fine fibrillary neural terminations which come into close contact with cells of vessels, muscles, glands, epithelium, and, indeed, all tissues. To this "synectium," derived from vegetative nerves, is ascribed a trophic activity. In naevi of the lip the terminations are specially abundant; in carcinoma of the lip they show marked degenerative changes. After section of the sinus nerve (which is purely parasympathetic) in rabbits the author has found duplication of the nuclei of the superior cervical ganglion. On these and

other grounds Sunder-Plassman agrees with those who assign to widespread changes in the vegetative nervous system an important part in the causation of malignant disease. He quotes, among others, the observations of Mühlmann, who found in the brain typical microscopical alterations in cancer patients; those of Matalimov, who noted degeneration in the neural network of the putamen and globus pallidus; and those of Shaw and Camille, who have suggested morbid alterations in sympathetic-hormonal balance as a causative factor in tumour formation.

352 Acute Meningitis due to Pfeiffer's Bacillus

E. BENHAMOU, HUCK, and JAHIER (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, July 23rd, 1934, p. 1264) believe that Pfeiffer's bacillus should be suspected as the possible causal factor, even in the absence of an influenzal epidemic, in an acute meningitis of abrupt onset with a high pleocytosis and polynucleosis in the cerebro-spinal fluid. A case (an infant aged 4 years) is reported in which these bacilli were isolated first from the cerebro-spinal fluid and later from the blood. The treatment of such cases consists of a subcutaneous and intraspinal bacteriotherapy with an autovaccine. In the present case, intraspinal injections were not given owing to the cachectic condition of the child, and four subcutaneous injections proved unavailing, possibly because of the late institution of the treatment. To avoid the delay in obtaining an autovaccine, experiments are being made, especially in America, to prepare a specific vaccine. Though some cures have been reported with such a vaccine, the results are not comparable with those obtained by anti-meningococcal sera in meningococcal meningitis.

353 Intradermal Tests for Hydatid Disease

OTERÍÑO NÚÑEZ and CALVELO LÓPEZ (*Anales de Medicina Interna*, July, 1934, p. 609) state that Casoni's intradermal test is not specific, inasmuch as it gives a positive reaction when there is no infection by *Taenia echinococcus*. It is, however, of great value as a test for the presence in the organism of some, if not all, of the Taeniadae. There are antigenic substances which are common to these helminths, and Casoni's reagent extracted from hydatid fluid is not superior to extracts from any of the others of the group. Employing an antigen derived from a fresh intestinal taenia treated by a method which is fully described, the writers found that the response was much more specific and accurate than that obtained from Casoni's reagent, and state that their experiments have been quite recently corroborated by L. Morenas, who used an antigen derived from cysts of *Taenia serrata* in the peritoneal cavity of the sheep.

354 Humoral Nature of Insulin Resistance

R. BOLLER, K. UIBERRAK, and W. FALTA (*Wien. Arch. f. innere Med.*, June 20th, 1934, pp. 1 and 25) have taken as a test for the presence of insulin in the blood the appearance of a reduction in the blood sugar of a diabetic, previously proved sensitive to insulin, in whom a transfusion of the blood in question was made. They find that after a carbohydrate meal: (1) a healthy person's blood contains insulin in very small amounts, not more than 1 to 2 units per 100 c.cm.; (2) the blood of insulin-sensitive patients with severe diabetes contains no insulin; and (3) that of insulin-resistant diabetics contains no insulin, and may indeed increase the blood sugar of the recipient. In a further series of experiments the writers tested for insulin the blood of persons who had received large doses of it subcutaneously. They found that insulin was present in the blood in these conditions, in healthy persons, and in diabetics who respond to insulin; it was absent in six cases of typical severe insulin-resistant diabetics. The disappearance of the effect of subcutaneously injected insulin in these six patients cannot, it is stated, be due to its excretion in the urine, as has been established by previous observations; the insulin must have been "fixed" or (more probably, it is suggested) destroyed by antagonistic substances present in the diabetics who are not responsive to insulin.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

355 Significance of Tuberculous Bacilluria

H. WILDBOLZ (*Münch. med. Woch.*, July 6th, 1934, p. 1012) controverts the opinion, recently revived, that a tuberculous bacilluria—denoting excretion without affection of the urinary or genital tracts—is common in those suffering from pulmonary or bone tuberculosis only. In most of the researches supporting such a view, he points out, the urogenital tract has been insufficiently investigated, or the specimen has not been taken by catheter, or has been subject to contamination from sputum or faeces. Confronted with detection of tubercle bacilli in the urine, the practitioner should seek signs of urogenital tuberculosis, of which, in the male, those most easily detected are infiltration of the vesiculae seminales or prostate, or nodules in the epididymis, and, in the female, an infiltration of one or other ureter in the anterior vaginal fornix. If these signs are absent and the result of an animal inoculation test is positive, special examinations of the urinary tract are called for—cystoscopy, ureteral catheterization and excretory pyelography. The vast majority of those excreting tubercle bacilli in the urine possess a caseous focus in a kidney; and cure is obtained after nephrectomy in 50 to 60 per cent. of cases of unilateral tuberculosis. Yet nephrectomy is not immediately justified by discovery of a unilateral excretion of bacilli: a very small percentage of early cases are curable by fresh air and other general treatment, provided there is little or no pyuria and the kidney function is good. In Wildbolz's experience of so-called early cases, the vast majority, when first seen, have the triad of symptoms—bacilluria, pyuria, and impaired function—which justifies nephrectomy when the morbid condition is one-sided. He has seen twenty-four cases only in which he has postponed nephrectomy, and in all but four of these removal of a kidney (now showing cavernous tuberculosis) has later been necessary. He concludes that a "tuberculous bacilluria" similar to the common *B. coli* bacilluria and a "tuberculous nephritis" are so rare as to be of no practical importance.

356 The Influence of Diet on the Gums and Teeth

A. LINDSTRÖM (*Hygiea*, August 15th, 1934, p. 529) has taken part in an extensive health survey in the North of Sweden. It was hoped that definite information would be obtained as to the influence of climate, diet, housing, and other factors on the health of the community. The author's contribution to this survey was a study of the teeth and gums of children and adults. The dietary was mainly lacto-cereal. The more it was supplemented by meat, the greater was the freedom of the gums from inflammatory changes. Perfectly healthy gums were rare, and advanced gingivitis was the rule rather than the exception among older persons, but only up to the age of 65. Those over this age had, as a class, fairly healthy gums, possibly because survival beyond this age implied a robust constitution. Twice as many girls as boys brushed their teeth, but the author failed to establish any convincing connexion between this practice and healthy teeth and gums. Indeed, in one area with an exceptionally low caries rate there were no tooth-brushing children. It is true that slight forms of gingivitis were less common among the devotees of the tooth-brush than among their more negligent neighbours, but where severe forms of gingivitis were concerned, particularly in elderly persons, the daily wielding of the tooth-brush appeared to have given no relief. No correlation could be established between addiction to coffee on the one hand and diseases of the mouth on the other; and as for the chewing of tobacco, it may even have checked the development of caries, however injurious it may have been to the gums.

Though in this respect the action of tobacco on the teeth and gums may have been respectively beneficial and harmful, the frequency with which the author found freedom from caries associated with healthy gums suggests that there may be a common factor in the development of both caries and gingivitis.

357 Spontaneous Recovery from Acquired Syphilis

J. VIEUCHANGE (*Thèse de Paris*, 1934, No. 675) has collected thirty cases showing that in some instances of acquired syphilis recovery may take place with little or no treatment. It is impossible to determine exactly the frequency of such cases, but the possibility of such an occurrence suggests that cases of syphilis may be classified in the following three groups—namely, those in which spontaneous recovery takes place, those in which a cure is due to treatment, and those which develop visceral complications in spite of treatment. The idea of a spontaneous recovery from syphilis indicates the importance of the individual constitution as the cause of the disease and the necessity of general treatment, in addition to specific medication.

358 Gonococcal Myositis

R. A. RUBI (*Semana Médica*, July 12th, 1934, p. 125) considers myositis to be an exceptional complication of urethritis, occurring either during the acute and primary stage or in an exacerbation, or after injudicious instrumentation. The severity of the urethritis has no bearing on the development of myositis. It is most frequent in adult males, and in the muscles most often in action. There are three forms—mild, acute phlegmonous, and suppurative. The mild form may develop into either of the more severe types, and is often followed by synovitis or arthritis, though it generally clears up with the urethral condition. The phlegmonous form is preceded by arthralgia and slight pyrexia, lymphangitis being often absent. One muscle is usually attacked, and this is hard, stiff, increased in volume, painful, and tender, with reddening of the overlying skin. The writer had ten cases of the suppurative type; of these, two were fatal. They began like cases of the mild type, but after the third day showed signs of deep suppuration in one or more muscles, with grave constitutional disturbance. Two cases with multiple foci died of pyaemia. Coexistence of a myositis with gonococcal urethritis, corroborated by blood culture and agglutination tests, will establish the diagnosis. Treatment, apart from that of the urethral and para-urethral areas, is purely symptomatic. The author recommends absolute rest, with counterirritation with iodine for the mild form, and continuous fomentations for phlegmonous cases, while in the suppurative variety opening of all abscesses early and free drainage. Specific vaccines, subcutaneously or focally, are of great value, and Bier's passive hyperaemia method is of use where the limbs are the seat of the disease. Once the acute stage is over, passive movements of the affected muscles and slight massage are imperative.

359 The Hypersthenic Syndrome and Gastric Cancer

Referring only to cases of rapid evolution, A. CADE and M. MILHAUD (*Journ. de Méd. de Lyon*, August 20th, 1934, p. 551) state that, as in ulcer, gastric cancer is evidenced by a hypersthenic syndrome. Short notes on thirteen such cases are appended. The clinical symptoms of this syndrome are: absence of the periodicity of painful crises; marked, repeated early vomitings; a less sedative and shorter effect of food and medicaments; rapid emaciation with anaemia, though the appetite is often conserved; and occult haemorrhages. This syndrome is of considerable importance, its presence, even in young subjects, being indicative of cancer.

Surgery

360

Abuse of Parathyroidectomy

J. SIMARRO (*Rev. Méd. de Barcelona*, July, 1934, p. 19) sounds a warning to those who would seek to cure by parathyroidectomy rheumatoid conditions attended by rarefaction of bone and hypercalcaemia, and who believe that the coexistence of these signs is sufficient proof of parathyroid over-action merely on the ground that Recklinghausen's fibro-cystic osteitis is connected with an adenomatous condition of the parathyroids. The majority of failures to effect a cure by parathyroidectomy go unpublished, and, what is worse, little mention is made of the resultant tetany, infralaryngeal nerve paralysis, and regional vasomotor disturbance. While far from decrying the operation in suitable cases of parathyroid adenoma and in certain conditions where the existence of hyperparathyroidism has been established both clinically and biochemically, it should, thinks the author, be reserved for these. Hypercalcaemia is not invariably due to parathyroid hyperaction, and frequently yields to treatment which has no direct influence upon the parathyroids. Though it may be reduced after the operation, the concomitant rheumatoid condition is frequently unchanged. There is a non-adenomatous hyperparathyroidism secondary to other endocrine derangements, and the connexion between the pituitary, thyroid, suprarenal, genital glands, liver (this last so often and so unjustly relegated to a second place by endocrinologists), should not be overlooked. Amorosi's work on the bile outside the digestive apparatus may, the author states, serve as a foundation for further research into the mechanism of the types of hypercalcaemia and decalcification.

361 Pre-operative Treatment of the Dilated Stomach

In pyloric obstruction due to ulcer or malignancy the stomach may show a marked degree of dilatation, and T. G. ORR and W. C. CURRIE (*Surg., Gynecol. and Obstet.*, July, 1934, p. 92) describe a method of reducing its size by continuous gastric lavage with suction. They point out that it is unwise to conduct extensive operations upon any acutely distended portion of the gastro-intestinal tract, since the tone of the stomach or intestinal wall has been lost, and the blood supply has been disturbed. They therefore pass an indwelling Levine tube into the stomach through the nose, and the patient is urged to drink as much water as possible, all fluid, secretions, and gas being promptly removed by continuous suction. After a few hours of such lavage, liquid will often begin to pass through a previously completely obstructed pyloric orifice. During the process, which may have to be continued for four to six days, careful attention must be given to maintaining the chemical, water, and metabolic balance—water, salt, and glucose being given intravenously or by hyperdermoeclysis. Since loss of the gastric juice reduces the body chlorides, a daily check of the blood chloride content is desirable. Radiographic illustrations are given of a stomach which was reduced to normal dimensions after ten days' treatment on these lines. A gastro-enterostomy was then performed, and recovery was free from complications. The simple apparatus used is a modification of methods recommended by R. Ward, and later by J. H. Wangensteen.

362 Excessive Shortening of the Lower Limb

According to C. P. VAN NES (*Le Scalpel*, August 4th, 1934, p. 1077), excessive shortening of a lower limb may be congenital, due to arrested development of the femur or leg or to congenital dislocation of the hip; other causes are poliomyelitis, hip disease, and, less frequently, osteomyelitis and malunited fractures of the femur. Orthopaedic correction of this deformity, necessitating the wearing of a heavy, ugly limb, is not advocated. Two surgical interventions are described—lengthening of the affected limb or shortening of the sound one. In the former, a Wladimiroff-Mikulicz resection, or osteotomy

of the femur (or of the tibia and fibula) with extension of the limb, is performed. In the second procedure, portions of these bones are resected, usually only of the femur, but should the shortening of the affected limb amount to 14 to 18 cm., all three bones must be resected. The latter method is preferred, as it gives an equal length to both limbs and obviates the disadvantages of the first method—namely, slow consolidation of the bony fragments, risk of future fracture, and undue extension of the nerves and vessels.

Therapeutics

363

Hypopituitarism and Blood Pressure

K. RUDSIT (*Wien. klin. Woch.*, July 13th, 1934, p. 878) examined the blood pressure of fifty-eight patients on standing, sitting, and lying. In Group I (twelve cases) the systolic pressure was higher in the vertical position than on sitting or lying, the diastolic pressure remained stationary or sank, the pulse pressure increased, and the pulse rate was increased. In Group II (twenty-eight cases) the systolic and diastolic pressures remained constant in all three positions, and the pulse rate increased on standing. In Group III (eighteen cases) the systolic pressure fell on standing, whereas the diastolic pressure remained stationary or rose; the pulse pressure was diminished. The latter group largely contained vasoneurotic patients who complained of faintness, dyspnoea, cardiac pain, sweating, paraesthesiae, and tachycardia, and who in bad cases were bed-ridden. According to Rudsit vasoneurosis is due to a dysfunction of the anterior lobe of pituitary, for the tone of the blood vessels depends on a nervous mechanism and the hormone of anterior pituitary. The author used the hormone of the anterior pituitary gland with success in five vasoneurotic patients whose history he describes in detail. He believes that the examination of the blood pressure in various body positions aids in the diagnosis of these cases and helps in the control of treatment by the anterior pituitary hormone.

364 Treatment of Venereal Lymphogranuloma

According to E. P. FARINAS (*Thèse de Paris*, 1934, No. 415) general treatment is the rule in all forms of this condition, and may be sufficient in recent cases in which suppurative adenitis has not yet developed. The best treatment consists in Lugol's solution associated with hyposulphite of soda, given by mouth and intravenously in progressive doses. When supuration takes place local treatment is necessary, the method of choice being electrocoagulation. Acute rectitis requires only medical treatment (local and general), and operation should be reserved for cases of fibrous stenosis. In such cases, however, general treatment should precede, accompany, and follow the surgical measures. In cases of obstinate adenitis with cellulitis, biological treatment in the form of a specific antigen or serum should be employed. The thesis contains the histories of twenty-three patients aged from 20 to 45. J. KLEINBERG (*ibid.*, No. 640), who records ten cases (nine of which were in men and one in a woman), states that intravenous injection of sodium salicylate in daily doses of 0.5 to 1 gram causes a considerable diminution in the inguinal adenitis without giving rise to any general reaction or discomfort. The drug may also be given by mouth, provided the patient be kept in bed on a milk diet. It chiefly acts on the acute process, and prevents extension of the inflammation, but has very little effect on the fibroid lesions of the rectum and genital regions. P. SÉGAL (*ibid.*, No. 657), who records thirteen cases in men aged from 24 to 40, recommends a combination of local treatment, consisting of injections of pure glycerin and glycerin iodoform, with the administration of sodium salicylate by mouth or intravenously. Partial excision, as well as radiotherapy, may also be needed. Treatment should be commenced early before the stage of softening or formation of fistulae. F. VELASQUEZ (*ibid.*, No. 659) records fifty-five cases, fifty-two of which occurred in men

and three in women. The following treatment was used: intravenous injection of sodium-antimony tartrate in nineteen, chrysotherapy (thiopropional and chrysalybine) in two, ammoniacal copper sulphate in one, emetine in three, glycerin in eight, Lugol's solution in three, sodium sulphate in eight, vaccine therapy in six, ultra-violet rays in one, and electro-coagulation in four.

365 Suprarenal Cortex Therapy in Graves's Disease

I. BRAM (*Med. Record*, July 18th, 1934, p. 67) gives an account of the results of treating twelve cases of exophthalmic goitre with the glycerinated extract of suprarenal cortex in the form of ten-grain pills, given in doses of three or four by the mouth three times a day. Smaller doses were found to be inadequate. Another dozen patients were used as controls, and did not receive the extract. Both groups were kept under a broad medical programme, which included moderate rest, an ample dietary, and psychotherapy, any necessary sedatives or other indicated medications being given. It was found that the addition of the suprarenal extract resulted in comparatively prompt relief from tachycardia, the heightened basal metabolic rate, nervousness, and fatigability. This relief occurred approximately eight weeks sooner than in the control patients. The average duration of the cortex treatment was ten weeks. A paradoxical fall in blood pressure was noted, due evidently to the restoration of the heart rate to normal. Bram points out that there are many types of Graves's disease, requiring different forms of medical treatment. Failure to recognize this fact has been the cause of disappointment in the past. Suprarenal cortex therapy is said to be harmless in all varieties, and of definite assistance in many. The author considers that psychotherapy is necessary in all cases of Graves's disease.

366 Hypertonic Solutions in Epilepsy

G. VILLEY-DESMERERS and J. FR. BUVAT (*Paris Méd.*, August 4th, 1934, p. 109) present a preliminary report concerning the use of hypertonic solutions in epilepsy, and record three cases illustrative of the good results obtained by this method. These consisted in a rapid diminution in frequency and intensity of the epileptic crises and a progressive improvement of the condition. Intravenously, either sodium chloride 2 grams or sodium bromide 2 grams and sodium chloride 1 gram in 20 c.c.m. of sterile distilled water were given at each injection. These should be systematically given thrice weekly for a prolonged period. Drop rectal instillations of magnesium sulphate, 15 grams to 150 c.c.m. of boiled water, may be used as adjuvants or substitutes; they are, however, less efficacious. Gardenal in daily doses of 25 to 40 cg. according to the case should be combined with the hypertonic treatment.

Ophthalmology

367 Uniformity in Field-taking

A. H. THOMASSON (*Arch. of Ophthalmol.*, July, 1934, p. 21) detects the beginning of a scotoma by using the smallest normally perceptible object for the particular part of the field under examination. He uses a $\frac{1}{2}$ mm. object at 1 metre up to 20 degrees from the centre, a 1 mm. object up to 25 degrees, and one of 5 mm. beyond. Any scotoma which can be detected with a coloured object can be equally well observed with a sufficiently small white object. A white object is equivalent to a coloured object ten times its diameter. Many errors, such as colour-blindness, and the difficulty of obtaining uniform colour tint, occur with the use of coloured objects, which should only be used for differential diagnosis or toxic amblyopias. A tangent screen should be used for defects within 25 degrees, and a perimeter for observations outside that circle. Variation in illumination of more than three foot-candles causes little effect upon the field, and daylight between 9 a.m. and 3 p.m. is preferable because the lighting is a natural one. If artificial, the

illumination should be "daylight" of seven foot-candles. Nebulae or lens opacities cause irregularities of the fields. Presbyopes should be examined with correcting glasses. The confrontation method is very valuable as a preliminary. Any defect found should then be further examined by the perimeter or screen. It is best to work from a blind to a seeing area and investigate the regions above and below. The blind spot in glaucoma should be mapped out with a $\frac{1}{2}$ mm. white object at 1, 2, or 3 metres. Poor visual acuity necessitates the use of larger test objects, and care should be taken that the patient is not unduly fatigued.

368 Gonorrhoeal Ophthalmia

J. I. FARRELL (*Amer. Journ. Ophthalmol.*, July, 1934, p. 591) examines the records of 189 patients over 6 months of age, suffering from the above condition, to determine the effect upon the prognosis of a concurrent genital infection. The conclusion is that the prognosis is not affected. Several interesting statistical findings emerge from this inquiry. Thus, the average stay in hospital was 28.4 days, slightly more in the presence of genital gonorrhoea, and less in its absence. Corneal invasion prolonged hospital treatment to 33.8 days. Foreign protein therapy (diphtheria antitoxin, typhoid vaccine, and milk) gave results which were not encouraging. Of the total number of cases 8.5 per cent. lost an eye, while 61.4 per cent. were discharged with normal, 7.9 per cent. with good, 4.8 per cent. with fair, 2.6 per cent. with poor, and 13.2 per cent. with very poor vision. The treatment in the majority of cases was: irrigation with lot. ac. bor. (3 per cent.) followed by the instillation of argyrol (20 per cent.) and ung. ac. bor. This was carried out half-hourly or less frequently, according to the amount of discharge. A Saemisch section or conjunctival flap was necessary in many cases.

369 Syphilitic Retrobulbar Neuritis

B. H. HARRY (*Canadian Med. Assoc. Journ.*, June, 1934, p. 632) points out the necessity of "looking beyond the sphenoid-ethmoid area and disseminated sclerosis" for the aetiology of retrobulbar neuritis, and records an illustrative case. A man, aged 30, while at work noticed that his vision was rapidly failing, until within the next twenty-four hours it had diminished to almost complete blindness. Syphilitic signs were manifest. A series of fourteen intramuscular injections of 3 grains of thio-bismol brought about some mental, physical, and ophthalmic improvement. He was then given malarial treatment, and after two months' interval a second series of thio-bismol injections with tryparsamide. Good recovery ensued. At the time of his admission to hospital the ophthalmoscopic picture was negative, except for a small amount of hyperaemia of the left disk. The recovery of central vision under treatment was not accompanied by a corresponding enlargement of the peripheral field, perimeter charts revealing an appreciable amount of peripheral atrophy.

370 Ophthalmological Effects of Pilocarpine

J. A. VAN HEUVEN (*Brit. Journ. Ophthalmol.*, September, 1934, p. 511) points out that occasionally the instillation of pilocarpine in chronic glaucoma produces bad or diminished vision for one to one and a half hours after instillation. This occurs in people over 50, but never in a young person. It is unrelated to the presence of opacities in the lens. The same effect may occur with eserine. Hess, after experiments on himself, considers it to be due to a spasm of the capillaries, or an opacity in the retina. There is, in some cases, a temporary enlargement of the blind spot, and diminution in the field. Though the writer thinks that the condition is due to a spasm of the vessels, he is unable to confirm this in animal experiments. Using a Scheerer entoptoscope, an initial slowing down of the blood current near the macula is followed by an enlargement of the area where no vessels are to be seen (Maxwell's spot). This is

coincident with the onset and duration of reduced vision. The effect may be neutralized or overcome by small doses of nitroglycerin by mouth, or by the addition of cocaine to the pilocarpine. Van Heuven has found that 2 per cent. pilocarpine is equivalent to 1 per cent. pilocarpine + 0.3 per cent. eserine + 0.5 per cent. cocaine. With this solution no diminution of vision is observed though the reduction in tension is preserved.

Obstetrics and Gynaecology

371 Intravenous Urography in Urogenital Fistula

According to W. DOERANIECKI and W. GRABOWSKI (*Gynecol. et Obstet.*, June, 1934, p. 326) almost one-half of women having vesico-vaginal, uretero-vaginal, or other urinary fistulae following obstetric trauma have consequential and serious affection of the uretero-renal apparatus due to perivesical, perivaginal, and periauricular scar formation. Excretory urography, as after intravenous injection of uroselectan or tenebryl, is an invaluable preliminary to operation. It furnishes, far more than instrumental urography, reliable information regarding morbid anatomical and functional changes. It may serve to prevent—at operation—discovery of pyonephrosis of pyoureter at the moment of implantation of the urter into the colon, or occlusion of a healthy urter in repair sutures per vaginam while the other is obstructed, causing renal atrophy; both these accidents have occurred in fistula operations. In order to demonstrate effectively the pelvic and vesical positions of the urter, it is often necessary, in fistulous subjects, to occlude the urine in the bladder by inflation of a bag placed in the vagina. Among the illustrative cases recorded is that of a woman in whom almost the whole of the vagina was cicatricial, and a uretero-vesical ostium, probably the left, was detected in the prolapsed mucosa of the bladder, but could not be catheterized; a recto-vaginal fistula was also present. The operation planned was repair of the fistula, followed by colonic implantation of the ureters. After injection of uroselectan, however, the right urter was found to be dilated and inactive, the right renal pelvis distended, and the right kidney the site of hydronephrosis. Accordingly, the first step undertaken was implantation of the right urter, followed later by that of the left and finally by repair of the recto-vaginal fistula.

372 Radium Therapy of Cervical Cancer

H. HOFMANN (*Zentralbl. f. Gynäk.*, August 11th, 1934, p. 1886) would reserve radiotherapy of carcinoma of the cervix during pregnancy for the exceptional cases in which the mother, ardently desiring a living child, declines operation. His reasons are threefold. First, cancer of the cervix in pregnancy includes a high proportion of operable cases (80 to 100 per cent.), and operation gives a low primary mortality (4.2 per cent. according to Weibel) and a fair rate of five years' survival (42 per cent. in Pankow's collected statistics). Secondly, injury to the child by irradiation is not infrequent; it occurred in seven of thirty-five cases collected by Hofmann, and two instances of microcephalic idiocy were included. Thirdly, the proportion of cures after radiotherapy is not greater than 27 per cent. Hofmann describes the case of a two-para, aged 29, who during the fifth month of pregnancy was found to have carcinoma of the cervix, but, having rejected operation, was given a vaginal application of 2,040 mg.-hours of radium—a comparatively small dose—in two sittings. Birth, at term, was precipitate, and the child was and has remained healthy. Eight months later a recurrence on the cervix was found to coexist with a two months' pregnancy. Vaginal extirpation of the uterus and a small coil of vagina was done, the lower being left behind. After three months there is no sign of recurrence. The malignancy of both the cervical cancers was proved most capably.

Pathology

373

The Zoster Virus

S. A. GLAUBERSON and G. S. BARG (*Acta Med. Scand.*, lxxxii, V-VI, 1934, p. 579) remark that the prevailing uncertainties concerning the relations of the viruses of herpes zoster, symptomatic herpes, and varicella are largely due to their being practically incommunicable to lower animals, although the possibility of transference from man to man by injection has recently been proved. They point out the scientific and practical desirability of culture of the virus, and give the results of their endeavours to do so in tissue cultures—rabbit plasma containing an equal amount of tyrode solution and fragments of embryonic chicken heart. The content of the vesicles in herpes zoster, sterile in ordinary bacteriological tests, preserves its activity after four days' incubation at 37° C. and two further days at room temperature, in tissue cultures: injected into two children it was found to produce locally typical vesicles and crusts, which were absent in control children injected with cultures to which tissue fragments had not been added. The incubation periods were nine and sixteen days respectively. In one child, shortly afterwards exposed to chicken-pox infection, a typical varicella rash occurred, so that the zoster virus had not protected against chicken-pox. On the other hand, neither of the vaccinated children caused infection with varicella in their numerous contacts. The zoster virus, in 40 per cent. glycerin, appears to retain its activity for at least four days in the ice chamber.

374 Experimental Pre-Anaesthetic Medication

L. LENDLE (*Schmerz Narkose-Anaesthesie*, July, 1934, p. 20) reports the results of a study of the duration of anaesthesia, the lethal dose, and the time of survival (1) in rats after preliminary administration of ephedone, cardiazol, or caffeine, and (2) in cats after that of digitoxin or strophanthin. The anaesthetic was avertin, given subcutaneously in 2.5 per cent. solution in rats, orally in doses of 0.25 to 0.36 gram per kilogram of body weight in cats. In the first series of experiments no shortening of anaesthesia was noted, and the tolerance as estimated by the lethal dose was either not increased or diminished. It would therefore appear that if indications for administration of ephedone, cardiazol, or caffeine occur during anaesthesia the response to injections given then is more effective than that to premedication. From the second series it appeared that pre-operative digitalization, so far from diminishing the danger of an overdose of avertin, increased its toxicity: possibly digitalis and strophanthus interfere with the mechanism of carbohydrate metabolism by which avertin is detoxicated.

375

Jerusalem Artichoke in Diabetes

With a view to determining whether the carbohydrate in Jerusalem artichokes was more available for the nutrition of patients with severe diabetes than equal quantities of other carbohydrates, L. K. CAMPBELL (*Arch. Int. Med.*, July, 1934, p. 82) undertook feeding experiments with two such patients and a completely phloridized dog. A large part of the reducing substances in the artichoke was found to be laevulose, but the hydrolysate always gave a strong reaction for ketoses. In the dog the extra dextrose obtained by feeding it with artichoke was 64.6 per cent. of the theoretically available dextrose, a result comparable with that obtained when pure dextrose was administered. In the case of the diabetic patients a method was developed for studying the production and utilization of dextrose in food substances. In one patient the increase in the amount of dextrose in the urine from ingested Jerusalem artichoke was greater than that from an equivalent quantity of oatmeal, but in the other patient it was less. Campbell concludes, therefore, that there is no striking difference in the utilization of Jerusalem artichokes in diabetes from that of an equivalent amount of oatmeal.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

376

Causes of Sudden Death

J. V. DUHIG (*Med. Journ. of Australia*, July 28th, 1934, p. 112) reviews the findings at 500 consecutive necropsies, with a view to indicating the causes to be looked for first in cases of sudden death or unexpected serious illnesses. He finds that the large majority of sudden deaths are due to diseased coronary arteries, atheroma being the commonest condition. He states, as a practical point in performing a necropsy, that the degree of atheroma and of calcification of the arteries generally runs exactly parallel with the degree of calcification of the costal cartilages and that the degree of senility in a physiological rather than in a purely temporal sense can be accurately determined by this costal manifestation. Duhig adds that arteriosclerosis is extremely rare as the cause of such sudden death. Atheroma is very capricious in its distribution: the best place to observe it is in the aorta at its bifurcation and the common iliac arteries. It is surprisingly rare in syphilitic patients, just as syphilis is hardly ever found as the cause of coronary artery disease. In thirty-four deaths due to cessation of the brain function—representing the unexpectedly small percentage of 7 of all the deaths—cerebral haemorrhage was concerned in thirty-two. Other comparable percentages in this series were: cardiac disease, 38; suicide, 28; accident, 17; pulmonary, 2.6; and anaesthesia, 2. The males in this series of sudden deaths outnumbered the women by three to one. The figures indicated that men commit suicide three times more frequently than women; nearly six times as many men are accidentally killed as women; and three and a half times as many men drop dead or are found dead of heart failure as women.

377 Ultimate Fate of Sanatorium-treated Cases of Pleurisy

O. HELMS (*Hospitalstidende*, July 24th, 1934, p. 31) has investigated the subsequent fate of 150 patients who underwent sanatorium treatment in Denmark for pleurisy. The period covered was eight years, and the diagnosis was confirmed by the stethoscope, x rays, exploratory puncture, and the clinical course of the disease. No doubtful cases were included in this material, nor were those in which tuberculosis other than of the pleurae was demonstrable on admission to the sanatorium. The average duration of the sanatorium treatment, which included sun and light baths, was four months. When information was sought two years after discharge three patients could not be traced, and two had died. Five had been readmitted to the sanatorium and three were unfit for work. The remaining 137 were fit for work. It would thus seem that a maximum of only 7 per cent. of these patients had developed definite tuberculosis after discharge. This ratio could be reduced to only 5 per cent. if the study were limited to the eighty-four patients admitted to the sanatorium in the first five years of the period under review and kept under observation five years after discharge. Four could not be traced, three were dead, one was readmitted, and seventy-six were still fit for work. Comparing these results with those of earlier writers, who have found from 40 to 100 per cent. of their pleurisy patients subsequently developing other forms of tuberculosis, the author suggests that his relatively good results may partly be traced to the advances made in x-ray diagnosis, which provided him with patients in a comparatively early stage of disease. Several of the patients of earlier writers were doubtless already suffer-

ing from pulmonary tuberculosis when first treated for pleurisy. Again, the patient with pleurisy is now taken much more seriously than he used to be, thanks in large part to the ominous character of the older statistics. The author is not in favour of such radical treatment as sanocrysin and artificial pneumothorax for uncomplicated pleurisy, and he expresses disapproval of the indiscriminate admission to sanatorium of all light cases of pleurisy.

378

Aetiology of Pellagra

R. FLINKER (*Wien. med. Woch.*, August 18th, 25th, and September 1st, 1934, pp. 900, 930, and 960) has investigated 403 cases of pellagra treated in his hospital in the Bukovina between January 1st, 1922, and December 31st, 1932. Although its population is made up of Rumanians, Ukrainians, Germans, Jews, Poles, and a few Hungarians, it is only the two first-named nationalities which are subject to pellagra, its incidence being sixty times greater among them than among the other component nationalities of the country. The author sees in this racial distribution of the disease a refutation of the theory of an infectious aetiology. He also considers as untenable the theory which at present is most in favour—that pellagra is really an avitaminosis—for pellagra often breaks out on a well-mixed dietary, and clears up spontaneously, even when no change has been made in the composition of the food. There is also the observation, disconcerting to the avitaminosis theory, that persons who have remained free from pellagra for decades develop it without having changed their dietary. As the aetiology of this disease is still obscure, the author suggests that progress may be made by correlating its manifestations with those of conceivably allied diseases, and he picks out pernicious anaemia for this purpose. Both diseases are characterized by remissions which may last for years and recur four times and even oftener. Common to both diseases are glossitis, anorexia, vomiting, and, above all, achylia. Diarrhoea is common in pellagra and an important symptom in pernicious anaemia. The similarity of the spinal manifestations is most striking, and psychic disturbances, common in pellagra, are apt to be associated with pernicious anaemia. In both diseases oedema occurs in the later stages, and women are more liable than men to both. There is also the favourable response of both to arsenic. Returning to the gastro-intestinal tract, the author refers to nineteen cases of pellagra in which a special study was made of the gastric functions. In almost every case a complete absence of free hydrochloric acid was demonstrable. Indeed, it is probable that every case of pellagra is associated with digestive disturbances, and is very likely caused by them, a contributory factor in some cases being alcoholism.

379 Syphilitic Meningitis Affecting the Pituitary

According to F. WINKLER (*Med. Klinik*, July 20th, 1934, p. 967) it is probable that the great majority of cases of syphilitic meningitis of the region near the sella turcica are first diagnosed post mortem, yet early recognition is imperative if blindness is to be avoided. The case is recorded of a syphilitic woman, aged 38, who had homonymous left hemianopsia, bilateral papilloedema, and slight left hemiparesis without morbid pyramidal signs. That the right optic tract was subject to compression from the pituitary region was indicated by: (1) a galactorrhoea and frontal chloasma which had persisted for two years since parturition, and (2) a recent alteration of the menses to a two weeks' type. Antiluetic treatment cured the visual and motor symptoms and restored the menstrual rhythm, but did not diminish the secretion of milk.

Surgery

380 Retroperitoneal Perirenal Lymphangioma

H. KRETSCHMER and W. HIEBS (*Arch. of Surg.*, July, 1934, p. 112) state that the retroperitoneal tissues above and below the kidney may be the seat of benign or malignant, cystic or solid, tumours. Of these, benign and solid tumours are more common than the malignant or the cystic type. Only four cases of true retroperitoneal lymphangioma have previously been reported, but particulars are given of a further case in which the tumour by its growth caused pressure atrophy of the lower pole of the kidney and was attached to the kidney. Retroperitoneal lymphangiomas do not as a rule cause any particular symptoms until they have reached a considerable size. Dyspnoea and ureteral pressure may then occur, or abdominal pain and distension. The chief aids in diagnosis are cystoscopy, ureteral catheterization, and pyelography. When the tumour occurs low in the abdomen it may be confused with lesions of the uterus or ovaries, and may even simulate pregnancy. Treatment, which must be surgical, frequently necessitates the removal of the kidney when this has been engulfed by the tumour. The chief difficulty in the removal of retroperitoneal growths lies in the dissection of the adhesions of the tumour to the mesentery and intestines, which may cause injury to the mesenteric vessels and necessitate resection of portions of the intestine. Although removal is the ideal treatment for cystic lymphangioma of the retroperitoneal regions, drainage with tamponade and suture of the edges of the cyst to the peritoneum may be carried out when the tumour is unilocular. Radium may also be used when the tumour cannot be extirpated.

381 Percaine Anaesthesia in Urology

N. MONO (*Zentralbl. f. Chir.*, August 11th, 1934, p. 1865) in 3,000 cases in which the urethra or bladder was anaesthetized by applications of percaine solution (0.1 per cent. with 5 drops of adrenaline in 100 c.cm. of solution) saw no toxic effect. Care was taken not to inject the solution under pressure: when an instrument has been recently passed a tear of the mucosa may be present, and pressure may force the anaesthetic substance into a vein. For the anterior urethra 3 to 4 c.cm. are left in for ten to fifteen minutes, voided, and replaced by the same amount for ten minutes. In cystoscopy in the male 8 to 10 c.cm. are placed in the anterior urethra, and a further injection is given ten to fifteen minutes later; sometimes a gauze strand moistened with percaine must be left in. In urethral stricture percaine facilitates instrumentation by abolishing spasm. In anaesthesia of the female urethra, if percaine applied in solution on gauze or in bougies is ineffective, a psychogenous cause of the symptoms should be strongly suspected. For bladder anaesthesia percaine has been found superior to other anaesthetics; according to Lichtenstern's technique 30 to 50 c.cm. are instilled for thirty minutes, withdrawn, and replaced by a like amount for the same time.

382 Abdominal Distension in Retroperitoneal Haemorrhage

Recording three cases of retroperitoneal haemorrhage following trauma, CH. LENORMANT and G. CORDIER (*Presse Méd.*, August 8th, 1934, p. 1257) state that an intestinal reaction, evidenced by distension, is frequently noted during sub- and retro-peritoneal haemorrhages without involvement of the serosa or of an intra-abdominal organ. Blood is an important factor in peritoneal irritation. If this acts on the very sensitive anterior peritoneum contracture will readily occur, as observed in the intra-peritoneal haemorrhages of splenic rupture. If a less sensitive zone such as the posterior, pre-renal, and pelvic peritoneum is irritated, intestinal irritation with abdominal distension will result. If the haemorrhage is arrested irritation ceases, and the tympanites disappears, if it

persists, and especially if a continuous irritative factor such as a clot is superadded, paralytic ileus or a parietal response of defence ensues. The authors believe that tympanites is merely evidence of irritation of the parietal serosa, and not necessarily an indication for operation. In cases of abdominal distension following lumbar or pelvic trauma, pelvic fracture, extraperitoneal vesical laceration, and renal injury must be considered. Expectant treatment is advocated and not surgical intervention, for in most cases the distension yields to medical measures.

Therapeutics

383 Treatment of Generalized Osteitis Fibrosa Cystica

M. CUTLER and S. E. OWEN (*Surg., Gynecol. and Obstet.*, July, 1934, p. 81) record a case of generalized osteitis fibrosa cystica associated with hypercalcaemia in which marked clinical improvement followed treatment by x-radiation of the parathyroid glands. They commend this method in cases in which a surgical operation is contra-indicated, or in which parathyroidectomy has failed to bring about cure. Radiation of each parathyroid area separately is suggested as a possible aid in determining the site of the adenoma before operation, a procedure which may render the operation less difficult. In the case recorded there was a more pronounced lowering of the serum calcium figure when the left parathyroid area was irradiated, as compared with the right. Radiographic illustrations are given of the striking bone changes which followed treatment.

384 Suboccipital Puncture in Cerebro-spinal Fever

R. TRAUT (*Thèse de Paris*, 1934, No. 637), who records thirteen illustrative cases in children aged from 5 months to 14 years, maintains that a fall in the temperature and improvement in the clinical signs and character of the cerebro-spinal fluid are the result of suboccipital puncture in cerebro-spinal fever. The method should not be confined to cases in which blocking has taken place, but should be used as a routine measure and at an early stage, not only in infants, but at all ages—at least in children. It should be used alternately with lumbar puncture, which should not be discarded, but the use of alternate injections by the suboccipital and lumbar route respectively seems to be indispensable.

385 Bromide Therapy and Mental Deterioration

H. A. PASKIND (*Journ. Amer. Med. Assoc.*, July 14th, 1934, p. 100) denies that the bromides in rather full therapeutic doses tend to cause mental deterioration in epileptic patients. He bases this conclusion on the records of fifty-four such patients who had been treated with bromides for a year or longer. Five of these had been treated for one year, nine for two years, five for three, three for four, seven for five, five for six, four for seven, three for eight, one for nine, one for ten, three for eleven, two for twelve, three for thirteen, two for sixteen, and one for seventeen. Of these only three (5 per cent.) were found to be mentally deteriorated. The rest showed no sign of any behaviour disorder, and performed their usual tasks, sometimes very responsible ones, with the same efficiency as persons in good mental health. He believes that one of the reasons why bromides have acquired a bad reputation in this respect is failure to adjust the dosage, for doses which will produce salutary effects in one patient will induce bromism in another, with symptoms of blunting of the intellectual faculties, impairment of memory, and the assumption of a dull apathetic state. Such intoxication is very different from true mental deterioration, and quickly disappears when the drug is suitably diminished. Moreover, bromides have been given to patients who have already deteriorated mentally because of epilepsy, a sequel often associated with the family history and environment. Another argument against their exhibition has arisen from their asso-

ciation with the chance occurrence of behaviour disturbances in insane or neurotic epileptic patients who had received bromides, and in whom such behaviour disorders occur without bromides. As they are used frequently in institutions for advanced cases, the medical practitioners concerned are thought by the author to have developed a biased outlook in this respect, not having realized that there are large numbers of epileptic patients who do not undergo mental changes, and are never placed in institutions.

386 Amniotin in Gonorrhoeal Vaginitis of Children

J. HUBERMAN and H. H. ISRAELOFF (*Journ. Amer. Med. Assoc.*, July 7th, 1934, p. 18) have had encouraging results from the prescribing of amniotin in gonorrhoeal vaginitis in children, and believe that this preparation offers a simple method of treatment which may eradicate the disease. It seems to have no cumulative action, being freely discharged in the urine. The authors believe, however, that the renal threshold varies in different cases, but the amount of oestrogenic substance in the urine, as determined by the Kurzkrook method, is directly proportionate to the intensity of the treatment. Although there is produced an increase in the number of epithelial layers of the vaginal mucous membrane during its exhibition, this is not the sole factor responsible for the eradication of the disease. The most important aid it confers in combating gonorrhoeal vaginitis is the formation of the cornified layer of epithelial cells, which acts as a barrier against reinfection. The method of treatment was found to be safe, and there was a definite involution of the vaginal structures after its cessation. Another advantage of the method is that it does not necessitate the confinement of the patient to hospital.

Radiology

387 Congenital Stenosis of the Aorta

ELIZABETH F. TAYLOR (*Brit. Journ. Radiol.*, August, 1934, p. 452) records five cases of aortic coarctation, and discusses the aetiology and radiography of this condition. Its diagnosis is often easy, but in more obscure cases radiology is essential. Great hypertrophy of the left ventricle is revealed, and often dilatation of the first part of the aortic arch, with atheromatous changes. Sudden death may follow rupture of this part of the aorta, as occurred in one of the author's cases, although no radiographic evidence of aneurysm emerged in an anteroposterior examination. The normal shadow or knuckle representing the third part of the arch was missing in the five cases, but no defect or break in the continuity of the aortic outline was visible, even in the oblique position, nor could the bifurcation of the trachea be demonstrated as a pencilled outline because of the absence of the aortic shadow. Erosions of the under surfaces of the ribs due to the development of the collateral circulation were easily seen in all cases—a valuable diagnostic criterion.

388 Appendicular Stasis

L. BABALANTZ and S. KADRKA (*Journ. de Radiol. et d'Electrol.*, June, 1934, p. 290) discuss the diagnostic value of stasis of the appendix, and record a series of sixty-one cases occurring in a total of 1,288 patients submitted to complete examination of the alimentary canal. They define true stasis of the appendix as a retention of the opaque substance after evacuation of the caecum has occurred. The mechanism of such stasis is considered to be an arrest, functional or pathological, of the neuromuscular system of this organ, or to be conditioned by certain abnormalities of the mucosa consequent upon loss of tenicity, increased length of the appendix, caecal stasis, neuromatosis, and chronic appendicitis. Such an appendix, they find, is usually exceptionally long and of wide bore. The duration of the stasis is variable, but may extend over a week or more. In forty of the sixty-one cases the radiological diagnosis of chronic appendicitis

accorded with the clinical findings. In 50 per cent. of these the condition was proved to be as thought, and the presence of the usual lesions of this disease was determined as a rule. In the remaining twenty-one cases of stasis, observed in the course of various abdominal syndromes, the lesions of chronic appendicitis could not be excluded, notably in the cases of right-sided peritonitis, gastroduodenal ulcerations, visceroptosis with pain in the iliac fossa, and cholecystitis. The authors conclude that appendicular stasis indicates that chronic appendicitis is present, at any rate in most cases, and they deduce a causal connexion; they are not prepared, however, to state which is the cause and which the effect. Without attributing pathognomonic significance to appendicular stasis, they believe that the appearance of this phenomenon should always lead to a suspicion of appendicitis.

389 Short-wave Treatment of G.P.I. and Schizophrenia

L. HORN, O. KAUDERS, and P. LIEBESNY (*Wien. klin. Woch.*, July 27th, 1934, p. 936) give a further report concerning general paretics, and add records of ten schizophrenic patients (in all stages) treated by application to the brain of short electrical waves. Lapse of time has shown the improvement in general paralysis to be even less significant and less common than was first reported, and to be quite temporary. Of ten schizophrenic subjects also, thirty applications for twenty minutes of 15-metre waves were followed by fleeting remissions in two only. With regard to the biological effect of short waves on the brain the writers report from animal experiment an elective action on the meninges with intense hyperaemia and vascular ruptures; and from necropsy in general paretics who have had the treatment eight or ten months previously intense leptomeningitis, some tendency to softening in the superficial layers of the cortex, but subcortical exaggeration of the morbid changes associated with general paresis of the insane. It would appear that the increased protein content of the liquor after short-wave therapy in paretics is due not to increased meningeal permeability (as was hoped) but to direct immigration of blood from small areas of rupture. The writers point out, however, that these clinical and pathological results have followed short-wave treatment in which the technique, adapted from that of deep-seated viscera, is unsuitable for application to the brain. For future trial they recommend less frequent applications, in which the condenser plates shall be distant not 1 to 2 but at least 6 to 10 cm. from the skull.

390 Radiological Appearances of Terminal Oedema of the Lung

According to C. ROUBIER and M. PLAUCHU (*Arch. Méd.-Chir. de l'Appareil Respir.*, March 3rd, 1934, p. 189), pulmonary oedema in cardiac or cardio-renal disease seldom reveals any very special radiological signs. In four cases, however, in which the terminal oedema occurred in cardio-renal disease in comparatively young subjects with marked azotaemia, characteristic x-ray signs were noted. These consisted of either (1) a diffuse shadowy appearance, showing under the hand lens fine granite-like mottling of the whole of both lungs, with the exception of the apices and extreme bases, or (2) a parahilar dappling, affecting chiefly or exclusively the right lung, limited externally by a vertical line, and leaving the upper part of the lung clear. In these cases the pulmonary oedema was clinically subacute and progressive, with much dyspnoea but not much expectoration; post mortem the oedema was the sole morbid condition found in the lung.

391 Diathermy of the Female Pelvic Organs

A. BESSEMANS and L. VANHOUTEGHEM (*Bruxelles-Médical*, September 23rd, 1934, p. 1497) cite clinical results illustrating, in diathermy of the female pelvic organs, the influence of the technique adopted upon the focal temperature produced. If two cutaneous electrodes, even of large size, are employed a rise of only 1° to 1.5° C.

temperature is obtained, and less if small electrodes are used. If the active electrode is placed intravaginally and the indifferent one (of large dimensions) over the gluteal or the hypogastric region, a temperature of 40° to 42° C. or higher is immediately produced, and is of longer duration. The latter technique should be employed to obtain therapeutic effects.

Obstetrics and Gynaecology

392 Indications for Electrotherapy in Gynaecology

L. DELHERM and Mme FAINSILBER (*Journ. de Radiol. et d'Electrol.*, July, 1934, p. 376) compare the older methods of gynaecological electrotherapy with the more modern ones in order to point out that some of the earlier procedures have been inadvisedly neglected. They commend electrolysis with silver or platinum for haemorrhages in the virgin, uterine congestion, subinvolution, fibromatosis, endometritis, and cervicitis, in view of its freedom from complications as well as its efficiency. In cases of bleeding fibroids the association of galvanization with radiotherapy shortens the time in which haemostasis can be effected. They consider intrauterine galvanization superior to intracervical diathermy because its action is more extensive as well as more intense. For the pain of chronic salpingitis, metritis, and perimetritis, tension faradization and undulant and sinusoidal currents are applicable for the same cases as are benefited by diathermy or infrared and short-wave radiation. Indeed, the galvanic current will advantageously replace diathermy when the latter is not well tolerated. In primary vaginismus the faradic current is still better than high-frequency currents and diathermy; in other forms of this disease it can well be associated with other varieties of treatment, and will hasten recovery. The authors plead for further practical consideration of these older electrical procedures, either by themselves, in suitable cases, or associated with more modern methods. They add that they are often well introduced after a course of diathermy, for its repetition is sometimes disappointing.

393 Pregnancy in Tuberculosis

G. T. PALMER (*Amer. Journ. Obstet. and Gynecol.*, August, 1934, p. 173) suggests that tuberculosis may be the causative agent of thyroid dysfunction. He finds ischio-rectal abscess almost as suggestive of tuberculosis as pleurisy. Sanatorium routine is in itself curative of gynaecological ailments, while surgical intervention is to be avoided to the utmost. Pregnancy in cases of tuberculosis constitutes a tragedy. Metzger's beliefs are quoted as reasonable. Of incipient cases pregnancy will light up tuberculosis in 3 per cent.; of healed cases, about 50 per cent. will stand one pregnancy well. Pregnancy should never be contemplated in less than two years after complete cure, as shown by repeated tests, the most valuable being Cutler's sedimentation test—anything above ten implies doubt. The first three months of pregnancy and the six months after confinement are the dangerous periods. Sanatorium treatment is therefore necessary for the beginning of a pregnancy, the patient's response being carefully watched. Improvement shown after three months will be maintained. Deterioration points to therapeutic abortion; but the operation is unwarrantable in an advanced case, and more damaging than useful to a mild one, so that the intermediate cases only are likely to benefit. Preparation for evacuation of the uterus must include artificial pneumothorax or resection of the phrenic nerve (preferred by the author). Labour should always be shortened. Children should be removed at once from a tuberculous mother. According to Forner's recent figures, only 6 per cent. of children isolated developed tuberculosis by three years of age. Eighty-two per cent. were well, whereas of those kept with the mother 45 per cent. had developed tuberculosis and 182 per cent. were well.

Pathology

394 Identification of Aconitine

PEREZ VILLAMIL (*Crónica Médica*, July 15th, 1934, p. 510) claims to have discovered a test which will reveal the presence of as little as 0.1 mg. of aconitine, while differentiating it from the other members of its group. Having dissolved the alkaloid in one or two drops of chlorine water or dilute hydrochloric acid, he adds a drop or two of sulphuric acid solution saturated with potassium bichromate. A copious flocculent yellow precipitate is formed, which when heated in a water-bath (*bain-marie*) is redissolved, leaving a strongly acid emerald-green solution that becomes violet on neutralization with ammonia. A somewhat similar reaction is produced when chromium sulphate, acidified with sulphuric acid, is rendered alkaline with ammonia, but it differs from the above as it forms a copious flocculent precipitate of dirty greyish-violet colour. The author tabulates the results obtained by similar treatment of strychnine, quinine, brucine, veratrine, emetine hydrochlorate, atropine, and cocaine, all of which are readily differentiated from aconitine.

395 Inclusion Technique with Pathological Fluids

J. J. VIRON and two others (*Semana Médica*, July 26th, 1934, p. 234) write in terms of great approval of the method devised by Morin of Quebec for the examination in section of sputa, gastric contents, urinary sediments, pleural, peritoneal, and ascitic fluids, embedded in paraffin and stained by the usual colouring agents. An hour after it has been centrifuged the material is fixed for three or four hours in formol, absolute alcohol, or Bouin's fluid. It is then dehydrated in three alcohol baths, each lasting two hours, and in four baths of toluene, each of a duration of an hour and a half. It is then embedded in paraffin for a whole night, after which sections are cut. The advantages of the method are rapidity, better fixation and preservation of the cytological elements, and the possibility of the employment of ordinary staining agents. The writers illustrate their success by details of several cases, and by excellent microphotographs. They believe that the value of the method is assured by the rapidity with which it shows neoplasms and mycotic affections which require early surgical intervention.

396 Gynaecomastia in Lepers

R. S. BARRETO (*Anales de Medicina Interna*, August, 1934, p. 693) claims to be the first to attract attention to the frequent occurrence of true gynaecomastia in the leprosy, having found the condition present in a substantial percentage of 200 males examined in the leper colony of El Rincon, Cuba. The communication is profusely illustrated with photographs, and the writer comments on the frequency of previous testicular inflammation, whether due to the *Mycobacterium leprae* or to venereal or other disease. The writer classifies his cases under six different headings, carefully setting aside all those in which the hypertrophy was a pseudo-gynaecomastia or of the type called by German writers "Fett mamma."

397 Diagnosis of Glandular Fever

J. E. MEKINSHOFF (*Nederl. Tijdschr. v. Geneesk.*, August 11th, 1934, p. 3656) records his observations on the heterologous antibody reaction of Paul and Bunnell in cases of glandular fever, in normal controls, in different animals, in human beings after injection of horse serum, and in patients with various other diseases. He found that the reaction was rarely positive in normal persons in a dilution of more than 1 in 32, whereas a positive agglutination in a dilution above 1 in 64 was probably specific of glandular fever.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

398 Massive Atelectasis in Pulmonary Tuberculosis

According to P. NAVEAU and M. PESQUE (*Arch. Méd.-Chir. de l'Appareil Respir.*, ix, 3, 1934, p. 239) massive atelectasis differs anatomically from massive collapse simply in the non-permeability of the bronchial system in the former: clinically and radiologically the conditions are identical, and even lipiodol injection does not always penetrate the bronchi in massive collapse. In pulmonary tuberculosis massive atelectasis is not uncommon, and its effect is different according to its occurrence in a lobe which contains cavities or in a different lobe of that lung. In the former case bronchial obliteration and massive atelectasis favour cicatricial cure: in the latter the exaggeration of negative pleural pressure may cause extension and aggravation of cavities lying in the upper lobe when the lower is collapsed. Most commonly in phthisical patients atelectasis follows hæmoptysis and is transitory, but chronic forms occur, of which the following example is related. A woman, aged 26, with a six years' sputum-positive history, was found to show, as well as recent acute distress, clinical and radiological signs suggesting massive pleural effusion. Puncture, however, showed the absence of fluid and an increased negativity of the intrapleural pressure (-10 , -20 mm.). Pneumothorax was instituted at once, and the opacity was absent in the photograph now taken. Treatment by repeated pneumothorax is the best for such cases, and the outlook is then not unfavourable.

399 Subphrenic Abscess Simulating Massive Pleural Effusion

H. HARTUNG (*Zentralbl. f. Chir.*, July 28th, 1934, p. 1750) describes a case in which a left-sided extraperitoneal subphrenic abscess simulated an empyema, filling the left pleura. A woman aged 48, as a sequel of paraneuritic abscess following tuberculosis of the left kidney, had an effusion of pus extending from the lower limit of the thorax to the left clavicle, and displacing the heart and vessels to the right. In the radiogram the shadow of the left half of the diaphragm was invisible, but the fact that the upper subclavicular margin of dullness was convex upwards, corresponding with the left cupola, pointed to subphrenic abscess. The thoracic shadow disappeared after drainage of the abscess through another phlegmonous swelling in the groin; the diaphragm then resumed its normal position. No perforation was seen during inspection of the diaphragm at the attempted operation which followed: the neighbouring granulations were histologically tuberculous.

400 The Tongue in the Production of Asphyxia

According to C. JACKSON and C. L. JACKSON (*New York State Journ. Med.*, August 1st, 1934, p. 681) the greatest menace to the patient in danger of death from asphyxia is the falling back of the tongue, which thus brings into operation a "lingual check valve," allowing fluids and gases to pass only one way, and preventing the ingress of air. If artificial respiration is tried without ensuring that the tongue is not occluding the larynx the pressure on the chest walls will force air out of the lungs, but there will be no inspiration effect, thus causing bilateral pulmonary atelectasis and instant death. The authors define two classes of cases in which this death zone has to be remembered. The first comprises those in which the primary obstruction causing the asphyxia is located in the death zone—for example, cases of tumour, foreign body, or suicidal hanging. It also occurs in the course of administration of an anæsthetic. The second group includes those cases in which there is apnoea from the

effect of gases, electric shock, and other general causes, the death zone coming in as a secondary factor. Many of the deaths attributed to cardiac failure in alcoholism are, they state, really due to lingual asphyxia. The authors consider the best way of eliminating the lingual check valve is by direct laryngoscopy, a bronchoscope being subsequently introduced in order to administer oxygen and release the secretions. They add that, in addition to gravity, suction is a factor in the retention of the tongue in the fallen-back position, and that the "death rattle" is often the final flapping of the lingual check valve. They urge the importance of devoting more attention to obviating this risk in the course of ambulance training.

401 Tobacco and the Peripheral Vascular System

I. S. WRIGHT and D. MOFFAT (*Journ. Amer. Med. Assoc.*, August 4th, 1934, p. 318), as the result of experiments on confirmed smokers in an average state of health, came to the following conclusions. (1) A marked drop in temperature occurs at the tips of the fingers and toes. The average drop was 5.3° F. and the maximum 15.5° F. Surface temperature at the forehead and waist did not show a similar change. Slowing and stoppage of the blood flow in the capillaries of the nail-fold were frequently observed during these tests. Very slight, if any, difference could be noted between the effects of standard denicotinized and mentholated brands of cigarettes. No direct relation between the degree of drop of peripheral surface temperature and the skin tests for tobacco and nicotine could be established. The lack of symptoms in experienced smokers was probably due not to the development of immunity to the toxins of tobacco smoke, but to conscious or subconscious control of the rate and depth of inhalation, which keeps the toxic effects at a submanifest level. The evidence seemed to indicate that nicotine is at least one of the toxic factors and that carbon monoxide and the products of the cigarette papers can be eliminated.

402 Nervous Complications and Sequelae of Enteric Fever

From a study of the enteric epidemic in Lyons during 1928-9, A. DUFOUR and R. FROMENT (*Presse Méd.*, August 1st, 1934, p. 1225) conclude that the nervous are the most important sequelae of this disease, and rank in frequency next to the hepatobiliary complications. In the 3,000 cases of the epidemic nervous sequelae occurred in fifty-two (1.7 per cent.). In thirty-six cases (1.2 per cent.) psychic phenomena, such as dementia, diminution of the memory and intellectual faculties, nervousness, and neurasthenia, were noted. Neuritic sequelae—namely, neuralgias and sensorimotor troubles localized in one or several nerves—occurred in ten cases (0.3 per cent.). Other nervous sequelae, such as chorea, hemiplegia, and aphasia, and especially epilepsy, were observed in six cases (0.2 per cent.). In a certain number of cases these sequelae, particularly the neuritic, were temporary, and disappeared in from a few weeks to a few years. The psychic variety, in particular epilepsy, were more definite and of longer duration. All these conditions occurred most frequently in young subjects.

403 The Electrocardiogram in Cases of Apparent Death

O. BRAUNS (*Munch. med. Woch.*, August 10th, 1934, p. 1225) observes that the usual clinical methods for determining whether death has occurred are inadequate. This is shown by the number of authentic cases in which patients have "come to life" many hours after apparent cessation of the heart-beat. The electrocardiogram is, he states, the only method of diagnosing with certainty whether life is extinct, and by its means the author was able to observe that the heart continued beating long

after cessation of the pulse and heart sounds. It is therefore urged that in all cases requiring artificial respiration this be carried on till rigor mortis sets in. Electrocardiographic control of the apparently dead has made it possible to observe the gradual cessation of the heart's activity and to estimate the value of various methods of artificial respiration. It has shown that purely mechanical or chemical stimulation of the skin or mucous membranes when the corneal reflexes are absent is valueless; further, that the classical methods of Silvester, Howard, and Schafer are valuable as means of producing "endomassage" of the heart by the to-and-fro movement of the blood within it, but that they must be combined with energetic massage of the heart when it has ceased to beat. Any method of artificial respiration which does not allow of massage of the heart by knocking, shaking, or pressure 70 to 100 times a minute is to be condemned. Bruns has proved experimentally that actual cessation of the heart as shown by the electrocardiograph is permanent, and injection of adrenaline into the heart muscle, carotid, or jugular vein, combined with artificial respiration and massage, is of no avail. Reported cases of brilliant results achieved when clinically the heart had stopped beating may be explained by the fact that an electrocardiogram would certainly have shown evidence of the heart's action.

Surgery

404 Acute Suppurative Parotitis

H. TALBOR (*Amer. Journ. Surg.*, August, 1934, p. 267) states that acute suppurative parotitis is generally a secondary condition which may occur as part of a post-operative complex, after an infected wound, in the course of an acute infectious disease, in any markedly aesthenic state, and as part of a terminal condition. In many cases pneumonia is present, whilst in 10 per cent. of cases reported there was a history of a preceding cold or sore throat. It has been demonstrated that the *Staphylococcus aureus* is the infecting organism in the majority of cases, and it can generally be grown in pure culture from pus expressed through the meatus of Stenson's duct when acute suppurative parotitis is present. In most instances the infection must reach the gland through the blood stream or by ascending through Stenson's duct from the mouth. The majority of cases show clear evidence of infection of Stenson's duct, pus being present at its orifice. Small abscesses may appear in different parts of the parotid gland with areas of healthy tissue between, but usually the whole gland is indurated. Sloughing, and more rarely gangrene, may occur. Other complications which may be seen in cases of suppurative parotitis are: a spreading cellulitis, involvement of the external ear, phlebitis, and thrombosis. Extension of the infection to the mastoid process and to the breast has been known to occur. The onset of the disease is usually sudden, with fever and pain and swelling over the gland. Motion of the lower jaw is painful and difficult, and there may be spasm of the masseter muscle. In fatal cases the course is rapid and death may occur within two days. Prophylactic treatment should consist of careful attention to the hygiene of the mouth, and the maintenance of a free flow of saliva. In the more virulent cases surgical intervention is necessary as soon as there is evidence of localized pus. In a case reported it was possible to evacuate a large quantity of pus under local anaesthesia, and the patient made a good recovery.

405 Autoplastic Bone Grafts in Surgical Tuberculosis

ROBERTSON LAWELL, professor of surgical pathology in the University of Buenos Aires (*Soc. Med. Arg.*, August 2nd, 1934, p. 517), after careful and prolonged observation of the methods of defence of bony tissue invaded by Koch's bacillus, and having noted the favourable prognosis in such cases of what he calls "hypertrophic and not infective tuberculosis," states that, after dealing with

the affected parts in the usual classical surgical procedure, he inserts into some of the foci small grafts of bone taken from the patient. The action of these not only expedites cicatrization and healing of the parts so treated, but frequently produces a disappearance of the tuberculous process in other organs, and complete restoration to health of patients with active tuberculosis of the lungs. The article is profusely illustrated with radiograms and microphotographs, and in corroboration of his claims the writer mentions the names of colleagues who have assisted him and upon whose cases he had operated.

Therapeutics

406 Snake Venom as an Analgesic in Cancer

J. KÖRBLER (*Klin. Woch.*, August 18th, 1934, p. 1185) states that snake venom has long been used by homeopaths in the treatment of cancer. Cases have been reported in which patients suffering from leprosy and cancer have had relief of pain after having been accidentally bitten by snakes. In some cases snake venom has caused a retrogression of the tumour, but this is rare. The author believes that the analgesic action of snake venom is due to paralysis of sensory nerves and to a specific metabolic effect on cancer tissue. He describes two cases treated with cobra venom. In the first, a lymphosarcoma, the result was excellent, pain being completely relieved after the third injection. In the second, a cancer of the breast with metastases, no relief was obtained. There were no untoward results. In a further series of twenty-six cases the venom of *Vipera ammodytes* was used. The dose was 5 to 10 mouse units—one mouse unit, based on a mouse weighing 15 grams, contains 0.00002 gram of the venom. The injections, which were painless, were given subcutaneously in the arm or thigh of the diseased side every second day. In a few cases there was tenderness at the site of injection and oedema. In all cases analgesia was obtained. In most of them there was complete freedom from pain lasting for forty-eight hours after injection. Analgesia was present even when radium applications were in progress, which does not occur with cobra venom. In a few cases the venom appeared to cause a retrogression of the tumour. In two cases of severe neuralgia and arthritis deformans analgesia was obtained by injection of snake venom.

407 X-Ray Treatment of the Tonsils

K. HUNDEMER (*Med. Klinik*, July 27th, 1934, p. 994) has tried to ascertain by means of follow-up investigations what, if any, are the benefits of x-ray treatment of chronically inflamed and hypertrophied tonsils in childhood. His material consists of the eighty-two children between the ages of 3 and 14 years given x-ray treatment in a hospital in Würzburg during 1931 and the first half of 1932. The follow-up investigations were conducted in 1933. Information was obtained in seventy-eight cases, in about half of which written reports were received, while in the remaining half the children were re-examined. An attempt was made to classify this material according to the nature of the morbid changes, but it was found difficult to draw hard-and-fast lines between "soft" and "hard" tonsils. Broadly speaking, however, tonsils whose hypertrophy was of the soft lymphatic type responded better to this treatment than the hard and densely fibrous tonsils. In about two-thirds of the cases characterized by recurrent attacks of sore throat, with various sequelae such as fever, the x-ray treatment was followed by the cessation of these manifestations. In many other cases the frequency and severity of the recurrent attacks of sore throat were appreciably reduced, and the cases showing no improvement represented a very small minority. Only in five of the seventy-eight cases had operative treatment been subsequently carried out. So it may be claimed that most of the remaining twenty-three patients had been cured by the x-rays from an operation. In many cases considerable enlargement of

the glands of the neck and behind the angle of the jaw yielded promptly and completely to the x rays, and did not recur in those cases in which repeated infections of the throat ceased after x-ray treatment. A case of poly-arthritis and another of haemorrhagic nephritis cleared up under this treatment, which is perfectly safe. A note on the technique employed is appended.

408

Artificial Respiration

HÉDERER (*Bruxelles-Médical*, August 26th, 1934, p. 1362) states that the manipulations employed in artificial respiration act chiefly on the cardio-respiratory centres, thus stimulating respiratory movements and cardiac contractions; their action on the pulmonary gaseous interchange is much less marked. From a physiological standpoint the manual methods of Silvester, Howard, and Schäfer are thus placed in the order of their efficacy; in practice the method adopted varies with the case. In the "blue" drowned Schäfer's method is recommended; in "blue" subjects asphyxiated by non-caustic gases Silvester's is the best method; and in pale syncopal cases the latter method combined with rhythmical tractions on the tongue is advocated. Mechanical compression apparatuses have proved more efficacious than manual methods; the best of these is stated to be Héderer's "palmiventilator," which has been adopted by the French Department of Marine.

409 Prevention of Lumbar Puncture Headache

SHELPE (*Amer. Journ. Med. Sci.*, August, 1934, p. 247) states that post-puncture headache may be attributed to leakage of fluid. He bases his conclusion on the fact that after a cisternal injection of lamblack into a cat Ayer found this substance in the cervical muscles at necropsy, and that Nelson found the cerebro-spinal fluid pressure much lower during post-puncture headaches than at the conclusion of the original punctures. The author confirmed the findings of Heldt and Maloney that there is a negative pressure in the epidural space of from 1 to 18 mm. of mercury. He has often seen a drop of fluid sucked into the needle as the latter was pulled out of the dura. He is unable to explain the negative pressure satisfactorily, and suggests several possible factors in causation. Ever since he has used a fine 22-gauge needle and has allowed it to aspirate air into the epidural space for thirty seconds before withdrawing it, he has only had three slight headaches in his last 100 punctures on ambulant patients, as compared with 10 per cent. of headaches previously.

Anaesthetics

410

Evipan Anaesthesia

A. WESTERBORN (*Nord. Med. Tidsskrift*, August 4th, 1934, p. 997) has performed 500 operations, mostly major, under sodium evipan anaesthesia in the course of about a year in a Swedish hospital, and is profoundly impressed by the many and substantial merits of such anaesthesia by intravenous injection. When he began with this anaesthetic in the spring of 1933, he used it only early in an operation, preferring to complete his work under ether or ethyl chloride. He now finishes the operation under sodium evipan, the dosage of which, he states, is the most serious of the problems to which it gives rise. The differences in the reactions to this drug are so great that for the same sex, age, and duration of operation one patient may need 4 c.cm. and another 15 c.cm. Instead, therefore, of establishing a scale of dosage based on sex, age, weight, and general condition, it is preferable to let the dose required to induce loss of consciousness be the deciding factor in each case. From a half to an equal quantity of this dose is given as soon as consciousness is lost, and this is sufficient to induce deep sleep for five to fifteen minutes. The biggest total dose hitherto given by the author is 27 c.cm. By the administration of only 1 to

2 c.cm. at a time during the operation, whenever the patient shows signs of returning consciousness it cannot be said in reproach of such intravenous anaesthesia that it is irrevocable. Young patients often needed twice as much sodium evipan as patients between 60 and 80, and anaemic or otherwise debilitated patients needed much less than those who were comparatively robust. Among the 450 patients undergoing 500 operations were twenty who were restless and excited on regaining consciousness, and four or five of them were so violent that they had to be forcibly restrained. There was not a single anaesthetic death in this series. The four chief merits of sodium evipan are that it (1) spares the patient much mental anguish, (2) provokes little or no post-narcotic discomfort, (3) greatly facilitates abdominal operations by the abolition of reflexes, and (4) is associated with a very low post-operative risk of lung and heart complications.

411

Pre-operative Medication

M. L. AXELSON (*Current Researches Anesth. and Analg.*, July August, 1934, p. 164) has investigated the effects of combining opiates and barbiturates in pre-operative medication. Throughout his study the aim has been to produce a tranquil state of mind in the patient, to lessen as far as possible the amount of supplementary anaesthetic needed, and to diminish the danger of anoxaemia caused by too great a dose of barbiturate alone. He believes that by combining small doses of opiates and barbiturates a better effect is produced than by giving a larger dose of one or the other. The barbiturate which he used was "alurate." After trying this method on more than 300 cases he had reached the following conclusions. A combined dose of opiate and barbiturate definitely reduces the amount of supplementary anaesthetic needed. It permits of an increased percentage of oxygen when gas oxygen anaesthesia is given. It permits of a reduced dose of each drug with better clinical results. Omnipon has a great advantage over morphine when used with barbiturates. Blood pressure is not materially affected. The combination of codeine with barbiturates and of scopolamine with barbiturates did not seem to be efficient in producing a tranquil state of mind in the patients. Morphine tends to depress the respiration more than omnipon when used with barbiturates. It is an advantage to give the barbiturate in divided doses, 3 grains being given on the night before the operation, and a second dose of 3 or 6 grains about two hours before the operation.

412 A Complication of Percaine Spinal Anaesthesia

J. CONTIMPER (*Le Scalpel*, June 16th, 1934, p. 859) mentions a complication which he noted during the past two years in seven of 375 cases of percaine spinal anaesthesia. On the day following the anaesthesia a diffuse redness, which developed into a more or less extensive gangrene, appeared on the sacral region; this always formed rapidly, in less than forty-eight hours, both on and below the surface. Infectious complications never occurred, though cicatrization was necessary in two cases. Neurological and cerebro-spinal fluid examinations were always negative. This complication appeared in young subjects with a vitality unimpaired by the disease. Contempre believes that this gangrene could not be due solely to vascular compression, but primarily to an alteration of the nervous system, vascular compression only subsequently favouring gangrene formation.

413

Post-anaesthetic Vomiting

G. F. RAWDON SMITH (*Brit. Journ. of Anaesth.*, July, 1934, p. 132) has been studying the factors which may play a part in the causation of post-anaesthetic vomiting. He first used several brands of ether, and found that there was little difference in the after-effects provided that pure ether from a reliable firm was used. The use of ethyl chloride during induction did not appear to make any difference to after-sickness in abdominal cases, and in minor operations actually reduced it, contrary to popular ideas on the subject. With regard to premedication he

found that an injection of morphine and atropine seemed to give the best results. Chlorotone by mouth was of value in quieting the patients, but increased the sickness in major cases. The use of CO₂ at the end of the operation to de-etherize the patients was found to be unsatisfactory. On the whole, the patients had more vomiting, and the treatment was most unpopular with the nursing staff. The administration of oxygen during the anaesthetic had a slight beneficial effect, chiefly in minor operations. By far the most satisfactory results were obtained by the careful use of glucose and insulin. Two ounces of glucose were given by mouth three hours before operation, and five units of insulin were injected half an hour before. On returning to the ward the dose of insulin was repeated, and four or five hours later 4 oz. of glucose were given per rectum. By this means post-anaesthetic vomiting was reduced to less than 50 per cent. in major cases and to about 25 per cent. in minor cases.

Obstetrics and Gynaecology

414 Radiological Exploration of the Uterus

MM. HAMANT, CHALNOT, and THOMAS (*Bull. Soc. d'Obstét. et de Gynéc. de Paris*, July, 1934, p. 458) obtain a picture of the uterine cavity in relief—that is, an impression instead of a mould—by an adaptation of the method of "thin" exposure in radiography. The patient being in the lithotomy position, two cut portions of a ureteral catheter No. 16 are passed, without preliminary dilatation, into the cervix. The longer is carefully pushed up to the fundus, the other just within the internal os. A few c.cm. of distilled water are injected through the longer catheter to ensure that the return flow by the other is established. Then 3 to 4 c.cm. of opaque fluid are injected, and flow out. A skiagram is now taken. Oily fluids are unsatisfactory—a 25 per cent. suspension of oxide of thorium is employed by the authors. No accidents have occurred. The films, though not always easy to interpret, show characteristic outlines of polypi, new growths, reduced cavity, etc., as verified by subsequent exploration. Pregnancy and profuse haemorrhage are the only contraindications.

415 Tincture of Iodine in Treatment of Septic Abortion

F. A. WAHL (*Zentralbl. f. Gynäk.*, September 8th, 1934, p. 2121) states that at Marburg treatments of septic abortions (1) along conservative lines, (2) by curetting, (3) by intervention, provided haemolytic streptococci are not found, (4) by deferring curetting till the third to the seventh apyrexial day, have all been found inferior to the method introduced by Kehrer, in which, immediately after operative emptying of the uterus, an interior application of diluted tincture of iodine is made. If an abortion is incomplete and uncomplicated by extrauterine extension, the cavity after careful dilatation of the cervix is washed out with several litres of 0.05 per cent. potassium permanganate solution at 50° C., and is emptied by the finger and/or a sharp curette. After a second similar lavage two strips of gauze dipped in a 10 per cent. solution of tincture of iodine are successively placed for five minutes in the cavity uteri. Quinine and pituitary extract are also given. During the past eight years 145 cases thus treated gave a mortality of 1.4 per cent. only, and showed a notable shortening of the average stay in hospital to eight days. This treatment, like other active measures, is contraindicated by complications such as parametritis, adnexal inflammation, or vulvo-vaginal ulceration. Its efficacy is ascribed in some degree to bactericidal activity of iodine, but also to stimulation by alcohol, induction of uterine contractions, and the occurrence of local immunizing reactions in the necroses which occur after the application.

Pathology

416 Haemolytic Streptococcus of Scarlet Fever

C. SABETAY (*Thèse de Paris*, 1934, No. 548) examined the pharyngeal mucus of eighty-six persons for the presence of haemolytic streptococci. This group included sixty-two cases of scarlet fever in various stages, nineteen non-scarlatinal cases, most of whom had acute infections of the nasopharynx, and five children with scarlatiniform eruptions, doubtful desquamation, or nephritis following tonsillitis in which a diagnosis of abortive scarlet fever had been made. Haemolytic streptococci were found in only 80 per cent. of the scarlet fever cases. This relatively low figure was attributed partly to the method employed (investigation of haemolysin in a liquid medium), and partly to the fact that several of the negative results were obtained after the twentieth day of disease. Positive results occurred in all the five cases of abortive scarlet fever. The number of positive results obtained in the case of non-scarlatinal pharyngitis (eleven out of nineteen), though lower than in the case of scarlet fever, was still fairly considerable. The haemolytic power of the streptococci isolated from the scarlet fever throats, as measured by the titration method of Cesari, Cotoni, and Lavalle, appeared, however, to be more intense than that of the haemolytic streptococci isolated from the pharynx of non-scarlatinal cases. Moreover, the haemolysis of the streptococci from the non-scarlatinal cases appeared to be fragile and of short duration, while that of the scarlatinal streptococci seemed to have more resistance and was still present after five months.

417 Blood Phosphatases in Osseous Affections

Affirming that estimations of the blood calcium and phosphates may occasionally fail to elucidate the diagnosis in osseous diseases, G. CORYN (*Le Scalpel*, September 22nd, 1934, p. 1301) recommends a determination of the blood phosphatases as of great diagnostic value. These ferments, which are capable of hydrolysing the organic compounds of phosphorus and of liberating the inorganic phosphates, are present in the tissues and act on the glycerophosphates and other substances, splitting the former into calcium phosphates and glycerol; their action may be reversed in the presence of an excess of the latter substances, and a synthesis of calcium glycerophosphates may occur. Their estimation by Roberts's method is described. The amount of blood phosphatases is normal in myelomatosis, essential cysts, arthritis, rhizomelic spondylitis, and senile osteoporosis; it is slightly raised in osteomalacia, pregnancy, and osseous metastases, and markedly increased in rickets and Recklinghausen's and Paget's diseases. In fractures and osseous grafts the blood phosphatases are at first slightly increased, but rapidly return to normal.

418 Pathological Significance of "Paracoli" Bacilli

From observations made chiefly in cases of alimentary disturbance in in-patient infants and young children, K. HASSMAN (*Wien. klin. Woch.*, July 20th, 1934, p. 904) is satisfied that bacilli of the "paracoli" group (giving white colonies on endo-agar and blue on Drigalski plates) are of pathological importance in enteritis and alimentary toxicosis, as well as in certain cases of pyuria and simple icterus. By repeated culturing, mutation of "paracoli" into ordinary *B. coli* strains, and vice versa, could be induced. Strains of parabacilli from clinically severe alimentary disturbances were particularly stable to repeated culturing, and particularly virulent on animal injection of the culture filtrate. Some 10 per cent. of children, having no morbid intestinal symptoms, were "paracoli carriers." The parabacilli from these, filtered, were without action on perfused rabbits' intestine, which, however, was first stimulated and later paralysed by filtrate from paracolic strains derived from cases of acute enteritis.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

419 Herpes Zoster and Trauma

M. RAUATÉ (*Thèse de Paris*, 1934, No. 656), who records numerous illustrative cases in patients aged from 39 to 91, maintains that in some instances there is an undoubted connexion between trauma and herpes zoster, and that such cases have both a scientific and a medico-legal interest. From the scientific aspect the trauma appears to give rise to zoster either (1) by directly affecting the nerve centres, spinal cord, spinal root, or peripheral nerves, in which it reduces or destroys the trophic influence; or (2) by affecting the skin, in which it diminishes or destroys the local immunity. From the medico-legal aspect a relation of cause and effect may be established between the trauma and the zoster under the following conditions: (1) when the zoster develops in the region to which the trauma has been applied; (2) when the skin only has been affected the zoster should develop *in situ*; (3) though the incubation period may vary it must not exceed four weeks—if it is longer the zoster may be a mere coincidence.

420 Agranulocytosis Fatalities from Amidopyrine and other Drugs

P. PLUM (*Ugeskrift for Læger*, August 23rd, 1934, p. 916) attaches such sinister importance to amidopyrine that he believes it is responsible for more deaths than any other drug if cases of overdosage and suicide are excluded. Since May, 1933, eighty-five cases of agranulocytosis have been recorded as a sequel to therapeutic doses of amidopyrine, and as many as sixty-one of these cases have terminated fatally. In Denmark alone forty-one cases have been recorded during the past year, and thirty-seven of them have proved fatal. The author publishes details of a case showing how even a very small dose of amidopyrine (approximately the amount contained in a single tablet of cibalgin) may, in a susceptible person, have a profound effect on the leucocytes. A classification of the cases of agranulocytosis, according to the patients' ages, shows that most of the women were between 40 and 50, and most of the men between 60 and 70. It would therefore seem that susceptibility to amidopyrine may be connected with disordered functions of the endocrine glands. As, however, cases have occurred at other ages in adults the danger of amidopyrine poisoning cannot be wholly averted by such a simple expedient as withholding it from persons of the above susceptible ages. It is also not feasible to examine the blood of a prospective recipient of a dose of amidopyrine and to note how the leucocytes react to a minute quantity, for at present little is known of the duration and variations from time to time of anyone's susceptibility to the drug. Thus there appears, at the moment, to be no alternative to a general ban on amidopyrine for all adults. Its free sale should also be forbidden. It is present in the following drugs: afanal, allonal, asciatine, barbipyrene, barbipropyrene, butapyrene, causyth, cibalgin, compal, diallypyrene, dianalgin, dolorin, gardan, geamin, lealgin, leumon, klimaxid, prokliman, propyrene, pyralyl, sedallyl, trigemin, vepydol, veramon, and veropyrin.

421 J. GROEN and C. J. GELDERMAN (*Nederl. Tijdschr. v. Geneesk.*, July 28th, 1934, p. 3444) record their observations on thirteen cases of agranulocytosis in patients aged from 27 to 77, admitted to the Wilhelmina Hospital, Amsterdam, during the last three years. In two cases neosalvarsan, and in six pyramidon, had been used in combination with other drugs. In one case pyramidon had been used alone, and in two antipyrine alone. In another there was a history of aspirin having been taken,

and in one of aspirin and quinine sulphate. Eight of the cases were fatal. Of the two cases treated with neosalvarsan one died, and of the six pyramidon cases five were fatal. The patient who had had pyramidon alone recovered after the drug had been discontinued. Of the two antipyrine patients one died, as did also the patient treated with quinine sulphate and aspirin. The writers' conclusions are as follows: Agranulocytosis may follow the use of certain drugs, especially antipyrine and pyramidon. The possibility of a similar result from the use of other drugs, especially the barbiturates, must be borne in mind. The risk, however, of agranulocytosis following the use of certain drugs is probably confined to allergic individuals. A constant study of the leucocyte count is imperative during the administration of antipyrine or pyramidon.

422 Mistaken Diagnosis in Headache

G. VOSS (*Deut. med. Woch.*, August 25th, 1934, p. 1278) considers that idiopathic neuralgia of the first branch of the trigeminal is so rare that it should never be diagnosed until all other possibilities have been eliminated. He has known patients suffering from diseases of the frontal sinuses or ethmoid cells to be treated with all the standard remedies for trigeminal neuralgia, including injections of alcohol, on the assumption that the symptoms were due to supraorbital neuralgia. It should be noted that although the supraorbital nerves are tender on pressure in one as well as in the other condition, this tenderness is limited to the nerves themselves in neuralgia, whereas it often extends to their neighbourhood when the symptoms are due to disease of the sinuses or of the neighbouring bones. As for the headache following accidents, it is the rule, in this automobile age, for the subjects of head injuries and concussion to consider themselves privileged and almost under an obligation to suffer henceforth from headache, even for years. There is nothing so difficult as the distinction between fictitious and real headaches in this class; but it is very suggestive of a real post-traumatic headache when the patient, on being asked to look upwards, does so with an expression of pain on his face. There is another kind of headache which seems to have become comparatively frequent of late. It is the sequel of acute or subacute serous meningitis in the posterior cranial fossa. After a feverish onset, due to a sore throat or influenza, the patient complains of rather sudden attacks of severe pain in the back of the head and the nape of the neck. There are few positive clinical findings; slight stiffness of the neck and tenderness over the occipital region and of the muscles of the neck are apt to give the mistaken impression of muscular rheumatism. Other signs may be moderately contracted pupils and nystagmus. The symptoms include pain, giddiness, and an inclination to vomit. Under treatment, which includes the exhibition of quinine and salicylates, the symptoms begin to clear up in eight to ten days.

423 Malaria in Drug Addicts

J. A. BRADLEY (*Journ. Trop. Med. and Hyg.*, August 15th, 1934, p. 241) records six cases of malaria in drug addicts, and points out that the infection is very liable to be transmitted by the use of contaminated intravenous syringe outfits. Treatment must be immediate and energetic, for coma follows swiftly on the onset. Intravenous quinine therapy should be continued until the danger period has passed, and glucose injections be begun at once if no glucose is present in the urine. In some cases blood transfusion is imperative. Bradley considers that all cases of malarial infection in drug addicts should be regarded as potential cerebral malaria. He attributes the spread of the disease in some cases to pedlars of narcotics travelling through anopheles-infested areas, and cites evidence in support of this view.

Surgery

424

Cancer of the Stomach

P. BULL (*Norsk Mag. f. Lægevid.*, September, 1934, p. 1035) has succeeded in tracing all but five of the 289 patients treated for cancer of the stomach in a surgical hospital in Oslo in the fifteen-year period 1913-27. They were classed according as they were (I) not operated on, (II) explored by laparotomy, (III) treated by gastro-enterostomy, with or without other palliative operations, or (IV) treated by resection. The male patients were in the majority, in the ratio of 206 to 83—a ratio which corresponds approximately to that of the deaths from cancer of the stomach in Norway in 1923, when 70.7 per cent. of them were in males. The average age of the patients was 44.9, and that of the men alone 55.5 years. A study of the duration of the symptoms before the patients were admitted to hospital brought out the impressive fact that in 21.2 per cent. of the inoperable cases the symptoms had lasted only from one to three months. On the other hand, in 8.4 per cent. of the resection cases, the symptoms had already lasted for three to four years. Paradoxically enough, the average duration of the symptoms before admission to hospital was longer, for the resection cases than for the others. It is clear, therefore, that operability or inoperability does not depend exclusively on the duration of the symptoms. The average duration of life after operation or discharge from hospital of the patients in the first three groups (109, 49, and 58 respectively) was almost identical, being between five and six months. The average duration of life of the seventy-three patients undergoing resection was five to six times longer. A few of the patients in Group I were found to be still alive—an observation suggesting a mistaken diagnosis in the first place. There were no survivors in Groups II and III, and there were only two patients in Group II who lived for more than a year after the exploratory laparotomy. There were also only two gastro-enterostomy patients who survived this operation by a year. The operation mortality was higher for the gastro-enterostomies (21 per cent.) than for the resections (19.2 per cent.). Of the fifty-nine patients who survived resection, as many as twenty were still alive, but nine of them had been operated on within the last three years.

425 Ligature of the Angular Vein in Furuncles of the Upper Lip and Nose

H. SCHÄER (*Zentralbl. f. Chir.*, August 18th, 1934, p. 1907) alludes to the not inconsiderable mortality, from thrombosis of the superior ophthalmic vein extending to the cavernous sinus and from basal meningitis, in pustules of the upper lip and nose. As a preventive measure he recommends, describing three illustrative cases, ligature under local anaesthesia of the angular vein, which communicates with the cavernous sinus. He prefers an incision of 1 cm. internal to the inner canthus—that is, considerably higher than that recommended by American writers: the vein may be superficial or embedded in the quadratus labii superioris muscle. In certain cases ligature of the anterior facial vein and/or the internal jugular veins is called for in addition. The ligature is best done before the appearance of rigors. In one of Schäer's cases thrombosis of the anterior facial vein was palpable after a peritonsillar abscess: it was divided with the cautery at the same time as a section of the angular vein was ligatured and excised.

426 Cranial Fractures involving the Frontal Sinus

Discussing meningo-encephalitis following cranial fractures involving the frontal sinus, P. BÜRZER and A. ELBRIS (*Presse Méd.*, September 19th, 1934, p. 1463) emphasize that infection may be carried from the nasal fossae as well as the external wound. Most of the endocranial complications of inflammation of the sinuses result from a frontal sinusitis. The infecting organism is commonly a pneumo-

coccus, and these cases are as frequent as streptococcal ones. Both forms differ but little clinically. The onset is marked by intense headache, agitation, and fever. The condition usually results in a state of great excitation (delirium, etc.); states of depression are rare; death supervenes from the third to the eighth day. Localizing symptoms may be absent if the area of exudation does not lie in the psychomotor zone. In frontal fractures involving the posterior sinus wall or the nasal fossae, drainage of the sinus is imperative after operation. Surgical intervention is essentially preventive: once the meningo-encephalitis is established all measures are unavailing. Three cases are recorded: two succumbed, despite administration of specific sera; the third survived after operation with subsequent extensive drainage.

Therapeutics

427

Treatment of Chancroid

R. J. ROELOFS (*Nederl. Tijdschr. v. Geneesk.*, September 15th, 1934, p. 4176) records sixteen cases showing that soft chancre can rapidly be cured by a small quantity of hard x rays. As a rule considerable improvement was seen in from three to five days, and in almost every case the sores were completely healed within three weeks after the first application. The irradiation was not sufficiently strong to justify the conclusion that the causal organisms were destroyed by the rays: Necrosis was not produced in the cells of the surrounding skin, but healing was probably caused by stimulation of their activity.

428 Cod-liver Oil in Treatment of Wounds

W. LÖHR (*Zentralbl. f. Chir.*, July 21st, 1934, p. 1686, and August 4th, 1934, p. 1815) describes and illustrates remarkable results which he has achieved in his three years' experience of treating suitable wounds with applications of cod-liver oil. Recent accidental wounds, in which there is reason to assume a severe infection to be absent; burns, including those made by x-radiation or the electric current; compound fractures; amputation wounds; bed-sores; and chronic wounds following acute osteomyelitis are indications. Löhr excludes from immediate cod-liver oil treatment acute infective wounds—for example, whitlow or acute osteomyelitis—and those in which contamination by soil or by grossly infected substances makes a stormy convalescence probable. His treatment aims at accelerating mesenchymal and epithelial repair, and securing formation of a supple cutaneous scar, well supported by adequate superficial fascia. Among the cases described are those of (1) compound fracture of the elbow-joint with loss of skin of the forearm, healed with very slight limitation of flexion and extension after four months; (2) compound tibial fracture, with extensive loss of the soft parts, healed in eleven weeks; (3) third-degree burn from sacrum to neck; (4) frostbite affecting five toes in a patient aged 65; and (5) amputation of thumb in a patient aged 88. In no case since introduction of the cod-liver oil treatment has skin-grafting been found necessary in chronic wounds, however extensive. In many cases Löhr applies over the dressing of cod-liver oil a plaster-of-Paris unfenestrated case; this has been done without ill effect in accidents to fingers, burns of the limbs, extensive fracture wounds, and osteomyelitis after removal of sequestra. In other cases the dressing is changed as infrequently as possible, and then the contact of the wound with the inner portion of the dressing is left undisturbed. It follows that whether plaster has been applied or not, the dressings of a wound due to burn or following sequestromy are painless. The sole disadvantage of the treatment (W. ZUELZER, *ibid.*, July 21st, 1934, p. 1695) is the unpleasant smell which comes from the mixture of laudable pus and stale oil. The efficacy of Löhr's method is ascribed chiefly to the direct action

* See *Epitome*, para. 464, June 9th, 1934.

of the vitamins A and D on the tissues of the wound. Bacteria speedily disappear from the discharge—whether as a result of the bactericidal action of the oil, which has been demonstrated (LÖHR and TREUSCH, *ibid.*, August, 4th, 1934, p. 1807) or of stimulated tissue resistances, or of both, does not seem clear. Löhr uses fresh cod-liver oil, unheated and kept from admixture with chemicals: to increase its viscosity it is mixed with an indifferent oily medium until the consistence of a paste is reached.

429 Intrathecal Alcohol as an Analgesic in Cancer

SALTSTEIN (*Journ. Amer. Med. Assoc.*, July 28th, 1934, p. 242) describes the use of intrathecal absolute alcohol in eight cases of cancer of the cervix, two cases of spinal metastases from breast cancer, and one of cancer of the prostate. He states that it is a very much safer and easier method than chordotomy, removal of the pre-aclral nerve, or sacral nerve block by alcohol. He does a lumbar puncture between the first and second lumbar vertebrae, with the patient lying on the side opposite to that affected. Up to 1 c.c.m. of absolute alcohol is injected drop by drop. After twenty minutes the patient rolls over on to the back and remains there for two hours. There is usually burning for a few seconds, and there may be motor weakness of the legs for a few hours or days. Pain is relieved within two weeks in a successful case, and the relief lasts for six months. Ten of the eleven cases were much relieved. One case had a slight sphincter disturbance following the injection.

430 Ergotamine Tartrate in Migraine

BROCK, O'SULLIVAN, and YOUNG (*Amer. Journ. Med. Sci.*, August, 1934, p. 253) have investigated the effects of hypodermic adrenaline, ephedrine, ergotamine tartrate, mecholol, insulin, amyl nitrite inhalation, histamine, follutein, amniotin, etc., on twenty-five patients with typical long-standing, severe, and intractable migraine. Vagal stimulation has been shown to produce bilateral cerebral vaso-dilatation, and cervical sympathetic stimulation to cause ipsilateral pial vaso-constriction. This research was undertaken to study the effect of sympathetic, parasympathetic, and other organic drugs in causing or relieving migraine attacks. Histamine, follutein, and amniotin were the only ones which initiated attacks in an appreciable percentage of cases. Mecholin relieved four out of eight cases, but the headache tended to return in half an hour. Ergotamine tartrate 0.5 mg. (trade name, "gynergen"), which paralyses the sympathetic nerve endings, relieved fourteen patients in thirty-four attacks within one to three hours. It failed to relieve four patients. It was more effective subcutaneously than when given by mouth.

Dermatology

431 Pemphigus Foliaceus

G. PETGES, A. PETGES, and J. DUBARRY (*Ann. de Derm. et de Syph.*, June, 1934, p. 559) record the case, in an agricultural labourer, of pemphigus foliaceus, which progressed rapidly to a fatal termination, was of infectious aetiology, and probably led to septicaemia. A necropsy could not be obtained. While many of the signs and symptoms were the usual ones, the authors remark that this case raises the question whether pemphigus foliaceus is essentially a primary disease or may be secondary to such a seasonal dermatosis as had affected this patient annually in May, June, and the end of July for fourteen years before the onset of the pemphigus. These seasonal outbreaks coincided with harvest and threshing. The pemphigus started in July, 1933, and the patient died in the following December after pyrexia, wasting, and the recovery on repeated occasions of a staphylococcus and an enterococcus from the blood. The authors think that the eczematous lesions of the preceding years may have

operated in the direction of weakening the general resistance rather than of preparing the skin for the pemphigus. The onset of the latter condition was sudden, and the cutaneous signs reached their maximum in two days, contrasting thus with the more slowly evolving course of pemphigus foliaceus generally. The blood cultures were taken with most strict asepsis, and it is thought unlikely that the organisms repeatedly recovered were due to contamination. The rapid muscular wasting in this case is attributed to the rapidly advancing cachexia, which also prohibited the exhibition of such reputed remedies as arsenobenzene, and even of arsenic by the mouth.

432 Combined Arsenic-Gold Therapy in Lupus Erythematosus

K. STILNER (*Wien. klin. Woch.*, August 17th, 1934, p. 1018) succeeded in curing, within two or three months, fourteen out of nineteen patients with lupus erythematosus by a combination of arsenic followed by gold treatment. The great majority had proved refractory to other modes of therapy. Cases of the disseminated type and patients showing marked sensitiveness to arsenic made the best responses. Fowler's solution was first given in doses increasing from three to fifteen minims thrice daily until mild toxic symptoms (erythematous eruption, pruritus, dry throat, burning feeling in the eyes) occurred. The gold was now given as oily solganol B, in intragluteal injections increasing from 0.032 to 0.06 gram in about twelve to fifteen injections, with a total dosage not exceeding 0.5 gram and intervals of five to seven days. Slight recurrences were noted in two cases of the series.

433 Xeroderma Pigmentosum and Sensitivity to Light

F. W. LYNCH (*Arch. Derm. and Syph.*, June, 1934, p. 858) reviews the cutaneous conditions brought about by sensitivity to light, with special reference to the mechanism involved. He finds that urticarial reactions can apparently be evoked by either ultra-violet or visible radiation. Patients with prurigo aestivus have generally been shown to be sensitive to visible radiation. Most investigators have demonstrated sensitivity to ultra-violet rays in hydroa aestivale and vacciniforme. This contrasts with experimental haematoporphyrin sensitization in which the sensitivity may be in the field of visible light. In xeroderma pigmentosum there is sensitivity only to radiations shorter than visible light, in most cases including sensitivity to x rays and similar radiation. Lynch conducted experiments on a child patient with this disease, using glass filters which transmitted groups of radiations of various wave-lengths. This patient responded with erythema and pigmentation on previously unexposed parts to doses which would evoke vesiculation on normal skin; on first exposure to sunlight in infancy this patient had responded with marked erythema. Microscopical examination of the skin twenty-four hours after irradiation sufficient to produce erythema revealed none of the changes in the cells of the stratum spinosum usually observed in normal persons, but a heavy layer of parakeratosis was discernible, which was not seen in the normal child tested. The child with xeroderma was demonstrated to be most sensitive to radiations between 280 and 310 millimicrons. Since few radiations shorter than 297 millimicrons reach the surface of the earth, it is the sensitivity to radiations of from 297 to 319 millimicrons which is of prognostic importance to the patient, and from which the patient must be protected. The reaction of the child with xeroderma pigmentosum was greater with filtered than with unfiltered radiations, while in the normal child the greater reaction followed unfiltered radiation. This less rapid response in the xeroderma child to unfiltered radiations is held to be due to a less rapid response to the shorter rays. The author points out that similar studies must be made on a greater number of patients, and in a more detailed and exact manner. If simultaneous investigations are made along biochemical and genetic lines, greater knowledge should be obtained of the mechanism of the diseases due to sensitivity to radiation.

Obstetrics and Gynaecology

434 Radium Therapy in Gynaecological Bleedings

H. NAUJOKS and H. HOFFMANN (*Zentralbl. f. Gynäk.*, August 18th, 1934, p. 1922) report that at the Marburg Universitäts-Frauenklinik radium treatment plays an increasing part in the therapy of metrorrhagia due to benign disease, and in this connexion has almost completely replaced x-radiation. The great majority of cases of "non-malignant bleeding" which are treated by radium are those of women over 40 who have menorrhagia or metrorrhagia in the absence of any important morbid physical findings on bimanual examination: pathologically they fall in the groups of chronic induration, myomatosis, metropathia haemorrhagica, or glandulo-cystic hyperplasia. Together with 252 cases of this description, radium treatment was given for "benign bleedings" in twenty-five cases of myoma (including six of submucous myoma), two of blood disease with severe metrorrhagia, two of severe bleedings of puberty, and two of therapeutic sterilization. At Marburg operative treatment of myoma is the rule, radium therapy being reserved for occasional cases of very small myomata, or as a life-saving measure (because of the very prompt stoppage of the bleeding) in exceptionally blanched patients with large myomata. In bleeding at puberty radium is required—very, very rarely—as an alternative to hysterectomy in critical cases: in both the patients treated by radium the menses returned after a few months. The application of the radium, within the uterus, in a single dose of 50 mg. applied for twenty-four to forty-eight hours, is preceded immediately by curetting, and is never undertaken unless careful clinical examination has shown signs of inflammation, such as pyrexia, and abnormal erythrocyte sedimentation time to be absent. In seven instances of 285 the histological examination of the curettings showed a carcinoma of the corpus uteri: a second radium application was given a few days later and followed by x-radiation, and cure appeared to be attained in all. In the very great majority of cases of "non-malignant bleeding" the radium treatment had a prompt and satisfactory result, three-quarters ceasing to bleed after the radiation and nearly a quarter having only one more haemorrhage. One lethal case (from embolus), one abscess in the pouch of Douglas, and one femoral thrombosis were the total morbidity findings after 285 applications of radium. Menopausal symptoms were not severe. The mode of action of radium in these "non-malignant bleedings" is not clear. While not denying the possibility of ovarian affection, especially with large doses, Naujoks and Hoffmann are inclined, from the results of tests for folliculin and antuitrin in the blood, to look on the treatment as affecting chiefly the uterus, of which the lining is known to become structureless and necrotic without the cavity being obliterated.

435 Cancer of the Ovaries

CLAES VON NUMERS (*Finska Läkaresällskapet Handlingar*, August, 1934, p. 720) has found that among the 17,239 patients treated in a gynaecological hospital in Helsingfors in the fifteen-year period 1919-33 there were 151 suffering from cancer of the ovaries—an incidence of 0.88 per cent. The average age was 49 years, the youngest patient being 10, the oldest 77 years. The ages at which the cases were most frequent were between 45 and 50. The disease was bilateral in as many as sixty-two. Of eighty-eight cases verified by operation thirty-five were bilateral. Although it has commonly been taught that cancer of the ovaries is comparatively common among the unmarried and nulliparae, the author's material does not clearly endorse this teaching; and he notes in passing that a statistical study for the year 1930 has shown that 16.8 per cent. of the marriages which had lasted at least three years in Finland were childless. With regard to the symptoms, there were as many as twenty-eight patients who had no pain. Seventy-five complained of diffuse

abdominal pain, and forty-four of pain referred to one side or other of the abdomen. The subsequent operation showed in several of these cases that the pain had been referred to the wrong side, or that the disease was bilateral. There were forty patients referring their pain to the small of the back, and ten to the hip and thighs. Four patients complained of pain in the shoulders. The first symptom noticed was pain in sixty-seven cases and abnormal haemorrhage in twenty-five. The frequency with which various other symptoms were the first to appear proved to be comparatively low, and there were only four cases in which disturbances of micturition were the first symptom. The recovery rate for the operable cases after an observation period of five years was 30.8 per cent. This rate would be raised to 38.1 per cent. if the metastatic cases were excluded. The operation mortality was 7.3 per cent. (six deaths).

Pathology

436 Cholesterolaemia and Tuberculosis

L. LLOPIS LLORENTE (*Crónica Médica*, August, 1934, p. 54), investigating nearly forty cases of different types of tuberculosis, finds that there is a normal percentage of cholesterol in the blood of all, and that there is not the slightest relation between it and the form of tuberculosis from which any of those examined are suffering. He further states that there is no connexion between cholesterolaemia and arterial tension; neither is there parallelism between the amount of blood cholesterol and the sedimentation rates of the erythrocytes, nor their numbers, nor that of the leucocytes and monocytes. The writer believes that estimation of blood cholesterol is entirely devoid of prognostic value in pulmonary tuberculosis, and that treatment of tuberculous subjects by choline salts with an idea of increasing the blood cholesterol is based upon a misconception.

437 Foods and Bacterial Invasion

L. ARNOLD (*Amer. Journ. Pub. Health*, August, 1934, p. 854) records an investigation of certain foods (desiccated fruits and vegetables) to determine whether they have any influence on the defensive mechanism of the body against orally ingested bacteria. Rats were placed on standard basal diets, with variations in the carbohydrate components, and were fed with *B. enteritidis*. It was found that those given banana powder showed a physiological adaptation to the bacteria, and apple and prune diets acted similarly; corn starch and tomato diets did not prove to be protective. This difference did not seem to be attributable to interference with the self-disinfecting mechanism (Arnold) or to any change in the permeability of the intestinal wall. The intra-enteric and organ distribution of *B. enteritidis* was found to be the same whether the rats had received banana powder or corn starch. No resistance was discernible in the banana-fed rats three to six weeks after the bacterial injection, and the distribution of the organisms in the liver and spleen was identical; thus the theory of Wasserman and Citron of a fortification of the endothelial system following such a method of vaccinating, and a consequent increase in physiological response resulting in the destruction of bacteria *in situ*, was shown to be inapplicable. The author thinks that the explanation is to be sought along the line of considerations of viability, bacteria changing in the stomach from viable to non-viable, and back again in the lower segment of the small intestine and the large intestine. In his experiments so far, when these non-viable forms penetrated the wall of the intestine, and were cultivated from the internal organs, they showed certain biochemical and antigenic alterations from the original strain. Further study is proceeding of this aspect of the protective action of foods against pathogenic enteric bacteria in laboratory animals.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

438 Pulmonary Heart Disease in Pneumoconiosis

J. M. DYSON (*Amer. Heart Journ.*, August, 1934, p. 761) draws attention to the occurrence of pulmonary heart disease resulting from pneumoconiosis in anthracite-coal miners. Of 213 men with this lung disease the pulmonary circulation was interfered with in 127, and of these eighteen showed the typical radiographic change of pulmonary heart disease—namely, a prominence of the pulmonary arc and census of the right ventricle on the left border of the cardiac shadow. In none of these eighteen was there clinical evidence of mitral stenosis, syphilis, or high blood pressure. Definite right axis deviation was present in the electrocardiogram in fifteen of the eighteen cases. Two had auricular fibrillation, and four inversion of the T wave in lead I or lead II; in two the P waves were abnormally enlarged. A post-mortem was held on one of the only two patients who died: this showed enlargement of the right heart, hypertrophy of the right ventricle, and considerable increase in the circumferences of the pulmonary artery and its valve. Why pulmonary heart disease should occur in some cases of pneumoconiosis and not in others of equal severity the author does not claim to explain.

439 The Future of Epileptic Children

C. CLEMMESSEN and M. L. MOLTKE (*Ugeskrift for Læger*, September 6th, 1934, p. 969) have conducted follow-up investigations of the 100 children treated for epilepsy in a hospital in Copenhagen in the period 1917-27. Fifty-eight of them were boys and forty-two were girls. Twenty-four cases could not be traced. Of the remainder twenty-five could be considered as cured. There had been no fit for more than two years, there was no marked psychic defect, and these ex-patients were able to work. There were thirty-four who were not cured and seventeen who had died. The age at which the fits had begun did not, in this material, seem to affect the prognosis appreciably, but it was worst when the fits were most severe. The duration of the epilepsy before treatment was instituted was longer on the average among the incurables than the children who had recovered, although there were cases which had ended in recovery in spite of treatment having been deferred for years. This study suggests that epilepsy in childhood ends either ill or well; the mental condition becomes worse, and some patients die, or, on the other hand, a practically complete recovery is effected. An intermediate state of affairs is exceptional. This study also establishes the value of early and efficient treatment of convulsions in childhood.

440 Facial Hemiatrophy

According to KNUD FABER (*Acta Med. Scand.*, lxxvii, V-VI, 1934, p. 419), facial hemiatrophy commences in the great majority of cases in the first or (less frequently) the second decade, with no evidence of local disturbance. Lately it has been attributed to disease of the cerebral centres of the autonomic nervous system. In seven cases Mankowski and Chasanow have noted its occurrence after a typical attack of epidemic encephalitis; a crossed distribution (one side of the face and contralateral limbs) has several times been reported; and a series of thirty-five cases has been described by Marinesco, Kreindler, and Façon, in twenty-nine of which signs of sympathetic nerve disease, such as Horner's syndrome, mydriasis, heterochromia, exophthalmos, naevi, vitiligo, morphoea, or scleroderma, were present. Faber describes a case in which a female patient had in succession (1) facial hemi-

atrophy at the age of 10; (2) vitiligo appearing at 23 and spreading so as to cover the whole body, except on the atrophic side of the face; and (3) myxoedema after the age of 46. The patient was a congenital syphilitic, and her father died insane: she herself underwent several acute psychic disturbances. Faber inclines to the view that syphilis affected the mesencephalic trophic centres as a disturbing factor, and that the determining causes of the three diseases were acute psychic influences.

441 Fluoroscopy v. the X-Ray Film in Diagnosis of Pulmonary Tuberculosis

RIM (*Amer. Journ. Med. Sci.*, August, 1934, p. 178) compares the method of fluoroscopy with the ordinary x-ray picture in detecting tuberculosis among the applicants for employment of a big insurance company. The advantages of fluoroscopy are its cheapness and quick working. Of 1,035 supposedly healthy persons who were first screened and then filmed, two minimal cases of tuberculosis were missed on fluoroscopy. Since adopting fluoroscopy for routine examination in 1928, and only filming cases suspicious on clinical grounds, the incidence of new cases of tuberculosis per annum among 13,000 employees has fallen from 0.92 per cent. to 0.43 per cent. Approximately 90 per cent. of tuberculous applicants were detected solely by fluoroscopy. Of their sanatorium admissions in 1928, 47 per cent. were minimal cases. In 1932 76 per cent. were minimal. Fluoroscopy has been compulsory at the University of Munich since 1930. The author quotes Dr. Kattentidt, who is in charge of student health in Munich, as saying: "The clinical examination detected only a small portion of the tuberculosis cases which were found on fluoroscopy. Dr. V. Romborg proved that 95 per cent. of all the cases detected by the Röntgen-ray picture can also be diagnosed by fluoroscopy."

442 Invariable Association of Gastric Achylia with Pernicious Anaemia

E. MEULENGRACHT (*Nord. Med. Tidsskrift*, July 14th, 1934, p. 925) discusses the various signs indicative of pernicious anaemia, devoting special attention to gastric achylia. Its demonstration is a most important link in the diagnostic chain; in the absence of helminthiasis, it is unwarrantable to diagnose pernicious anaemia when there is no gastric achylia. It is true that, apart from the combination of helminthiasis with pernicious anaemia without gastric achylia, cases have from time to time been recorded in which this condition was absent and yet pernicious anaemia was diagnosed. But in his experience of hundreds of cases of pernicious anaemia the author has not once failed to find gastric achylia, and he suggests that if the records of the alleged exceptions to this rule be scrutinized, certain clinical and haematological lacunae will be found which raise justifiable doubts as to the validity of the diagnosis of pernicious anaemia. It is significant in this connexion that since liver and stomach treatment was introduced, and its specific action on genuine pernicious anaemia has become of diagnostic importance, the reports of cases of this disease, unassociated with gastric achylia, have begun to dwindle in numbers. It is probable that in most of these alleged cases of pernicious anaemia, without gastric achylia, the real condition was an aleukaemic leucosis, or an aplastic anaemia in which the erythrocytes present a megalocytic character reminiscent of that of genuine pernicious anaemia. It is not only often diagnosed wrongly; it is also often overlooked, even when the anaemia is profound, and about half of all the cases of pernicious anaemia admitted to the author's hospital in Copenhagen had been sent there with some other diagnosis.

Surgery

443 Treatment of Caverosus Haemangioma of the Tongue

N. PETROV (*Zentralbl. f. Chir.*, September 22nd, 1934, p. 2194) in five cases of cavernous haemangioma of the tongue has had satisfactory results, without bleeding, from the following operation. After ligature, in local anaesthesia, of the external carotid and lingual arteries of the affected side, the tongue is infiltrated with novocaine-adrenaline solution, and in the transverse direction seven or eight parallel strong silk ligatures are passed through the tongue around the tumour, and tied tightly at the outer border. A reduction in volume of the angioma is at once attained, and thrombosis followed by necrosis leads to piecemeal sloughing of the tumour at the end of the first week. A healthy granulating surface is noted a week later and healing at the end of the sixth week leaves a somewhat atrophic but well-formed and mobile half-tongue. In one of Petrov's patients, a man aged 41, the tumour had existed fifteen years, had caused much bleeding, and was large enough to produce considerable bulging in the submaxillary region when the lips were closed. In one patient (a child) the tumour persisted, albeit in considerably diminished volume.

444 Perforation of Jejunal Ulcer

H. SINGER and K. MEYER (*Arch. of Surg.*, August, 1934, p. 248) consider that jejunal ulcers of peptic origin are of a serious nature owing to the tendency of the lesion to extend rapidly beyond the wall of the intestine. This is due to the thinness of this part of the digestive tract. The complications of jejunal ulcer when this develops beyond the serous coat of the jejunum are of two principal types—penetrative and perforative. Penetration occurs when an adjacent structure becomes attached to the base of the ulcer before rupture takes place; sometimes a granulomatous mass develops and simulates a neoplasm. Perforation generally occurs into the free peritoneal cavity or into an adjacent hollow viscus, which is usually the colon. Sometimes the entire thickness of the ventral abdominal wall is perforated and a jejunal fistula is established. It has been noticed that there is increased disposition to perforation elsewhere after jejunal perforation, and it has also been seen that a fair percentage of cases of gastro-duodenal rupture treated by gastro-enterostomy have suffered from a subsequent jejunal perforation. This tendency to rupture is also seen in numerous cases of recurrent jejunal rupture. The chief differences between the benign and classic forms of rupture are observed in the post-perforative stage. In the classic rupture the acute pain of onset is followed by death, of progressive peritonitis, which may end with death, whilst in the benign or subacute type the diffuse peritonitis of onset rapidly recedes, and spontaneous recovery ensues. Four cases are reported, the first of which was of the classic variety and was treated by operative closure with recovery of the patient. The remaining three showed evidence of spontaneous closure; in two of these an abscess was drained with recovery, but in the other case death occurred from diffuse peritonitis.

445 Acute Infections of the Hand

S. KOEN (*Surg., Gynecol. and Obstet.*, September, 1934, p. 277) reports thirty-two cases of acute, rapidly spreading infection, following trivial injuries of the hand, dividing them into four groups. There were two cases in which the infection gradually subsided and cleared up without local destruction of tissue or abscess formation. In five cases the symptoms at the site of injury disappeared quickly, but marked axillary lymphadenitis developed with subsequent abscess formation in the axillary region. In eleven cases the abscesses and inflammatory reaction advanced rapidly at

first and then gradually receded, with localization and abscess formation and frequently extensive destruction of tissue. In the remaining ten cases the infection advanced rapidly and continued, in spite of treatment, to a fatal termination. Of the twenty-two patients who recovered all were treated conservatively with rest in bed, massive warm, wet, sterile dressings over the entire upper extremity, and forced administration of fluids. It was found that surgical procedure should be limited to the minimum, and in no case was the inflammatory process incised until there was absolute evidence of localization and abscess formation. A simple incision was then made without retraction or stretching of the wound edges, and without digital exploration of the abscess cavity. Of twenty cases in which bacteriological findings were available, a varying type of streptococcal infection was found in all but one case.

Therapeutics

446 Vaccine Therapy in Whooping-cough

K. KUNDRATITZ (*Med. Klinik*, August 10th, 1934, p. 1060) states that his favourable impression of the therapeutic value of pertussis vaccine is in accordance with that of most authors. Treatment must be early to ensure good results. He gives five injections at intervals of one to two days, commencing with 3,000 million bacteria and going up to 8,000 million. He analyses forty-eight cases in his private practice. In seven the treatment was commenced in the early stages of the disease. None of the children developed a whoop. In eight out of ten of these a blood count showed a leucocytosis of 12,000 to 21,000 and a lymphocyte count of 50 to 77 per cent. In two to three weeks the blood count was normal. In twenty-five cases treatment was commenced in the late stages; according to the history in seven the whoop was obtained in fourteen, the number of whoops diminishing after two to three injections, and ceasing completely eight to fourteen days after injection. The rationale of vaccine treatment in pertussis is that it increases the resistance to *B. pertussis*; it lessens the toxicity, as shown by the return to normal of the blood picture; it prevents the essential lesions of the bronchial mucous membranes and lung tissue; and if used prophylactically produces an immunity reaction. Failure to obtain good results may be explained on the grounds of low initial resistance, inability to form antibodies, treatment being instituted too late, or the use of inefficient vaccine. It has been shown that when old strains and low doses are used the good results amount to only 48 per cent., whereas when fresh vaccine and large doses are employed they are represented by the figure 81 per cent.

447 Treatment of Paroxysmal Tachycardia

According to G. SCHILDER (*Mösch. med. Woch.*, August 24th, 1934, p. 1297) an attack of paroxysmal tachycardia may sometimes be cut short by pressure on the vagal fibres in the carotid sinus; not all patients may succeed in the same patient the device may succeed in one attack and fail in another. Quinine is very often effective, especially after intravenous injection; such injection is suitable for hospital inpatients, but even then may be followed by effects which cause distress to the patient and anxiety to the physician. Learning some years ago from a pregnant patient that her paroxysmal tachycardia ceased immediately after pregnancy vomiting, Schilder was led to prescribe emetics, and he has not known them to fail in any of the ninety-eight attacks in which he has seen them taken. Other writers have also reported good results. Schilder gives every five minutes a tablespoonful of 1 per cent copper sulphate solution until violent emesis is induced. Habituation to

copper sulphate may be acquired, and then recourse is had to subcutaneous injection of 1 c.cm. of 1 per cent. apomorphine solution. Ipecacuanha has proved successful, but zinc sulphate does not induce a vomiting which is sufficiently forcible to be effective in stopping the tachycardia. The therapeutic effect is ascribed to an irritation of the vagal nucleus near the vomiting centre. In the prophylaxis of paroxysmal tachycardia oral administration of quinine is sometimes of great value, but very high doses may be required.

443 Renal Extracts in Arterial Hypertension

D. M. GOMEZ (*Presse Méd.*, September 1st, 1934, p. 1371) records the results obtained in forty hypertensive cases by the administration of renal cortical extracts prepared by Pons and himself (*C. R. Soc. de Biol.*, June 23rd, 1934). These were given in daily hypodermic doses of 5 c.cm. for six to eight days. The chief result noted was a slow but progressive lowering of the arterial tension, commencing usually on the third or fourth day; this was accompanied by a diminution of the blood urea. Subjective symptoms (headache, dyspnoea, nocturnal frequency of micturition, and insomnia) showed marked improvement. Amelioration in the physical signs (*bruit de galop* and other cardiac rhythmical disorders, especially the extrasystoles) was not so evident; the cardiac volume and aortic diameter showed no modification. Subsequent treatments were equally beneficial. Results were best in cases of renal insufficiency, and were less favourable in sclerous and so-called solitary hypertension, and in that of the menopause. Cardiac insufficiency, even though advanced, is not a contraindication to this treatment. Two illustrative cases are recorded.

449 Prophylaxis in Sea-sickness

T. G. MAITLAND (*Practitioner*, August, 1934, p. 146) states that the only form of sea-sickness which requires medical attention is the profound depression which goes with a severe vagal response, and that susceptibility as well as temperament has to be considered. For cases of moderate susceptibility atropine medication is advisable for the twenty-four hours prior to sailing; the ship surgeon will probably continue this. Patients with extreme suggestibility may be benefited by similar preliminary sedative medication with drugs of the barbitone or chlorotone groups. Such may be unnecessary if the patient is convalescing from a severe or exhausting illness, when he passes from the sympathetic to the vagal type. If prophylaxis is desired in such a case owing to great susceptibility to sea-sickness, it is strongly advisable that atropine or hyoscyamus should be given. It is important to distinguish beforehand between the vagal types, which will suffer severely unless treated for the vagotonia, and the sympathetic types, which will escape unless intensely susceptible and thereby prone to vagal reactions. Continued repression of the outward and physical manifestation of the emotions in the sympathetic type not infrequently results in vomiting.

450 Rapid Immunization against Diphtheria

A. E. KELLER and W. S. LEATHERS (*Journ. Amer. Med. Assoc.*, August 18th, 1934, p. 478) record the results obtained from prophylactic injection of a single dose of 1 c.cm. of alum-precipitated diphtheric toxoid. In one group of twenty-three Schick-positive children 60 per cent. became negative in fourteen days, 95.6 per cent. in twenty-eight days, and 100 per cent. in forty-two days after injection. In another group of fifty-three children 92.4 per cent. became negative twenty-two days after one injection, 94.3 per cent. in sixty days, and 96.2 per cent. in ninety days. The results following immunization with a single dose of alum-precipitated diphtheric toxoid thus compared favourably with those obtained from two doses of toxoid without alum or toxoid with alum, and were much better than those reported following one dose of toxoid without alum or with alum, or three injections of standard toxin or antitoxin mixture.

Neurology and Psychology

451 Pyrotherapy in Treatment and Prevention of Neurosyphilis

A. KRAL (*Med. Klinik*, July 6th, 1934, p. 898), surveying personal and other statistics concerning pyrotherapy in general paresis, notes that reports have become less optimistic with the progress of years. His figures agree with those of Jossmann, who found that complete remission of symptoms (restoration of working capacity, mental normality, normality of the serum and liquor in biological tests) follows in only one case in five. Other observers have reported good results in less and even negligible proportions. Mortality attributable to malariotherapy is as high as 10 per cent. Not denying that Wagner and Jauregg's treatment is the most beneficial, Kral believes that its earlier application is of great importance, but presents difficulty owing to the presence of advanced morbid cerebral lesions at a comparatively early stage, in which clinical symptoms are inconspicuous. Turning to the prophylactic use of malariotherapy for prevention of neurosyphilis, Kral agrees with Keri and others that in most patients having a positive Wassermann reaction in the cerebro-spinal fluid four to six years after infection, a malaria cure followed by salvarsan and bismuth therapy leads to negative biological findings and non-appearance of cerebral neurosyphilis within the customary limits of time. Such treatment is contraindicated by severe coexistent visceral disease. Reports concerning the value of pyrotherapy, combined with specific treatment given in early syphilis as a preventive of later development of general paresis, are conflicting. Morbid conditions of the liquor, even with a negative blood Wassermann reaction, are common in the earliest stages, and usually disappear in four to five years, spontaneously or after ordinary treatment, in which case neurosyphilitic syndromes do not develop later.

452 Epilepsy and the Cerebral Circulation

F. A. GIBBS, W. G. LENNOX, and E. L. GIBBS (*Arch. Neurol. and Psychiatry*, August, 1934, p. 257) cite evidence against the validity of the current theory that widespread anaemia of the brain is an immediate cause of epileptic fits. By means of a thermo-electric blood-flow recorder inserted through a hollow needle into the internal jugular vein of epileptic patients, changes in the blood flow through the brain with reference to *grand mal* and *petit mal* seizures were recorded. In none of the ten patients thus studied was any evidence obtained of a significant reduction in blood flow immediately preceding the onset of the seizures. During severe convulsions there was a great increase in the flow. The changes which accompanied the seizures seemed to be the result rather than the cause of them. It was unfortunately impossible to obtain simultaneous records of the blood pressure during the fits, owing to the violent muscular movements, but the authors are convinced that the pressure is raised during apnoea and the convulsions. This would be a sufficient explanation of the rise in pressure, but it appears probable also that the accumulation of carbon dioxide in the blood as the result of the apnoea tonic period would cause dilatation of the cerebral vessels and an increased blood flow. The hyperpnoea of the post-convulsive stage would act in the opposite direction, causing a restoration of the blood flow to its normal rate. Answering the objection that the instrument used might not have been fast enough to indicate a sudden decrease in blood flow preceding a convulsion, and that the decrease in flow after the seizure might really have occurred before it, the authors mention that the instrument faithfully recorded within a fraction of a second changes in the blood flow produced by compressing either the homolateral or the contralateral jugular vein. Syncope associated with a decrease in the cerebral blood flow did not occur until the instrument had given ample indications of such a decrease. It thus seems certain to the authors that no widespread ischaemia of the

brain preceded the observed seizures, and that there was no chronic stasis of blood flow through the brain for minutes or hours preceding the fit. They add that there remains the possibility that the convulsions were preceded by a spasm in a single vessel, or in a small area of the cerebro-vascular bed. They argue, however, that if anaemia of a small area produces seizures, these would be commonly associated with cerebral arteriosclerosis, which usually gives rise to localized anaemic areas in the brain. It is true that the incidence of seizures is relatively high in the age group in which arteriosclerosis is common, and in persons dying of cerebral arterial disease, yet the actual incidence in these groups is so low that arteriosclerosis cannot be of decisive or exclusive importance in the induction of fits.

453 Psychological Basis of Migraine

GRACE A. TOURAINE and G. DRAPER (*Journ. Nerv. and Ment. Dis.*, July, 1934, p. 1, and August, 1934, p. 183) describe a characteristic constitutional type for the migrainous person, in which the skull conformation shows acromegalic trends, the intelligence is outstanding, and the emotions appear to be retarded in development. The headache attack presents individual characteristics also, for each patient repeats the same pattern, and the attack recurs in similar circumstances. Situations involving the loss of home protection, a necessity for the person to stand alone or grow up, and the advent of personal adult responsibility mark the moment in life when the headaches first appear. This is true whether or no the patients have suffered in early childhood from attacks of acidosis. The authors find that there is an evident familial predisposition to migraine headaches, and the character of the attack is often similar in the several afflicted members of a family group. The factor of unwitting imitation of the migrainous ancestor appears to be an important aspect of the genetic interpretation. Satisfactory adjustments in the sexual sphere are absent, and there appears to be an arrest at some point in the psycho-sexual development. A conflict between the desire to escape from the mother's influence and a compulsion not to leave her results in an attempt to remain emotionally dependent upon her, and part of the individual personality is dissociated, being caught in the maternal attachment. Retardation ensues in the advance to complete individualization. The attack is like a recapitulation of the birth experience, and may consequently be precipitated by the continued oppression of the mother which forces the person to try to escape, or by any implication that a separation is about to take place. These threats may develop on either the unconscious or the conscious level. The migraine attack appears thus as a syndrome comparable to any other neurosis, its form being determined through the operation of a psychological mechanism in a person of a special constitutional type. This conception explains why migraine has for so long proved resistant to treatment, and the authors conclude that the psychological approach to the problem offers promising openings for further investigation and therapy.

Obstetrics and Gynaecology

454 Narcotic Treatment of Hyperemesis Gravidarum

E. SCHEHL (*Schmerz-Narkose-Anaesthetie*, July, 1934, p. 16) states that at Gauss's clinic rectal administration of narcotics plays the chief part in treatment of cases of pernicious vomiting of pregnancy in which isolation, suggestion, and other customary modes of treatment have been proved ineffective. Three preparations are used—namely, (1) suppositories containing 0.4 gram of the sodium salt of secondary butyl-3-bromallol barbituric acid, or the equivalent of 4 c.cm. of pernocton; (2) suppositories containing the same amount of "rectidon," the corresponding compound in which an amyl replaces the butyl group; and (3) a 20 per cent. solution of sodium bromide in yeast extract. The last-named is first tried: if it fails

recourse is had to rectidon, which gives a more profound partial narcosis, and is administered at first at the rate of three suppositories daily, diminished after a few days to two or one. Preliminary trial of this method in thirteen severe cases has been strikingly successful.

455 Chemical Extirpation of the Uterus

G. GAMBAROW (*Zentralbl. f. Gynäk.*, August 25th, 1934, p. 2015) describes three cases in which, in aged and debilitated subjects in whom operation was contraindicated, he tried the device described by Driessen in 1927. This consists in placing in the uterus a stick, some 8 to 10 mm. thick and 7 to 13 cm. long, of zinc chloride 40 parts, zinc oxide 10, excipient 30: the caustic action extends outwards, but is limited by the peritoneum, and a sequestrum of the shape and size of the uterus is expelled later. Gambarow's patients had cancer of the corpus uteri. One patient, aged 76, remained well for seven years afterwards, and another for one year at least; the third, in whom the disease was locally inoperable, died from recurrence eighteen months later. It is concluded that in a limited number of cases of carcinoma of the uterine body extirpation by caustic may be justified by contraindications to operation, and may be combined with radiotherapy.

Pathology

456 Chemistry of Corpus Luteum Hormones

E. FELS, K. H. SLOTTA, and H. RUSCHIG (*Klin. Woch.*, August 25th, 1934, p. 1207) have isolated from the yellow bodies of swine ovaries, and in much less concentration from the placenta (apparently the human placenta), two complex ketones which biological tests (induction of hyperaemia and the pseudo-pregnancy changes in the mucosa of the rabbit uterus) prove to be the hormones of the corpus luteum. This contains four ketones, of which "luteosterones" A and B are biologically inactive, but luteosterones C and D induce respectively (1) pronounced hyperaemia without muscular enlargement, and (2) the characteristic endometrial transformation in the test organ. Luteosterones C and D are isomers, of the formula $C_{27}H_{46}O_2$, and contain three complete benzene rings.

457 Sedimentation Rate in Pregnancy and Puerperium

L. S. PETERSEN (*Norsk Mag. f. Laegevid.*, September, 1934, p. 1048) studied the sedimentation rate of the red corpuscles in 400 cases of pregnancy, parturition, and the puerperium, 700 reactions being carried out with the following results. There was a gradual increase of the rate during the earliest months of pregnancy, though normal values were very often found in the third or fourth month. In many cases the rate reached its height in the last four to six weeks, without being delayed till the end of pregnancy, as stated by many authors. The variations in the rate in normal pregnancy were considerable, ranging from 100 mm. to the low degree found in non-pregnant women. Petersen emphasizes the fact, which has not previously been pointed out, that a pregnant woman may have a normal rate immediately before parturition. The hypothesis that a low rate indicated a low fibrinogen content of the blood and heralded post-partum haemorrhage was not confirmed. The age of the woman, the number of previous pregnancies, the sex of the child, and the toxæmia of pregnancy had no influence on the rate, but in the case of twins the increase in the rate was greater than in women with only one child. During the first twenty-four hours of the puerperium no change in the rate took place, but on the third or fourth day it was often increased. On the tenth day the rate was normally either of the same height or lower than at the time of delivery. When there was much post-partum haemorrhage the rate increased on the tenth day. In cases of puerperal infection the rate was more or less increased.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

453 Influence of Statics and Function on Venous Thrombosis

According to K. W. FISCHER (*Munch. med. Woch.*, September 7th, 1934, p. 1378) phlebitis and thrombosis occur most commonly in the lower extremity because of hydrostatic pressure and the long distance of the veins from the heart: in many cases the valves of the veins are too few or badly formed. Increased intravenous pressure may be produced by pregnancy, constipation, and pelvic tumours. The factors normally preventing thrombosis are the pumping action of the heart, the protection of the venous walls by tissues, muscles, fascia, and skin, and by muscular action during exercise, which, by pressure on the walls, empties the veins. A sedentary life, with increased intravenous pressure and atrophy of supporting tissues, leads to a compensatory thickening of the veins. This thickening of the veins is almost always accompanied by thickening of certain muscle fibres in the legs. This condition is termed "myogelosis," and when found is indicative of threatening phlebitis. It does not clear up with rest, but is often followed by myositis. The reason for this is that in the resting body the heart beats more slowly and the blood stream flows less quickly, resulting in asphyxia of the tissues, an increase of inflammation in veins and muscles, and an increased need of blood. Rest in bed further brings about a damming-up of blood containing an increase of metabolic toxins. The circulation is helped by the application of a good-fitting bandage and by muscular action, and an acute phlebitis can be cured in one to two weeks by this treatment. Prophylactically a physiological carriage and gait, combined with exercise—walking and running—prevents thrombosis and phlebitis.

459 "Infection Index" in Patients with Carcinoma

P. ENGEL (*Wien. klin. Woch.*, September 14th, 1934, p. 1118) defines the "infection index" of a patient as the number of infectious diseases he has had. He notes that patients with cancer have a low "infection index," and that they state that this is the first illness they have ever had. Engel examined 300 patients with carcinoma and 300 others in the carcinomatous age period suffering from various complaints. Infectious diseases which patients had had several times were recorded as one. In 300 cancer patients 113 had never been ill before; he noted 197 infectious diseases in childhood and 148 in adult life. In 300 patients suffering from other conditions only sixteen had never been ill before; he noted, however, 500 infectious diseases in childhood and 420 in adult life. The author gives three reasons for the low "infection index" in cancer patients: (1) the disposition to cancer gives the patient a high-grade immunity to infections; (2) a patient's constitution is so changed by infectious diseases that the disposition to cancer becomes minute; and (3) each patient has from the beginning a disposition to cancer or infectious diseases. Engel further points out that a low "infection index" was found more commonly in cancer of the intestine than in cancer of the stomach or breast, and that a high "infection index" was found in a small series of young patients suffering from cancer.

460 Basal Metabolism and Specific Dynamic Action in Heart Failure and Hyperthyroidism

A. BERLAND, T. DOUSKOWA, M. CHANDLER, and M. GOUBERGRIITZ (*Arch. des Mal. du Cœur*, August, 1934, p. 494) state that there are diverse views on the basal metabolic rate in heart failure. Their own observations, made on thirty-one patients, mostly with congestive failure, gave figures varying from -22 per cent. to +38 per cent., but in about half the cases the metabolism was more than +15 per cent., which is taken as the upper limit of normal. Diminished metabolic rates were found particularly in patients with considerable oedema, and the

authors point out the fallacy of figures based on a body weight increased by oedema. In the normal individual the effect of ingested protein is to increase metabolism considerably, but in cardiac patients the effect was in most cases found to be reversed. Half to one hour after giving 150 grams of meat an initially raised metabolism was found to be lowered, or one initially low was still further reduced. Employing the same method in cases of hyperthyroidism, the results of protein administration were found to be the same as in normal people, except where the disease was accompanied by gross heart failure, when the reversed action observed in failure from other causes was found. It is suggested that the method may be of value in distinguishing cardiac disturbances (short of gross failure) due to thyroid disease from those of other origin.

461 Diagnostic Signs of Slight Ascites

C. LIAN and V. ODINET (*Presse Méd.*, August 25th, 1934, p. 1337) state that in normal subjects a bruit can be heard on auscultation during abdominal percussion. In ascitic cases this is followed by a second bruit, longer and more intense, which is due to displacement of the ascitic fluid by the percussion. This bruit is best heard over one iliac fossa while percussing the other. As it may be absent in the dorsal decubitus, the patient should always be placed in the erect position, in which the bruit is constantly present. In this position another diagnostic sign is also obtained—namely, a zone of dullness limited at its upper part by a horizontal line. These two signs are always present in, and diagnostic of, even the smallest ascitic effusions. Illustrative notes on four cases are given.

462 The Tonsils and Photochemical Reactions of the Skin

S. PELLER and B. RUBINSTEIN (*Klin. Woch.*, August 25th, 1934, p. 1216), in support of the theory put forward by the former that the tonsils favour pigmentation of the skin in reaction to light, adduce the following statistical and experimental evidence. Among a large series of girls, aged 14 to 16, some 13.4 per cent. of the blondes but only 7.6 per cent. of the brunettes were found to have undergone tonsillectomy. Both in dark and in fair, but more noticeably in the former, those with hypertrophied, ordinary, or operatively removed tonsils respectively reacted to ultra-violet irradiations of the skin of the arm by a well-marked, moderate, or slight degree of erythema in the corresponding groups. The tonsils are therefore said to favour the defensive reactions of the skin to light, and their enlargement is regarded as an instance of work-hypertrophy.

463 Allergic Reaction of Bathers to Aquatic Vegetation

TEUSCHER (*Deut. med. Woch.*, September 7th, 1934, p. 1351) has observed several cases of urticaria and asthma among bathers. One of them was an asthmatic whose disease was aggravated when he lay on the grass by the shore while his skin was wet. Some of the bathers developed severe urticaria on entering the water. Other reactions consisted of violent sneezing, bronchial catarrh, and very troublesome asthma, which in some cases induced the persons concerned to give up bathing by the shore. The asthmatic reaction in the case of one woman was so severe while swimming that she nearly drowned. Suspecting aquatic plants as the cause of the trouble, the author concentrated his attention on two varieties—a member of the Potamogeton family and *Myriophyllum spicatum*—of which there were great quantities in the neighbourhood. He applied them to abrasions of his own skin and obtained an urticarial vesicle in response to the *myriophyllum*. Extracts were made of the two plants in question and used in skin tests, which invariably yielded a violent reaction to *myriophyllum* in the patients examined, whereas there was only a feeble or negative reaction to the extract of potamogeton. Further proof

of the part played by myriophyllum was found by the success with which even the most susceptible persons were desensitized in ten to fourteen days by carefully increased doses of myriophyllum extract. It transpired that the peccant plant had recently been introduced from abroad at great cost with the object of improving the fishing.

464 Typhoid Fever and Appendicitis

H. NICOLAS (*Thèse de Paris*, 1934, No. 703) records eight illustrative cases, in patients aged from 8 to 26, in which typhoid (seven cases) or paratyphoid fever B (one case) was complicated by appendicitis. The appendix was removed in seven, with one death, and one died without operation in twenty-four hours from the onset. Nicolas comes to the conclusion that the condition of typhoid appendicitis does definitely exist, especially as typhoid bacilli have been found in the appendix of typhoid fever patients suffering from appendicitis.

Surgery

465 Unrecognized Dislocations of Shoulder and Hip

According to F. REISCHAUER (*Zentralbl. f. Chir.*, September 1st, 1934, p. 2019), non-recognition of dislocations of the shoulder or hip in adults is due to a deceptive clinical history, to wrong interpretations of x-ray pictures, or to both. It must be remembered that dislocations have been reported in many cases (especially in the shoulder-joint) in which there is no history of accident. Examples are: shoulder dislocation during the night after retirement in a drunken condition; dislocation during a fit of coughing; unilateral or even bilateral dislocation of the shoulder in the disturbed muscular synergism of an epileptic fit; dislocation from muscle spasm due to contact with an electric current. It follows that in any acute limitation of joint movement, even if antecedent trauma is denied, elimination of a possible dislocation is the first step to be taken: the bony changes secondary to unrecognized dislocations have been taken to indicate (and so published, with radiograms, in recent literature) primary arthropathy. Confusion with fractures near the joint is also common. In the interpretation of radiograms measurement is useful; if, in the absence of lateral displacement, the sockets of the two sides are of the same size but the condyle of the paretic side is smaller or larger than that of the control side, a posterior or an anterior dislocation respectively is indicated. If an antero-posterior radiogram conceals a dislocation, it will be brought out readily by one taken with the rays directed from the side of the body to the centre of the joint.

466 Prognosis in Perthes's Disease

W. SCHMIDT (*Brans' Beitr. z. Klin. Chir.*, September 5th, 1934, p. 247) describes the experience of the Göttingen clinic in thirty-two cases originally diagnosed as Perthes's disease (juvenile osteochondritis of the hip) with special reference to the prognosis. Re-examination was made five to ten years after commencement of treatment, and led to exclusion of eleven cases in which the diagnosis had certainly or probably been wrong—six of tuberculous coxitis and five of coxa valga or growing pains in which the symptoms had speedily disappeared. In all these the radiological as well as the clinical findings had been taken to justify a certain or very probable diagnosis of Perthes's disease. Of the remaining twenty-one cases seven showed no residual impairment of joint function, but in three of these radiological signs of coxa valga luxans, or mushroom shape of the head of the femur, could be seen. Nine had some degree of limp and limitation of movement, together with radiological signs. In no fewer than five were to be noted limp, shortening, muscular atrophy, and considerable limitation of movement; the tracer line was above Nikitin's line in three, but in none was severe pain reported. Radiologically the five patients showed irregular bony structure, with

alternating rarefied and sclerotic zones and deformity of the joint cavity. The end-results were satisfactory in the various cases in proportion as the early treatment had been systematic; perfunctory treatment led to poor results. The inference is drawn that the prognosis of Perthes's disease, although good on the whole, is less certainly favourable than has been supposed, and is definitely improved by early treatment by rest with extension, followed by plaster support.

Therapeutics

467 Treatment of Ulcerative Stomatitis

Dealing only with the usual forms of ulcerative stomatitis, Mme. PAPILLON-LEAGE (*Paris Méd.*, September 1st, 1934, p. 171) states that the aetiology of these should first be determined. The two most frequent causes are drug intoxications and eruption of lower wisdom teeth. The condition often occurs with carious teeth, during infections, cirrhotic, diabetic, and renal diseases, and in latent blood infections (agranulocytosis and leukaemia). Treatment consists of daily careful disinfection of the ulcerations, mouth cleansing every three hours with a disinfectant, and light but prolonged brushing of the teeth with a soapy solution or arsenical paste. A light lacto-vegetarian diet with much fruit juice should be given, and a purgative, if necessary. In medicamentous intoxications treatment should immediately be stopped. Should this be inadvisable, as in syphilis, daily injections of 1 cg. of mercuric cyanide may be given; these have a favourable action on the buccal lesions, which usually disappear after the third injection. All dental or other oral interventions should be deferred until the acute phase of the stomatitis has subsided.

468 Drug Therapy in Cardiac Affections

A. MUR (*Crónica Médica*, August 15th, 1934, p. 675), reviewing very critically several recent European and American publications respecting various heart affections, asserts that digitalis is still the outstanding remedy for cardiac insufficiency in its early stages, but in advanced cases other drugs must be employed. Auricular fibrillation is the fundamental indication for digitalis, and after it come the tachycardial arrhythmias and similar conditions. Whatever may be the type of cardiac derangement, and whatever its cause or the conditions which accompany it—renal, hepatic, sclerotic, or hypertensive—digitalis must be fearlessly employed when incompetence is present. It is waste of time to administer it when the heart is sound, as it will then neither produce one pulsation more, nor will it raise or diminish the arterial tension by a tenth of a degree or increase the urinary output by one cubic centimetre. His long and extensive experience of general anaesthetics convinces this author that latent insufficiency frequently manifests itself during or after anaesthesia, and compels him to advise as a routine measure pre-operative hypodermic injection of sparteine and strychnine.

469 Strychnine Therapy in Barbituric Acid Poisoning

O. G. HANSEN (*Nord. Med. Tidsskrift*, September 1st, 1934, p. 1118) reviews the literature of the treatment of barbituric acid poisoning with large doses of strychnine since Haggard and Greenberg in 1902 (*Journ. Amer. Med. Assoc.*, April 2nd, 1932, p. 1133) established the experimental basis of this treatment by their tests on dogs. At the author's hospital in Oslo two patients have thus been treated, the first being a woman of 55, who was admitted to hospital moribund, but who was kept alive for four and a half days, during which she received 63.5 cg. of strychnine by intravenous injection. Her death was hastened by bronchopneumonia and old-standing heart disease. The other patient was a man of 63, who was admitted to hospital comatose after having taken about 8 grams of veronal.

He recovered after having been given 17 cg. of strychnine by intravenous injection in several doses, 16 cg. being given in the course of the first twenty-four hours. From his observation of these cases and his study of the literature, the author concludes that the subjects of barbituric acid poisoning are remarkably tolerant of large doses of strychnine, but that the antagonism of the one drug to the other is not absolute, and that when strychnine is given in large enough doses to provoke toxic manifestations it is not always capable of neutralizing the effects of barbituric acid poisoning. It cannot yet be claimed with certainty that strychnine is so useful that it can take the place of other drugs, notably coramine, in the treatment of barbituric acid poisoning. The initial dose of strychnine by intravenous injection should be 1 cg., and the subsequent dosage should depend on the behaviour of the reflexes, notably the jaw reflex. The injections should be repeated even oftener than once an hour, as recommended by Ide, because of the transient nature of the effects of intravenous injections. Strychnine should not be given if there is any doubt as to the symptoms being exclusively or mainly due to barbituric acid poisoning.

Disease in Childhood

470 Acid Metabolism in Rheumatic Children

W. W. PAYNE (*Arch. Dis. in Child.*, August, 1934, p. 259) has attempted to determine whether an "acid diathesis" is present in rheumatism by examining the urine for evidence of an acid output in excess of what might be expected. His material consisted of a group of about 200 children attending a rheumatic clinic, and two control groups from the attendants of an asthma clinic and from a school. The choice of asthma as a second disease group was partly due to the assumption that an element of alkalosis entered into the asthmatic syndrome. This proved unfortunate in that it was later found that the children were receiving the equivalent of 145 c.cm. of decinormal hydrochloric acid a day, but evidence was obtainable that the dietetic and environmental conditions did not invalidate the results. The urines of the three groups were compared statistically in respect of the free, total, and organic acid, the phosphate contents, and also the pH. The results obtained indicated that a rheumatic child in a quiescent interval excreted more acid in its urine than did a normal or asthmatic child. Part of this excess of acid was due to organic acids. This excess was insufficient to disturb the equilibrium of the blood, and the author thinks it not surprising, therefore, that no significant differences have been found by those who have investigated the acidity and the ammonia-acid ratio of blood in rheumatism. He believes that there is some truth in the "acid diathesis" theory of this disease.

471 Venoclysis in Paediatrics

S. KARELITZ (*New York State Journ. Med.*, July 15th, 1934, p. 631) discusses the various indications for employing the continuous intravenous method of fluid administration in paediatrics. In the treatment of alimentary toxicosis, for example, before feeding can be resumed the shock-like state must be overcome, the circulation improved, the urinary secretion increased (to eliminate the retained toxins and excess of acid substances and tissue salt), and fluid replenished. To accomplish this, the continuous intravenous drip of 5 per cent. glucose in normal saline or Ringer's solution was found effective, 100 to 250 c.cm. being injected rapidly at first in twenty to thirty minutes, after which the flow was reduced to the rate of 100 to 200 c.cm., averaging 130 c.cm. per kilo of body weight in each twenty-four hours. This was supplemented with a blood transfusion, usually given within a few hours after the venoclysis had been started. The venoclysis was continued until improvement of the condition and the child regained ability to take two-thirds to three-quarters of its fluid requirement per ounce

without any ill effect on the gastro-intestinal condition. This procedure, together with a period of milk starvation for at least thirty-six hours, and in some cases for as long as five days, as well as realimentation by frequent small feedings according to a simple milk formula, increased daily for four or five days and thereafter as indicated, was tried successfully in over 100 cases of alimentary toxicosis. Other morbid conditions cited as yielding to this form of therapy include ketosis and coma associated with cyclic vomiting and diabetic coma, acute haemorrhagic nephritis with anuria and hypertension, chronic pyuria complicated by collapse, erysipelas, almost moribund pyloric stenosis with alkalosis, primary streptococcal peritonitis, and cases of severe burn. Complications mentioned are: local infection and thrombosis, embolism, anaphylactoid reaction, and oedema. Local occlusion of veins ensued after ten to ninety-six hours in about 25 per cent. of the cases, necessitating cutting down on to a second vein if the first could not be cleared. Local thrombophlebitis was observed in four cases, all of which cleared up after the application of wet dressings for one or two days. Anaphylactoid reactions disappeared when care was taken as regards the use of freshly prepared fluids in carefully cleansed vessels and tubing, when chemically pure salts were used, and when the fluid was injected slowly. Karelitz considers venoclysis the most effective method of reducing blood concentration or serum protein, of supporting blood pressure, and relieving vasomotor collapse.

472 Aetiology of Nocturnal Enuresis

C. J. C. EARL (*Brit. Journ. Child. Dis.*, July-September, 1934, p. 205) points out that the normal adult prostate offers a certain degree of resistance to the urinary stream, rendering it less forcible than in the child. In some enuretic children there appears to be a diminished tone in the external sphincter. Bony abnormalities of the lumbosacral region are more common than is generally supposed, but no relation to enuresis has been established. A relative weakness of the sphincter vesicae compared with the detrusor in children has been mentioned, but is better expressed as either a central nervous imbalance between the lumbar and cortical centres, which exists in all children until they are trained, or else as an autonomic imbalance of the hypervagotonic type. Irritating urines do not cause incontinence but frequency, and at times retention. Certain enuretics seem to have a nocturnal polyuria, although in the ordinary polyurias enuresis is not a symptom. Nocturnal *petit mal* is rare, but almost impossible to diagnose; it would be more likely causal in the infrequent enuretics. Psychological causes include faulty training in a neuropathic type, the psychological and social maladjustments tending to fix the symptoms. The author doubts the theory of urethral erotism, but agrees that the child regresses somewhat in sleep, the extent being in some measure comparable with existing conflicts and maladjustments. When the child's bladder fills at night and afferent stimuli reach the brain, what will happen next depends on three factors: (1) the perfection of training, the "conditioning" of his cortical inhibitory centre to visceral stimuli; (2) the degree of neurosis or conflict present in so far as this increases regression; and (3) the neuronic stability of the nervous system in general. The normal child inhibits the lumbosacral centre or wakes. The neuropathic child has certainly the last two, and probably the first of these three, factors against him, and so he wets the bed. A psychoneurosis, and particularly hysteria, appears to the author the most usual cause of nocturnal enuresis. In some enuretics the bladder is not sensitive to its own contractions, while in some there is a hypotonic sphincter. The acceptance of this theory of hysteria supports the importance of training, for the tendency for conversion hysteria to present itself in a functionally inferior part of the body is well known. Psychological therapy therefore appears to be the essential part of treatment, and the more unpleasant pseudo-surgical methods or drastic dietary restrictions must be condemned.

Obstetrics and Gynaecology

473

Ante-natal Care

Describing ante-natal care in the Netherlands, SALOMONSON (*Journ. Obstet. and Gynaecol. British Empire*, August, 1934, p. 533) stresses the importance of educating the potential parents. Between 500 and 600 women—that is, 3.3 per 1,000—die every year in connexion with pregnancy. Infant mortality for Amsterdam alone is 3.28 per cent.; for the whole country 4.5. Forty-four per cent. of the mortality occurs in the first week; 60 per cent. of the live births are under supervision, with a rising "perseverance percentage" for the first year. Puerperal sepsis is the cause of 30 per cent. of the maternal deaths, the figure remaining stationary for the last ten years, as have the stillbirths, 2.5 per cent.; both inexplicable findings. The Government organization is strongly supported by private societies. Reviewing conditions which affect "extended ante-natal care," the national diet is rich in vitamins and vegetables; there are no congested urban populations; communications are good, and hospital accommodation sufficient. Tables show an increasing tendency for mothers to go to hospital, and to have doctors instead of midwives, as formerly. There are three classes of midwives: (1) The expert accoucheuse, admitted for training by competitive examination; she may undertake any normal confinement, but knows when aberrations require a doctor. (2) A second class attends the mother and baby after delivery, the midwife supervising only, thus avoiding sepsis. (3) The humbler third class assists the second, and is trained to help in housework also. Doctors and midwives are registered for all areas in proportion to the population. As complications always reach a doctor the student's training begins in his fourth year, and lasts for three years. He is in contact with the patients who come under observation at the obstetrical ambulatory service from the fourth month of pregnancy onwards. Infant welfare clinics have spread very far—350 in 250 municipalities. Combination of these with ante-natal clinics is desirable.

474

Non-surgical Aids in Normal Labour

J. VORON and H. PIGEAUD (*Gynéc. et Obstet.*, August, 1934, p. 113) write with approval of the "accouchement médical" described by Kreis, in which the course of labour is shortened and alleviated by deliberate early rupture of the membranes and by repeated injections of "spasmolyse." In their own practice several years' successful experience, with no untoward incidents for mother or foetus, has led them to recommend "accouchement dirigé," of which the significant difference from the technique of Kreis consists in the additional use, in selected cases, of pituitary extract in minimal doses. Concerning rupture of the membranes, these authors remark that the part played by the bag of waters in effecting dilatation of the cervix is now known to be insignificant, if not deterrent. Artificial rupture of the membranes during the first stage accelerates delivery. They accordingly recommend that in delivery of an average size foetus presenting normally through a normal pelvis the membranes should be ruptured when the dilatation reaches 4 cm. diameter, provided that the uterine contractions are still regular. The membranes are at the same time lacerated, and the inferior pole of the ovum is partially separated from the lower uterine segment. Subcutaneous injections of "spasalgine" are given in a large proportion of cases—a first injection towards the end of the first stage, if uterine contractions become unduly painful or frequent but vaginal examination does not show with certainty the lower segment spasm, which is probably the causal factor, repeated injections if there is palpable spasm. In some cases chloral and quinine are given as well. Pituitary extract is given subcutaneously in small doses—two international units—which are confidently regarded as incapable of producing exaggerated uterine contractions, much less a tetanic contraction. The use of this drug is recommended (1) for relative inertia in the second stage,

as an alternative to forceps application, and (2) during the first stage, when, before attainment of full dilatation, pains become feeble and relatively infrequent. Evidence is given, in hystero-graphical tracings, of the beneficial effect of spasmolyse, pituitary extract, and rupture of the membranes on the expulsive activity of the uterus.

475

Haemorrhagic Disease in the Newborn

I. N. KUGELMASS and J. E. TRIYSCH (*Amer. Journ. Obstet. and Gynecol.*, August, 1934, p. 259) have treated haemorrhagic disease in the newborn, and by ante-natal treatment prevented it in a subsequent pregnancy. Foetal blood is in equilibrium with maternal, so that ante-natal tests can be made. Lack of prothrombin, less markedly of fibrinogen, is found; or an increase of antithrombin. In a case in which a mother lost four successive infants from haemorrhagic disease, ante-natal treatment during the fifth pregnancy resulted in a healthy infant. Treatment was refused during the sixth pregnancy, accepted during the seventh. The sixth baby died of uncontrollable haemorrhage; the seventh was healthy. The clotting function of the blood was shown to improve on a high protein diet. Presumably, therefore, the agents are synthesized in the liver. A high protein diet, specially including viscera and gelatin, is prescribed. Epistaxis and similar haemorrhagic symptoms were effectively treated on these lines also.

Pathology

476

Blood Pathology in Endocarditis Lenta

A. WYDRIN (*Wien. Arch. f. innere Med.*, August 10th, 1934, p. 231) reports a series of fifty cases of endocarditis lenta (chronic bacterial endocarditis). One in four showed a streptococcus in blood culture, *S. viridans* being twice as frequent as *S. haemolyticus*; no connexion could be traced between severity of cases and the presence or absence, or the denomination, of a streptococcus in the blood. The Wassermann test was positive in four cases, all of which showed, in addition to verrucose endocarditis, evidence of syphilis in the great vessels; the view that non-syphilitic subjects with ulcerative endocarditis may show a positive Wassermann reaction is to be regarded with distrust. About one-half had well-marked hypochromic anaemia, and occasionally a hyperchromic form with increased colour index was found. Leucocytosis was present in 40 per cent., leucopenia (a very unfavourable sign) in 32 per cent. Of sixteen patients with lymphopenia all died, but eosinophilia seemed to have no prognostic importance.

477

Immunization against Contagious Abortion

W. S. LORNE (*Veterinary Record*, August 18th, 1934, p. 927) reports the results of experiments extending over four years, which indicate that the use of a killed vaccine is very effective in clearing herds of contagious abortion. He points out that, while this disease may be economically eradicated from some herds by the elimination and segregation of reactors to the blood test, these methods are not likely to be practicable in most herds owing to the extent and arrangement of the farm buildings handicapping segregation. The employment of live vaccine is objectionable in that it does nothing of itself to eliminate infection, and it removes still further any tendency to try to eliminate the disease by blood testing and segregation. Lorne is convinced that dead vaccine immunization may well prove to be the ideal method. Associated with strict attention to hygiene precautions, it affords very early and satisfactory relief from this disease, rendering segregation steps unnecessary. There seemed to be no restrictions as regards the use of this vaccine, and the inoculations can be given at any time before or during pregnancy. There may be a decided decrease in the milk yield for a day or two after inoculation.

EPITOME OF CURRENT MEDICAL LITERATURE

Medicine

478 Acute Pulmonary Congestion and Cardiac Asthma in Mitral Stenosis

S. MCGINN and P. D. WHITE (*Amer. Heart Journ.*, August, 1934, p. 697) report (1) ten cases of uncomplicated mitral stenosis, and (2) ten cases of mitral stenosis complicated by aortic valve disease or high blood pressure, in all of which attacks of acute pulmonary congestion with dyspnoea or definite wheezing were observed. The average age of the two groups was 31.3 and 50 years respectively. Eight of the ten patients in Group 2 died, within an average of two years after their first attack, and four of the first group in an average of three and a half years. In seventeen of the twenty cases exertion was the factor precipitating the attacks, in contrast to the results in a large series of cardiac asthma cases without mitral stenosis in which exertion appeared to excite attacks in only 8 per cent. In five individuals with mitral stenosis only attacks were precipitated by paroxysmal tachycardia. Six of the total twenty patients had auricular fibrillation. The attack of pulmonary congestion was fatal in two cases of uncomplicated mitral stenosis; post-mortem examination in three cases of this group showed no hypertrophy of the left ventricle. The author's view of the mechanism of the attacks is that when the heart rate is increased by effort, excitement, or paroxysmal tachycardia, the hypertrophied right ventricle of these hearts with mitral stenosis (but without heart failure) expels more blood than can pass through the mitral valve in a given time, resulting in pulmonary congestion, oedema of the lung, haemoptysis, and even death.

479 Latent Diabetes and Psoriasis

According to W. MILBRADT (*Derm. Woch.*, August 11th, 1934, p. 1045) alterations of carbohydrate metabolism, as shown by the double sugar-ingestion test of Staub and Traugott, are present in one case in three of psoriasis; but it is doubtful whether the skin disease is aggravated by the metabolic dyscrasia or provokes a latent diabetic tendency. It is advisable that patients suffering from psoriasis and found to present abnormalities of carbohydrate metabolism should receive fairly constant supervision. A case is described in which a male aged 21, suffering from psoriasis, was subjected to biological tests which were taken to justify the diagnosis of latent diabetes, although the blood-sugar level was not more than "high normal": three years later, during a recurrence of the psoriasis, the diagnosis of moderately severe diabetes was established by a history of recent thirst and by a lasting glycosuria, a high blood sugar, and a sugar-tolerance test which was only atypical by reason of a pronounced hypoglycaemic sequel, ascribed to hepatic disturbance. The last seemed to be secondary to hyperthyroidism, of which the patient had definite signs in a low degree.

480 Radiological Diagnosis of "Lobite" Tuberculosis

E. M. VAN BUSKIRK (*Radiology*, August, 1934, p. 189) considers that the term "lobite" tuberculosis is now well established to signify pulmonary tuberculosis with a definite lobar limitation, even though the lesion is undoubtedly an extensive patchy alveolitis or bronchopneumonia. He reports four personal cases; in three the disease was limited to the right upper lobe, and in the fourth to the right inferior lobe. Three varieties have been defined: in one the whole lung appears as a dense homogeneous shadow; in the second the film is similar, but a series of clean spots give the lung the appearance of scattered bread-crumbs or a honeycomb; and in the third there is a homogeneous shadow, with a cavity which is often very large, and is usually situated medially below the clavicle. This sharp delimitation of the tuberculous process can only be diagnosed by radiography, and the

author thinks that this line of investigation should be utilized more generally in routine health examinations. The incidence of lobitis is between 1 and 7 per cent. of all cases of pulmonary tuberculosis. Infants and children are rarely attacked, the patients being generally between the ages of 20 and 40, and more often women than men. The author thinks it probable that this form of inflammation does not spread to other lobes. It may appear as a recrudescence of earlier tuberculosis, or be a new exogenous infection. The symptoms usually resemble those of the ordinary incipient disease. The sputum is, as a rule, absent, or small in amount; tubercle bacilli are always found in it when it is abundant. In three out of four cases the disease starts insidiously. Adhesions are generally present, especially at the lateral edge of the fissure and at the apex. They alter the shape and situation of the fissure and the lobe when fibrous contraction occurs, or when pneumothorax is induced. Owing to the infrequency of this condition, coupled with its rather benign nature, few definite cases have come to necropsy. In one, reported in the literature, the lobe was of woody hardness, a dense fissure binding it firmly to the underlying lobe. Internally, there were knotty lesions, surrounded by a fibrous network, and more recent lesions and extensive patches of tuberculous bronchopneumonia containing tubercle bacilli. There was much interstitial sclerosis, with thickening of the blood vessels and bronchi. In the fibrous network, macrophages filled with carbon produced the typical appearance of anthracosis.

481 Radiology of Whooping-cough

F. TRILAZIC (*La Pediatria*, August, 1934, p. 921), from his observations in a paediatric clinic at Milan, came to the conclusion that the following radiological appearances may be found in the different stages of whooping-cough. At the onset of the paroxysmal stage the numerous small annular formations first described by Pincherle in 1925 are seen in the subclavian regions of both lungs, and elongated figures with more or less thickened margins. The latter represent dilatations of the small and medium-sized bronchi, while the annular formations represent tangential sections of the bronchi and possibly small areas of surrounding emphysema. At a later stage the basal triangle described by Göttsche in 1928 due to endobronchitis, endobronchiolitis, and peribronchitis is seen. The radiological picture thus faithfully reproduces the anatomical changes of whooping-cough.

Surgery

482 Fusion of the Kidneys

L. ZEISS and H. BOEMINGHAUS (*Zeit. f. Urol.*, 1934, Heft 9, p. 577) give pyelograms and clinical details of thirty cases of bilateral fusion of the kidneys (horseshoe kidney) and six of unilateral fusion, in which one ureter crosses the middle line (the so-called crossed dystopia) and the kidneys lie on the same side, one below the other, with the crossed one as a rule fused at its upper end with its fellow. From necropsy findings of Pagel the respective proportions of bilateral and unilateral renal fusion are 1 in 700 and 1 in 10,000. Owing to lack of the normal rotation of the kidney around its long axis the ureters open into the pelvis either in front or at the outer side, and the calyces open from it outwards but in various radial directions. These findings in a pyelogram, together with the demonstration of a medial and caudal displacement of the kidney, are those which enable a diagnosis to be made. It is important also that, owing to the alteration of the pelvic axes, these when prolonged meet not in the cranial but in the caudal direction. There is no characteristic symptomatology of renal fusion, and as a rule childhood and adolescence are free from suspicious signs: frequently the patient is a quasi-

neurasthenic, with vague symptoms of abdominal pain, meteorism, and spasms. If the finding of a palpable tumour, with a history of symptoms which are non-typical, leads to pyelographic examination, the diagnosis will be made with certainty. The frequency of secondary morbid conditions in fused kidneys is difficult to assess, but at necropsy two in five horseshoe kidneys show dilatation of the pelvis, often combined with infection and calculus formation. The treatment must be specially adapted to each particular case, but in all except six of Zeiss and Boeminghaus's cases it was conservative. If operation is necessary an extraperitoneal approach is desirable.

483 According to O. FRANCKE and G. CHIPAIL (*Journ. d'Urol.*, August, 1934, p. 102) the diagnosis of horseshoe kidney, thanks to a thin patient, a well-developed isthmus portion, and an easily palpable bilateral ptosis, can be made by ordinary physical examination; but usually radiographic methods are necessary, of which ascending is more important than descending pyelography. When—exceptionally in some 7 per cent. of cases, according to Leguen and Papin—the anatomical situation of the horseshoe kidney is normal, pre-operative diagnosis is impossible. Where there is abnormal position the radiological signs which are of value after pyelography are: (1) ptosis of the kidneys with medial displacement; (2) in consequence of the rotation of the kidney so that the internal border comes forward, a sagittal direction of the pelvis with radial, not unilateral, egress of the calyces; (3) sometimes a more complete rotation of the kidney, so that the hilum points outwards; and (4) the co-existence of some of these factors with congenital hydro-nephrosis.

484 Cleft Palate Surgery

R. IVY and L. CURTIS (*Ann. of Surg.*, September, 1934, p. 502) emphasize the low percentage of satisfactory results of operations for cleft palate. A good anatomical result should include not only complete closure of the cleft from side to side, but also a long, flexible, freely movable soft palate, capable of closing off the nasopharynx. If the distance between the posterior surface of the soft palate and the posterior wall of the pharynx is too great to permit contact when the soft palate is elevated, good speech cannot be expected, even though no fissure exists in the palate itself. It has been found that the operation advocated by Veau gives better anatomical results than the von Langenbeck operation in cases in which there is sufficient tissue present to make a velopharyngeal closure after operation. For those cases in which insufficiency of tissue will prevent velopharyngeal closure after the Veau operation, the Dorrance "push-back" operation gives excellent results. The varieties of cleft palate are divided into four principal forms: cleft limited to the soft palate, median cleft of the hard and soft palate, complete unilateral cleft, and bilateral cleft. When a cleft of the soft palate is present operation should be deferred until the child is from 2½ to 4 years of age. The Veau technique is used in these cases. The same applies to cases of median cleft of hard and soft palate. In cases of complete unilateral cleft it is important to correct the malposition of the premaxilla and establish continuity of the alveolar process while the bony structures are still pliable. The first operation should be carried out between 3 weeks and 3 months of age. This consists in the first-stage Veau operation on the hard palate and alveolar cleft, and closure of the lip by the Blair-Mirault technique. The cleft in the posterior part of the hard palate and soft palate is not closed until the child is over 2½ years old. When complete bilateral cleft is present this is converted into a unilateral cleft between 3 weeks and 3 months of age by doing the Veau operation on one side and closing the opposite side four weeks later. Detailed points are given of forty-three cases treated by the Veau operation and ten by the Dorrance "push-back" operation. There were no deaths and results in most cases showed considerable improvement.

Therapeutics

485 Treatment of Lymphogranuloma Inguinale

J. GRAY and J. Y. C. YIEN (*Chinese Med. Journ.*, July, 1934, p. 607) record a series of twenty-five cases of this disease in China, of which only four were female patients; the clinical course of sixteen under treatment was observed. Diagnosis was based on the Frei test, as well as on the clinical picture. The disease is characterized in the male by inguinal adenitis and the formation of fistulae; in the female by its sequelae—namely, rectal stricture and vulval elephantiasis. Potassium antimony tartrate was given in cases uncomplicated by syphilis in twice weekly intravenous injections of 5 c.cm., 7.5 c.cm., and 10 c.cm. of a freshly prepared sterile 1 per cent. solution. It gave good results in the early stages as a rule, but is not effective in the later ones. When syphilis is a complication, antisyphilitic treatment is promising. Besides these general medical measures the non-perforated glands were fomented and aspirated and the fistulae were dressed. Palliative measures, such as fulguration or dilatation of the anus or rectum by bougies, are valuable, but surgery is not indicated as a rule for the groin condition.

486 Treatment of Epidemic Encephalitis

R. A. KINSELLA and G. O. BROWN (*Journ. Amer. Med. Assoc.*, August 18th, 1934, p. 462) record their observations on 215 cases treated during the St. Louis epidemic in the summer of 1933. Besides symptomatic relief, patients received mercurochrome intravenously, transfusions of blood, and even intravenous injections of spinal fluid. The items of treatment that were commonly indicated were: (1) spinal puncture for diagnostic purposes and for the relief of headache; (2) administration of fluids, usually subcutaneously; (3) administration of liquid food by nasal tube if necessary; (4) absolute rest and, if necessary, sedation by morphine. The patient was best treated in a darkened room, free from noise and too frequent attention from nurses and doctors. In a series of 129 cases treated exclusively by this method the death rate was only 12 per cent.

487 Pathogenesis and Treatment of Hay Fever

E. URBACH (*Wien. klin. Woch.*, August 31st, 1934, p. 1073) advocates the confirmation of a diagnosis of hay fever by means of special tests, and condemns the older cutaneous and intracutaneous tests with pollen extracts as being too faulty. They may be positive when pollen, rubbed into the nose, does not cause an attack of hay fever, and may remain positive after desensitization; they may also be negative when hay fever is present. The author recommends a tampon saturated with a 20 per cent. solution of pollen extract and applied for five minutes to the mucous membrane of the nasal septum. By way of control the mucous membrane should first be touched with a tampon saturated with some bland substance to determine whether a non-specific sensitivity is present. If the test is negative a minute quantity of dried pollen should be applied to the mucous membrane. A positive result is one in which a typical attack of hay fever with tickling, sneezing, and rhinorrhoea is produced. Treatment should be by specific desensitization, and Urbach considers that this should be oral. In mild cases 2 grams of barley peptone are given on the fasting stomach daily; in severe cases grass pollen peptones are administered in 2-gram doses twice daily; in very severe cases mixed pollen peptones in 0.1 gram doses twice daily. At present there is difficulty in obtaining enough pollen, but experiments are in progress to evolve pollen-antibodies. This method of treatment has the advantage of allowing of desensitization and treatment solely during an attack of hay fever—pre-seasonal and all-the-year-round injections are condemned. There is, moreover, complete safety and painlessness, while the patient is independent of the doctor, except for the initial examination for the causal allergic factor.

Laryngology and Otology

488 Surgical Intervention in Middle-ear Suppuration

H. NEWHART (*Minnesota Med.*, August, 1934, p. 439) summarizes the indications for operation in suppurative otitis media, and concludes that it is far safer to operate too early than to wait too long. Immediate surgical intervention is required: when after adequate conservative treatment there is persistent pain and tenderness over the tip of the mastoid, and a purulent discharge has existed for one week; when there is swelling and fluctuation over the mastoid region, especially its tip, or over the zygomatic root, or when there is a hard infiltration towards the neck constituting a Bezold abscess, or whenever there is oedema of the posterior superior auricular canal wall; and when, even though all other symptoms are absent, there is a persistent discharge lasting over six weeks. Operation is urgently demanded with the onset of a rapid and severe loss of hearing, nystagmus, vertigo, nausea, and vomiting—indicating a threatened or actual labyrinthine involvement, with the possibility of extension through the internal auditory meatus, and a consequent diffuse meningitis or cerebellar abscess. The appearance of a facial paralysis may signify destruction in the direction of the vestibule, and an impending endocranial complication. It therefore calls for prompt surgery, as also does the appearance during otitis media of paralysis of the abducens nerve, accompanied with homolateral headache and pain in the eyeball, which frequently indicates involvement of the petrous cells. Symptoms pointing to the beginning of an endocranial complication demand an exploratory operation, and delay for the formation of a capsule round the infected focus should not be unduly prolonged. Newhart points out the urgency of securing a dry ear in chronic suppurative otitis media, since continuance of the discharge indicates that the deeper parts of the bone are diseased, the affected regions being often surrounded by sclerosed areas. Even an x-ray examination may not reveal the full seriousness of the condition. Under conditions of lowered resistance an alarming flare-up of the infection may occur. The author believes that an appreciable number of deaths under the age of 30 are due to ear diseases; and that these deaths are more often preventable than is generally realized.

489 Otitis in Sucklings

According to M. LITSCHKUS (*Münch. med. Woch.*, September 28th, 1934, p. 1492) there is a common connexion between non-alimentary intestinal intoxications in sucklings and suppuration in and around the middle ear, the suppuration being in the majority of cases the primary condition. Otitis in infancy is frequent, and is often undiagnosed. To see the drum is always possible, given sufficient patience and skill in the observer. Careful cleansing of the external auditory canal is usually a necessary preliminary: it must be remembered that 0.7 to 1 cm. from the external meatus the canal bends forward and thence runs inwards and downwards, and that the auricle should not be pulled upwards and backwards, but slightly backwards and more strongly downwards. Litschkus remarks that although conflicting views are held as to the priority of the morbid ear conditions in infants in whom these coexist with alimentary intoxications, the rapid and almost magic effect on the latter of treatment of the former—for example, by paracentesis—is universally admitted: he records further illustrative cases.

490 Nasal Sinus Disease in Children

W. MITHOEFFER (*Laryngoscope*, October, 1934, p. 789) believes that the start of the chronic nasal sinus disease of adult life can in many cases be traced to overlooked disease in childhood. The initial infection is the chronic nasopharyngitis of infancy and later, and from this port of entry the disease may travel upward into the nose and accessory cavities, as well as into the ear, the trachea, and bronchi. The author considers that each child suffering from recurrent attacks of nasopharyngitis followed by sinus diseases should be considered as having a con-

stitutional defect, and should be treated persistently. In many instances it will not be enough to remove the irritant and desensitize the patient: it will be necessary often to establish free nasal respiration by removing the hypertrophied overhanging edge of an inferior turbinate, infract the turbinate to the lateral wall, and correct a deviated septum. The author has had good results from this procedure, which is only undertaken when other methods have failed to bring about free nasal respiration. Removal of infected adenoid masses is similarly important, and during any such operation the accessory sinuses should always be examined, since failure to respond to it or to tonsillectomy is often due to undetected accessory sinusitis. Thyroid deficiency is often to be found in such children, especially when the nasal condition is the sequel of one of the exanthemata. Specific treatment is quickly beneficial, and chronic intestinal stasis may clear up simultaneously. To these may be added a high vitamin diet, instruction in nasal hygiene, and a course of hydrotherapy which will accelerate elimination, improve the nervous tone and general metabolism, and train the cutaneous resistance to heat and cold, thereby improving the circulation of the blood.

491 Supraglottic Tumours

Basing his conclusions on a series of 539 cases of malignant tumour of the larynx examined at the Mayo Clinic, F. A. FIGI (*Arch. of Otolaryngol.*, September, 1934, p. 361) reviews the therapeutics of this condition, and emphasizes certain unusual methods of approach. He agrees that the various types of pharyngotomy, with or without preliminary tracheotomy, remain the most satisfactory means of exposing these growths in most cases. Laryngofissure; splitting the lower lip, mandible, and tongue in the median line; indirect laryngoscopy; laryngeal suspension; and other forms of direct laryngoscopy are useful in selected cases. Following its exposure, the tumour may be dealt with by excision, cauterization, electrocoagulation, or irradiation. In some of the clinic cases laryngeal suspension with the Lynch apparatus was applied and, under direct observation, the neoplasm of the epiglottis or of the remainder of the supraglottic portion of the larynx was widely destroyed by electrocoagulation. The time required varies with the size of the tumour, its vascularity, and the dryness of the field. Figi believes that growths which are limited to the epiglottis can often be treated quite as satisfactorily and with less risk by diathermy and laryngeal suspension. Only inactive, fungating, or pedunculated lesions of limited extent should be subjected to this, however. Irradiation is a valuable adjunct to the surgical treatment of supraglottic tumours, but should rarely be used alone in such cases. Sarcomas often respond well. At the clinic indirect laryngoscopy is used almost entirely among adults for the removal of localized benign laryngeal tumours. Figi finds that with patients who co-operate, and with well-cocainized larynges, it is possible to undertake rather extensive procedures thus quite as satisfactorily as with a laryngeal suspension. The author considers the Hasslinger directoscope less satisfactory for the removal of benign and well-localized inactive malignant tumours of the upper part of the larynx, although it usually affords a fairly satisfactory view of pathological changes in this situation.

492 The Reticulo-endothelial System in Oto-rhino-laryngology

A. INFERRERA and A. DE BLASI (*Arch. Ital. di Otol., Rinol. e Laringol.*, November, 1934, p. 829) examined the reticulo-endothelial system by Adler and Reimann's Congo-red method in ten patients aged from 9 to 22 years, the subjects of enlarged tonsils and adenoids but not suffering from any other affection. In all but one case, in which it was fairly high (85) owing to the presence of acute mastoiditis, the Congo-red index was within the normal limits of 50 to 70. In view of the smaller number of cases the writers do not feel justified in drawing definite conclusions, which they postpone until they have collected a larger number of cases.

Obstetrics and Gynaecology

Pathology

493 Minor Complaints of Pregnancy

C. J. MARSHALL (*New York State Journ. Med.*, August 15th, 1934, p. 737) records a series of 165 consecutive private patients, 116 primiparae and 49 multiparae, in whom the minor symptoms of pregnancy and their treatment were studied. Abdominal pain was noted in 83 per cent., in the lower part of the abdomen as a rule. During the first three months it seemed to be attributable to the corpus luteum of pregnancy, and gave rise to suspicions of appendicitis when occurring on the right side. There was sometimes some epigastric distress, possibly due to cardiospasm or slight liver necrosis. During the later months of pregnancy there was pain over the lower lateral surfaces of the uterus and in the inguinal region, probably attributable to the stretching of the round ligaments as the uterus enlarged. Lying upon the painful side relieved it. Unrelieved constipation and gas distension of the colon caused pain in the hepatic and splenic flexures. Muscle cramps of the lower extremities occurred in 68 per cent., usually during the night and early morning. Marshall does not consider them due to an attempt to rectify the body balance, and found benefit result from walking and brisk massage of the leg, associated sometimes with calcium and parathyroid therapy, although calcium gluconate and viosterol were of little use. Backache (60 per cent.) was due to several causes, including strain of the muscles and vertebral ligaments, fallen arches, and referred pain from the enlarging uterus when it proved to be unrelieved by rest. Sacro-iliac relaxation was usually unilateral. Nausea (in primiparae 81 per cent., and in multiparae 65 per cent.) was one of the most distressing complaints. Various therapeutic measures were tried, but the author prefers rest in bed, acid foods, and occasional doses of sodium amylal. Corpus luteum, given subcutaneously, seemed to be useless. Heartburn (45 per cent.) was most common in the last five months of pregnancy. Milk seemed to relieve it, as did the avoidance of fried foods, sweets, highly spiced meats, raw fruits and vegetables, and coffee. An antacid powder containing bismuth subcarbonate, light magnesium oxide, and calcium carbonate, taken one hour after meals, was helpful. Constipation (73 per cent.) was treated by laxatives such as phenolphthalein or cascara, supplemented by an occasional enema. Oedema (74 per cent.) was relieved by one or two drachms of magnesium sulphate daily, and occasionally a salt-poor diet seemed to be of use. Insomnia (15 per cent.) was usually of nervous origin, and was dealt with accordingly. Profuse vaginal discharge (13 per cent.) was treated with a morning and evening douche of sterile 1 per cent. sodium bicarbonate solution, the vagina being cleansed with green soap and painted with 10 per cent. aqueous mercurochrome.

494 Local Anaesthesia with Percaine in Induction of Abortion

G. KRÄCHER (*Wien. klin. Woch.*, August 17th, 1934, p. 1018) describes 102 cases in which percaine in 0.5 per cent. solution (adrenaline being added) was injected in amounts of about 25 c.cm. each into the right and left paracervical nerve plexuses, for securing local anaesthesia in patients who required interruption of pregnancy on account of pulmonary tuberculosis, but for the same reason were unsuitable for inhalation narcosis. In sixty-six cases the anaesthesia was satisfactory in all respects; in twenty-two slight pain was reported and there was some restlessness; in the ten failures ether had to be given. Complications during, or more usually after, the operation were noted in sixteen cases—pallor, tachycardia, headache, and/or mental disturbance; whether attributable to quinine intoxication or to shock, the patients responded to subcutaneous injections of ephedrine. General anaesthesia, it is conceded, is preferable in very nervous subjects.

495 Immunization Power of the Plague Bacillus

H. SCHÜTZE (*Brit. Journ. Exper. Path.*, August, 1934, p. 290) has studied the resistance of the envelope antigen of the plague bacillus to heat and changes in pH. He has previously shown that this particular antigen is fully developed only when the organisms are grown at 31° to 37° C., and that it is responsible for the stimulation of protective antibodies when inoculated into rats. Plague vaccine, made from cultures grown on agar at 37° C. for four days, was sterilized at various temperatures, and doses of similar size were given intravenously to rabbits. Six animals were used for each type of vaccine. After three inoculations the rabbits were bled and the sera tested against a series of envelope antigen dilutions for their precipitin content. The results showed that vaccine heated to 56° C. for half an hour retained its envelope antigen unimpaired, while a temperature of 80° C. completely destroyed its power of exciting precipitin formation. It is to be noted, however, that the 80° C. antigen was still capable of reacting *in vitro* with a precipitating serum; the effect of heat had been to degrade it from a complete antigen to a haptene. In a second series of experiments the growth from a three-day agar culture was washed off with saline and found to have a reaction of pH 8. Part of this suspension was heated at 56° C. for half an hour, while another part was adjusted by the addition of acetic acid to pH 7.3 before heating. Equal doses of each vaccine were then inoculated into batches of six rabbits. It was found that the neutralized suspension called forth a considerably higher precipitin formation than the original suspension of pH 8. The practical conclusions, according to the author, are that for plague vaccine to be of maximum efficiency it should be neutralized before heating and should be killed at a temperature not exceeding 56° C.

496 Experimental Infection with Molluscum Contagiosum

M. OTA and P.-T. HUANG (*Derm. Woch.*, August 11th, 1934, p. 1054, and August 18th, 1934, p. 1077) have not been able to confirm other observers' reports of the transmissibility of molluscum contagiosum from one human to another; they have succeeded, however, in conveying the virus by injecting an emulsion of a nodule into the parenchyma of the rabbit's testicle. A variable latency is seen, swelling and granuloma formation occurring in some series of experiments in the first animals injected, in other series only after several transmissions from rabbit to rabbit. After filtration through porcelain the results were negative. The histological findings were congestion and cellular infiltration of the tunica vasculosa and interstitium, as well as the formation of nodular granulomata with central necrosis. Similar findings have been made with injection of varicella and variola virus. Lipschutz bodies could be found by staining smears from the infected testes, but Ota and Huang speak with reserve of their significance.

497 Infectious Mononucleosis

C. A. STUART, A. M. BURGESS, H. A. LAWSON, and H. E. WELMAN (*Arch. Int. Med.*, August, 1934, p. 199) record their observations on the cytological and serological aspects of twenty-eight sporadic cases of infectious mononucleosis. The morphological characteristics of the predominant blood cell at the height of the disease suggested that it was an immature lymphocyte, and this view was supported by the supravital staining methods employed. Amitosis of lymphocytes in the circulating blood similar to that noted in lymphatic leukaemia was found. Although the writers' observations confirm the contention of Paul and Bunnell that the sheep-cell agglutination test is a valuable aid in the diagnosis of infectious mononucleosis, they point out that this test, if unsupported by clinical and cytological evidence, may result in a false diagnosis.

